BEFORE THE KARNATAKA ELECTRICITY REGULATORY COMMISSION AT BANGALORE

PETITION NO. OF 2026

IN THE MATTER OF:

Petition under Section 63 of the Electricity Act, 2003 seeking adoption of Transmission Charges of the Intra State Transmission Project i.e., *Evacuation Scheme for 2000 MW Solar Park at Ryapte Village, Tumkur District*

AND

IN THE MATTER OF:

Ryapte Power Transmission Limited ...Petitioner

Versus

Karnataka Power Transmission Corporation Limited (KPTCL) & Anr.

...Respondents

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THROUGH

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Place: New Delhi
Date: 06.08.2026

BEFORE THE KARNATAKA ELECTRICITY REGULATORY COMMISSION AT BANGALORE

PETITION NO. OF 2026

IN THE MATTER OF:

Petition under Section 63 of the Electricity Act, 2003 seeking adoption of Transmission Charges of the Intra State Transmission Project i.e., *Evacuation Scheme for 2000 MW Solar Park at Ryapte Village, Tumkur District*

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...Respondents

MEMO OF PARTIES

Ryapte Power Transmission Limited
Through its Authorised Representative
Plot No 181, Ground Floor,
Block- K, Mangolpuri, Delhi-110083 ...Petitioner

VERSUS

1. Karnataka Power Transmission Corporation Limited (KPTCL)
   Through its Managing Director
   Kaveri Bhawan, Bengaluru Karnataka ...Respondent No. 1

2. REC Power Development and Consultancy Limited
   Through Authorized Representative
   Core 4, SCOPE Complex 7,
   Lodhi Road, New Delhi 110003
   Email: tbcb@recpdcl.in ...Respondent No. 2

Ryapte Power Transmission Limited

THROUGH:

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Ryapte Power Transmission Limited

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MOST RESPECTFULLY SHOWETH:

A. Executive Summary of the Petition

(i) **Brief background of the Petitioner**

1. Ryapte Power Transmission Limited ("**Petitioner**"/ "**Applicant**"/ "**RPTL**") is a wholly owned subsidiary of The Tata Power Company Limited ("**TPCL**") and was incorporated as a Special Purpose Vehicle ("**SPV**") for implementation of Intra-State Transmission System ("**InSTS**") known as "*Evacuation Scheme for 2000 MW Solar Park at Ryapte Village, Tumkur District*" in the State of Karnataka ("**Project**").

Ryapte Power Transmission Limited

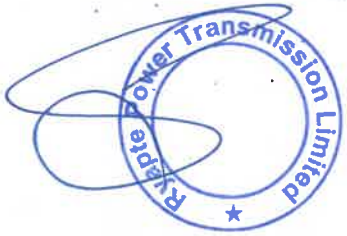
(ii) **Brief background of the Respondents**

2. Respondent No.1 is Karnataka Power Transmission Corporation Limited ("**KPTCL**") established under the Companies Act, 1956. It has been designated as the nodal agency for the Project in terms of Government Order bearing reference No. ENERGY 73 PPT 2024, Bangalore, dated 21.05.2026. KPTCL is the State Transmission Utility ("**STU**") under Section 39 of the Electricity Act, 2003 ("**Act**") and is *inter alia* responsible for planning and coordination of InSTS within the State of Karnataka and is responsible for making payment of transmission charges on behalf of the Electricity Supply Companies ("**ESCOMs**")/ Long Terms Transmission Customers ("**LTTCs**") in terms of the Request for Proposal dated 07.03.2026 ("**RfP**") and the Transmission Service Agreement dated 30.07.2026 ("**TSA**").

3. Respondent No. 2 i.e., REC Power Development and Consultancy Limited ("**Respondent No. 2 / REC**") is a wholly owned subsidiary of the REC Limited, and is a company incorporated under the Companies Act, 1956. REC has been appointed as a bid process coordinator ("**BPC**"), by the Government of Karnataka *vide* Government Order bearing reference no. ENERGY 73 PPT 2024 notified on 04.03.2025, for the purpose of selection of bidder as Transmission Service Provider ("**TSP**") for establishment of InSTS for implementation of the Project through Tariff Based Competitive Bidding Process ("**TBCB**").

(iii) **Brief Background of the Project**

4. The Present Petition is being filed by the Petitioner under Section 63 of the Act seeking adoption of transmission charges of the InSTS known as



"*Evacuation Scheme for 2000 MW Solar Park at Ryapte Village, Tumkur District*" in the State of Karnataka, through TBCB on build, own, operate and transfer basis. The said Project consists of the following elements:

"...

Sl. No.	Scope of Transmission Scheme	Scheduled COD in months from Effective Date
1.	Establishment of 5x500 MVA, 400/220 kV S/s at Ryapte in Tumkur District along with 2x125MVAr 400 kV Bus Reactors • 400/220 kV ICTs: 5 Nos. (5x500 MVA) • 400 kV ICT Bays: 5 Nos. • 400 kV Line bays (along with space provision for switchable line reactors): 2 Nos. • 125 MVAr, 420 kV Bus reactor – 2 Nos. • 400 kV Bus reactor bay: 2 Nos • 220 kV ICT Bays: 5 Nos • 220 KV line Bay - 8 No. • 220 kV TBC bay – 2 No. • 220 kV BC bay – 2 No • 220 kV Sectionalization bay: 1 set • 400 kV Bus PT bay- 2 Nos • 220 kV Bus PT bay- 4 Nos **Space For Future Provision:** • 400/220 KV ICTs - 5 Nos. • 400 KV ICT bay – 5 Nos. • 400 kV Bus Reactor: 3 Nos • 400 kV Bus Reactor bays: 3 Nos • 220 kV ICT Bays: 5 Nos • 220 Kv line bays – 8 Nos • 400 kV Line bays (along with space provision for switchable line reactors): 4 Nos.	30 months
2.	400kV DC line (Quad moose conductor) from Prop. 400/220 kV Ryapte Sub-station to Prop. 400/220 kV Doddathaggalli S/s.	
3.	Establishing 3X500 MVA, 400/220kV GIS sub-station at Doddathaggalli (Near Hosakote) along with 2x125 MVAr, 400 kV Bus Reactors. • 400/220 kV ICTs: 3 no. • 400 kV ICT Bays: 3 Nos	

Ryapte Power Transmission Limited

	• 400 kV Line bays : 4 Nos • 125 MVAr, 420 kV Bus reactor – 2 No • 400 kV Bus reactor bay: 2 Nos • 220 kV ICT Bays: 3 Nos • 220 kV Line bays: 6 Nos. • 220 kV BC bay – 1 No • 400 kV Bus PT bay- 2 Nos • 220 kV Bus PT bay- 2 Nos **Future Provision:** • 400 kV line bays – 4 Nos. • 400/220 kV ICTs - 2 Nos. • 400 kV ICT bays - 2 Nos • 400 kV Bus Reactor: 2 Nos. • 400 kV Bus Reactor bays: 2 Nos. • 220 kV ICT Bays: 2 Nos • 220 kV Line bays: 4 Nos	
4.	400kV DC line (Quad moose conductor) from Kolar S/s to Prop. 400/220 kV Doddathaggalli Sub-station with following works at Kolar S/s:- *One circuit of Kolar – Doddataggalli 400kV (quad) D/c line may be terminated in existing vacant bay no. 415 at Kolar S/s. Other circuit may be terminated in new GIS diameter with 2-CB scheme. This option requires following main elements:* • *Termination of one circuit in the spare 400kV AIS bay no. 415 by providing required bay equipment to complete the 400kV Dia (413.414 and 415 bays)* • *Construction of 2 nos. 400kV outdoor GIS bays in 2 CB configuration for termination of other circuit* • *Extension of 400kV Main Bus-I and II through GIB duct to proposed 400kV outdoor GIS bays with AIS isolators* • *Dismantling and re-erection of one no. LM ,if required* Further, any requirement suggested by substation owners shall be followed as per site condition	
5.	220kV DC line with Single Zebra and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions) from proposed 400/220 kV Doddathagalli sub-station to 220kV Ekarajapura sub-station with 2 No.s of AIS TB at Ekarajapura S/s with rearrangement/Shifting of existing Bus PT bay	

PNaple Power Transmission Limited

	Note: The Tower design shall be suitable for TWIN Zebra.	
6.	220kV DC line with partial AAAC Moose and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions), from proposed 400/220 kV Doddathagalli sub-station to proposed 220kV Hosakote New sub-station.	
7.	220kV DC line with Single Zebra and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions) from proposed 400/220kV Doddathagalli to Sarjapura AIS S/s with 2 No.s of outdoor GIS TB at Sarjapura S/s by extending existing AIS bus bar along with AIS isolator Note: The Tower design shall be suitable for TWIN Zebra.	

Note:

1. *KPTCL to provide land for the construction of 5x500 MVA, 400/220 kV S/s at Ryapte in Tumkur District.*

   The land will remain under the ownership of KPTCL and a MoU between KPTCL and the TSP shall be executed for use of land.

   Currently, 150 Acres of land is identified for the substation and acquisition of land is under progress. The Land Cost of Rs 33,00,00,000 /- (as fixed by the DC, Tumkuru Dist) has to be borne by the TSP.

   At the time of execution of work, difference in land cost, if any, shall be borne by the TSP. Further applicable GST & Statutory payments shall be paid by the TSP.

   KPTCL shall hand over possession of the land to the TSP upon completion of the requisite formalities.

2. *KPTCL to provide land for the construction of 3x500 MVA, 400/220 kV GIS sub-station at Doddathagalli in Bangalore Rural District.*

   The land will remain under the ownership of KPTCL and a MoU between KPTCL and the TSP shall be executed for use of land.

   Currently, 16 Acres of land is identified for the substation and acquisition of land is under progress. Onetime Land Cost of Rs 11,20,00,000 /- arrived based on the prevailing guidance value has to be borne by the TSP.

Ryapte Power Transmission Limited

At the time of execution of work, difference in land cost, if any, shall be borne by the TSP. Further applicable GST & Statutory payments shall be paid by the TSP.

KPTCL shall hand over possession of the land to the TSP upon completion of the requisite formalities.

3. *TSP to pay onetime charges (arrived as per KPTCL norms based on the prevailing guidance value) for use of land and common infrastructure for bay extension works at the existing Substation of KPTCL as cited below:*

   220kV Sarjapura S/s Rs 2,02,22,250/- (inclusive of GST)

   220kV Ekarajapura S/s Rs6,51,29,338/- (inclusive of GST)

   At the time of execution of work, difference in land cost, if any, shall be borne by the TSP.

   Operation and Maintenance (O&M) of the bays constructed by the TSP within existing KPTCL substations shall be undertaken by KPTCL. The O&M charges shall be recovered by KPTCL from TSP as per the rates prescribed by KERC from time to time.

   An O&M agreement shall be executed between KPTCL and the TSP in this regard and the agreement will be in line with the Standard Format for Memorandum of Understating between New TSP and Existing TSP" issued by CEA vide its letter No. I/28514/2023 dated 22.06.2023

4. *220 kV Line Bays at Prop. 220kV Hosakote New substation can be utilized for termination of 220 kV Doddathaggalli - Hosakote New substation DC Line.*

   The proposed 220kV Hosakote New substation is under bidding process (TBCB MODE), Hence any modalities related to use of land, O&M of bays, and any other applicable charges, TSP may co-ordinate with the successful bidder of Hoskote new Substation."

5. It is pertinent to note that TPCL, the current holding company of the Petitioner, participated in the competitive bidding process conducted by REC and subsequently on 23.04.2026, TPCL was declared as the successful bidder by REC, in pursuance to the e-reverse auction ("**e-RA**"), with the lowest levelized transmission charges of INR 5210.71 Million (Indian Rupees Five Thousand Two Hundred Ten Million Seven

Ayana Power Transmission Limited

Hundred Ten Thousand Only) per annum. The TBCB process was conducted in terms of the RfP and in accordance with Guidelines for Encouraging Competition in Development of Transmission Projects and the Tariff Based Competitive-bidding Guidelines for Transmission Service dated 10.08.2021 ("**TBCB Guidelines**") issued by the by Ministry of Power, Government of India ("**MoP**") under Section 63 of the Act.

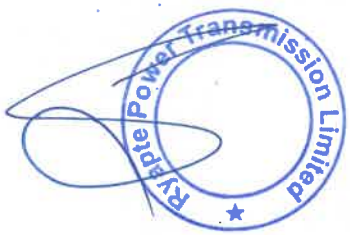
6. That the present Petition is been filed by the Petitioner, under Section 63 of the Act seeking adoption of transmission charges of INR 5210.71 million (Indian Rupees Five Thousand Two Hundred Ten Million Seven Hundred Ten Thousand Only) per annum by this Hon'ble Commission pursuant to the TBCB process conducted by the BPC.

B. DETAILED PETITION

(i) Complete process of Competitive Bidding Process followed for selection of bidder, including key milestones with relevant information annexed

7. On 20.01.2025, the Government of Karnataka issued its Order constituting the Bid Evaluation Committee ("**BEC**") for implementation of the Project. A copy of Government Order dated 20.01.2025 issued by the Government of Karnataka constituting BEC is annexed herewith and marked as **Annexure P-1**.

8. Further, it is submitted that on 04.03.2025, the Government of Karnataka passed its order bearing No. Energy 73 PPT 2024 ("**Government Order**") by way of which, the implementation of the instant Project in



accordance with the TBCB Guidelines was approved by the Government of Karnataka.

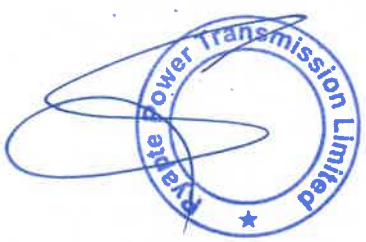
A copy of Government Order dated 04.03.2025 is annexed herewith and marked as **Annexure P-2**.

9. Pursuant to aforesaid Government Order, REC was appointed as BPC for the selection of TSP through TBCB for establishing the InSTS System for "*Evacuation Scheme for 2000 MW Solar Park at Ryapte Village, Tumkur District*" in State of Karnataka.

10. Further, in terms of the Government Order bearing reference No. ENERGY 73 PPT 2024, Bangalore, dated 21.05.2026, the Government of Karnataka nominated KPTCL as the Nodal Agency for all InSTS projects of Karnataka to be executed through TBCB process.

A copy of Government Order dated 21.05.2026 issued by the Government of Karnataka nominating KPTCL as Nodal Agency for InSTS projects in Karnataka is annexed herewith and marked as **Annexure P-3**.

11. In furtherance of the bidding process, the Petitioner was incorporated on 21.05.2025 by REC as its wholly owned subsidiary with the objective to initiate activities for implementation of the Project, and thereafter for the Petitioner to act as the TSP upon being acquired by the successful bidder selected through TBCB process. In this regard, copy of the Certificate of Incorporation of the Petitioner company, dated 21.05.2025 is annexed herewith and marked as **Annexure P-4**. Further, a copy of the Memorandum of Association ("**MoA**") and Articles of Association



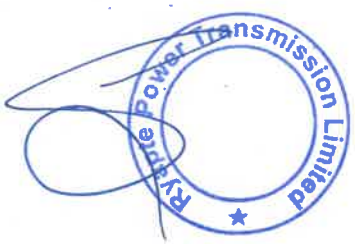
("**AoA**") of the Petitioner is attached hereto and marked as **Annexure P-5 (Colly.)**.

12. In furtherance to the above, the BPC issued request for proposal dated 10.06.2025. Further, the global invitation inviting proposals for the bidding was duly published in seven daily newspapers. It is submitted that REC had issued 1st clarification dated 18.09.2025 and 2nd clarification dated 14.11.2025 to the request for proposal dated 10.06.2025. Copies of 1st clarification dated 18.09.2025 and 2nd clarification dated 14.11.2025 issued by the REC are annexed as **Annexure P-6 (Colly.)**.

13. On 16.09.2025, REC issued a letter to the Conservator of Forest, Kamagondanahalli, requesting for forest clearance for the implementation of the Project. A copy of the letter dated 16.09.2025 issued by REC to the Conservator of Forest is attached hereto and marked as **Annexure P-7**.

14. Further, On 08.10.2025, the Petitioner had issued a letter to the KPTCL requesting for approval from KPTCL for laying of overhead transmission lines under Section 68 of the Act. A copy of the letter dated 08.10.2025 issued by the Petitioner to the KPTCL is attached hereto and marked as **Annexure P-8.**

15. Subsequently, *vide* letter dated 09.03.2026, REC informed the Petitioner that the bidding process initiated *vide* request for proposal dated 10.06.2025 has been annulled and the same has been re-initiated *vide* Notice Inviting Tender dated 07.03.2026 ("**NIT**"). Further, along with the letter dated 09.03.2026, REC had also issued various documents,



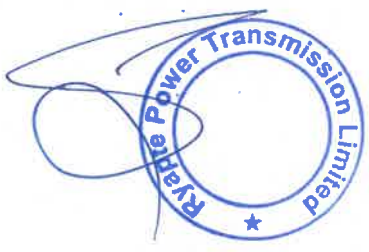
including copies of (a) RfP along with clarifications, (b) Draft Transmission Service Agreement, (c) Draft Share Purchase Agreement for the bidding process, (d) one CD containing the copies of the RFP, TSA and SPA, (e) survey report along with Route Alignment Drawings, and (f) one CD containing the above report and drawings.

A copy of letter dated 09.03.2026 issued by REC is attached herewith and marked as **Annexure P-9**.

The copy of RfP along with NIT dated 07.03.2026 with all the clarifications issued thereto, along with the global invitation for qualification published in the newspapers are annexed herewith and marked as **Annexure P-10 (Colly.)**.

16. It is submitted that in compliance with the TBCB Guidelines, on 11.03.2026, the BPC initiated the bid process and duly intimated this Hon'ble Commission and the Government of Karnataka regarding such initiation, including the publication of bid-related notices and uploading of the bidding documents. A copy of letter dated 11.03.2026 issued by BPC to this Hon'ble Commission and a copy of letter dated 11.03.2026 issued by BPC to Government of Karnataka is annexed hereto and marked as **Annexure P-11 (Colly.)**.

17. Meanwhile on 23.03.2026, REC issued a letter to TPCL stating that as per the requirement of Clause 1.5 of the RfP, the tentative acquisition price payable by the selected bidder to BPC, for acquisition of one hundred percent (100%) of the equity shareholding of the Petitioner is INR 1074.48 Lakhs (Indian Rupees Ten Crore Seventy Four Lakhs Forty



Eight Thousand Only). A copy of the letter dated 23.03.2026 issued by the REC to TPCL is attached hereto and marked as **Annexure P-12**.

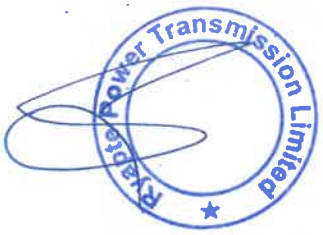
18. On 01.04.2026, the REC issued additional clarifications to the RfP, related to the scope of the transmission system. A copy of the clarifications to the RfP issued by REC on 01.04.2026 to TPCL is attached hereto and marked as **Annexure P-13.**

19. In terms of Clause 2.15.2 of the RfP, the successful bidder is required to acquire 100% of the equity shareholding of the SPV along with all its assets and liabilities and thereafter implement the Project on build, own, operate and transfer basis.

20. It is submitted that TPCL was one of the bidders that participated in the bidding process for the Project. Accordingly, on 06.04.2026, TPCL submitted its Technical Bid and Financial Bid to REC. A copy of the letter dated 06.04.2026 issued by TPCL to REC providing the Technical and Financial Bid is attached hereto and marked as **Annexure P-14**.

21. On 10.04.2026, REC issued a letter to TPCL requesting TPCL to provide certain documents/ clarifications with regard to the bid submitted by TPCL. A copy of the letter dated 10.04.2026 issued by REC to TPCL is attached herewith and marked as **Annexure P-15**.

22. In response to the clarifications sought by REC, TPCL *vide* letter dated 10.04.2026 issued its clarifications to REC. The said clarification was also uploaded by TPCL on the MSTC e-auction portal on 10.04.2026, as per the instructions of REC. A copy of the letter dated 10.04.2026 issued by TPCL to REC is attached herewith and marked as **Annexure P-16**.



23. Thereafter, *vide* letter dated 14.04.2026, REC informed TPCL that it was declared as a 'Qualified Bidder' in accordance with Clause 3.2 and 3.4 of the RfP. A copy of the letter dated 14.04.2026 issued by REC to TPCL is attached herewith and marked as **Annexure P-17**.

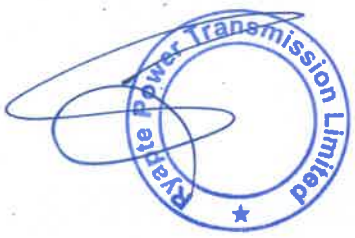
24. Thereafter, REC *vide* its letter dated 15.04.2026 invited TPCL to participate in the e-RA which was to be conducted on 16.04.2026. A copy of the letter dated 15.04.2026 issued by REC inviting TPCL for e-RA is attached hereto and marked as **Annexure P-18**.

25. On 16.04.2026, REC issued email to TPCL, thereby requesting TPCL to submit original hard copies of the documents as required under Clause 2.5.2 of the RfP latest by 21.04.2026. The relevant extract of Clause 2.5.2 of the RfP is reproduced as herein under:

> *"In addition to the online submission of above formats through the electronic platform, the Bidder with lowest Final Offer will be required to submit original hard copies of Annexure 3, Annexure 4 (if applicable), Annexure 6 (if applicable) and Annexure 14 before issuance of LoI. In case, there is a discrepancy between the online submission and physical documents, the bid would be out rightly rejected and the bidder shall be construed to have engaged in the fraudulent practice as defined in Clause 2.19.3 with consequences as mentioned in Clause 2.19.2".*

A copy of the email dated 16.04.2026 issued by REC to TPCL is attached hereto and marked as **Annexure P-19**.

26. In response to the aforesaid letter, on 17.04.2026, TPCL issued its letter to REC submitting the relevant documents in terms of the email dated 16.04.2026 issued by REC within the applicable timelines. A copy of the letter dated 17.04.2026 issued by TPCL to REC is attached hereto and marked as **Annexure P-20**.



27. Subsequently, the BEC held its meeting for evaluation of the bids placed by the bidders wherein TPCL was declared as the L1 bidder at the quoted transmission tariff of INR 5210.71 million (Indian Rupees Five Thousand Two Hundred Ten Million Seven Hundred Ten Thousand Only) per annum. Accordingly, a Certificate was issued by BEC on 23.04.2026 in terms of TBCB Guidelines. A copy of BEC Certificate dated 23.04.2026 is annexed herewith and marked as **Annexure P-21**.

28. In response to the letter dated 08.10.2025 issued by the Petitioner, the Government of Karnataka *vide* letter dated 05.06.2026 granted the approval to the Petitioner under Section 68 of the Act, for laying of overhead transmission lines. A copy of the letter dated 05.06.2026 granting approval under Section 68 of the Act is attached hereto and marked as **Annexure P-22**.

29. Thereafter, the BPC issued the Letter of Intent dated 17.06.2026 ("**LoI**") in accordance with which TPCL was required to unconditionally accept the terms of the LoI within seven (7) days of its issuance. Accordingly, TPCL *vide* its letter dated 22.06.2026 to REC, issued its unconditional acceptance of the LoI.

A copy of the LoI dated 17.06.2026, issued by REC to TPCL alongwith all its enclosures is attached hereto and marked as **Annexure P-23**.

A copy of the letter dated 22.06.2026 issued by TPCL to REC is attached hereto and marked as **Annexure P-24.**

30. On 30.06.2026, the MoP issued a letter to REC, granting its approval for the sale and transfer of the Petitioner to the successful bidder selected through competitive bidding process i.e., TPCL. A copy of the letter

Ryalpie Power Transmission Limited

dated 30.06.2026 issued by the MoP is attached hereto and marked as '**Annexure P-25**.

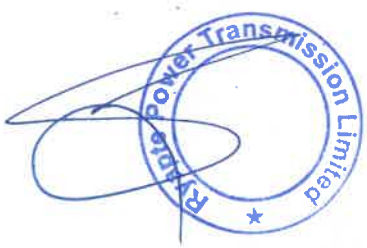
31. In furtherance to the above, TPCL completed the due diligence on 29.07.2026. Meanwhile, on 17.07.2026, REC communicated the details of acquisition price of the SPV as INR 10,86,62,034/-, and *vide* email dated 22.07.2026 informed of the date of execution of the SPA and TSA as 30.07.2026. A copy of the letter dated 17.07.2026 and email dated 22.07.2026 issued by REC to TPCL regarding the details of the acquisition price of the SPV and the date of execution of the SPA and TSA is attached hereto and marked as **Annexure P-26**.

32. In accordance with Clause 2.15.2 of the RfP, TPCL proceeded as follows:

a. On 27.07.2026 TPCL issued the Contract Performance Guarantee ("**CPG**") on behalf of TPCL, amounting to INR 52.33 Crores (Indian Rupees Fifty Two Crores and Thirty Three Lakhs Only) was issued in favour of the nodal agency i.e., KPTCL, as provided for under Clause 2.12.1 of the RfP.

A copy of the CPG issued on behalf of TPCL to KPTCL is attached hereto and marked as **Annexure P-27**;

b. On 30.07.2026, TPCL executed the Share Purchase Agreement ("**SPA**") i.e., a tripartite agreement with REC and the Petitioner upon having made the payment of the acquisition price of Rs. INR 10,86,62,034/- on 28.07.2026 for the acquisition of 100% equity shares of the Petitioner.



A copy of the executed SPA dated 30.07.2026 and the proof of payment of the acquisition price by TPCL is attached hereto and marked as **Annexure P-28** and **Annexure P-29** respectively.

33. On 30.07.2026, the Petitioner also entered into a TSA with KPTCL for the implementation of the Project. A copy of the TSA entered into between the Petitioner and KPTCL on 30.07.2026 is attached hereto and marked as **Annexure P-30**.

34. Thereafter, on 30.07.2026, REC issued a letter to TPCL in relation to the handing over of the original documents to TPCL. A copy of the letter dated 30.07.2026 issued by the REC to TPCL regarding handing over of the documents and are attached hereto and marked as **Annexure P-31**.

35. It is pertinent to note that Clause 2.15.2 of the RfP specifies a timeline of 10 days from the issuance of the LoI, for the selected bidder to (a) furnish a CPG in favour of the nodal agency i.e., KPTCL; (b) execute the TSA; and (c) acquire the SPV. Moreover, in terms of Clause 2.15.4 of the RfP, within 5 working days of the acquisition of the SPV by the selected bidder, the TSP is mandated to file Petitions seeking adoption of transmission charges and for grant of transmission license before this Hon'ble Commission. In this regard the relevant provisions under the RfP are reproduced herein below:

> *"2.15.4 Within five (5) working days of the issue of the acquisition of the SPV by the Successful Bidder, the TSP shall apply to the State Commission for grant of Transmission License and make an application to the State Commission for the adoption of Transmission Charges, as required under Section – 63 of The Electricity Act 2003."*

Ryegate Power Transmission Limited

36. On 30.07.2026, REC issued a letter to TPCL extending the timeline for the completion of the activities mentioned under Clauses 2.15.2, 2.15.3 and 2.15.4 of RfP till 06.08.2026. A copy of the letter dated 30.07.2026 of REC granting the extension of time is attached hereto and marked as **Annexure P-32**.

(ii) Details of Transmission Service Agreement, as applicable

37. On 30.07.2026, the Petitioner also entered into TSA with KPTCL for implementation of the Transmission Project.

(iii) Declaration that all conditions to be fulfilled as per RfP documents till date of filing of the Petition have been complied with

38. Petitioner declares all conditions to be fulfilled as per the RfP documents till date of filing of the Petition have been complied with. That the present Petition has been filed within the period of the Limitation.

SUBMISSIONS

39. It is submitted that the present Petition is being filed under Section 63 of the Act seeking adoption of Transmission Chagres of INR. 5210.71 Million (Indian Rupees Five Thousand Two Hundred Ten Million Seven Hundred Ten Thousand Only) per annum which has been determined through transparent competitive bidding process conducted in accordance with the TBCB Guidelines issued by the MoP.

40. The Petitioner respectfully submits that in addition to the present Petition, in accordance with the provisions of Clause 2.15.4 of the RfP, Petitioner has also preferred an Application seeking grant of

Ryade Power Transmission Limited

transmission license in respect of the Transmission Project, before this Hon'ble Commission under Section 14 read with Section 15 of the Act.

41. It is further submitted that the Transmission Project is governed by the TSA signed between the Petitioner and KPTCL and all the terms of which shall be binding on the signatories of the TSA. Further, the Petitioner would implement the Project as per the terms and conditions provided in the TSA and the time over run and cost overturn, if applicable, shall be claimed by the Petitioner in accordance with the applicable provisions of the TSA read with the provisions of the Act, the bidding documents, the extant regulations of this Hon'ble Commission and the exercise of power by this Hon'ble Commission under the Act and the Regulations.

42. In furtherance to the submissions made hereinabove, it is respectfully submitted that this Hon'ble Commission may be pleased to adopt the aforementioned Transmission Chagres as quoted by TPCL, with respect to the subject Transmission System, in accordance with Section 63 of the Act and in terms of the RfP documents.

43. The present Petition is filed *bona fide* and in the interest of justice.

C. Prayers

44. The Petitioner hereby humbly prays the Hon'ble Commission to:

(a) Adopt the Transmission Charges of INR 5210.71 Million per annum up to the validity/ expiry of the TSA discovered through a transparent competitive bidding process pursuant to the RfP dated 07.03.2026 for "*Evacuation Scheme for 2000 MW Solar Park at Ryapte Village, Tumkur District*";

Ryapte Power Transmission Limited

(b) Approve the Transmission Service Agreement dated 30.07.2026 and other Project documents including the RfP issued on 07.03.2026 along with all amendments/ communications/ clarifications forming part of the Project documents for the "*Evacuation Scheme for 2000 MW Solar Park at Ryapte Village, Tumkur District*" and direct the recovery of the Transmission Charges which shall be in accordance with the terms of the Transmission Service Agreement dated 30.07.2026 executed between the parties;

(c) Condone any inadvertent errors/ omissions/ shortcomings and permit the Petitioner to add/change/modify/alter these filings and make further submissions as may be required at the future date; and

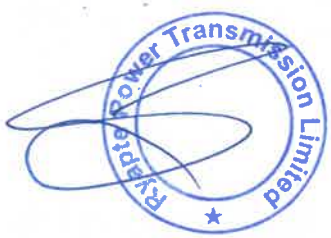
(d) Pass any such other order/orders, as may be deemed fit and proper in the facts and circumstances of the case.

(iv) Annexure

45. As per the Index

(v) Proof of Payment

46. The Petitioner respectfully submits that the prescribed fee of INR 25,00,000 (Rupees Twenty-Five Lakhs Only) has been paid by the Petitioner on 29.07.2026, and the payment reference number is KERC260700001136. The receipt of payment is annexed herewith and marked as **Annexure P-33**.



Rypate Power Transmission Limited

THROUGH

SAGUS LEGAL
Advocates for the Petitioner
Ryapte Power Transmission Limited
B-7/8, Ground Floor, Safdarjung Enclave,
New Delhi-110029
Email Id: service@saguslegal.com
Contact No. 011-46552925

Place: New Delhi
Date: 06-08-2026

EFORE THE KARNATAKA ELECTRICITY REGULATORY COMMISSION AT BANGALORE

PETITION NO. OF 2026

IN THE MATTER OF:

Petition under Section 63 of the Electricity Act, 2003 seeking adoption of Transmission Charges of the Intra State Transmission Project i.e., *Evacuation Scheme for 2000 MW Solar Park at Ryapte Village, Tumkur District*"

AND

IN THE MATTER OF:

Ryapte Power Transmission Limited
Through its Authorised Representative
Plot No 181, Ground Floor,
Block- K, Mangolpuri, Delhi-110083 ...Petitioner

VERSUS

1. Karnataka Power Transmission Corporation Limited (KPTCL)
   Through its Managing Director
   Kaveri Bhawan, Bengaluru Karnataka ...Respondent No. 1

2. REC Power Development and Consultancy Limited
   Through Authorized Representative
   Core 4, SCOPE Complex 7,
   Lodhi Road, New Delhi 110003
   Email: tbcb@recpdcl.in ...Respondent No. 2

AFFIDAVIT VERFYING THE PETITION UNDER SECTION 63 OF THE ELECTRICITY ACT 2003, FOR THE ADOPTION OF TRANSMISSION CHARGES

I, Shantanu Singh, S/o, Dhirendra Singh, aged about 34 years, the authorised signatory of the Petitioner in the above Petition, having my office at Plot No

NOTARY SHIKANT SUNDAR BHANJA AREA - DELHI REGN. NO. - 7818 MY COMMISSION EXPIRES ON 22.12.2029 GOVT. OF INDIA

Ryapte Power Transmission Limited

181, Ground Floor, Block- K, Mangolpuri, Delhi-110083, do herby solemnly affirm and state as follows:

1. I am the authorised representative of the Petitioner in the above Petition, and I know the facts of the case, and I such am competent to swear to this affidavit.

2. I state that the statements made in para 1 to 46 in the accompanying Petition are true and correct to my knowledge, information and belief.

3. I hereby state that the Annexures are true copies of the original documents.

4. I solemnly affirm at New Delhi on this 6th day of august 2026, that the contents of the above affidavit are true to my knowledge, information and belief and that no part of it is false, and nothing material has been concealed therefrom.

Place: New Delhi
Date: 06.08.2026

Rajasthan Rajya Vidyut Transmission Limited

DEPONENT

I identified the deponent who has signed in my presence
D-2338/2D

NOTARY
SHIVANT SHARAD DHAULA
ADVOCATE
REGISTRATION NO.
MY COMMISSION EXPIRES
ON 22.12.2029
GOVT. OF INDIA

06 AUG 2026

CERTIFIED THAT THE DEPONENT
S/Sm/t./Km. Bhupendra Singh
S/o. W/o. D/o. Sh. R.S.V.C. Nigam Ltd. Adv
identified by Shri/Smt.
has solemnly affirmed before me at Delhi
on 06 AUG 2026 at Sl. No.
that the contents of the affidavit which have been read & explained to me are true and correct to his knowledge

NOTARY PUBLIC, GOVT. OF INDIA

06 AUG 2026

Annexure P-1

4025

PROCEEDINGS OF THE GOVERNMENT OF KARNATAKA

Subject: Nomination of Nodal agency, Bid Process Co-ordinator (BPC) and constitution of Cost Committee and Bid Opening & Evaluation Committees for implementation of Intra-State Transmission projects in the State of Karnataka through tariff based competitive bidding (TBCB).

D.No: 1033518

Read: 1. KPTCL file No.: FTS 1007018 requesting for constitution of committees and nomination of BPC and Nodal agency for transmission projects to be taken-up through TBCB.

ವಿದ್ಯುಚ್ಛಕ್ತಿ (ಯೋಜನೆಗಳು)
27 JAN 2025
ಕ.ವಿ.ಪ್ರ.ವಿ.ನಿ.

2. KERC (Multi Year Transmission, Distribution and Retail Supply Tariff) (First Amendment) Regulations Notification dated 24.12.2024
3. Proceedings of "State Empowered Committee on Transmission" meeting held on 04.12.2024
4. GO.: ENERGY 73 PPT 2024 dated 30.10.2024 nominating PCKL as BPC for intra-State transmission projects implemented through TBCB.
5. GO.: EN 124 VSC 2024 dated 01.08.2024 constituting "State Empowered Committee on Transmission"
6. MoP, GoI Guidelines on "Encourage competition in development of Transmission Projects" and "TBCB Guidelines for Transmission service" dated 10.08.2021.

SE(PS)

Dir (Proj)

*****

CEE(PSC)

M.D.
24 JAN 2025
KPTCL

ವಿದ್ಯುಚ್ಛಕ್ತಿ (ಯೋಜನೆಗಳು)

Preamble: -

CE(PS) 4/2/25

Tariff Policy 2016 states that Intra-State transmission projects shall be developed by State Governments through competitive bidding process for projects costing above a threshold limit which shall be decided by the SERCs. MoP, GoI on 10.08.2021 has notified guidelines for implementing transmission projects through tariff based competitive bidding (TBCB) process.

Government vide order read at (5) above has constituted "State Empowered Committee on Transmission" for deciding Intra-State Transmission projects to be taken-up under TBCB.

Government vide order read at (4) above has nominated PCKL as BPC for Intra-State transmission projects to be implemented through TBCB with roles and responsibility as specified in MoP, GoI guidelines.

KCO-87 03/02/2025

KERC vide notification read at (2) above has revised the threshold limit to Rs. 250 Crores, above which all Intra-State Transmission projects have to be taken up through TBCB.

KPTCL has conducted a study regarding procedures followed for implementation of intra-State transmission projects through TBCB in the States of Maharashtra, Madhya Pradesh, Rajasthan & Uttar Pradesh. Findings of the study was deliberated in "State Empowered Committee on Transmission" meeting held on 04.12.2024 and the committee had directed KPTCL to submit a proposal to Government with details of procedures to be adopted by the State for implementation of Intra-State Transmission projects through TBCB.

KPTCL in file read at (1) above has submitted a proposal suggesting various committees viz. Cost Committee and Bid Opening & Evaluation Committees to be constituted with indicative

list of members, nomination of BPC & Nodal Agency specifying their roles and responsibilities for transmission TBCB projects.

Government has examined the proposal, hence the following order.

GOVERNMENT ORDER NO. ENERGY 73 PPT 2024, BANGALORE, DATED: 20.01.2025

In the circumstances explained in the preamble, Government in supersession of the G.O. ENERGY 73 PPT 2024 dated 30.10.2024 is pleased to order as below:

1. All Intra-State Transmission projects, including new and augmentation schemes, costing above threshold limit specified by KERC shall be implemented through tariff based competitive bidding process in accordance with guidelines notified by MoP, GoI, from time to time.
2. **PCKL** is nominated as **"Nodal Agency"** for all Intra-State Transmission projects executed through TBCB.

Roles and responsibilities of Nodal Agency:

i. Signing of Transmission Service Agreement (TSA) with Successful bidder/ Transmission Service Provider (TSP) on behalf of all ESCOMs/Long Term Transmission Customers (LTTCs).
ii. Arranging payment security mechanism to TSPs. Arranging payments towards monthly transmission charges to TSPs on behalf of all LTTCs and Discoms.
iii. Appointment of Independent Engineer during construction phase for monitoring of the projects as well as for performing roles & responsibilities as identified in the Transmission Service Agreement. Appointment of Independent Engineer shall be through Quality and Cost based selection (QCBS) criteria by inviting tender.
iv. Monitor the development of the Projects for its timely completion.
v. Coordination among TSPs and with upstream & downstream entities in respect of interconnection facilities.
vi. Computation of system availability, penalties etc.
vii. All responsibilities as specified in MoP, GoI guidelines.

3. **KPTCL** is authorized to appoint a **Bid Process Co-Ordinator (BPC)** for a period of two years for all Intra-State Transmission projects to be executed through TBCB by inviting tender.

Roles and responsibilities of BPC:

i. To invite tender in accordance with the TBCB guidelines and other documents issued by MoP, GoI for projects recommended by "State Empowered Committee on Transmission".
ii. In-corporation of special purpose vehicle (SPV) to initiate the activities for execution of the project.
iii. To initiate acquisition of land for location specific substations, switching stations or HVDC terminal or inverter stations if required.

iv. To initiate process of seeking forest clearance if required
v. To prepare a survey report containing information regarding the transmission line i.e. indicative route alignment and type of terrain.
vi. Inviting RFP through international competitive bidding
vii. Preparing replies/ clarification to bidder's queries on the RFP documents.
viii. Opening of bid in the presence of Bid opening & Evaluation Committee.
ix. Carry out the examination of bids received and prepare a detailed evaluation report for the consideration of Bid Opening & Evaluation Committee.
x. Opening of financial bids of technically qualified bidders in the presence of Bid Opening & Evaluation Committee. Carry out e- Reverse bidding as per MoP, GoI guidelines.
xi. To assist TSP in obtaining approval for laying of overhead transmission line under section 68 of Electricity Act, from the State Government.
xii. Issue of LOI to successful bidder/ TSP.
xiii. To get TSA signed between TSP and Nodal agency.
xiv. Filing of petitions before KERC or any other relevant authority.
xv. All costs incurred by the BPC/Project specific SPV in connection with the project shall be recovered from the TSP which shall be included in the acquisition price.
xvi. All responsibilities as specified in MoP, GoI guidelines.

4. Cost committee and Bid Opening & evaluation committee is constituted with following roles and responsibilities:

4.1 Cost committee:

1.	Director (Projects), KPTCL	Chairman
2.	Additional Director (Projects), PCKL	Member
3.	Representative from CEA (Director equivalent or above)	Member
4.	BPC Representative.	**Member-convener**

Roles and responsibilities:

The above committee based on the survey report and the cost metric (considering the prevailing schedule of rates) shall determine and finalize the estimated cost of the project.

4.2 Bid Opening & evaluation committee:

1.	MD, KPTCL.	Chairman
2.	MD, PCKL.	Member
3.	Director (Operations), KPTCL.	Member
4.	CE(Ele), Tendering & Procurement, KPTCL.	Member
5.	Additional Director (Projects), PCKL.	Member
6.	FA, A&R, KPTCL.	Member
7.	BPC representative.	**Member-convener**

Roles and responsibilities:

i. Opening of technical bids.
ii. Technical bid evaluation report furnished by BPC shall be scrutinized and accord approval for acceptance of technical bids and opening of financial bids.
iii. Open financial bid of technically qualified bidders and conduct e-reverse bidding process as per MoP, GoI guidelines.
iv. Propose for award of the project to the successful bidder with lowest transmission charges discovered from quoted annual transmission charges during the e-reverse bidding process.
v. Issue a certificate that the tender process has been carried out as per MoP, GoI guidelines.

BY ORDER AND IN THE NAME OF
GOVERNOR OF KARNATAKA

(VINOD KUMAR D. M.)
UNDER SECRETARY TO GOVERNMENT
ENERGY DEPARTMENT

To: The Compiler, Karnataka Gazette, Government Press for publication

Copy to:

1. The Additional Chief Secretary to Government, Finance Department, Vidhana Soudha, Bengaluru.
2. The Additional Chief Secretary to Chief Minister, Vidhan Soudha, Bengaluru.
3. The Managing Director, Karnataka Power Corporation Limited, No: 82, Shakti Bhavan, Race Course Road, Bengaluru-1.
4. The Managing Director, Karnataka Power Transmission Corporation Limited, Kaveri Bhavan, Bengaluru-9.
5. The Managing Directors, BESCOM / MESCOM/ HESCOM/ GESCOM/ CESC/KREDL/PCKL.
6. Director (Technical) / Director (Finance), Energy Department, Vikas Soudha.
7. The Chief Electrical Inspector to Government, 32/1, 2nd Floor, Crescent Towers, Crescent Road, Bengaluru-1.
8. Chief Engineer (Electricity), SLDC, KPTCL, Race Course Road, Bangalore.
9. The Secretary, Karnataka Electricity Regulatory Commission, No. 16, C-1, Millers Tank Bund Rd, Vasanth Nagar, Bengaluru, Karnataka 560052.
10. P.S. to Hon'ble Energy Minister, Vidhana Soudha, Bengaluru-1.
11. P.S. to the Chief Secretary to Government, Vidhana Soudha, Bengaluru-1.
12. P.S. to the Additional Chief Secretary to Government, Energy Department, Vikasa Soudha, Bengaluru-1.
13. P.A. to Additional Secretary to Government, Energy Department, Vikasa Soudha, Bengaluru-1.
14. Spare Copies/Office Copy.

PROCEEDINGS OF THE GOVERNMENT OF KARNATAKA

Subject: State transmission projects to be taken-up under Tariff Based Competitive Bidding process based on the recommendation of "State Empowered Committee on Transmission" in its 4th meeting - reg

Read:
1. MoP, GoI Guidelines on "Encourage competition in development of Transmission Projects" and "TBCB Guidelines for Transmission service" dated 10.08.2021.
2. KERC (Multi Year Transmission, Distribution and Retail Supply Tariff) Regulations Notification dated 24.06.2024
3. GO.: EN 124 VSC 2024 dated 01.08.2024 constituting "State Empowered Committee on Transmission"
4. GO.: ENERGY 73 PPT 2025 dated 20.01.2025 on nomination of Nodal agency, BPC and constitution of Cost Committee and Bid Opening & Evaluation Committees for implementation of InSTS projects in the State of Karnataka through (TBCB).
5. Proceedings of 4th "State Empowered Committee on Transmission" meeting held on 21.02.2025

*****

Preamble: -

Government vide order read at (3) above has constituted "State Empowered Committee on Transmission" for deciding Intra-State Transmission projects to be taken-up under tariff based competitive bidding (TBCB).

The "State Empowered Committee on Transmission" in its 4th meeting held on 21.02.2025 after deliberations has approved following Intra State Transmission System (InSTS) Projects for development / execution under TBCB process through M/s RECPDCL as BPC. Further, committee has concurred for notification of projects by Government.

1. Establishing 400kV Sub-station at Mekhali along with associated transmission lines (Belagavi District).
2. Establishing 400kV Sub-station at Hampapura along with associated transmission lines (Mandya District).
3. Evacuation Scheme for the proposed 2000MW Pumped Storage Plant at Sharavathi.
4. Evacuation Scheme for 2000MW solar park at Ryapte village, Tumkur District.

Government has examined the proposal, hence the following order.

GOVERNMENT ORDER NO. ENERGY 73 PPT 2024, BENGALURU, DATED: 04.03.2025

In the circumstances explained in the preamble, Government is pleased to accord approval for following Intra State Transmission System (InSTS) Projects for execution under TBCB process through M/s RECPDCL as Bid Process Co-ordinator (BPC) duly complying to guidelines notified in this regard by MoP, GoI from time to time:

1. Establishing **400kV** Sub-station at **Mekhali** along with associated transmission lines (Belagavi District).
2. Establishing **400kV** Sub-station at **Hampapura** along with associated transmission lines (Mandya District).
3. Evacuation scheme for the proposed **2000MW Pumped Storage Plant** at **Sharavathi.**
4. Evacuation Scheme for **2000MW solar park at Ryapte** village, Tumkur District.

BY ORDER AND IN THE NAME OF
GOVERNOR OF KARNATAKA

(VINOD KUMAR D. M.)
UNDER SECRETARY TO GOVERNMENT
ENERGY DEPARTMENT

To: The Compiler, Karnataka Gazette, Government Press for publication

Copy to:

1. The Additional Chief Secretary to Chief Minister, Vidhan Soudha, Bengaluru.
2. The Principal Secretary to Government, Finance Department, Vidhana Soudha, Bengaluru.
3. The Managing Director, Karnataka Power Corporation Limited, No: 82, Shakti Bhavan, Race Course Road, Bengaluru-1.
4. The Managing Director, Karnataka Power Transmission Corporation Limited, Kaveri Bhavan, Bengaluru-9.
5. The Managing Directors, BESCOM / MESCOM/ HESCOM/ GESCOM/ CESC/KREDL/PCKL.
6. Director (Technical) / Director (Finance), Energy Department, Vikas Soudha.
7. The Chief Electrical Inspector to Government, 32/1, 2nd Floor, Crescent Towers. Crescent Road, Bengaluru-1.
8. Chief Engineer (Electricity), SLDC, KPTCL, Race Course Road, Bangalore.
9. The Secretary, Karnataka Electricity Regulatory Commission, No. 16. C-1, Millers Tank Bund Rd, Vasanth Nagar, Bengaluru, Karnataka 560052.
10. P.S. to Hon'ble Energy Minister, Vidhana Soudha, Bengaluru-1.
11. P.S. to the Chief Secretary to Government, Vidhana Soudha, Bengaluru-1.
12. P.S. to the Additional Chief Secretary to Government, Energy Department, Vikasa Soudha, Bengaluru-1.
13. P.A. to Additional Secretary to Government, Energy Department, Vikasa Soudha, Bengaluru-1.
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Annexure P-3

PROCEEDINGS OF THE GOVERNMENT OF KARNATAKA

Subject: Nomination of KPTCL as Nodal Agency for InSTS projects executed under TBCB process - reg

Read: 1. G.O.: ENERGY 73 PPT 2024 dated 20.01.2025
2. PCKL letter No.: PCKL/A12/7/2025-26/854-60 dated 12.05.2026

*****

Preamble: -

In the Government Order read at (1) above, the modalities for taking-up Intra State Transmission System (InSTS) projects in the State under the Tariff Based Competitive Bidding (TBCB) process are prescribed. In the said order, Power Company of Karnataka Limited (PCKL) is designated as the Nodal Agency for execution of the Transmission Service Agreement (TSA) with the Transmission Service Providers (TSP). PCKL is also entrusted with co-ordination and project monitoring activities during the implementation phase.

In the letter read at (2) above, the Managing Director, PCKL has stated that PCKL is mainly engaged in trading activities on behalf of ESCOMs and does not have any independent revenue stream for providing payment security mechanism as required under TSA. The activities such as connectivity, monitoring the network access is being carried out by State Transmission Utility (STU) in the State. KPTCL, as State Transmission Utility (STU) is having strong established organizational set-up across the State and is appropriate for project monitoring & co-ordination of TBCB projects. Further, it is also stated that neighbouring States namely Maharashtra and Tamil Nadu have nominated their STU as Nodal Agency for InSTS TBCB projects.

The Managing Director, PCKL has therefore proposed that STU/KPTCL be nominated as Nodal Agency in place of PCKL.

Government has examined the proposal, hence the following order.

GOVERNMENT ORDER NO. ENERGY 73 PPT 2024,
BANGALORE, DATED: 21.05.2026

Under the circumstances explained in the preamble, Government is pleased to nominate **Karnataka Power Transmission Corporation Limited (KPTCL)/STU** as "**Nodal Agency**" for all Intra State Transmission System

(InSTS) projects of Karnataka executed under Tariff Based Competitive Bidding (TBCB) process in lieu of PCKL.

KPTCL shall discharge the roles and responsibilities prescribed for the Nodal Agency in the Government Order ENERGY 73 PPT 2024 dated 20.01.2025. KPTCL shall approach KERC for recovery of transmission charges from ESCOMs/LTTCs through tariff orders.

The Government Order ENERGY 73 PPT 2024 dated 20.01.2025 shall stand amended to the above extent. All other terms and conditions of the said order, except those already amended, shall remain unaltered.

BY ORDER AND IN THE NAME OF
GOVERNOR OF KARNATAKA

(**SHANTHARAMA**)
UNDER SECRETARY TO GOVERNMENT
ENERGY DEPARTMENT

To: The Compiler, Karnataka Gazette, Government Press for publication

Copy to:

1. The Additional Chief Secretary to Government, Finance Department, Vidhana Soudha, Bengaluru.
2. The Additional Chief Secretary to Chief Minister, Vidhan Soudha, Bengaluru.
3. The Managing Director, Karnataka Power Corporation Limited, No: 82, Shakti Bhavan, Race Course Road, Bengaluru-1.
4. The Managing Director, Karnataka Power Transmission Corporation Limited, Kaveri Bhavan, Bengaluru-9.
5. The Managing Directors, BESCOM / MESCOM/ HESCOM/ GESCOM/ CESC/KREDL/PCKL.
6. Director (Technical) / Director (Finance), Energy Department, Vikas Soudha.
7. The Chief Electrical Inspector to Government, 32/1, 2nd Floor, Crescent Towers. Crescent Road, Bengaluru-1.
8. Chief Engineer (Electricity), SLDC, KPTCL, Race Course Road, Bangalore.
9. The Secretary, Karnataka Electricity Regulatory Commission, No. 16, C-1, Millers Tank Bund Rd, Vasanth Nagar, Bengaluru, Karnataka 560052.
10. P.S. to Hon'ble Energy Minister, Vidhana Soudha, Bengaluru-1.
11. P.S. to the Chief Secretary to Government, Vidhana Soudha, Bengaluru-1.

12. P.S. to the Additional Chief Secretary to Government, Energy Department, Vikasa Soudha, Bengaluru-1.
13. P.A. to Additional Secretary to Government, Energy Department, Vikasa Soudha, Bengaluru-1.
14. Spare Copies/Office Copy.

Annexure P-4

सत्यमेव जयते

GOVERNMENT OF INDIA
MINISTRY OF CORPORATE AFFAIRS

Central Registration Centre

Certificate of Incorporation

[Pursuant to sub-section (2) of section 7 and sub-section (1) of section 8 of the Companies Act, 2013 (18 of 2013) and rule 18 of the Companies (Incorporation) Rules, 2014]

I hereby certify that RYAPTE POWER TRANSMISSION LIMITED is incorporated on this TWENTY FIRST day of MAY TWO THOUSAND TWENTY FIVE under the Companies Act, 2013 (18 of 2013) and that the company is Company limited by shares

The Corporate Identity Number of the company is **U42202DL2025GOI448817**

The Permanent Account Number (PAN) of the company is **AAOCR6735Q***

The Tax Deduction and Collection Account Number (TAN) of the company is **DELR52393F***

Given under my hand at Manesar this TWENTY FIRST day of MAY TWO THOUSAND TWENTY FIVE

Certification signature by DS MINISTRY OF CORPORATE AFFAIRS , CRC MANESAR 2 <ROC.CRC@MCA.GOV.IN>, Validity Unknown

Digitally signed by
DS MINISTRY OF CORPORATE
AFFAIRS , CRC MANESAR 2
Date: 2025.05.21 17:53:22 IST

Sai Landa

Assistant Registrar of Companies/ Deputy Registrar of Companies/ Registrar of Companies

For and on behalf of the Jurisdictional Registrar of Companies

Registrar of Companies

Central Registration Centre

Disclaimer: This certificate only evidences incorporation of the company on the basis of documents and declarations of the applicant(s). This certificate is neither a license nor permission to conduct business or solicit deposits or funds from public. Permission of sector regulator is necessary wherever required. Registration status and other details of the company can be verified on mca.gov.in

Mailing Address as per record available in Registrar of Companies office:

RYAPTE POWER TRANSMISSION LIMITED

CORE-4, SCOPE COMPLEX, 7, LODHI ROAD, Lodi Road, New Delhi, South Delhi- 110003, Delhi

*as issued by Income tax Department

Annexure P-5 (Colly)

Form No. INC-34

e-AOA (e-Articles of Association)

[Pursuant to Section 5 of the Companies Act, 2013 and rules made thereunder read with Schedule I]

सत्यमेव जयते

Form language

(•) English ( ) Hindi

Refer instruction kit for filing the form

*All fields marked in * are mandatory*

Table applicable to company as notified under schedule I of the Companies Act, 2013 *(F, G, H)*

F

Table F / G / H (basis on the selection of above-mentioned field) as notified under schedule I of the companies Act, 2013 is applicable to

(F – a company limited by shares
G– a company limited by guarantee and having a share capital
H – a company limited by guarantee and not having share capital)

F - A COMPANY LIMITED BY SHARES

The name of the company is

RYAPTE POWER TRANSMISSION LIMITED

Check if not applicable	Check if altered	Article No.	Description
			Interpretation
☐	☑	I	• (1) In these regulations- (a)the Act means the Companies Act2013 (b) the sealmeans the common seal of the company. (2)Unless the context otherwise requireswords or expressions contained in these regulations shall bear the same meaningas in the Act or any statutory modification thereof in force at the date atwhich these regulations become binding on the company.(3)Public companymeans a company which-(a) is not a private company(b) has a minimum paid-upshare capital as maybe prescribed Provided that a company which is asubsidiary of a company not being a private company shall be deemed to bepublic company for the purposes of this Act even where such subsidiary companycontinues to be a private company inits articles.
			Share Capital and Variation of rights
☐	☐	II 1	• Subject to the provisions of the Act and these Articles the shares in the capital of the company shall be under the control of the Directors who may issue allot or otherwise dispose of the same or any of them to such persons in such proportion and on such terms and conditions and either at a premium or at par and at such time as they may from time to time think fit
☐	☐	2	• Every person whose name is entered as a member in the register of members shall be entitled to receive within two months after incorporation in case of subscribers to the memorandum or after allotment or within one month after the application for the registration of transfer or transmission or within such other period as the conditions of issue shall be provided one certificate for all his shares without payment of any charges or several certificateseach for one or more of his sharesupon payment of twenty rupees for each certificate after the first. Every certificate shall be under the seal and shall specify the shares to which it relates and the amount paid - up thereon. In respect of any share or shares held jointly by several persons the company shall not be

		bound to issue more than one certificate and delivery of a certificate for a share to one of several joint holders shall be sufficient delivery to all such holders
	3	• If any share certificate be worn out defaced mutilated or torn or if there be no further space on the back for endorsement of transfer then upon production and surrender thereof to the company a new certificate may be issued in lieu thereof and if any certificate is lost or destroyed then upon proof thereof to the satisfaction of the company and on execution of such indemnity as the company deem adequate a new certificate in lieu thereof shall be given. Every certificate under this Article shall be issued on payment of twenty rupees for each certificate. The provisions of Articles(2) and(3) shall mutatis mutandis apply to debentures of the company.
	4	• Except as required by law no person shall be recognised by the company as holding any share upon any trust and the company shall not be bound by or be compelled in any way to recognise (even when having notice thereof) any equitable contingent future or partial interest in any share or any interest in any fractional part of a share or (except only as by these regulations or by law otherwise provided) any other rights in respect of any share except an absolute right to the entirety thereof in the registered holder.
	5	• The company may exercise the powers of paying commissions conferred by sub-section (6) of section 40 provided that the rate per cent or the amount of the commission paid or agreed to be paid shall be disclosed in the manner required by that section and rules made thereunder. The rate or amount of the commission shall not exceed the rate or amount prescribed in rules made under sub-section (6) of section 40. The commission may be satisfied by the payment of cash or the allotment of fully or partly paid shares or partly in the one way and partly in the other.
	6	• If at any time the share capital is divided into different classes of shares the rights attached to any class (unless otherwise provided by the terms of issue of the shares of that class) may subject to the provisions of section 48 and whether or not the company is being wound up be varied with the consent in writing of the holders of three-fourths of the issued shares of that class or with the sanction of a special resolution passed at a separate meeting of the holders of the shares of that class. To every such separate meeting the provisions of these regulations relating to general meetings shall mutatis mutandis apply but so that the necessary quorum shall be at least two persons holding at least one-third of the issued shares of the class in question.
	7	• The rights conferred upon the holders of the shares of any class issued with preferred or other rights shall not unless otherwise expressly provided by the terms of issue of the shares of that class be deemed to be varied by the creation or issue of further shares ranking pari passu therewith.
	8	• Subject to the provisions of section 55 any preference shares may with the sanction of an ordinary resolution be issued on the terms that they are to be redeemed on

as issue

		such terms and in such manner as the company before the issue of the shares may by special resolution determine.
		Lien
	9	• The company shall have a first and paramount lienon every share (not being a fully paid share) for all monies (whether presently payable or not) called or payable at a fixed time in respect of that share and on all shares (not being fully paid shares) standing registered in the name of a single person for all monies presently payable by him or his estate to the companyProvided that the Board of directors may at any time declare any share to be wholly or in part exempt from the provisions of this clause. The companys lien if any on a share shall extend to all dividends payable and bonuses declared from time to time in respect of such shares.
	10	• The company may sell in such manner as the Board thinks fit any shares on which the company has a lienProvided that no sale shall be madea unless a sum in respect of which the lien exists is presently payable or b until the expiration of fourteen days after a notice in writing stating and demanding payment of such part of the amount in respect of which the lien exists as is presently payable has been given to the registered holder for the time being of the share or the person entitled thereto by reason of his death or insolvency.
	11	• To give effect to any such sale the Board may authorise some person to transfer the shares sold to the purchaser thereof The purchaser shall be registered as the holder of the shares comprised in any such transfer. The purchaser shall not be bound to see to the application of the purchase money nor shall his title to the shares be affected by any irregularity or invalidity in the proceedings in reference to the sale.
	12	• The proceeds of the sale shall be received by the company and applied in payment of such part of the amount in respect of which the lien exists as is presently payable. The residue if any shall subject to a like lien for sums not presently payable as existed upon the shares before the sale be paid to the person entitled to the shares at the date of the sale.
		Calls on shares
	13	• The Board may from time to time make calls upon the members in respect of any monies unpaid on their shares (whether on account of the nominal value of the shares or by way of premium) and not by the conditions of allotment thereof made payable at fixed timesProvided that no call shall exceed one-fourth of the nominal value of the share or be payable at less than one month from the date fixed for the payment of the last preceding call. Each member shall subject to receiving at least fourteen days notice specifying the time or times and place of payment pay to the company at the time or times and place so specified the amount called on his shares. A call may be revoked or postponed at the discretion of the Board.
	14	• A call shall be deemed to have been made at the time when the resolution of the Board authorizing the call was

		passed and may be required to be paid by instalments.
☐ ☐	15	• The joint holders of a share shall be jointly and severally liable to pay all calls in respect thereof.
☐ ☐	16	• If a sum called in respect of a share is not paid before or on the day appointed for payment thereof the person from whom the sum is due shall pay interest thereon from the day appointed for payment thereof to the time of actual payment at ten per cent per annum or at such lower rate if any as the Board may determine. The Board shall be at liberty to waive payment of any such interest wholly or in part.
☐ ☐	17	• Any sum which by the terms of issue of a share becomes payable on allotment or at any fixed date whether on account of the nominal value of the share or by way of premium shall for the purposes of these regulations be deemed to be a call duly made and payable on the date on which by the terms of issue such sum becomes payable. In case of non-payment of such sum all the relevant provisions of these regulations as to payment of interest and expenses forfeiture or otherwise shall apply as if such sum had become payable by virtue of a call duly made and notified.
☐ ☐	18	• The Board - a. may if it thinks fit receive from any member willing to advance the same all or any part of the monies uncalled and unpaid upon any shares held by him andb. upon all or any of the monies so advanced may (until the same would but for such advance become presently payable) pay interest at such rate not exceeding unless the company in general meeting shall otherwise direct twelve per cent per annum as may be agreed upon between the Board and the member paying the sum in advance.
		Transfer of shares
☐ ☐	19	• The instrument of transfer of any share in the company shall be executed by or on behalf of both the transferor and transferee. The transferor shall be deemed to remain a holder of the share until the name of the transferee is entered in the register of members in respect thereof.
☐ ☐	20	• The Board may subject to the right of appeal conferred by section 58 decline to register the transfer of a share not being a fully paid share to a person of whom they do not approve or any transfer of shares on which the company has a lien.
☐ ☐	21	• The Board may decline to recognise any instrument of transfer unlessa. the instrument of transfer is in the form as prescribed in rules made under sub-section (1) of section 56b. the instrument of transfer is accompanied by the certificate of the shares to which it relates and such other evidence as the Board may reasonably require to show the right of the transferor to make the transfer andc. the instrument of transfer is in respect of only one class of shares.
☐ ☐	22	• On giving not less than seven days previous notice in accordance with section 91 and rules made thereunder the registration of transfers may be suspended at such times and for such periods as the Board may from time to time determineProvided that such registration shall

		not be suspended for more than thirty days at any one time or for more than forty-five days in the aggregate in any year.
		Transmission of shares
☐ ☐	23	• On the death of a member the survivor or survivors where the member was a joint holder and his nominee or nominees or legal representatives where he was a sole holder shall be the only persons recognised by the company as having any title to his interest in the shares Nothing in clause (i) shall release the estate of a deceased joint holder from any liability in respect of any share which had been jointly held by him with other persons.
☐ ☐	24	• Any person becoming entitled to a share in consequence of the death or insolvency of a member may upon such evidence being produced as may from time to time properly be required by the Board and subject as hereinafter provided elect either to be registered himself as holder of the share or to make such transfer of the share as the deceased or insolvent member could have made. The Board shall in either case have the same right to decline or suspend registration as it would have had if the deceased or insolvent member had transferred the share before his death or insolvency.
☐ ☐	25	• If the person so becoming entitled shall elect to be registered as holder of the share himself he shall deliver or send to the company a notice in writing signed by him stating that he so elects. If the person aforesaid shall elect to transfer the share he shall testify his election by executing a transfer of the share. All the limitations restrictions and provisions of these regulations relating to the right to transfer and the registration of transfers of shares shall be applicable to any such notice or transfer as aforesaid as if the death or insolvency of the member had not occurred and the notice or transfer were a transfer signed by that member.
☐ ☐	26	• A person becoming entitled to a share by reason of the death or insolvency of the holder shall be entitled to the same dividends and other advantages to which he would be entitled if he were the registered holder of the share except that he shall not before being registered as a member in respect of the share be entitled in respect of it to exercise any right conferred by membership in relation to meetings of the company Provided that the Board may at any time give notice requiring any such person to elect either to be registered himself or to transfer the share and if the notice is not complied with within ninety days the Board may thereafter withhold payment of all dividends bonuses or other monies payable in respect of the share until the requirements of the notice have been complied with.
☑ ☐	27	• In case of a One Person Company on the death of the sole member the person nominated by such member shall be the person recognised by the company as having title to all the shares of the member the nominee on becoming entitled to such shares in case of the members death shall be informed of such event by the Board of the company such nominee shall be entitled to the same dividends and other rights and liabilities to

		which such sole member of the company was entitled or liable on becoming member such nominee shall nominate any other person with the prior written consent of such person who shall in the event of the death of the member become the member of the company.
		Forfeiture of shares
☐	28	• If a member fails to pay any call or instalment of a call on the day appointed for payment thereof the Board may at any time thereafter during such time as any part of the call or instalment remains unpaid serve a notice on him requiring payment of so much of the call or instalment as is unpaid together with any interest which may have accrued.
☐	29	• The notice aforesaid shall name a further day (not being earlier than the expiry of fourteen days from the date of service of the notice) on or before which the payment required by the notice is to be made and state that in the event of non-payment on or before the day so named the shares in respect of which the call was made shall be liable to be forfeited.
☐	30	• If the requirements of any such notice as aforesaid are not complied with any share in respect of which the notice has been given may at any time thereafter before the payment required by the notice has been made be forfeited by a resolution of the Board to that effect.
☐	31	• A forfeited share may be sold or otherwise disposed of on such terms and in such manner as the Board thinks fit.At any time before a sale or disposal as aforesaid the Board may cancel the forfeiture on such terms as it thinks fit.
☐	32	• A person whose shares have been forfeited shall cease to be a member in respect of the forfeited shares but shall notwithstanding the forfeiture remain liable to pay to the company all monies which at the date of forfeiture were presently payable by him to the company in respect of the shares. The liability of such person shall cease if and when the company shall have received payment in full of all such monies in respect of the shares.
☐	33	• A duly verified declaration in writing that the declarant is a director the manager or the secretary of the company and that a share in the company has been duly forfeited on a date stated in the declaration shall be conclusive evidence of the facts therein stated as against all persons claiming to be entitled to the share The company may receive the consideration if any given for the share on any sale or disposal thereof and may execute a transfer of the share in favour of the person to whom the share is sold or disposed of The transferee shall thereupon be registered as the holder of the share and The transferee shall not be bound to see to the application of the purchase money if any nor shall his title to the share be affected by any irregularity or invalidity in the proceedings in reference to the forfeiture sale or disposal of the share.
☐	34	• The provisions of these regulations as to forfeiture shall apply in the case of non-payment of any sum which by the terms of issue of a share becomes payable at a fixed time whether on account of the nominal value of the

		share or by way of premium as if the same had been payable by virtue of a call duly made and notified.
		Alteration of capital
	35	• The company may from time to time by ordinary resolution increase the share capital by such sum to be divided into shares of such amount as may be specified in the resolution.
	36	• Subject to the provisions of section 61 the company may by ordinary resolution consolidate and divide all or any of its share capital into shares of larger amount than its existing shares convert all or any of its fully paid-up shares into stock and reconvert that stock into fully paid-up shares of any denomination sub-divide its existing shares or any of them into shares of smaller amount than is fixed by the memorandum cancel any shares which at the date of the passing of the resolution have not been taken or agreed to be taken by any person.
	37	• Where shares are converted into stock the holders of stock may transfer the same or any part thereof in the same manner as and subject to the same regulations under which the shares from which the stock arose might before the conversion have been transferred or as near thereto as circumstances admit Provided that the Board may from time to time fix the minimum amount of stock transferable so however that such minimum shall not exceed the nominal amount of the shares from which the stock arose. the holders of stock shall according to the amount of stock held by them have the same rights privileges and advantages as regards dividends voting at meetings of the companyand other matters as if they held the shares from which the stock arose but no such privilege or advantage (except participation in the dividends and profits of the company and in the assets on winding up) shall be conferred by an amount of stock which would not if existing in shares have conferred that privilege or advantage. such of the regulations of the company as are applicable to paid-up shares shall apply to stock and the words share and shareholder in those regulations shall include stock and stock-holder respectively.
	38	• The company may by special resolution reduce in any manner and with and subject to any incident authorised and consent required by law it share capital any capital redemption reserve account or any share premium account.
		Capitalisation of profits
	39	• The company in general meeting may upon the recommendation of the Board resolve that it is desirable to capitalise any part of the amount for the time being standing to the credit of any of the companys reserve accounts or to the credit of the profit and loss accountor otherwise available for distribution and that such sum be accordingly set free for distribution in the manner specified in clause (ii) amongst the members who would have been entitled thereto if distributed by way of dividend and in the same proportions. The sum aforesaid shall not be paid in cash but shall be applied subject to the provision contained in clause (iii) either in or towards paying up any amounts for the time being unpaid on any

			shares held by such members respectively paying up in full unissued shares of the company to be allotted and distributed credited as fully paid-up to and amongst such members in the proportions aforesaid partly in the way specified in sub-clause (A) and partly in that specified in sub-clause (B) A securities premium account and a capital redemption reserve account may for the purposes of this regulation be applied in the paying up of unissued shares to be issued to members of the company as fully paid bonus shares The Board shall give effect to the resolution passed by the company in pursuance of this regulation.
☐	☐	40	• Whenever such a resolution as aforesaid shall have been passed the Board shall make all appropriations and applications of the undivided profits resolved to be capitalised thereby and all allotments and issues of fully paid shares if any and generally do all acts and things required to give effect thereto. The Board shall have power to make such provisions by the issue of fractional certificates or by payment in cash or otherwise as it thinks fit for the case of shares becoming distributable in fractions and to authorise any person to enter on behalf of all the members entitled thereto into an agreement with the company providing for the allotment to them respectively credited as fully paid-up of any further shares to which they may be entitled upon such capitalisation or as the case may require for the payment by the company on their behalf by the application thereto of their respective proportions of profits resolved to be capitalised of the amount or any part of the amounts remaining unpaid on their existing shares Any agreement made under such authority shall be effective and binding on such members
			Buy-back of shares
☐	☐	41	• Notwithstanding anything contained in these articles but subject to the provisions of sections 68 to 70 and any other applicable provision of the Act or any other law for the time being in force the company may purchase its own shares or other specified securities.
			General meetings
☐	☐	42	• All general meetings other than annual general meeting shall be called extraordinary general meeting.
☐	☐	43	• The Board may whenever it thinks fit call an extraordinary general meeting. If at any time directors capable of acting who are sufficient in number to form a quorum are not within India any director or any two members of the company may call an extraordinary general meeting in the same manner as nearly as possible as that in which such a meeting may be called by the Board.
			Proceedings at general meetings
☐	☐	44	• No business shall be transacted at any general meeting unless a quorum of members is present at the time when the meeting proceeds to business. Save as otherwise provided herein the quorum for the general meetings shall be as provided in section 103.
☐	☐	45	• The chairperson if any of the Board shall preside as Chairperson at every general meeting of the company.

☐	☐	46	• If there is no such Chairperson or if he is not present within fifteen minutes after the time appointed for holding the meeting or is unwilling to act as chairperson of the meeting the directors present shall elect one of their members to be Chairperson of the meeting.
☐	☐	47	• If at any meeting no director is willing to act as Chairperson or if no director is present within fifteen minutes after the time appointed for holding the meeting the members present shall choose one of their members to be Chairperson of the meeting.
☑	☐	48	• In case of a One Person Company the resolution required to be passed at the general meetings of the company shall be deemed to have been passed if the resolution is agreed upon by the sole member and communicated to the company and entered in the minutes book maintained under section 118 such minutes book shall be signed and dated by the member the resolution shall become effective from the date of signing such minutes by the sole member.
			Adjournment of meeting
☐	☐	49	• The Chairperson may with the consent of any meeting at which a quorum is present and shall if so directed by the meeting adjourn the meeting from time to time and from place to place. No business shall be transacted at any adjourned meeting other than the business left unfinished at the meeting from which the adjournment took place. When a meeting is adjourned for thirty days or more notice of the adjourned meeting shall be given as in the case of an original meeting. Save as aforesaid and as provided in section 103 of the Act it shall not be necessary to give any notice of an adjournment or of the business to be transacted at an adjourned meeting.
			Voting rights
☐	☐	50	• Subject to any rights or restrictions for the time being attached to any class or classes of shares on a show of hands every member present in person shall have one vote and on a poll the voting rights of members shall be in proportion to his share in the paid-up equity share capital of the company.
☐	☐	51	• A member may exercise his vote at a meeting by electronic means in accordance with section 108 and shall vote only once.
☐	☐	52	• In the case of joint holders the vote of the senior who tenders a vote whether in person or by proxy shall be accepted to the exclusion of the votes of the other joint holders. For this purpose seniority shall be determined by the order in which the names stand in the register of members.
☐	☐	53	• A member of unsound mind or in respect of whom an order has been made by any court having jurisdiction in lunacy may vote whether on a show of hands or on a poll by his committee or other legal guardian and any such committee or guardian may on a poll vote by proxy.
☐	☐	54	• Any business other than that upon which a poll has been demanded maybe proceeded with pending the taking of the poll.

☐	☐	55	• No member shall be entitled to vote at any general meeting unless all calls or other sums presently payable by him in respect of shares in the company have been paid
☐	☐	56	• No objection shall be raised to the qualification of any voter except at the meeting or adjourned meeting at which the vote objected to is given or tendered and every vote not disallowed at such meeting shall be valid for all purposes. Any such objection made in due time shall be referred to the Chairperson of the meeting whose decision shall be final and conclusive.
			Proxy
☐	☐	57	• The instrument appointing a proxy and the power-of-attorney or other authority if any under which it is signed or a notarised copy of that power or authority shall be deposited at the registered office of the company not less than 48 hours before the time for holding the meeting or adjourned meeting at which the person named in the instrument proposes to vote or in the case of a poll not less than 24 hours before the time appointed for the taking of the poll and in default the instrument of proxy shall not be treated as valid.
☐	☐	58	• An instrument appointing a proxy shall be in the form as prescribed in the rules made under section 105
☐	☐	59	• A vote given in accordance with the terms of an instrument of proxy shall be valid notwithstanding the previous death or insanity of the principal or the revocation of the proxy or of the authority under which the proxy was executed or the transfer of the shares in respect of which the proxy is givenProvided that no intimation in writing of such death insanity revocation or transfer shall have been received by the company at its office before the commencement of the meeting or adjourned meeting at which the proxy is used.
			Board of Directors
☐	☑		• The day to day management of the business of the CompanyShall be vested with the Board of Directors of the Company or Such persons asmay be authorized by the Board from time to time The Board may exercise allsuch powers of the Company and do all such acts deeds and things as are notprohibited by the Act or any other law for the time being in force or by theMemorandum of Association of a Company and without prejudice to the foregoingshall be responsible for all policy matters and the supervision direction andcontrol of the conduct of the business affairs and operations of the CompanyThe first Directors of the Company shall be 1. ARVIND KUMAR 2. JASPAL SINGH KUSHWAHA 3.AWANISH KUMAR BHARATI iiat every annual general meeting One third of such of the directors for the timebeing as are liable to retire by rotation or if their number is neither threenor a multiple of Three then the number nearest to one third shall retire from OfficeThe directors to retire by rotation at every annual general Meeting shall bethose who have been longest in office since their Last appointment but asbetween persons who became directors on the same day those who are to retireshall in default of and subject to any subject to any agreement amongthemselves be date

		60	remined by loti at annual general meeting at which adirector retires as afore said the company may fill up the vacancy by appointingtheir tiring director or some other person there to The Board of Directors ofthe Company shall consist of not less than but not more than Directors The appointmentof Directors including the Chairman Managing Director Whole Time Director Part timeDirector shall be done in the General Meetings in accordance with the provisionsof the Companies Act and Rules made there under and shall be eligible forappointment However till the Company is a Government Company REC PowerDevelopment and Consultancy Limited RECPDCL the holding company shall have thefull powers to recommend nominate the name of any Directors to be appointed onthe Board of the Company Further RECPDCL shall also have the power to removeany director from office at any time in its absolute discretion RECPDCL shallalso have the right to fill any vacancies in the office of director caused byremoval resignation death or otherwise Subject to provisions of the Act theCompany may bypassing their solution in General Meeting increased crease the maximumnumber of Directors and may alter their qualification Further the Company maysubject to the provisions of the Act remove any Director before the expirationof his period of office and appoint another person in place of him The Boardmay appoint any person to act as alternate director for a Director during the laters absence for a period of not less than three months from India and such appointmentshall have effect and such appointee whilst he holds office as an alternatedirector shall be entitled to notice of meeting of the Board and to attend andvote there at accordingly but he shall not require any qualification and shallipso facto vacate office if and when the absent Director returns to IndiaCasual vacancies among Directors may be filled by the Board of Directors at theirmeeting and any person so appointed shall hold the office as per the provisionof section of the Act Subject to the provisions of Section and other applicableprovisions if any of the Act the Board shall have power at any time and fromtime to time to appoint a person as an Additional Director but so that thetotal number of Directors shall not at any time exceed the maximum number fixedby these Articles The Additional Director so appointed shall retire from Officeat next annual General Meeting but shall be eligible for election by thecompany at that meeting as a Director
☐	☐	61	• The remuneration of the directors shall in so far as it consists of a monthly payment be deemed to accrue from day-to-day. In addition to the remuneration payable to them in pursuance of the Act the directors may be paid all travelling hotel and other expenses properly incurred by them in attending and returning from meetings of the Board of Directors or any committee thereof or general meetings of the company or in connection with the business of the company.
☐	☐	62	• The Board may pay all expenses incurred in getting up and registering the company.
☐	☐	63	• The company may exercise the powers conferred on it by section 88 with regard to the keeping of a foreign register and the Board may (subject to the provisions of that

			section) make and vary such regulations as it may think fit respecting the keeping of any such register.
☐	☐	64	• All cheques promissory notes drafts hundis bills of exchange and other negotiable instruments and all receipts for monies paid to the company shall be signed drawn accepted endorsed or otherwise executed as the case may be by such person and in such manner as the Board shall from time to time by resolution determine
☐	☐	65	• Every director present at any meeting of the Board or of a committee thereof shall sign his name in a book to be kept for that purpose.
☐	☐	66	• Subject to the provisions of section 149 the Board shall have power at any time and from time to time to appoint a person as an additional director provided the number of the directors and additional directors together shall not at any time exceed the maximum strength fixed for the Board by the articles. Such person shall hold office only up to the date of the next annual general meeting of the company but shall be eligible for appointment by the company as a director at that meeting subject to the provisions of the Act.
			Proceedings of the Board
☐	☐	67	• The Board of Directors may meet for the conduct of business adjourn and otherwise regulate its meetings as it thinks fit. A director may and the manager or secretary on the requisition of a director shall at any time summon a meeting of the Board.
☐	☐	68	• Save as otherwise expressly provided in the Act questions arising at any meeting of the Board shall be decided by a majority of votes. In case of an equality of votes the Chairperson of the Board if any shall have a second or casting vote.
☐	☐	69	• The continuing directors may act notwithstanding any vacancy in the Board but if and so long as their number is reduced below the quorum fixed by the Act for a meeting of the Board the continuing directors or director may act for the purpose of increasing the number of directors to that fixed for the quorum or of summoning a general meeting of the company but for no other purpose.
☐	☐	70	• The Board may elect a Chairperson of its meetings and determine the period for which he is to hold office. If no such Chairperson is elected or if at any meeting the Chairperson is not present within five minutes after the time appointed for holding the meeting the directors present may choose one of their number to be Chairperson of the meeting.
☐	☐	71	• The Board may subject to the provisions of the Act delegate any of its powers to committees consisting of such member or members of its body as it thinks fit. Any committee so formed shall in the exercise of the powers so delegated conform to any regulations that may be imposed on it by the Board.
☐	☐	72	• A committee may elect a Chairperson of its meetings. If no such Chairperson is elected or if at any meeting the Chairperson is not present within five minutes after the time appointed for holding the meeting the

			memberspresent may choose one of their members to be Chairperson of the meeting.
☐	☐	73	• A committee may meet and adjourn as it thinks fit. Questions arising at any meeting of a committee shall be determined by a majority of votes of the members present and in case of an equality of votes the Chairperson shall have a second or casting vote.
☐	☐	74	• All acts done in any meeting of the Board or of a committee thereof or by any person acting as a director shall notwithstanding that it may be afterwards discovered that there was some defect in the appointment of any one or more of such directors or of any person acting as aforesaid or that they or any of them were disqualified be as valid as if every such director or such person had been duly appointed and was qualified to be a director.
☐	☐	75	• Save as otherwise expressly provided in the Act a resolution in writing signed by all the members of the Board or of a committee thereof for the time being entitled to receive notice of a meeting of the Board or committee shall be valid and effective as if it had been passed at a meeting of the Board or committee duly convened and held.
☑	☐	76	• In case of a One Person Company where the company is having only one director all the businesses to be transacted at the meeting of the Board shall be entered into minutes book maintained under section 118 such minutes book shall be signed and dated by the director the resolution shall become effective from the date of signing such minutes by the director.
			Chief Executive Officer, Manager, Company Secretary or Chief Financial Officer
☐	☐	77	• Subject to the provisions of the Act A chief executive officer manager company secretary or chief financial officer may be appointed by the Board for such term at such remuneration and upon such conditions as it may think fit and any chief executive officer manager company secretary or chief financial officer so appointed may be removed by means of a resolution of the Board A director may be appointed as chief executive officer manager company secretary or chief financial officer
☐	☐	78	• A provision of the Act or these regulations requiring or authorising a thing to be done by or to a director and chief executive officer manager company secretary or chief financial officer shall not be satisfied by its being done by or to the same person acting both as director and as or in place of chief executive officer manager company secretary or chief financial officer.
			The Seal
☐	☐	79	• The Board shall provide for the safe custody of the seal. The seal of the company shall not be affixed to any instrument except by the authority of a resolution of the Board or of a committee of the Board authorised by it in that behalf and except in the presence of at least two directors and of the secretary or such other person as the Board may appoint for the purpose and those two directors and the secretary or other person aforesaid

			shall sign every instrument to which the seal of the company is so affixed in their presence.
			Dividends and Reserve
☐	☐	80	• The company in general meeting may declare dividends but no dividend shall exceed the amount recommended by the Board.
☐	☐	81	• Subject to the provisions of section 123 the Board may from time to time pay to the members such interim dividends as appear to it to be justified by the profits of the company.
☐	☐	82	• The Board may before recommending any dividend set aside out of the profits of the company such sums as it thinks fit as a reserve or reserves which shall at the discretion of the Board be applicable for any purpose to which the profits of the company may be properly applied including provision for meeting contingencies or for equalizing dividends and pending such application may at the like discretion either be employed in the business of the company or be invested in such investments (other than shares of the company) as the Board may from time to time thinks fit. The Board may also carry forward any profits which it may consider necessary not to divide without setting them aside as a reserve
☐	☐	83	• Subject to the rights of persons if any entitled to shares with special rights as to dividends all dividends shall be declared and paid according to the amounts paid or credited as paid on the shares in respect whereof the dividend is paid but if and so long as nothing is paid upon any of the shares in the company dividends may be declared and paid according to the amounts of the shares. No amount paid or credited as paid on a share in advance of calls shall be treated for the purposes of this regulation as paid on the share. All dividends shall be apportioned and paid proportionately to the amounts paid or credited as paid on the shares during any portion or portions of the period in respect of which the dividend is paid but if any share is issued on terms providing that it shall rank for dividend as from a particular date such share shall rank for dividend accordingly.
☐	☐	84	• The Board may deduct from any dividend payable to any member all sums of money if any presently payable by him to the company on account of calls or otherwise in relation to the shares of the company.
☐	☐	85	• Any dividend interest or other monies payable in cash in respect of shares may be paid by cheque or warrant sent through the post directed to the registered address of the holder or in the case of joint holders to the registered address of that one of the joint holders who is first named on the register of members or to such person and to such address as the holder or joint holders may in writing direct. Every such cheque or warrant shall be made payable to the order of the person to whom it is sent.
☐	☐	86	• Any one of two or more joint holders of a share may give effective receipts for any dividends bonuses or other monies payable in respect of such share.

		87	• Notice of any dividend that may have been declared shall be given to the persons entitled to share therein in the manner mentioned in the Act.
		88	• No dividend shall bear interest against the company.
			Accounts
		89	• The Board shall from time to time determine whether and to what extent and at what times and places and under what conditions or regulations the accounts and books of the company or any of them shall be open to the inspection of members not being directors. No member (not being a director) shall have any right of inspecting any account or book or document of the company except as conferred by law or authorised by the Board or by the company in general meeting.
			Winding up
		90	• Subject to the provisions of Chapter XX of the Act and rules made thereunder If the company shall be wound up the liquidator may with the sanction of a special resolution of the company and any other sanction required by the Act divide amongst the members in specie or kind the whole or any part of the assets of the company whether they shall consist of property of the same kind or not. For the purpose aforesaid the liquidator may set such value as he deems fair upon any property to be divided as aforesaid and may determine how such division shall be carried out as between the members or different classes of members. The liquidator may with the like sanction vest the whole or any part of such assets in trustees upon such trusts for the benefit of the contributories if he considers necessary but so that no member shall be compelled to accept any shares or other securities whereon there is any liability.
			Indemnity
		91	• Every officer of the company shall be indemnified out of the assets of the company against any liability incurred by him in defending any proceedings whether civil or criminal in which judgment is given in his favour or in which he is acquitted or in which relief is granted to him by the court or the Tribunal.
			Others
		92	•

Subscriber Details

S. No.	Subscriber Details				
	*Name, Address, Description and Occupation	DIN / PAN / Passport number	*Place	DSC	Dated
1	REC POWER DEVELOPMENT AND CONSULTANCY LIMITED, CORE-4, SCOPE COMPLEX, 7, LODHI ROAD, NEW DELHI- 110003, THROUGH ITS CEO THANGARAJAN SUB	0*7*2*1*	NEW DELHI	Thangaraja Rebeh Chandra Sek	19/05/2025

	ASH CHANDIRA BOSH S/O SITHAN THANGARAJAN R/O APARTMENT NO S-2, MIDDLE PORTION 2-B, JANGPURA, MATHURA ROAD, NEWDELHI-110014, OCCUPATION-SERVICE				
2	NAVITA DUBAL D/O PHOOL SINGH NOMINEE OF REC POWER DEVELOPMENT AND CONSULTANCY LIMITED R/O FLAT NO. 307, GAUR GANGA-1 APARTMENT, SECTOR-4, BEHIND VAISHALI METRO STATION, VAISHALI GHAZIABAD UTTAR PRADESH- 201010 OCCUPATION-SERVICE	A*N*D*9*2*	NEW DELHI	Navita Dubal	19/05/2025
3	MUKUL AGARWAL S/O RAJESH KUMAR NOMINEE OF REC POWER DEVELOPMENT AND CONSULTANCY LIMITED R/O HOUSE NO. 767,SECOND FLOOR, ANSAL C-2BLOCK, NEAR WATER TANKANSAL PLAZA SECTOR-3 PALAM VIHAR, GURGAON- 122017, HARYANA OCCUPATION-SERVICE	1*3*2*8*	NEW DELHI	MUKUL AGARWAL	19/05/2025
4	CHILAKAMARRI VENKATA LAKSHAMANA CHARYULU S/O SRIMANNARAYAN CHARYULU CHILKAMARRI NOMINEE OF REC POWER DEVELOPMENT AND CONSULTANCY LIMITED R/O PLOT NO.1, NORTHSTAR AIRPORT BOULEVARD, TUKKAGUDA, MAHESHRAM MANDAL, RANGA REDDY DISTRICT, ANDRA PRADESH- 501359 OCCUPATION-SERVICE	1*7*2*3*	NEW DELHI	CHILAKAMARRI VENKATA LAKSHMANA CHARYULU	19/05/2025
5	ANIL KUMAR PERALA S/O VENKATESHAM NOMINEE OF REC POWER DEVELOPMENT AND CONSULTANCY LIMITED R/O A302 TARIKA APPARTMENT, SECTOR-43 GURGAON HARYANA-122001 OCCUPATION-SERVICE	B*V*P*1*2*	NEW DELHI	Perala Anil Kumar	19/05/2025
6	JASPAL SINGH KUSHWAHA S/O MITHAI LAL KUSHWAHA NOMINEE OF REC POWER DEVELOPMENT AND CONSULTANCY LIMITED R/O C-64/FIRST FLOOR, JVTS GARDEN CHATTARPUR EXTENSION South West Delhi 110074 OCCUPATION-SERVICE	1*3*2*3*	NEW DELHI	Jaspal Singh Kushwaha	19/05/2025
7	ARVIND KUMAR S/O NAND KISHOR SINGH NOMINEE OF REC POWER DEVELOPME	1*3*2*3*	NEW DELHI	ARVIND KUMAR	19/05/2025

NT AND CONSULTANCY LIMITED R/O T4-8A, SAI VATIKA APARTMENT, SECTOR-63, FARIDABAD - 121004, OCCUPATION-SERVICE					

Signed before me						
Name Prefix *(ACA/FCA/ACS/ FCS/ACMA/ FCMA)*	***Name of the witness**	***Address, Description and Occupation**	***DIN / PAN / Passport number / Membership**	***Place**	**DSC**	**Dated**
FCA	VINAY KUMAR	A-805, NX BYTE T-3, NX ONE, TECH ZONE - IV, GREATER NOIDA WEST -201318	4*2*9*	NEW DELHI	Vinay Kumar	19/05/2025

Form No. INC-33

Form language

(•) English ( ) Hindi

e-MOA (e-Memorandum of Association)
[Pursuant to Schedule I (see Sections 4 and 5) to the Companies Act, 2013)]

सत्यमेव जयते

Refer instruction kit for filing the form

*All fields marked in * are mandatory*

*** Table applicable to company as notified under schedule I of the Companies Act, 2013**

(A - MEMORANDUM OF ASSOCIATION OF A COMPANY LIMITED BY SHARES
B - MEMORANDUM OF ASSOCIATION OF A COMPANY LIMITED BY GUARANTEE AND NOT HAVING A SHARE CAPITAL
C - MEMORANDUM OF ASSOCIATION OF A COMPANY LIMITED BY GUARANTEE AND HAVING A SHARE CAPITAL
D - MEMORANDUM OF ASSOCIATION OF AN UNLIMITED COMPANY AND NOT HAVING SHARE CAPITAL
E - MEMORANDUM OF ASSOCIATION OF AN UNLIMITED COMPANY AND HAVING SHARE CAPITAL)

A - MEMORANDUM OF ASSOCIATION OF A COMPANY LIMITED BY SHARES

Table A/B/C/D/E

1 The name of the company is

RYAPTE POWER TRANSMISSION LIMITED

2 The registered office of the company will be situated in the State of

Delhi

3 (a) The objects to be pursued by the company on its incorporation are:

1.To plan, promote and develop an integrated and efficient power transmission system network in all its aspects including planning, investigation, research, design and engineering, preparation of preliminary, feasibility and definite project reports, construction, operation and maintenance of transmission lines, sub-stations, load dispatch stations and communication facilities and appurtenant works, coordination of integrated operation of regional and national grid system, execution of turn-key jobs for other utilities/organizations and wheeling of power in accordance with the policies, guidelines and objectives laid down by the Central Government from time to time.
2. To study, investigate, collect information and data, review operation, plan, research, design and prepare Report, diagnose operational difficulties and weaknesses and advise on the

remedial measures to improve, undertake development of new and innovative product connected with business of the Company as well as modernize existing EHV, HV lines and Sub-Stations.

3.To act as consultants, technical advisors, surveyors and providers of technical and other services to Public or Private Sector enterprises engaged in the planning, investigation, research, design and preparations of preliminary, feasibility and definite project reports, manufacture of power plant and equipment, construction, generation, operation and maintenance of power transmission system from power generating stations and projects, transmission and distribution of power.

4.To plan, promote, develop, erect and maintain, operate and otherwise deal in Telecommunication networks and services in all its aspects including planning, investigation, research, design and engineering, preparation of preliminary, feasibility and definite project reports: to purchase, sell, import, export, assemble, manufacture, install, commission, maintain, operate commercially whether on own or along with other, on lease or otherwise. These networks and for such purposes to set up and/ or install all requisite communications facilities and other facilities including fibre optic links, digital microwave links, communication cables, other telecommunication means, telephone and other exchanges, co-axial stations, microwave stations, repeater stations, security system databases, billing systems, subscriber management systems and other communication systems whether consisting of sound, visual impulse, or otherwise, existing or that may be developed or invented in the future and to

manufacture, purchase, sell, import, export, assemble, take or give on lease/rental/subscription basis or by similar means or otherwise deal in all components and other support and ancillary hardware and software systems, accessories, parts and equipments etc. used in or in connection with the operation of the above communication systems and networks including to deal with telecommunication operations or directly with the general public, commercial companies or otherwise.

(b) *Matters which are necessary for furtherance of the objects specified in clause 3(a) are

1.To obtain license, approvals and authorization from Governmental Statutory and Regulatory Authorities, as may be necessary to carry out and achieve the Objects of the Company and connected matters which may seem expedient to develop the business interests of the Company in India and abroad.
2.To enter into any arrangement with the Government of India or with any State Government or with other authorities/ commissions, local bodies or public sector or private sector undertakings, Power Utilities, Financial Institutions, Banks, International Funding Agencies and obtain such charters, subsidies, loans, advances or other money, grants, contracts, rights, sanctions, privileges, licenses or concessions whatsoever (whether statutory or
otherwise) which the Company may think it desirable to obtain for carrying its activities in furthering the interests of the Company or its members.
3.To enter into any agreement, contract or any arrangement for the implementation of the power generation, evacuation, transmission and distribution system and network with Power/ Transmission Utilities, State Electricity Boards, Vidhyut Boards,
Transmission

as issued by In... E COMPLEX, 7, LOD... LIMITED ...ompanies off...

Companies, Generation Companies,
Licensees, Statutory bodies, other organizations (whether in Private, Public or Joint Sector Undertaking) and bulk consumers of power etc.
4.To secure the payments of money, receivables on transmission and distribution of electricity and sale of fuel, as the case may be, to the State Electricity Boards, Vidyut Boards, Transmission Utilities, Generating Companies, Transmission Companies, Distribution Companies, State Governments, Licensees, statutory bodies, other organizations (whether in Private, Public or Joint Sector Undertaking) and bulk consumers of power etc. through Letter of Credits/ESCROW and other security documents.
5.To coordinate with the Central Transmission Utility of electricity generated by it under the relevant provisions of Electricity Act 2003 and any amendments thereto.
6.Subject to provisions of Sections 73, 74, 179, 180 & 186 and other applicable provisions of the Companies Act, 2013 and rules made thereunder and subject to other laws or directives, if any, of SEBI/RBI, to borrow money in Indian rupees or foreign currencies and obtain foreign lines of credits/ grants/ aids etc. or to receive money or deposits from public for the purpose of the Company's business in such manner and on such terms and with such rights, privileges and obligations as the Company may think fit. The Company may issue bonds/ debentures whether secured or unsecured; bills of exchange, promissory notes or other securities, mortgage or charge on all or any of the immovable and movable properties, present or future and all or any of the uncalled capital for the time being of the Company as the

Company may deem fit and
To repay, redeem or pay off any such securities or charges.
7.To lend money on property or on mortgage of immovable properties or against Bank guarantee and to make advances of money against future supply of goods and services on such terms as the Directors may consider necessary and to invest money of the Company in such manner as the Directors may think fit and to sell, transfer or to deal with the same.
8.To own, possess, acquire by purchase, lease or otherwise rights, title and interests in and to, exchange or hire real estate, equipment, Transmission lines, lands, buildings, apartments, plants, equipment, machinery, fuel blocks and hereditaments of any tenure or descriptions situated in India or abroad or any estate or interest therein and any right over or connected with land so situated and turn the same to account in any manner as may seem necessary or convenient for the purpose of business of the Company and to hold, improve, exploit, reorganize,
manage, lease, sell,
exchange or otherwise dispose of the whole or any part thereof.
9.Subject to applicable provisions of Companies Act, 2013, to subscribe for, underwrite, or otherwise acquire, hold, dispose of and deal with the shares, stocks, debentures or other securities and titles of indebtedness or the right to participate in profits or other similar documents issued by any Government authority, Corporation or body or by any company or body of persons and any option or right in respect thereof.
10.To create any depreciation fund, reserve fund, sinking fund, insurance fund, gratuity, provident fund or any other fund, for depreciation or for repairing, improving extendingor

maintaining any of the properties of the Company or for any other purposes whatsoever conducive to the interests of the Company.

11.To acquire shares, stocks, debentures or securities of any company carrying on any business which this Company is entitled to carry on or acquisition of undertaking itself which may seem likely or calculated to promote or advance the interests of the Company and to sell or dispose of or transfer any such shares, stocks or securities and the acquired undertaking.

12.To enter into partnership or into any agreement for joint working, sharing or pooling profits, joint venture, amalgamation, union of interests, co-operation, reciprocal concessions or otherwise or amalgamate with any person or company carrying on or engaged in or about to carry on or engaged in any business or transaction in India or abroad which the Company is authorized to carry on or engage in any business undertaking having objects identical or similar to, as are being carried on by this Company.

13.To establish and maintain agencies, branch offices and local agencies, to procure business in any part of India and world and to take such steps as may be necessary to give the Company such rights and privileges in any part of the world as deemed proper in the interest of the Company.

14.To promote and undertake the formation of any institution or Company or subsidiary company or for any aforesaid objects intended to benefit the Company directly or indirectly and to coordinate, control and guide their activities.

15(a).To negotiate and enter into agreements and contracts with domestic and foreign companies,

persons or other organizations, banks and financial institutions, in relation to the business of the Company including that of technical know-how, import, export, purchase or sale of plant, machinery, equipment, tools, accessories and consumables, financial assistance and for carrying out all or any of the objects of the Company.

15(b). To negotiate and enter into agreements and contracts for execution of turnkey jobs, works, supplies and export of plant, machinery, tools and accessories etc.

16.Upon and for the purpose of any issue of shares, debentures or any other securities of the Company, to enter into agreement with intermediaries including brokers, managers of issue/commission agents and underwriters and to provide for the remuneration of such persons for their services by way of payment in cash or issue of shares, debentures or other securities of the Company or by granting options to take the same or in any other manner as permissible under the law.

17.To enter into contracts of indemnity and get guarantee and allocations for the business of the Company.

18.To make arrangements for training of all categories of employees and to employ or otherwise engage experts, advisors, consultants etc. in the interest of achieving the Company's objects.

19.To promote conservation and protection of electricity from theft, safety of life and to protect environments including air, land and water etc.

20.To pay and provide for the remuneration, amelioration and welfare of persons employed or formerly employed by the Company and their families providing for pension, allowances, bonuses, other payments or by creating for the

purpose from time to time the Provident Fund, Gratuity and other Funds or Trusts. Further to undertake building or contributing to the building or houses, dwellings or chawls by grants of money, or by helping persons employed by the Company to effect or maintain insurance on their lives by contributing to the payment of premium or otherwise and by providing or subscribing or contributing towards educational institutions, recreation, hospitals and dispensaries, medical and other assistance as the Company may deem fit.

21.To ensure any rights, properties, undertakings, contracts, guarantees or obligations or profits of the Company of every nature and kind in any manner with any person, firm, association, institution or company.

22.To distribute among members of the Company dividend including bonus shares out of profits, accumulated profits or funds and resources of the Company in any manner permissible under law.

23.To institute, conduct, defend, compound or abandon any legal proceedings by or against the Company or its officers or otherwise concerning the affairs of the Company and also to compound and to allow time for payment or satisfaction of any debts or recovery due, claims or demands by or against the Company and to refer any claims or demands by or against the Company or any differences arising in execution of contracts to conciliation and arbitration and to observe, comply with and/or challenge any awards preliminary, interim or final made in any such arbitration.

24.To pay out of the funds of the Company all costs, charges, expenses and preliminary and

incidental to the promotion, formation, establishment and registration of the Company or other expenses incurred in this regard.

25.Subject to provisions of Sections 181, 182 & 183 of Companies Act, 2013 to contribute money or otherwise assist to charitable, benevolent, religious, scientific national, defense, public or other institutions or objects or purposes.

26.To open an account or accounts with any individual, firm or company or with any bank bankers or shroofs and to pay into and withdraw money from such account or accounts.

27.To accept gifts, bequests, devises and donations from members and others and to make gifts to members and others of money, assets and properties of any kind.

28.To carry out all or any of the objects of the company and do all or any of the above things in any part of the world and either as principal, agent, contractor or trustee or otherwise and either alone or in conjunction with others.

29.To negotiate and/or enter into agreement and contract with individuals, companies, corporations, foreign or Indian, for obtaining or providing technical, financial or any other assistance for carrying on all or any of the objects of the Company and also for the purpose of activating, research, development of projects on the basis of know-how and/or financial participation and for technical collaboration, and to acquire or provide necessary formulate and patent rights for furthering the objects of the company.

30.To aid peculiarly or otherwise, any association, body or movement having for its object the solution, settlement or surmounting of industrial or labour problems or trouble or

the promotion of industry or trade.

31.Subject to the provisions of Companies Act, 2013 or any amendment or re-enactment thereof in the event of winding up to distribute among the members in specie any property of the Company or any proceeds of sale on disposal of any property in accordance with the provisions of the Act.

32.To do all such other things as may be deemed incidental or conducive to the attainment of the above Objects or any of them and to carry on any business which may seem to the Company capable of being conveniently carried in connection with any of the Company's Objects or calculated directly or indirectly to enhance the value of or render profitable any of the Company's property or rights.

33.To establish, provide, maintain and conduct or otherwise subsidies research laboratories and experimental workshops for scientific, technical or researches, experiments and to undertake and carry on directly or in collaboration with other agencies scientific and technical research experiments and tests of all kinds and to process, improve and invent new products and their techniques of manufacture and to promote, encourage, reward in every manner studies and research, scientific and technical investigations and inventions of any kind that may be considered likely to assist, encourage and promote rapid advances in technology, economies, import substitution or any business which the Company is authorized to carry on.

34.Subject to provisions of the Companies Act, 2013, to evolve scheme for restructuring or arrangement, to amalgamate or merge or to enter into partnership or into any consortium or arrangement for

sharing of profits, union of interests, co-operation, joint venture with any Person or Persons, partnership firm/firms, or company or companies carrying on or engaged in any operation capable of being conducted so conveniently in cooperation with the business of the Company or to benefit the Company or to the activities for which the Company has been established.
35.To apply for purchase, or otherwise acquire any trade marks, patents, brevets, inventions, licenses, concessions and the like, conferring any exclusive or nonexclusive or limited rights to use, or any secret or other information as to any invention which may be capable of being used for any of the purposes of the Company, or the acquisition of which may benefit the Company and to use, exercise, develop or grant licenses in respect of or otherwise turn to account the property, rights or information so acquired.
36.To sell, dispose or hive off an undertaking of the Company or any part thereof for such consideration as the Company may think fit and in particular for shares, debentures or securities of any other association, corporation or company.
37.To sell, improve, manage, develop, exchange, loan, lease or let, under-lease, sub - let, mortgage, dispose of, deal with in any manner, turn to account or otherwise deal with any rights or property of the Company.

4 The liability of the member(s) is limited, and this liability is limited to the amount unpaid if any, on the shares held by them.

5 Every member of the company undertakes to contribute:

(i) to the assets of the company in the event of its being wound up while he is a member, or within one year after he ceases to be a member, for payment of the debts and liabilities of the company or of such debts and liabilities as may have been contracted before he ceases to be a member; and

(ii) to the costs, charges and expenses of winding up (and for the adjustment of the rights of the contributories among themselves), such amount as may be required, not exceeding * [ ] rupees.

(iii) The share capital of the company is [500000] rupees, divided into

50000	Equity Share	Shares of	10	Rupees each	

6

☑ We, the several persons, whose names and address are subscribed, are desirous of being formed into a company in pursuance of this memorandum of association, and we respectively agree to take the number of shares in the capital of the company set against our respective names:

☐ I, whose name and address is given below, am desirous of forming a company in pursuance of this memorandum of association and agree to take all the shares in the capital of the company:

☐ We, the several persons, whose names and addresses are subscribed, are desirous of being formed into a company in pursuance of this memorandum of association:

Subscriber Details					
S. No.	*Name, Address, Description and Occupation	DIN / PAN / Passport number	No. of shares taken	DSC	Dated
1	JASPAL SINGH KUSHWAHAS/O MITHAI LAL KUSHWAHA NOMINEE OF REC POWER DEVELOPMENT AND CONSULTANCY LIMITED R/O C-64/FIRST FLOOR, JVTS GARDEN CHATTARPUR EXTENSION South West Delhi 110074 OCCUPATION-SERVICE	1*3*2*3*	1 Equity,0 Preference	Jaspal Singh Kushwaha	20/05/2025
2	ARVIND KUMAR S/O NANDKISHOR SINGH NOMINEE OF REC POWER DEVELOPMENT AND CONSULTANCY LIMITED R/O T4-8A, SAI VATIKA APARTMENT, SECTOR-63, FARIDABAD - 121004, OCCUPATION-SERVICE	1*3*2*3*	1 Equity,0 Preference	ARVIND KUMAR	20/05/2025
3	REC POWER DEVELOPMENT AND CONSULTANCY LIMITED, CORE-4, SCOPE COMPLEX, 7, LODHI ROAD, NEW DELHI-110003, THROUGH ITS CEO THANGARAJAN SUBASH CHANDIRA BOSH S/O SITHAN THANGARAJAN R/O APARTMENT NO S-2, MIDDLE PORTION 2-B, JANGPURA, MATHURA ROAD, NEWDELHI-110014, OCCUPATION-SERVICE	0*7*2*1*	49994 Equity,0 Preferenc	Thangaraja Subash Chandira Bosh	20/05/2025
4	NAVITA DUBAL D/O PHOOL SINGH NOMINEE OF REC POWER DEVELOPMENT AND CONSULTANCY LIMITED R/O FLAT NO. 307, GAUR GANGA-1 APARTMENT, SECTOR-4, BEHIND VAISHALI METRO STATION, VAISHALI GHAZIABAD UTTAR PRADESH- 201010 OCCUPATION-SERVICE	A*N*D*9*2*	1 Equity,0 Preference	Navita Dubal	20/05/2025
5	MUKUL AGARWAL S/O RAJESH KUMAR NOMINEE OF REC POWER DEVELOPMENT AND CONSULTANCY LIMITED R/O HOUSE NO. 767,SECOND FLOOR, ANSAL C-2BLOCK, NEAR WATER TANKANSAL PLAZA SECTOR-3 PALAM VIHAR, GURGAON- 1 22017, HARYANA OCCUPATION-SERVICE	1*3*2*8*	1 Equity,0 Preference	MUKUL AGARWAL	20/05/2025
6	CHILAKAMARRI VENKATA LAKSHAMANA CHARYULU S/O SRIMANNARAYAN CHARYULU CHILKAMARRI NOMINEE OF REC POWER DEVELOPMENT AND CONSULTANCY LIMITED R/O PLOT NO.1, NORTHSTAR AIRPORT BOULEVARD, TUKKAGUDA, MAHESHRAM MANDAL, RANGAREDDY DISTRICT, ANDRA PRADESH-501359 OCCUPATION-SERVICE	1*7*2*3*	1 Equity,0 Preference	CHILAKAMARRI VENKATA LAKSHMANA CHARYULU	20/05/2025

7	ANIL KUMAR PERALA S/O VENKATESHAM NOMINEE OF REC POWER DEVELOPMENT AND CONSULTANCY LIMITED R/O A302 TARIKA APPARTMENT, SECTOR-43 GURGAON HARYANA-122001 OCCUPATION-SERVICE	B*V*P*1*2*	1 Equity,0 Preference	Perala Anil Kumar	20/05/2025
Total shares taken			50000 Equity,0 Preference		

Signed before me

Membership type of the witness *(ACA/FCA/ACS/FCS/ACMA/FCMA)*	*Name of the witness	*Address, Description and Occupation	DIN / PAN / Passport number / Membership number	DSC	Dated
FCA	VINAY KUMAR	A-805, NX BYTET-3, NX ONE, TECH ZONE - IV, GREATER NOIDA WEST -201318	4*2*9*	Vinay Kumar	20/05/2025

7 Shri / Smt _____ _____ Of _____ resident of _____ aged _____ years shall be the nominee in the event of death of the sole member.

Annexure P-6 (Colly)

Clarifications dated 18.09.20205 on the RFP Documents for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process

Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
1	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025	RFP Sr. No. 2, Scope of Transmission Scheme Sr. No. 1	As per RFP document, we understand that provision for Bus sectionalizers in 400 kV is not required. Kindly Confirm.			Bus sectionalizer is not required on 400kV side
2	RFP for establish Intra-State Transmission system for "Evacuation Scheme for	RFP Sr. No. 2, Scope of Transmission Scheme Sr. No. 1	As per RFP document, Distribution of 220 kV ICT Bays and Line Bays across sectionalizers can be considered as per Layout requirement. If any specific distribution of 220 kV Bays is required, please provide.		For estimation purpose.	Line and ICT bays needs to be distributed on both Bus sections.

Clarifications dated 18.09.20205 on the RFP Documents for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process

Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
	2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025					
3	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025	Annexure C, specific technical requirement of Substation 2.4,2.8, 2.9	Current rating of Bus coupler bay is provided 3500 A in 220 kV (2.4), CB Continuous current rating at ambient temperature is provided 3150 A (2.8), Isolator rated current ambient temperature is provided 1600/2500 A (2.9). We understand that as per prevailing practice current rating for Bus Coupler and Bus sectionalizers can be taken 3150 A and rest feeder bays rating can be considered as per feeder. Kindly confirm		For estimation purpose.	Bidder understanding is correct.

Clarifications dated 18.09.20205 on the RFP Documents for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process

Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
4	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025	Annexure C, specific technical requirement of Substation 2.12 Surge Arrestors Sl No. 5 Rated arrestor voltage for 245 kV SA	Rated arrestor voltage for 245 kV SA is 198 kV instead of 216 kV which is prevailing practice. Kindly confirm.		For estimation purpose.	As per RFP & CEA, rated Surge arrestor voltage is 216 KV.
5	RFP for establish Intra-State Transmission system for "Evacuation Scheme for	Annexure C, specific technical requirement of Substation 3.0 General facilities "All electrical equipment shall be installed above the Highest Flood Level (HFL) and where such equipment is not possible to be	Please provide Highest Flood Level (HFL) for all new Substations.		For estimation purpose.	The HFL will be finalised by the bidder as per site condition.

Clarifications dated 18.09.20205 on the RFP Documents for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process

Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
	2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025	installed above Highest Flood Level, it shall be ensured that there is no seepage or leakage or logging of water."				
6	RFP to establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025	RFP Sr. No. 2, Scope of Transmission Scheme Sr. No. 3 & SPECIFIC TECHNICAL REQUIREMENTS FOR SUBSTATION 2.3 Switching schemes	We understand that, in case of GIS substation where the bus scheme is One and Half breaker scheme, the diameters shall be complete with future line bay only, and GIS duct of the future bay shall be brought outside the GIS hall/building with extension/interface module suitably. Kindly confirm		Bidder needs information for proper estimation.	Bidder understanding is correct

Clarifications dated 18.09.20205 on the RFP Documents for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process

Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
		Voltage / Type of Substation: 400kV side / 220kV side GIS Type: One & half breaker / Double bus scheme AIS Type: One & half breaker / Double main bus and Transfer bus scheme (DMT)				
7	RFP to establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur		Please re-confirm the requirement of Online PDM and Online SF6 and O2 monitoring system.		Bidder needs information for proper estimation	Online PDM and Online SF6 and O2 monitoring system Are required for GIS and the same is not required for AIS .

Clarifications dated 18.09.20205 on the RFP Documents for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process

Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
	District" dated 10.06.2025					
8	RFP to establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025	SPECIFIC TECHNICAL REQUIREMENTS FOR SUBSTATION Clause 18 c). **400 kV & 220 kV GIS BUILDING (If applicable)**	It is mentioned that the dimensions for 400 KV & 220 KV GIS building is indicated in the enclosed layout plan. (Refer Annexure V of projects). But the same is not attached. Please provide Annexure V.		Bidder needs information for proper estimation	The dimension of GIS hall shall be suitable for accommodation of all present, future bays along with bay for maintenance. The dimension of GIS shall be needs to be finalised by bidder.
9	RFP for establish Intra-State Transmissi	SPECIFIC TECHNICAL REQUIREMENTS FOR SUBSTATION	Given Parameters: **Parameter** | **400kV System** | **220kV System**		Bidder needs information for proper estimation.	The same technical specs should be

Clarifications dated 18.09.20205 on the RFP Documents for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process

Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
	on system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025	TECHNICAL SPECIFICATION FOR SF6 GAS INSULATED METAL ENCLOSED SWITCHGEAR (GIS) Clause 17.6 Parameters for 420KV & 220KV CLASS SURGE ARRESTOR	<table><tr><td>Rated arrester voltage</td><td>**390kV**</td><td>198kV</td></tr><tr><td>Continuous operating voltage at 50C</td><td>303kV</td><td>216kV</td></tr><tr><td>Max. residual voltage at (i). 5kA (ii). 10kA nominal discharge current iii). 20kA nominal discharge current</td><td> -- **900kVp** **975kVp**</td><td> 560kVp 480kVp --</td></tr></table> TSP understands that these parameters are for GIS LA, in case TSP Opts for AIS LA above parameters shall not be applicable , kindly confirm			adopted for AIS and GIS.

Clarifications dated 18.09.20205 on the RFP Documents for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process

Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
10	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025	**Frequently Asked Queries 2.5** We understand that VMS requirement is for unmanned stations only. For Manned stations VMS is not compulsory. Reply: VMS shall be provided in line with requirements of RfP document.	It is mentioned that 'VMS shall be provided in line with requirements of RfP document'. However, no requirement of VMS has been provided in the RfP Document. Accordingly, we understand that VMS system is not applicable for subject scheme. Kindly confirm.		Bidder needs information for proper estimation	VMS is not applicable for existing Substations. However VMS is required for Doddathgalli and Ryapte Substation.
11	RFP for establish Intra-State Transmission system for	Clause 2.2 Insulation Coordination 2.8 Circuit Breaker 16 Outdoor Bushings	Creepage Distances are considered as per Coastal Area Consideration for 400kV and 220kV Systems. However, for 33kV System, coastal area is not considered.		Bidder needs information for proper estimation	Creepage distance shall not be less than 25mm/kV

Clarifications dated 18.09.20205 on the RFP Documents for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process

<table>
<tr><th>Sl. No</th><th>Name of the Document</th><th>Clause No. and Existing provision</th><th>Clarification required</th><th>Suggested text for the amendment</th><th>Rationale for the Clarification or Amendment</th><th>Reply</th></tr>
<tr><td></td><td>"Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025</td><td></td><td>Please clarify, whether coastal area needs to be considered under subject scheme, as normal creepages are mentioned for Outdoor Bushings in Clause 16 of RfP.</td><td></td><td></td><td></td></tr>
<tr><td>12</td><td>RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District"</td><td>Clause 2.8
SF6 Circuit Breaker (AIS)</td><td>Please confirm following pertaining to Circuit Breaker:
<table>
<tr><th>Parameter</th><th>400kV System</th><th>220kV System</th></tr>
<tr><td>Rated continuous current (A)</td><td>3150</td><td>3150</td></tr>
<tr><td>Total Break time</td><td>40ms</td><td>50ms</td></tr>
<tr><td>Total closing Time</td><td>Not more than 110ms</td><td>Not more than 100ms</td></tr>
</table></td><td>Suggested Parameters:
<table>
<tr><th>Parameter</th><th>400kV System</th><th>220kV System</th></tr>
<tr><td>Rated continuous current (A)</td><td>3150</td><td>1600/ 3150</td></tr>
<tr><td>Total Break time</td><td>45ms</td><td>65ms</td></tr>
<tr><td>Total closing Time</td><td>Not more than 150ms</td><td>Not more than 150ms</td></tr>
</table></td><td>Bidder needs information for proper estimation</td><td>Suggested parameter are acceptable.</td></tr>
</table>

Clarifications dated 18.09.20205 on the RFP Documents for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process

Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
	dated 10.06.2025		Breaking Capacity of Aux. Contacts | 10A DC with circuit time constant not less than 20ms | 10A DC with circuit time constant not less than 20ms	Breaking Capacity of Aux. Contacts | **2A DC** with circuit time constant not less than 20ms | **2A DC** with circuit time constant not less than 20ms		
13	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025	Clause 2.10 Current Transformer (AIS)	Rated Extended Primary Current mentioned as 125% for both 400kV and 220kV CT (AIS). Please confirm. General Industry practice is to have 120% Extended current rating for Current transformers. Please review the requirement.		Bidder needs information for proper estimation	Extended primary current rating for 400 kV and 220 kV CT shall be as per 120%.

Clarifications dated 18.09.20205 on the RFP Documents for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process

<table>
<tr><th>Sl. No</th><th>Name of the Document</th><th>Clause No. and Existing provision</th><th>Clarification required</th><th>Suggested text for the amendment</th><th>Rationale for the Clarification or Amendment</th><th>Reply</th></tr>
<tr>
<td>14</td>
<td>RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025</td>
<td>Clause 2.11 Capacitive Voltage Transformer (AIS)</td>
<td>Given Parameters
<table><tr><th>Parameter</th><th>400 kV System</th><th>220 kV System</th></tr><tr><td>Minimum Cantilever Strength</td><td>500 kg</td><td>500 kg</td></tr></table>
General Industry practice is cantilever strength for 220kV CVT is 400kg Please review the requirement.</td>
<td>Suggested Parameters :
<table><tr><th>Parameter</th><th>400 kV System</th><th>220kV System</th></tr><tr><td>Minimum Cantilever Strength</td><td>500 kg</td><td>400kg</td></tr></table></td>
<td>Bidder needs information for proper estimation</td>
<td>The parameter shall be as per CEA.</td>
</tr>
<tr>
<td>15</td>
<td>RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park</td>
<td>Clause 2.12 Parameters for Surge Arrestors (AIS)</td>
<td>Given Parameters:
<table><tr><th>Parameter</th><th>400 kV System</th><th>220kV System</th></tr><tr><td>Rated arrester voltage</td><td>336kV</td><td>198kV</td></tr><tr><td>Continuous operating voltage at 50C</td><td>390 kV</td><td>216kV</td></tr></table></td>
<td>Suggested Parameters:
<table><tr><th>Parameter</th><th>400kV System</th><th>220kV System</th></tr><tr><td>Rated arrester voltage</td><td>336kV</td><td>216kV</td></tr><tr><td>Continuous operating voltage at 50C</td><td>267kV</td><td>168kV</td></tr><tr><td>Max. residual voltage at</td><td></td><td></td></tr></table></td>
<td>Bidder needs information for proper estimation</td>
<td>Suggested parameter are acceptable.</td>
</tr>
</table>

Clarifications dated 18.09.20205 on the RFP Documents for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process

Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
	at Ryapte Village, Tumkur District" dated 10.06.2025		Max. residual voltage at (ii). 10kA nominal discharge current: 800k Vp → **480k Vp** Cantilever Strength (for 1 minute withstand test): **1000kg** Please revisit the requirement in reference to industry practice	(ii). 10kA nominal discharge current: 800k Vp → **600k Vp** Cantilever Strength (for 1 minute withstand test): **350kg** → **150kg**		
16	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District"	Clause 2.15 Substation Automation System	Following Clauses for Substation Automation System needs clarification: i). For all the new substations, state of art Substation Automation System (SAS) conforming to IEC- 61850 (Edition-I & II site selectable) shall be provided. **For new Substations under present scheme, SAS conforming to IEC – 61850 Edition-II shall be provided as Edition-I is obsolete. Kindly confirm.**		Bidder needs information for proper estimation.	I). Both Edition I & II shall be provided with option to select. However for new sub-station Edition II shall be provided. Note : For existing sub-station Edition I and II has to be selected as

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
	dated 10.06.2025		ii). Additionally, IEC 61850 based annunciator system shall be provided for backup. **The clause needs clarification as which annunciation system is covered under this clause.** iii). In the existing Substations where Substation automation is not provided, control functions shall be done through control panels & also interfaced to existing RTU/SCADA. **Please confirm the substations under present scope of RFP which are not SAS based. The existing RTU/SCADA details at these SS may also be informed.**			per existing SAS system. II). IEC 61850 based annunciator system shall be provided for backup III). Yes, Substation where SAS is not provided control function shall be through CRP, and interfaced to existing RTU/SCADA . Make, Model and version of SAS

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			iv). Any augmentation work at RLDC/ SLDC is in TSP's scope. **The Augmentation work at RLDC/SLDC may be excluded from TSP Scope as these systems are generally managed by the state utility.**			system is as mentioned below 1. Malur: RTU of ABB make with RTU-560A model and version: 2.Hoskote_New is upcoming S/s 3.Ekarajapura:: ER SAS system with Model: CSC2000 Version: 3.46 Gateway: CSC1321 4.Sarjapura: ABB SAS system with: MICROSCADA Version:9.2 IV). Gateway integration on

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						IEC-104 protocol with SLDC needs to be co-ordinate by TSP. The required DATA engineering at SLDC/RLDC is in the scope of TSP. **For Kolar SS**: bidders are advised to visit the substation.
17	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur	Clause 2.18 Fire Fighting System	**Quote** "However, Nitrogen Injection Fire Protection System (NIFPS) shall be required for 400 kV and 220 kV Class Transformers" As Fire Hydrant and Automatic Emulsifier system is also specified for 400/220kV Transformers, **the requirement of both NIFPS and Automatic**		Bidder needs information for proper estimation.	Nitrogen Injection Fire Protection System (NIFPS) shall be provided for all transformers and reactors.

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	District" dated 10.06.2025		**heat actuated emulsifying system may be reviewed in reference to CEA Construction guidelines.**			
18		Clause 2.22 PT Distribution Scheme	1) Please clarify the requirement of PT Distribution Scheme at new substations under present scheme. 2) Please clarify the utilization of Potential Transformers in the 400kV and 220kV Systems and 3) Also please provide the Scheme drawing for PT Distribution scheme to ascertain its utilization. Further, please clarify whether the same can be done through use of CVT in 400kV and 220kV Systems.		Bidder needs information for proper estimation.	1. For PT distribution refer table IIA of RFP. (Pg 230)- VT specs 2. For Metering & Protection. 3. CVT is not acceptable.
19	TECHNICAL SPECIFICATION	EARTHING:	Kindly review the requirement of "Main Ground Bus Earth mat", rating 63kA/50kA for 3 sec		Bidder needs information for proper estimation	63 kA for 1 sec is acceptable

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
	FOR SF6 GAS INSULATED METAL ENCLOSED SWITCHGEAR (GIS)	The MANUFACTURER shall provide a "Main Ground Bus Earth mat", rated 63kA/50kA for 3 sec (as required)., to which all intentionally earthed parts of the assembly must be connected.	Generally earthmat is being designed for highest fault level of system, in present case it is specified as 63kA for 1 Sec. we understand that earthmat is to be designed for 63kA for 1 Sec please confirm			
20	TECHNICAL SPECIFICATION FOR SF6 GAS INSULATED METAL ENCLOSED SWITCHGEAR (GIS)	Clause 11.4.vii) 400 kV breakers shall be able to switch in and out the 400 kV shunt reactor for any value from 50 MVAR up to 80 MVAR without giving rise to overvoltage more than 2.3 p.u. Laboratory test and or field test reports in support of the same shall be furnished along with the bid.	Generally GIS manufacturers don't have type test reports for switching duty for all rating of reactors hence We understand that Reactor current switching test for Inductive Current switching capability as per IEC 62271-110 shall be acceptable.		Bidder needs information for proper estimation	Acceptable
21	TECHNICAL SPECIFICATION	Clause 11.10.3	Kindly clarify the following: 245 kV CIRCUIT BREAKER:	245 kV CIRCUIT BREAKER: … ….	Bidder needs information for proper estimation	Acceptable

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
	FOR SF6 GAS INSULATED METAL ENCLOSED SWITCHGEAR (GIS)		<table><tr><td></td><td>...</td><td>....</td></tr><tr><td>q)</td><td>Rated Insulation levels</td><td></td></tr><tr><td></td><td>ii)One minute power frequency withstand voltage.</td><td></td></tr><tr><td></td><td>.....</td><td></td></tr><tr><td></td><td>Between terminals with circuit breaker open.</td><td>**530kV rms**</td></tr></table> In line with requirements of IEC 62271-203, 530kV rms value is defined across isolating distance (i.e. applicable for isolators). However, the value across open switching device (i.e. applicable for circuit breakers) is defined as 460kV rms.	<table><tr><td>q)</td><td>Rated Insulation levels</td><td></td></tr><tr><td></td><td>ii)One minute power frequency withstand voltage.</td><td></td></tr><tr><td></td><td>.....</td><td></td></tr><tr><td></td><td>Between terminals with circuit breaker open.</td><td>**460kV rms**</td></tr></table>		

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
22	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025	General Query: For Extn of 400kV Bays at 400/220kV Kolar s/s(POWERGRID)	Kindly provide the below mentioned existing drawings for extension of Kolar SS: 1. SLD indicating present scope 2. General Arrangement indicating present scope 3. Electrical Layout Plan & Section 4. Earthmat layout 5. Structure Layout Plan & Section 6. VMS layout (with make & model) 7. SAS drawing (with make & model) 8. Scheme drawing for Bus bar protection system (with make & model) 9. Control Room Building layout 10. Cable trench layout		Bidder needs information for proper estimation	For Kolar SS: 1. SLD already provided 2. Already provided 3. Layout Already provided. Cross Section enclosed 4. Enclosed 5. Enclosed 6. Enclosed 7. NA 8. Enclosed 9. Enclosed 10. Enclosed

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
23	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025	General Query: For Extn of 400kV Bays at 400/220kV Kolar s/s (POWERGRID)	We assume that there is adequate provision in the existing Substation Automation System to integrate IEDs/Signals associated with the present scope bays extension works. **Kindly confirm.**		Bidder needs information for proper estimation	For Kolar SS: to be integrated in NTAMC SCADA
24	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park	General Query: For Extn of 400kV Bays at 400/220kV Kolar s/s(POWERGRID)	Kindly provide whether existing Busbar protection system is Centralised or De-centralised at Kolar substation. Further, we understand that existing Busbar protection system has adequate capacity to integrate Bays under present scope.		Bidder needs information for proper estimation	For Kolar SS: Centralised. Provision is available.

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
	at Ryapte Village, Tumkur District" dated 10.06.2025		Also, in case existing Busbar protection is De-centralized type, kindly confirm whether Peripheral units for Bays under present scope are to be provided by TSP or already existing at Kolar SS. Kindly confirm.			
25	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025	General Query: For Extn of 400kV Bays at 400/220kV Kolar s/s(POWERGRID)	We understand that existing AC/DC Distribution Boards have adequate feeders for bays under present scope. Kindly confirm.		Bidder needs information for proper estimation	For Kolar SS: Available

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
26	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025	General Query: For Extn of 400kV Bays at 400/220kV Kolar s/s(POWERGRID)	We understand that the auxiliary system viz. LT Transformer, DG set, Battery, Battery chargers are of adequate capacity to meet the power supply requirement of present scope bays also and there is no need of capacity enhancement thereof. Please confirm.		Bidder needs information for proper estimation	For Kolar SS: Available
27	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park	General Query: Extension of 220kV bays at 220/66kV Malur s/s (AIS bay)	Kindly provide the below mentioned existing drawings for extension of Malur S/S: 1. SLD indicating present scope 2. General Arrangement indicating present scope 3. Electrical Layout Plan & Section		SLD, Layout Section and Earthmat layout have been provided along with RfP document. However SLD indicating present scope and other required drawings	Bidders are advised to visit the substation. The design will be in the scope of TSP

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	at Ryapte Village, Tumkur District" dated 10.06.2025		4. Structure Layout Plan & Section 5. VMS layout (with make & model)- if applicable 6. SAS drawing (with make & model)- if applicable 7. Scheme drawing for Bus bar protection system (with make & model) 8. Control Room Building layout 9. Cable trench layout		shall be provided for proper estimation.	
28	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village,	General Query: Extension of 220kV bays at 220/66kV Malur s/s (AIS bay)	We understand that there is dual DC control voltage (220V DC Source-I&II) available at Malur S/s. Kindly confirm.		Bidder needs information for proper estimation	Available

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
	Tumkur District" dated 10.06.2025					
29	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025	General Query: Extension of 220kV bays at 220/66kV Malur s/s (AIS bay)	We understand that Main bus has to be extended for bays under present scope and clarify whether the existing main bus towers are suitable for main bus extension. Kindly confirm.		Bidder needs information for proper estimation	The existing main bus bar at malur ss is Aluminium rigid bus bar. Bus bar extension towers are not required.

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
30	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025	General Query: Extension of 220kV bays at 220/66kV Malur s/s (AIS bay)	We assume that there is adequate provision in the existing Substation Automation System to integrate IEDs/Signals associated with the present scope bays extension works. **Kindly confirm.**		Bidder needs information for proper estimation	There is no SAS at malur S/s. the proposed bay shall be interfaced with the Ex.SCADA RTU and the same is in the scope of TSP.
31	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park	General Query: Extension of 220kV bays at 220/66kV Malur s/s (AIS bay)	We understand that existing control room has adequate space to accommodate the panel/equipment required for bays under present scope. No extension of control room building is envisaged. Kindly confirm.		Bidder needs information for proper estimation	Bidders are advised to visit the substation. Further, if needed, the control room shall be augmented as per requirement

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
	at Ryapte Village, Tumkur District" dated 10.06.2025					
32	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025	General Query: Extension of 220kV bays at 220/66kV Malur s/s (AIS bay)	Kindly provide whether ther existing Busbar protection system is Centralised or De-centralised type at Malur substation. Further, we understand that existing Busbar protection system has adequate capacity to integrate Bays under present scope. Kindly confirm. Also, in case existing Busbar protection is De-centralized type, kindly confirm whether Peripheral units for Bays under present scope are to be provided by TSP or already existing at Malur SS.		Bidder needs information for proper estimation	Centralized type. Bidders are advised to visit the substation. If required, the bidders has to augument/ provide new bus bar protection.

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
33	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025	General query: Extension of 220kV bays at 220/66kV Ekrajapura s/s (GIS bay)	Kindly provide the below mentioned existing drawings for extension of Ekarajapura SS: 1. SLD indicating present scope 2. General Arrangement indicating present scope 3. Electrical Layout Plan & Section 4. Earthmat layout 5. Structure Layout Plan & Section 6. VMS layout (with make & model)- if applicable 7. SAS drawing (with make & model) 8. Scheme drawing for Bus bar protection system (with make & model) 9. Control Room Building layout Cable trench layout		SLD, Layout Plan & Section and Earthmat layout have been provided along with RfP document. However SLD indicating present scope and other required drawings shall be provided for proper estimation.	Bidders are advised to visit the substation. The design will be in the scope of TSP

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
34	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025	General query: Extension of 220kV bays at 220/66kV Ekrajapura s/s (GIS bay)	We understand that there is dual DC control voltage (220V DC Source-I&II) available at Ekrajapura S/s. Kindly confirm.		Bidder needs information for proper estimation	Available
35	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park	General query: Extension of 220kV bays at 220/66kV Ekrajapura s/s (GIS bay)	We assume that there is adequate provision in the existing Substation Automation System to integrate IEDs/Signals associated with the present scope bays extension works. **Kindly confirm.**		Bidder needs information for proper estimation	Ekarajapura:: ER SAS system with Model: CSC2000 Version: 3.46 Gateway: CSC1321.

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
	at Ryapte Village, Tumkur District" dated 10.06.2025					The proposed bay shall be interfaced to the same.
36	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025	General query: Extension of 220kV bays at 220/66kV Ekrajapura s/s (GIS bay)	We understand that existing control room has adequate space to accommodate the panel/equipment required for bays under present scope. No extension of control room is envisaged. Kindly confirm.		Bidder needs information for proper estimation	Bidders are advised to visit the substation. Further, if needed, the control room shall be augmented as per requirement

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
37	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025	General query: Extension of 220kV bays at 220/66kV Ekrajapura s/s (GIS bay)	Kindly provide whether existing Busbar protection system is Centralised or De-centralised at Ekarajapura substation. Further, we understand that existing Busbar protection system has adequate capacity to integrate Bays under present scope. Kindly confirm. Also, in case existing Busbar protection is De-centralized type, kindly confirm whether Peripheral units for Bays under present scope are to be provided by TSP or already existing at Ekarajapura SS.		Bidder needs information for proper estimation	Centralized type. Bidders are advised to visit the substation. If required, the bidders has to augument/ provide new bus bar protection.
38	RFP for establish Intra-State Transmission system for "Evacuation Scheme for	General query: Extension of 220kV bays at 220/66kV Ekrajapura s/s (GIS bay)	In case Bus bar protection system is not available at Ekarajapura Substation, kindly confirm that Bus bar protection system augmentation is not required at Ekarajapura Substation.		Bidder needs information for proper estimation	

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
	2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025					
39	RfP Document S. No 2 & SPECIFIC TECHNICAL REQUIREMENTS FOR SUBSTATION	220kV DC line with Twin Zebra conductor/UG cable (2000/2500 sqmm) from proposed 400/220 kV Doddathagalli sub-station to proposed 220kV Hosakote New sub-station. & ..... The proposed extension of 220/66 kV Sarjapura & 220/66 kV Ekrajpura, 400kv	As per Scope of work we understand that 2 nos of 220kV AIS Bays at Hoskote for termination of 220kV D/C Doddathagalli Hosakote Line is being constructed is separate package/are available . TSP need not to do any work at Hosakote New Substation.		Bidder needs information for proper estimation	The Terminal Bay (TB) will be constructed in Prop. Hoskote Substation project and the Transmission Service Provider (TSP) shall carry out the transmission line work up to the terminal bay. For communication requirements, please refer RFP.

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
		Kolar S/s shall be GIS type and 220/66 kV Malur & 220/66kV Hoskote shall be conventional AIS type				
40	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025	General query: Extension of 220kV bays at 220/66kV Sarjapura s/s (GIS bay)	Kindly provide the below mentioned existing drawings for extension of Sarjapura SS: 1. SLD indicating present scope 2. General Arrangement indicating present scope 3. Electrical Layout Plan & Section 4. Earthmat layout 5. Structure Layout Plan & Section 6. VMS layout (with make & model)- if applicable 7. SAS drawing (with make & model) 8. Scheme drawing for Bus bar protection system (with make & model)		SLD, Layout Plan & Section and Earthmat layout have been provided along with RfP document. However SLD indicating present scope and other required drawings shall be provided for proper estimation.	Bidders are advised to visit the substation. The design will be in the scope of TSP

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
			9. Control Room Building layout Cable trench layout			
41	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025	General query: Extension of 220kV bays at 220/66kV Sarjapura s/s (GIS bay)	We understand that there is dual DC control voltage (220V DC Source-I&II) available at Sarjapura S/s. Kindly confirm.		Bidder needs information for proper estimation	Available
42	RFP for establish Intra-State Transmission system for "Evacuation Scheme	General query: Extension of 220kV bays at 220/66kV Sarjapura s/s (GIS bay)	We assume that there is adequate provision in the existing Substation Automation System to integrate IEDs/Signals associated with the present scope bays extension works.		Bidder needs information for proper estimation	Sarjapura: ABB SAS system with :MICROSCADA Version:9.2

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
	for 2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025		**Kindly confirm.**			The proposed bay shall be interfaced to the same.
43	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District"	General query: Extension of 220kV bays at 220/66kV Sarjapura s/s (GIS bay)	We understand that existing control room has adequate space to accommodate the panel/equipment required for bays under present scope. No extension of control room is envisaged. Kindly confirm.		Bidder needs information for proper estimation	Bidders are advised to visit the substation. Further, if needed, the control room shall be augmented as per requirement

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
	dated 10.06.2025					
44	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025	General query: Extension of 220kV bays at 220/66kV Sarjapura s/s (GIS bay)	Kindly provide whether existing Busbar protection system is Centralised or De-centralised at Sarjapura substation. Further, we understand that existing Busbar protection system has adequate capacity to integrate Bays under present scope. Kindly confirm. Also, in case existing Busbar protection is De-centralized type, kindly confirm whether Peripheral units for Bays under present scope are to be provided by TSP or already existing at Sarjapura substation.		Bidder needs information for proper estimation	Centralized type. Bidders are advised to visit the substation. If required, the bidders has to augument/ provide new bus bar protection
45	RfP Document General	TECHNICAL SPECIFICATION FOR SF6 GAS INSULATED METAL ENCLOSED	1. We understand that validity of type test shall be as per prevailing 'Guidelines for the type test for major equipment in Power Sector'		Bidder needs information for proper estimation	1. The validity of test report as per CEA guidelines.

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
		SWITCHGEAR (GIS) Clause 5.1 ..... The type tests certificates should not be older than **Ten (10) years** as on the last date of submission of bid.	Issued by CEA. 2.Further we also understand that for GIS Equipment type test conducted by parent/principle/technical collaborator of Indian Manufacturer shall also be acceptable to TSP. 3.Further TSP shall finalize equipment's after taking over SPV, thus it is not possible to submit type test reports along with the bid, if required type test reports shall be provided to Independent Engineer to this project during execution stage.			2. Acceptable 3. Acceptable
46	RfP Document	Clause 32 Table IA-I	(For Transformer and Reactor feeder)) is 2000-1000-500/1A.		Bidder needs information for proper estimation	For Ekrajpura, Malur, Sarjapura ss:

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
	TECHNICAL SPECIFICATION FOR SF6 GAS INSULATED METAL ENCLOSED SWITCHGEAR (GIS)	Requirements for 420kV Current Transformer (For Line and Bus coupler feeder) & Table IA-II Requirements for 420kV Current Transformer (For Transformer and Reactor feeder)	Following points are required to be clarified in respect of above: We understand for New Substation TSP shall choose CT Ratio as per protection coordination & For existing Substation CT ration shall be chosen based on prevailing practice. In this regard please provide protection SLD for Kolar, Malur, Ekrajpura &sarjapura S/s.			1.cceptable 2.Preperation of protection SLD in the scope of bidder to meet the technical requirement. For Kolar SS: bidders are advised to visit the substation.
47	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte	RFP Annexure-C, "Specific Technical Requirement for Substation"	Several Technical parameters of equipment have been indicated in the RFP document which are not as per industry practice, and TSM may find difficult to procure equipment's with these parameters.			The technical parameters shall be as per RFP

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	Village, Tumkur District" dated 10.06.2025		We understand that TSP may finalize Equipment's technical parameters adopted specified in IEC, CEA guideline for substation equipment, with consideration of fault level & Insulation coordination specified in Rfp.			
48	Survey Report Issued by BPC		As per Survey Report issued by BPC 220kV Cable is envisaged for following transmission Line a) 220kV D/C Doddathagalli - Sarjapura AIS Line b) 220kV D/C Doddathagalli Hosakote Line			Reactive power compensation shall be under the scope of the Transmission Service Provider (TSP) and shall be provided wherever required.

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
			c) 220kV D/C Doddathagalli to Ekarajapura Line As these lines are passing from corridors with dense population thus their might be considerable increase in Cable length and in some case's cable might be needed for entire route of transmission line. We request to kindly review the requirement of reactive power compensation for substations where the above transmission lines are being terminated.			
49	**RFP** **ANNEXURE- C**	13. Porcelain/ glass/ polymer insulators shall be used in the line as per requirement and site	As an alternative to porcelain/glass disc insulators, TSP may be permitted to use polymer insulators along with	The bidder can provide the realistic tariff bid		TSP can use polymer insulators along with counterweight for

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
	SPECIFIC TECHNICAL REQUIREMENTS FOR TRANSMISSION LINE	conditions. However, porcelain/ glass disc insulators string shall be required to be used for Pilot string irrespective of type of insulators used for suspension/tension location.	counterweight for pilot strings.			pilot strings as an alternative to porcelain/glass disc insulators
50	**RFP** **ANNEXURE- C** **SPECIFIC TECHNICAL REQUIREMENTS FOR TRANSMISSION LINE**	3. Type testing of newly designed fully galvanized towers shall be carried out in CPRI/any other NABL accredited tower testing station in India. The Towers shall be erected in vertical position in the test bed and testing shall be carried out in accordance with IS 802 (part-III) with +6M body extensions. All standard tests, including quality control tests in accordance with relevant IS shall be carried out.	In case towers for 400kV & 220kV are designed for upto +9 m extension, then prototype testing with +9m Body Extension may be permitted. TSP may allow to carry prototype testing of 400 KV & 220 KV towers with +6/+9M Body extensions.	The bidder can provide the realistic tariff bid		TSP is allowed to carry prototype testing of 400 KV & 220 KV towers with +9M Body extensions.

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
51	**RFP** **ANNEXURE- C** **SPECIFIC TECHNICAL REQUIREMENTS FOR TRANSMISSION LINE**	4. For power line crossing of 400 kV or above voltage level, large angle & dead end towers (i.e. D/DD/QD) shall be used on either side of power line crossing (i.e. D/DD/QDD/ DD/QD arrangement). **For overhead crossing of existing power line of 110/132kV and 220kV voltage level, only (D/DD/QD) angle towers shall be used on either side of power line crossing.** For power line crossing of 66kV and below voltage	As per the CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations 2022 following is stated regarding crossing by a transmission line: — (a)For crossing of power line of 400 kV or above voltage class, large angle towers of deviation angle of 30-60 degree and designed for dead end condition, with required body extension, shall be used on either sides of the power line. (b) **For crossing of power line of 110 kV, 132 kV, 220 kV and 230 kV voltage class, the tension towers with required body**	To have proper estimation and bidder can provide the realistic tariff bid.		Power Line crossing shall be done as per CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations 2022 and amendment, if any.

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
		level, suspension/tension towers shall be provided on either side of power line crossing depending upon the merit of the prevailing site condition and line deviation requirement.	**extension shall be used on either side of the power line** and the crossing of power lines of 66 kV class shall be done with any type of towers (suspension or tension) with required body extension. **In view of the above, TSP may be allowed to cross existing 110/132/220 kV lines with any tension towers with required body extensions based on the site conditions as per the CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations 2022 .**			

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
52	**RFP** **ANNEXURE- C** **SPECIFIC TECHNICAL REQUIREMENTS FOR TRANSMISSION LINE**	5. Note: 2. The transmission lines shall have to be designed for a maximum operating conductor temperature of 85 deg C for ACSR, 95deg C for AAAC & Al-59.	It is to mention that in the RfP documents of all the ISTS projects issued by BPC, maximum operating temperature of 85 deg C is specified for all the three conductor types i.e ACSR/AL59/AAAC. Accordingly various type of towers has been designed considering the same. Any change in maximum operating temperature led to new tower design/use of extensions in place of normal towers, resulting in increase in timeline & cost of project. **In view of the above, TSP may be allowed to design towers with a maximum operating temperature of 85 degree C for all the three conductor types.**	The bidder can provide the realistic tariff bid		Bidder may design the tower in line with RFP.
53	**RFP**	**2.1** The minimum thickness of angle sections used in	As per IS 802 (Part 1 / Sec 2):2016, minimum	The bidder can provide the realistic tariff bid.		Allowed

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	ANNEXURE- C **SPECIFIC TECHNICAL REQUIREMENTS FOR TRANSMISSION LINE**	the design of towers shall be kept not less than: **6mm**: For Main corner leg members including the ground wire peak (including inner & outer members and cross arm). **5mm**: For all other members.	thickness of galvanized tower members shall be as follows: Leg members, ground wire peak member and tower member of cross arms in compression: **5 mm** Other members: **4 mm** **In view of the above, TSP may be allowed to use the towers with minimum thickness of galvanized tower members as per above said IS code to avoid new design which may result in huge cost & time involvement.**			
54	**RFP** **ANNEXUR**	8. An allowance of 4% of max sag shall be provided to account for errors in stringing.	As per IS 5613 (Part 3 / Sec 1):2024, Extra allowance of 150 mm may be made to provide for stringing error, and for	To have proper estimation and bidder can provide the realistic tariff bid.		150 mm sag error is acceptable.

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	E- C **SPECIFIC TECHNICAL REQUIREMENTS FOR TRANSMISSION LINE**		undulated terrain care should be taken to ensure required clearance is available under each phase. Accordingly various type of towers has been designed considering the same. Any change in sag error led to new tower design/use of extensions in place of normal towers, resulting in increase in timeline & cost of project. **In view of the above, TSP may be allowed to use the provisions mentioned in the above mentioned IS code to avoid new design which may result in huge cost & time involvement.**			
55	RFP	SL no.4	BPC to provide the existing SLD, Plan layout & Earth			The available Single Line

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
		400kV line bay extension at Kolar SS	mat layout. And marking on land area for GIS bay extension.			Diagram (SLD) and layout plan are enclosed. Bidders are advised to visit the substation to collect any additional drawings or details required
56	RFP	SL no.4 400kV line bay extension at Kolar SS	For Kolar SS, Diameter completion is not in the scope of TSP. Further if diameter completion in the scope of TSP then BPC to confirm the future bay for diameter completion			Refer amendment. Further, bidders are advised to visit the substation
57	RFP	SL no.5 220kV line bay extension Malur SS	BPC to provide Plan layout with marking on present scope of work for better clarity.			The Layout Plan is enclosed in RFP. Bidders has to visit the site for construction of new bay.

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
58	RFP	SL no.5 220kV line bay extension Malur SS	BPC to confirm the meaning of TB for Malur SS.			TB- line terminal Bay
59	RFP	SL no.6 220kV line bay extension at Ekarajapura SS	BPC to provide the existing SLD, Plan layout & Earth mat layout. And marking on land area for GIS bay extension.			The Layout Plan is enclosed in RFP. Bidders has to visit the site for construction of new bay
60	RFP	SL no.6 220kV line bay extension at Ekarajapura SS	BPC to confirm the meaning of GIS TB at Ekarajapura SS			Refer amendment. TB- line terminal Bay
61	RFP	SL no.7 220kV line bay extension at Hosakote SS	BPC to provide the Earth mat layout for Hosakote SS			The 220 KV Hoskote ss is proposed substation.
62	RFP	SL no.7	BPC to confirm the meaning of GIS TB at Sarjapura SS			GIS TB- GIS line Terminal bay

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
		220kV line bay extension at Sarjapura SS				
63	RFP & Ryapte_Appendix_A	400kV line bay extension at Kolar SS 220kV line bay extension Malur SS 220kV line bay extension at Ekarajapura SS 220kV line bay extension at Hosakote SS 220kV line bay extension at Sarjapura SS	BPC to mark in existing drawings for present scope of work.			Bidders are advised to visit the substation. The design will be in the scope of TSP
64	RFP	2.4 Substation Equipment and facilities:	For Doddathagalli 400kV GIS bus bar with a 4500A current rating is not a standard rating, and no OEM in India manufactures GIS bus bars with this rating. BPC may revise the bus bar current rating for Doddathagalli.			Rating of equipment shall be as per RFP

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
65	RFP	400kV line bay extension at Kolar SS 220kV line bay extension Malur SS 220kV line bay extension at Ekarajapura SS 220kV line bay extension at Hosakote SS 220kV line bay extension at Sarjapura SS	BPC to confirm existing adjacent gantry is suitable for extension or not			Bidders are advised to visit the substation.
66	RFP	400kV line bay extension at Kolar SS 220kV line bay extension at Hosakote SS	The new DG set, LT trafo, Battery & Battery charger for Kolar & Hosakote SS is not in the scope of TSP. BPC to confirm our understanding.			For Hoskote SS: Understanding is correct For Kolar SS: Bidders are advised to visit the substation.
67	RFP	2.12 Surge Arrester (AIS) The Technical Particulars / Parameters of Surge Arresters:	As per RFP, Cantilever strength mentioned for 400kV & 220kV is 1000kG. However, CEA guidelines recommended 500kG for			The parameter shall be as per CEA.

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
			400kV System and 350kG for 220kV System. BPC may revised cantilever strength for LA.			
68	RFP & Ryapte_Appendix_A	400kV line bay extension at Kolar SS 220kV line bay extension Malur SS 220kV line bay extension at Ekarajapura SS 220kV line bay extension at Hosakote SS 220kV line bay extension at Sarjapura SS	BPC to confirm for bay extension SS TSP to follow RFP technical parameters or existing SS Parameters (for ex. Bus bar current rating, Line bay current rating, CT core etc.)			Parameters as per RFP to be followed.
69	RFP for Selection of Bidder as Transmission Service Provider	Annexure C: Cl. 5. conductor configuration 220 kV D/C (Zebra) Transmission lines & 132 kV D/C (Panther) Transmission linesy	Kindly provide the Maximum DC Resistance, Minimum UTS and Ampacity values for Conductors to be used in 220 kV D/C (Zebra) Transmission lines & 132		Bidder needs the information for proper estimation	Zebra Conductor(ACSR) : Maximum DC Resistance at 20°C (Ω/km): 0.06868 Minimum UTS: 130.32 kN

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
			kV D/C (Panther) Transmission lines. Also provide the sub conductor spacing for 220 kV DC lines with Twin Zebra conductor.			Panthera Conductor (ACSR) : Maximum DC Resistance at 20°C (Ω/km): 0.1390 Minimum UTS: 89.67 kN sub conductor spacing for 220 kV DC lines with Twin Zebra conductor is 257 mm
70	RFP for Selection of Bidder as Transmissi on Service Provider	Annexure C: Cl. 6. The High-Performance Conductors (HPC) shall be as per the standard technical specification issued by CEA	Kindly provide the conductor details of High-Performance Conductors such as Type, Diameter, Strands, Maximum DC Resistance, Minimum UTS, Ampacity values etc.		Bidder needs the information for proper estimation	HPC not envisaged in scope.
71	RFP for Selection of Bidder as Transmissi	Annexure C: Cl. 2.2. As per Clause 12.1.2.1 b) 2) of IS 802:2015, Under security condition for tension and dead end towers, the transverse loads due to line deviation shall be the	As per latest amendment to IS 802 Part1 Sec1, under security conditions for Tension and dead-end type towers the transverse loads due to line deviation shall be the component of 100 percent mechanical		Bidder needs the information for proper estimation	As per Latest Amendment of IS 802 Part 1 sec 1

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
	on Service Provider	component of 100 percent mechanical tension of conductor and ground wire/ OPGW corresponding to 100% of design wind pressure at everyday temperature or 36% design wind pressure at minimum temperature after accounting for drag coefficient and gust response factor. The above loading shall also be considered for design of suspension tower.	tension of conductor which is the tension corresponding to 75 percent design wind pressure at everyday temperature. Also, for Suspension tower, as per IS 802 Part1 Sec1 cl.12.1.2.1 a) 2) Transverse loads due to line deviation shall be based on component of mechanical tension of conductors and ground wire/OPGWs corresponding to everyday temperature and 75 percent of full wind pressure. Kindly confirm whether to follow IS 802 Part1 sec1 (as per latest amendment) or requirement as per RFP.			
72	RFP for Selection of Bidder as Transmissi	Annexure C: Cl. 3. The Towers shall be erected in vertical position in the test bed and testing shall be	As per industry practice 400kv & 220kv Towers are tested with +9M body extensions. Kindly confirm whether the Towers		Bidder needs the information for proper estimation	TSP is allowed to carry prototype testing of 400 KV & 220 KV towers

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
	on Service Provider	carried out in accordance with IS 802 (part-III) with +6M body extensions	already type tested with +9M body extensions are acceptable.			with +9M Body extensions
73	RFP for Selection of Bidder as Transmission on Service Provider	Clause 1.2 400kV DC line (Quad moose conductor) from Kolar S/s to Prop. 400/220 kV Doddathaggalli Sub-station with 2 no. of Outdoor GIS TB at Ex. Kolar S/s of PGCIL by extending existing AIS bus bar along with AIS isolator.	BPC is requested provide below information for extension work at Kolar SS: 1. Availability of space in existing Control room 2. Availability of spare feeders in ACDB and DCDB 3. Availability of space in existing cable trench for extension work 4. Make and model of Busbar protection 5. Make and model of SAS and VMS 6. Availability of CU and PU for the bays under present scope of extension work. 7. Sufficiency of existing battery, battery charger		Bidder needs the information for proper estimation	For Kolar SS: 1. Available 2. Available 3. Available 4. ABB REB670 5. NA 6. NA 7. Available

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
			and LT transformer capacity for extension work Space in existing cable trench			
74	RFP for Selection of Bidder as Transmission Service Provider	Ryapte Appendix A	BPC is requested to clearly demarcate the scope of work area in SLD and GA drawings to avoid any ambiguity.		Bidder needs the information for proper estimation	Bidders are advised to visit the substation. The design will be in the scope of TSP
75	RFP for Selection of Bidder as Transmission Service Provider	Clause 1.2 400kV DC line (Quad moose conductor) from Kolar S/s to Prop. 400/220 kV Doddathaggalli Sub-station with 2 no. of Outdoor GIS TB at Ex. Kolar S/s of PGCIL by extending existing AIS bus bar along with AIS isolator.	BPC is requested to share the following drawings/documents for extension work at Kolar SS: 1. GA and SLD of the existing SS with scope of work clearly marked on it. 2. Soil investigation report 3. Cable trench layout		Bidder needs the information for proper estimation	For Kolar SS: 1. GA Enclosed. SLD already shared. 2. Bidders are advised to visit the substation. 3. Enclosed

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
76	RFP for Selection of Bidder as Transmission Service Provider	Clause 1.2 400kV DC line (Quad moose conductor) from Kolar S/s to Prop. 400/220 kV Doddathaggalli Sub-station with 2 no. of Outdoor GIS TB at Ex. Kolar S/s of PGCIL by extending existing AIS bus bar along with AIS isolator.	Bidder understands that the TSP needs to follow rfp requirements only. TSP is not to follow any requirements based on SS owners standard outside rfp requirement.		Bidder needs the information for proper estimation	The requirement shall be as per RFP and its amendments, however any requirement suggested by substation owners shall be followed as per site condition.
77	RFP for Selection of Bidder as Transmission Service Provider	Clause 1.2 400kV DC line (Quad moose conductor) from Kolar S/s to Prop. 400/220 kV Doddathaggalli Sub-station with 2 no. of Outdoor GIS TB at Ex. Kolar S/s of PGCIL by extending existing AIS bus bar along with AIS isolator.	Bidder understands that TSP needs to consider 400kV outdoor GIS at Kolar SS in one and half breaker switching scheme. Hence TSP needs to provide 4 number of GIS bays (2 line bays and 2 tie bays) only. No additional requirement for dia completion to be considered. Please confirm.		Bidder needs the information for proper estimation	Refer amendment

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
78	RFP for Selection of Bidder as Transmission Service Provider	Clause 1.2 220 kV DC line with Twin Zebra conductor from proposed 400/220 kV Doddathagalli sub-station to existing 220/66kV Malur sub-station with 2 No.s of TB at Malur S/s	**BPC is requested to clarify the meaning of the TB.** BPC is requested provide below information for extension work at Malur S/s: 1. Availability of space in existing Control room 2. Availability of spare feeders in ACDB and DCDB 3. Availability of space in existing cable trench for extension work 4. Make and model of Busbar protection 5. Make and model of SAS and VMS 6. Availability of CU and PU for the bays under present scope of extension work. 7. Sufficiency of existing battery, battery charger and LT		Bidder needs the information for proper estimation	TB- line terminal bay 220k Malur S/s is provided with SCADA system, RTU of ABB make with model:RTU-560A. Bidders are advised to visit the substation. The design will be in the scope of TSP

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
			transformer capacity for extension work Space in existing cable trench			
79	RFP for Selection of Bidder as Transmission Service Provider	Clause 1.2 220 kV DC line with Twin Zebra conductor from proposed 400/220 kV Doddathagalli sub-station to existing 220/66kV Malur sub-station with 2 No.s of TB at Malur S/s	BPC is requested to share the following drawings/documents for extension work at Malur S/s: 1. GA and SLD of the existing SS with scope of work clearly marked on it. 2. Soil investigation report 3. Cable trench layout		Bidder needs the information for proper estimation	The Layout Plan & SLD is enclosed in RFP. Bidders has to visit the site for other required details.
80	RFP for Selection of Bidder as Transmission Service Provider	Clause 1.2 220 kV DC line with Twin Zebra conductor from proposed 400/220 kV Doddathagalli sub-station to existing 220/66kV Malur	Bidder understands that the TSP needs to follow rfp requirements only. TSP is not to follow any requirements based on SS owners standard outside rfp requirement.		Bidder needs the information for proper estimation	The requirement shall be as per RFP, however any requirement suggested by substation owners shall be followed

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		sub-station with 2 No.s of TB at Malur S/s				as per site condition.
81	RFP for Selection of Bidder as Transmission Service Provider	Clause 1.2 220kV DC line with Twin Zebra conductor/UG cable (2000/2500 sqmm) from proposed 400/220 kV Doddathagalli sub-station to 20kV Ekarajapura sub-station with 2 No.s of outdoor GIS TB at Ekarajapura S/s by extending existing AIS bus bar along with AIS isolator	BPC is requested provide below information for extension work at Ekarajapura S/s: 1. Availability of space in existing Control room 2. Availability of spare feeders in ACDB and DCDB 3. Availability of space in existing cable trench for extension work 4. Make and model of Busbar protection 5. Make and model of SAS and VMS 6. Availability of CU and PU for the bays under present scope of extension work.		Bidder needs the information for proper estimation	Make and Model of SAS at Ekarajapura S/s is Make: ER/Sifang Model: CSC2000 Version: 3.46 Gateway: CSC1321 VMS: Not available Bidders are advised to visit the substation. The design will be in the scope of TSP

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
			7. Sufficiency of existing battery, battery charger and LT transformer capacity for extension work 8. Space in existing cable trench We understand TB means line bays here.			
82	RFP for Selection of Bidder as Transmission Service Provider	Clause 1.2 220kV DC line with Twin Zebra conductor/UG cable (2000/2500 sqmm) from proposed 400/220 kV Doddathagalli sub-station to 220kV Ekarajapura sub-station with 2 No.s of outdoor GIS TB at Ekarajapura S/s by extending existing AIS bus bar along with AIS isolator	BPC is requested to share the following drawings/documents for extension work at Ekarajapura S/s: 1. GA and SLD of the existing SS with scope of work clearly marked on it. 2. Soil investigation report 3. Cable trench layout		Bidder needs the information for proper estimation	THE Layout Plan & SLD is enclosed in RFP. Bidders has to visit the site for other required details
83	RFP for Selection of Bidder as	Clause 1.2 220kV DC line with Twin Zebra conductor/UG cable (2000/2500 sqmm) from	Bidder understands that the TSP needs to follow rfp requirements only. TSP is not to follow any		Bidder needs the information for proper estimation	The requirement shall be as per RFP, however any requirement

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	Transmission Service Provider	proposed 400/220 kV Doddathagalli sub-station to 220kV Ekarajapura sub-station with 2 No.s of outdoor GIS TB at Ekarajapura S/s by extending existing AIS bus bar along with AIS isolator	requirements based on SS owners standard outside rfp requirement.			suggested by substation owners shall be followed as per site condition
84	RFP for Selection of Bidder as Transmission Service Provider	Clause 1.2 220kV DC line with Twin Zebra conductor/ UG Cable (2000/2500 sqmm) from proposed 400/220kV Doddathagalli to Sarjapura AIS S/s with 2 No.s of outdoor GIS TB at Sarjapura S/s by extending existing AIS bus bar along with AIS isolator.	BPC is requested provide below information for extension work at Sarjapura S/s: 1. Availability of space in existing Control room 2. Availability of spare feeders in ACDB and DCDB 3. Availability of space in existing cable trench for extension work 4. Make and model of Busbar protection 5. Make and model of SAS and VMS 6. Availability of CU and PU for the bays under		Bidder needs the information for proper estimation	220kV Sarjapura S/s is provided with ABB make SAS with Model:MICROSCADA Version:9.2 Bidders are advised to visit the substation. The design will be in the scope of TSP

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
			present scope of extension work. 7. Sufficiency of existing battery, battery charger and LT transformer capacity for extension work 8. Space in existing cable trench We understand TB means line bays here			
85	RFP for Selection of Bidder as Transmission Service Provider	Clause 1.2 220kV DC line with Twin Zebra conductor/ UG Cable (2000/2500 sqmm) from proposed 400/220kV Doddathagalli to Sarjapura AIS S/s with 2 No.s of outdoor GIS TB at Sarjapura S/s by extending existing AIS bus bar along with AIS isolator.	BPC is requested to share the following drawings/documents for extension work at Sarjapura S/s: 1. GA and SLD of the existing SS with scope of work clearly marked on it. 2. Soil investigation report 3. Cable trench layout		Bidder needs the information for proper estimation	The Layout Plan & SLD is enclosed in RFP. Bidders has to visit the site for other required details

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86	RFP for Selection of Bidder as Transmission Service Provider	Clause 1.2 220kV DC line with Twin Zebra conductor/ UG Cable (2000/2500 sqmm) from proposed 400/220kV Doddathagalli to Sarjapura AIS S/s with 2 No.s of outdoor GIS TB at Sarjapura S/s by extending existing AIS bus bar along with AIS isolator.	Bidder understands that the TSP needs to follow rfp requirements only. TSP is not to follow any requirements based on SS owners standard outside rfp requirement.		Bidder needs the information for proper estimation	The requirement shall be as per RFP, however any requirement suggested by substation owners shall be followed as per site condition
87	RFP for Selection of Bidder as Transmission Service Provider	2.2 Insulation Coordination	We understand that TSP needs to consider same parameters for both AIS and GIS. Please confirm.		Bidder needs the information for proper estimation	Yes
88	RFP for Selection of Bidder as Transmission Service Provider	Clause 1.2 Establishing 3X500 MVA, 400/220kV GIS sub-station at Doddathaggalli (Near Hosakote) along with 2x125 MVAr, 400 kV Bus Reactors.	We understand that Bidder need not consider additional bays for dia completion in case of One and half breaker switching scheme in GIS. Please confirm.		Bidder needs the information for proper estimation	For GIS, complete dia meter shall be considered.

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89	RFP	Section 1 Table pt no 6,7 & 8	Required cable size for 220 kV	Required size of the 220 kV cable either 2000 sqmmm or 2500 sqmm.	Required for correct estimation of scope of work	Refer Amendment
90	RFP	TECHNICAL SPECIFICATIONS FOR SUPPLY, LAYING, TESTING & COMMISSIONING OF 2500 Sq.mm., 220KV XLPE INSULATED UNDERGROUND CABLE AND ACCESSORIES...Clause no 4.00...B..6 & 6.08 TECHNICAL SPECIFICATIONS FOR SUPPLY, LAYING, TESTING & COMMISSIONING OF 2500 Sq.mm., 220KV XLPE INSULATED UNDERGROUND CABLE AND ACCESSORIES...Clause no 4.00...B..6 & 6.08	CLarification required for cable laying formation as both the clauses mention about the different type of cable laying formations...ie Horizontal & Trefoil	Specify the required laying formation	Required for correct estimation of scope of work	Horizontal formation

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91	RFP	Section 1, Point 1.2, Table Point 1.	As per Table Point 1, 8 nos of 220kV Line bays are to be considered at proposed new 400/220kV S/s at Ryapte. Please provide the Line Lengths of the 8 nos of 220kV Lines at Ryapte S/s for Consideration of Line Differential protection.		Required for correct estimation of scope of work	All the lines shall be provided with line differential relay, and the exact line length will be provided later.
92	RFP	Section 1, Point 1.2, Table Point 1. & SPECIFIC TECHNICAL REQUIREMENTS FOR SUBSTATION, Point 2.13 Clause a	As per Clause a), Line Differential relay is to be considered for 220kV Lines having lengths of less than 10km. As per Table Point 1, 8 nos of 220kV Line bays are to be considered at proposed new 400/220kV S/s at Ryapte. As the 220kV Line lengths are not provided in RFP , we understand that the 8 Nos of 220kV lines to be considered at proposed 400/220kV S/s at Ryapte are all Long length lines, hench No differential feature shall be considered in the Relays for 220kV		Required for correct estimation of scope of work	All the lines shall be provided with line differential relay.

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
			Lines. Please confirm our understanding.			
93	RFP	Section 1, Point 1.2, Table Point 6, 7, 8.	For the 220kV Overhead + Underground Cable Double Circuit Lines from 1. Proposed Doddathagalli sub-station to 220kV Ekarajapura sub-station, 2. Proposed Doddathagalli sub-station to proposed 220kV Hosakote New sub-station, & 3. Proposed 400/220kV Doddathagalli to Sarjapura existing substation. We understand that Auto-Reclosure for the Above mentioned lines shall be kept Out of service, due to the Hybrid Nature of the Lines. Please Confirm our understanding.		Required for correct estimation of scope of work	Understanding is correct
94	RFP	Section 1, Point 1.2, Table Point 4, 5, 6, 8.	For the Following Remote end Stations of proposed 400/220kV Doddathagalli sub-station i.e:		Required for correct estimation of scope of work	For Malur, Ekrajpura,Sarjapur ss:

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
			1. 400kV DC line from Kolar S/s to Prop. 400/220 kV Doddathaggalli. 2. 220 kV DC line from proposed 400/220 kV Doddathagalli sub-station to existing 220/66kV Malur sub-station. 3.220kV DC line from proposed 400/220 kV Doddathagalli sub-station to 220kV Ekarajapura sub-station. 4. 220kV DC line from proposed 400/220kV Doddathagalli to Sarjapura AIS S/s. We understand that there is sufficient Hardware in existing busbar protection panels for the integration of the proposed lines at each remote end. Please confirm our understanding.			Bidders are advised to visit the substation. For Kolar SS: Trip relays to be provided in the New Panel.

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
95	RFP	Section 1, Point 1.2, Table Point 4, 5, 6, 7, 8.	For the Following Remote end Stations of proposed 400/220kV Doddathagalli sub-station i.e: 1. 400kV DC line from Kolar S/s to Prop. 400/220 kV Doddathaggalli. 2. 220 kV DC line from proposed 400/220 kV Doddathagalli sub-station to existing 220/66kV Malur sub-station. 3.220kV DC line from proposed 400/220 kV Doddathagalli sub-station to 220kV Ekarajapura sub-station. 4. 220kV DC line from proposed 400/220kV Doddathagalli to Sarjapura AIS S/s. Only the PUs of the respective New proposed Line bays shall be in the scope of TSP. Please confirm our understanding.		Required for correct estimation of scope of work	Bidders are advised to visit the substation

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
96	RFP	Section 1, Point 1.2, Table Point 7. 220kV DC line with Twin Zebra conductor/UG cable (2000/2500 sqmm) from proposed 400/220 kV Doddathagalli sub-station to proposed 220kV Hosakote New sub-station.	For the 220kV DC line from proposed 400/220 kV Doddathagalli sub-station to proposed 220kV Hosakote New sub-station, We Understand that there shall be no Scope in Remote end of Line i.e Hosakote Substation end Please confirm our understanding.		Required for correct estimation of scope of work	The Terminal Bay (TB) will be constructed in Prop. Hoskote Substation project and the Transmission Service Provider (TSP) shall carry out the transmission line work up to the terminal bay. For communication requirements, please refer RFP
97	RFP	General	BPC to confirm whether in forest area, the span between 2 towers should be considered as 300 m and the corridor width should be 56 m in compliance with "RoW width and Span in different terrain shall be as per Schedule VII of CEA		Required for correct estimation of scope of work	As per CEA guidelines, to be followed

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
			(Technical Standards for Construction of Electrical plants and Electric Lines) Regulations 2022".			
98	General	RoW width and Span in different terrain shall be as per Schedule VII of CEA (Technical Standards for Construction of Electrical plants and Electric Lines) Regulations 2022 and RoW guidelines issued vide CEA-PS-14-86/2/2019-PSETD Division dated 24.09.2024.	As per the forest guidelines Van (Sanrakshan Evam Samvardhan) Adhiniyam 1980 and Van (Sanrakshan Evam Samvardhan) Rules 2023, the RoW for compensation for 765 kV has been standardized to 67 m. However, as per the mentioned CEA guidelines it is 56 m for forest area (300 m span) and 54 m for urban/ populated/ approach section to substation (250 m span). Since there is a contradiction between these forest and CEA guidelines, the forest officials insist on the payment of forest compensation charges		Required for correct estimation of scope of work	765 kv line is not envisasged in the scope of work

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			considering RoW width as 67 m. We understand that in such case, the additional compensation paid to forest department on account of above contradiction would be covered **under change of law.**			
99	Survey Report	UG Cable	BPC to confirm if monopoles can used instead of UG cable.		Required for correct estimation of scope of work	Acceptable
100		**SECTION – DRS (TECHNICAL DATA SHEETS/GUARANTEED TECHNICAL PARTICULARS)**	1. Please confirm whether the bidder is required to provide the data in Annexures I to V under Section DRS 2. Please define the rationale behind inclusion of section DRS, as it is a significant deviation from the SBD issued by MoP		The RFP documents have several sections which are usually not part of either ISTS or Intra-state TBCB bid documents. Since the subject transmission scheme is required to be implemented	Refer amendment.

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
			3. Please define how the data provided in Annexures I to V under Section DRS shall be utilized for technical bid evaluation, as there are no scores or selection criteria defined for providing information on these annexures. 4. Annexure VII and Annexure IX under Section DRS ask the bidder to provide financial quotation, which is a significant deviation from the SBD condition which state that the bidders can input their financial bids only as per Annexure 21 of the RFP document. Please explain the rationale behind inclusion of Annexure VII and		under TBCB mode, the BPC is kindly requested provide an amendment / clarification with respect to preparation of techno-commercial bid.	

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			Annexure IX under section DRS.			
101	--	--	Clarification was issued by BPC for earlier TBCB Projects in the State of Karnataka for over crossing of existing S/C transmission lines, as follows in a recent Project. "For existing S/C transmission line clearances are to be kept considering the existing line as D/C. Note – However if existing S/C or D/C line is proposed to be converted into M/C line then clearances are to be kept considering the line as M/C." Whether the same criteria is applicable for the subject		The bidder can provide the realistic tariff bid.	Same will be applicable.

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			package, If so, BPC is requested to provide the details of 66/110/132kV/220kV/400kV lines under upgradation in the proposed route provided by BPC may be shared to the bidder (ie. Upgradation to D/c or M/c)			
102	--	--	As per the constraints observed during survey, it is anticipated that the complete route of Hoskote – Doddathagalli and Doddathagalli - Sarjapura lines shall have to be built through U/G cable. Accordingly, BPC may please clarify whether bidder is permitted to built the entire line using U/G Cable.		The bidder can provide the realistic tariff bid.	The design is in the scope of TSP.

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103	--	--	In survey report, Overhead line and U/G Cable are mentioned both in different sections are specified for some lines. Kindly confirm whether the land required for Cable termination when converting from U/G cable to Overhead line shall be provided by KPTCL.		The bidder can provide the realistic tariff bid.	In the scope of TSP.
104		Scope of work Sr. No. 7 "220kV DC line with Twin Zebra conductor/ UG cable (2000/ 2500 sqmm) from proposed 400/220 kV Doddathagalli sub-station to proposed 220kV Hosakote New sub-station"	As per Scope of work Sr no. 7, we understood that the terminal bays for connection Of 200 kV line at Hosakote New substation is not in present scope. Please confirm.			The Terminal Bay (TB) will be constructed in Prop. Hoskote Substation project and the Transmission Service Provider (TSP) shall carry out the transmission line work up to the terminal bay. For communication

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						requirements, please refer RFP.
105	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025	Annexure C, specific technical requirement of Substation 3.0 General facilities "Boundary wall shall be brick masonry wall with RCC frame or Stone masonry wall or Precast RCC wall under present scope along the property line of the complete substation area including future switchyard area to prevent encroachment and unauthorized access. The minimum height of the boundary wall shall be of 1.8 m from finished ground level (FGL)."	Please provide Area and Length for Boundary wall.		For estimation purpose.	Bidders are advised to visit the site.

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106	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025	With reference to Survey Report for 400/220 kV Ryapte SS	In survey report, Plot Plan and property line is not shown for 400/220 kV Ryapte SS. Kindly provide coordinates for Plot plan and Property line for 400/220 kV Ryapte SS for estimation purpose.			Property line: Refer amendment. Plot plan: The design will be in the scope of TSP.
107	RFP to establish Intra-State Transmission system for "Evacuation Scheme for	RFP Sr. No. 2, Scope of Transmission Scheme Note: 1	It is understood that the Land shall be provided by M/s KPTCL for the construction of 400/220kV Doddathagalli GIS Substation. Please provide the exact coordinates and Land Profile for estimation of		Bidder needs information for proper estimation.	Land profile: Bidder is advised to visit the substation site and ascertain the requisite parameters.

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	2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025		Civil Work. Further, it is understood that encumbrance free and rectangular shape land will be provided to the TSP for the substation construction purpose.			
108	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025	General Query: Extension of 220kV bays at 220/66kV Malur s/s (AIS bay)	Kindly provide the co-ordinates of Malur S/S.		Bidder needs information for proper estimation	Refer Survey report

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109	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" dated 10.06.2025	General query: Extension of 220kV bays at 220/66kV Ekrajapura s/s (GIS bay)	Kindly provide the co-ordinates of Ekarajapura S/S.		Bidder needs information for proper estimation	Refer Survey report
110	RFP for establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park	General query: Extension of 220kV bays at 220/66kV Sarjapura s/s (GIS bay)	Kindly provide the co-ordinates of Sarjapura S/S.		Bidder needs information for proper estimation	Refer Survey report

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	at Ryapte Village, Tumkur District" dated 10.06.2025					
111	RFP	400kV line bay extension at Kolar SS 220kV line bay extension Malur SS 220kV line bay extension at Ekarajapura SS 220kV line bay extension at Hosakote SS 220kV line bay extension at Sarjapura SS	We understood that land for bay extension ss will provide to TSP free of cost. BPC to confirm our understanding			Refer amendment.
112	RFP for Selection of Bidder as Transmission Service Provider & Transmissi	***Schedule: 1*** *KPTCL to provide land for the construction of 400/220 kV sub-station at Doddathagalli and Ryapte and shall be handed over to TSP as is where basis.*	BPC is requested to confirm that KPTCL is to provide land for *construction of 400/220/33 kV AIS sub-station at Doddathagalli and Ryapte* will be free of cost to the TSP.		Bidder needs the information for proper estimation	Refer amendment

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	on Service Agreement	*TSP shall coordinate with KPTCL for acquisition of land.*	BPC is requested to update status of land for construction of Substation. BPC is requested to provide details of estimated time period within which land shall be handed over to successful bidder by KPTCL. Whether the area provided shall be fixed by KPTCL or shall it be as per TSP's layout requirement?			
113	RFP for Selection of Bidder as Transmissi on Service Provider & Transmissi	***Schedule: 1*** 400kV DC line (Quad moose conductor) from Kolar S/s to Prop. 400/220 kV Doddathaggalli Sub-station with 2 no. of Outdoor GIS TB at Ex. Kolar S/s of PGCIL by extending	BPC is requested to provide estimated time period within which site will be handed over to successful bidder by PGCIL for implementation of 2 no. of Outdoor GIS TB at Ex. Kolar S/s of PGCIL.		Bidder needs the information for proper estimation	For Kolar SS: Bidders are advised to visit the substation

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
	on Service Agreement	existing AIS bus bar along with AIS isolator -	BPC is requested to confirm that PGCIL will provide levelled land for 2 no. of Outdoor GIS TB at Ex. Kolar S/s of PGCIL by extending existing AIS bus bar along with AIS isolator and the land will be provided free of cost to the bidder.			
114	RFP for Selection of Bidder as Transmission Service Provider & Transmission Service Agreement	***Schedule: 1*** 220 kV DC line with Twin Zebra conductor from proposed 400/220 kV Doddathagalli sub-station to existing 220/66kV Malur substation with 2 Nos of TB at Malur S/s.	BPC is requested to provide details of entity responsible for providing space at Malur Substation and estimated time period within which site will be handed over to successful bidder. BPC is requested to confirm that owner of existing Malur SS will provide levelled land for implementation of 2 Nos of TB at Malur S/s and the		Bidder needs the information for proper estimation	Refer amendment Leveling of land is under scope of TSP

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
			land will be provided free of cost to the bidder.			
115	RFP for Selection of Bidder as Transmission Service Provider & Transmission Service Agreement	***Schedule: 1*** 220kV DC line with Twin Zebra conductor/UG cable (2000/2500 sqmm) from proposed 400/220 kV Doddathagalli sub-station to 220kV Ekarajapura substation with 2 No.s of outdoor GIS TB at Ekarajapura S/s by extending existing AIS bus bar along with AIS isolator.	BPC is requested to provide details of entity responsible for providing space at Ekarajapura Substation and estimated time period within which site will be handed over to successful bidder. BPC is requested to confirm that owner of existing Ekarajapura SS will provide levelled land for implementation of 2 Nos of TB at Ekarajapura S/s and the land will be provided free of cost to the bidder.		Bidder needs the information for proper estimation	Refer amendment Leveling of land is under scope of TSP
116	RFP for Selection of Bidder as Transmissi	***Schedule: 1*** *220kV DC line with Twin Zebra conductor/ UG Cable (2000/2500 sqmm) from proposed 400/220kV*	BPC is requested to provide details of entity responsible for providing space at *Sarjapura* Substation and estimated		Bidder needs the information for proper estimation	Refer amendment

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
	on Service Provider & Transmissi on Service Agreement	*Doddathagalli to Sarjapura AIS S/s ' with 2 No.s of outdoor GIS TB at Sarjapura S/s by extending existing AIS bus bar along with AIS isolator*	time period within which site will be handed over to successful bidder. BPC is requested to confirm that owner of existing *Sarjapura* SS will provide levelled land for implementation of 2 Nos of TB at *Sarjapura* S/s and the land will be provided free of cost to the bidder.			Leveling of land is under scope of TSP
117	Transmissi on Service Agreement	Schedule 2, Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project	We request you to kindly provide the tariff split for all the elements covered under the scope of work.		Bidder needs the information for proper estimation	Refer RFP
118	General	TSA & RFP	Whether the Project / Elements are covered under "*Generation linked Project*" or "*System Strengthening Project.*"		Bidder needs the information for proper estimation	Generation linked Project

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
119	a) **Single stage Request for Proposal Document for selection of Bidder as Transmission Service Provider through tariff based competitive bidding**	a) **Scope of work (proposed s/s)** 1. Establishment of 5x500 MVA, 400/220 kV S/s at Ryapte in Tumkur District 2. 400kV DC line (Quad moose conductor) from Prop. 400/220 kV Ryapte Sub-station to Prop. 400/220 kV Doddathaggalli S/s. 3. Establishing 3X500 MVA, 400/220kV GIS substation at Doddathaggalli (Near Hosakote) 4. 220kV DC line with Twin Zebra conductor/UG cable (2000/2500 sqmm) from proposed 400/220 kV Doddathagalli sub-station to proposed	Please specify the following: a) With respect to the scope of work for PROPOSED substation: 1. It has been mentioned that KPTCL will be handing over the land to the TSP on as is where is basis. Please specify: a. the status of acquisition of land for both Ryapte and Doddathaggalli S/s b. Whether the land will be handed over by KPTCL to the TSP free of cost c. If no, please provide reference of any land use agreement or mechanism which both the parties will be		a) The clarifications are sought for the ease of preparing a robust techno-commercial proposal and execution of the subject transmission scheme. b) As per the minutes of the 26th National Committee on Transmission (NCT) released on 30th January 2025, NCT directed the following with respect to	A) 1) a,b,c – refer amendment

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	process to establish Intra-State Transmission System for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District"	220kV Hosakote New sub-station # KPTCL to provide land for the construction of 400/220 kV sub-station at Doddathagalli and Ryapte and shall be handed over to TSP as is where basis. TSP shall coordinate with KPTCL for acquisition of land. **b) Scope of work (existing s/s)** 1. 400kV DC line (Quad moose conductor) from Kolar S/s to Prop. 400/220 kV Doddathaggalli Sub-station 2. 220 kV DC line with Twin Zebra conductor from	entering into, and the applicable charges / cost for the same.		ISTS schemes: "Regarding space in existing substation, the available land shall be given to another TSP free of cost" Hence the clarification is sought for the ease of preparing a robust techno-commercial proposal and execution of the subject transmission scheme.	
			2. Please provide the actual coordinates of the boundary points of the land identified for both Ryapte and Doddathaggalli S/s.			2- Bidder is advised to visit the Site.
			3. Please confirm: a. which kind of substation is Ryapte - Generation Pooling Substation or load Serving			3. Ryapte - Generation Pooling Substation

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
	b) Transmission Service Agreement for Development and Operation of Intra-State Transmission System for Transmission of Electricity through Tariff	proposed 400/220 kV Doddathagalli sub-station to existing 220/66kV Malur sub-station. 3. 220kV DC line with Twin Zebra conductor/UG cable (2000/2500 sqmm) from proposed 400/220 kV Doddathagalli sub-station to 220kV Ekarajapura sub-station 4. 220kV DC line with Twin Zebra conductor/ UG Cable (2000/2500 sqmm) from proposed 400/220kV Doddathagalli to Sarjapura AIS S/s c) **Article 3.1.3 of TSA:** The TSP agrees and undertakes to duly	Substation or intermediate Substation ? b. which kind of substation is Doddathaggalli - Generation Pooling Substation or load Serving Substation or intermediate Substation ?		c) Transmission license fee is an important part of the financial assumptions and proper clarifications will allow the bidder to submit a justifiable techno-commercial proposal against the subject RFP RLDC/SLDC fee and charges are an important part of the financial assumptions and proper clarifications will allow the bidder to submit a justifiable techno-commercial proposal against the subject RFP.	Doddathaggalli-load Serving Substation
			4. Please confirm if the bidder/TSP has freedom to explore alternate land for Ryapte and Doddathaggalli s/s within the radius limit as specified in Clause 1.6.1.1 of the RFP document, OR will the land proposed to be handed over by KPTCL / BPC to be considered as fixed for the project scope.			4. Refer amendment
			5. Please confirm the area proposed by KPTCL (in acres) which will be sufficient enough to accommodate both the present and furture scope at both Ryapte and Doddathaggalli s/s.			5. refer amendment

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	Based Competitive Bidding to establish Intra-State Transmission System for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur	perform and complete the following activities within six (6) months from the Effective Date …… 1. To obtain the Transmission License for the Project from the State Commission; **d) Schedule 4 of the TSA:** **Clasue 1.3: RLDC/SLDC Fee & Charges -** The payment of RLDC / SLDC fee & charges, in accordance with relevant regulations of Central Commission / State Commission, shall be the responsibility of the TSP	6. Please confirm if the TSP will be required to acquire entire land / area which KPTCL finds suitable to accommodate project scope, or can the TSP acquire only that much area which it deems fit to accommodate both present and future scope at both Ryapte and Doddathaggalli s/s.			6. refer amendment
			7. Please confim that proposed 220kV Hosakote New sub-station belongs to KPTCL. Further, please apprise regarding the status of construction (SCOD) of proposed 220kV Hosakote New sub-station.			7. refer amendment
			8. Please confirm that the coordinates of 220kV DC line with Twin Zebra conductor/UG cable (2000/2500 sqmm) from proposed 400/220 kV Doddathagalli sub-station to proposed 220kV			8. The exact coordinates for construction of 220 kV line bays at New 220kV Hosakote sub-station of KPTCL

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
	District " Survey report		Hosakote New sub-station are fixed for Hosakote new s/s and shall not be changed.			for termination of 220kV DC line proposed 400/220kV Doddathagalli sub-station to proposed 220kV Hosakote New sub-station is to be obtained from the owner of the substation during execution stage.
			9. In the event of change of coordinates of the line terminating at Hosakote end, the same will be covered under Change in law for the TSP of Doddathagalli s/s.			9. Please refer to Article 12 i.e., Change in Law of Transmission Service Agreement (TSA) and its amendments which is amply clear regarding the factors to be considered under.
			10. What shall be the supervision charges which			10. refer amendment.

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			the TSP of proposed 220kV Hosakote New sub-station shall seek from the TSP of Ryapte and Doddathagalli s/s for O&M of the line bays? Please provide the reference of appropriate regulation.			
			b) With respect to the scope of work at existing substation: 1. Please confirm whether the TSPs of Kolar s/s, Malur s/s, Ekarajapura s/s and Sarjapura s/s shall be providing space for termination of line bays / UG cables free of cost at respective s/s. If not, please provide reference of the charges applicable to the incoming TSP of the subject TBCB transmission scheme			b. 1,2, - refer amendment.

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
			for utilization of land at existing s/s. 2. What shall be the supervision charges which the incoming TSP of the subject TBCB transmission scheme shall have to give to the existing TSP of s/s mentioned above for O&M purposes? Please provide the reference of appropriate regulation.			
			c) Please provide the reference of appropriate regulations stating the application fee and license fee to be paid by the Intra-state TSP in Karnataka. d) Please provide the reference of appropriate			c. Kindly refer KERC reply. d. Payment of SLDC fees and charges as per relevant regulations of KERC if applicable for TSP shall be borne by TSP only.

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
			regulations stating the RLDC/SLDC fee and charges to be paid by the Intra-state TSP in Karnataka.			
120	a) **Single stage Request for Proposal Document for selection of Bidder as Transmission Service Provider through tariff**	**Various Clauses, Schedules and Articles** **SCOD - 24 Months from effective date**	Please consider granting extension of SCOD from 24 months to at least 30 months	SCOD - 30 months from effective date	1) As per the scope of the subject RFP, 12 numbers of transfomers and reactors are required to be supplied and erected. In the minutes of the 28th National Committee on Transmission released on 21st March 2025, the persisting issue of high lead time in manufacturing	SCOD is extended from 24 months to 30 months. Please refer Amendment-VI in this regard.

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	based competitive bidding process to establish Intra-State Transmission System for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumku				of ICTs/reactors as well as GIS bay extensions was acknowledged and as a result, the timelines for constructing greenfield schemes as well as carrying out augmentation works of different kind at existing substations were increased by at least 3-6 months beyond their default timelines.	

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
	r District " Transmission Service Agreement for Development and Operation of Intra-State Transmission System for Transmission of Electricity through Tariff Based Competitive Bidding to establish Intra-State				2) Further, there is no clarity on the completion status and SCOD of the proposed 20kV Hosakote New sub-station. Therefore, citing the above reasons, we submit that the SCOD timeline for the subject transmission scheme should be kept as 30 months from effective date.	

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
	Transmission System for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District"					
121	RFP		Please specify the following: a) Will the supplementary guidelines for payment of compensation in regard to Right of Way (RoW) for transmission lines, issued by Ministry of Power, Government of India on 21st March 2025 be applicable to the		Clarification sought for estimation purpose to enable preparation of a robust techno-commercial proposal and execution of the subject transmission scheme.	a) & b) RoW compensation is in the scope of the TSP

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
			subject Intra State transmission scheme? b) Will the RoW width and Span in different terrain be applicable as per Schedule VII of CEA (Technical Standards for Construction of Electrical plants and Electric Lines) Regulations 2022 and RoW guidelines issued vide CEA-PS- 14-86/2/2019-PSETD Division dated 24.09.2024?as		Such clarification will also encourage competition.	
122	General		BPC to confirm if the RoW compensation is to be paid as per the existing policies of Maharashtra.		Required for correct estimation of scope of work	Existing policy of Karnataka
123	General	Survey Report	BPC to confirm if the tapping points for the LILO lines are flexible and can be changed as per the bidder's convenience and		Required for correct estimation of scope of work	Confirmed

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
			project execution feasibility.			
124	--	--	Ryapte to Doddathagalli 400kV transmission line is of D/c configuration. However, in the survey report issued by BPC, AP-01 M/c to AP-08 M/c is specified as Multi circuit tower. Kindly clarify whether line in this section is to be built as Multi circuit with D/c stringing on upper phases.		The bidder can provide the realistic tariff bid.	Line in this section (Ap-01 to Ap-08) to be built as D/C tower
125	--	--	As the project is intended for power evacuation from the solar plant, it is requested that the geo-coordinates of the solar plant boundary be provided to facilitate finalization of the route alignment avoids the solar plant area.		The bidder can provide the realistic tariff bid.	Kindly refer Clause 2.5.7 of the RFP Document.

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
126	RFP for Selection of Bidder as Transmission Service Provider		Please provide the SPECIFIC TECHNICAL REQUIREMENTS FOR COMMUNICATION		Bidder needs the information for proper estimation	Refer RFP
127	RFP	B.2.15 a) Substation Automation Syst	We understand that below is the list of Remote Station :- 1) Kolar 2) Malur 3) Ekrajapura 4) Hosakote 5) Sarjapura Kindly provide details of SAS System at the above mentioned remote stations. Details should contain make. model, version details of existing SCADA and RTUs. Details on how SLDC Connectivity is achieved at Remote Station		Required for correct estimation of scope of work	Make, Model and version of SAS system is as mentioned below 1. Kolar: Bidders are advised to visit the substation . 2. Malur: RTU of ABB make with RTU-560A model and version: 3. Hoskote_ New is

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
						upcoming S/s 4. Ekarajapura:: ER SAS system with Model: CSC2000 Version: 3.46 Gateway: CSC1321 5. Sarjapura: ABB SAS system with :MICROSCADA Version:9.2 VSAT & OPGW connectivity is available for communication to SLDC

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
128	RFP	B.2.15 a) Substation Automation Syst	We understand that S/S where SCADA system already exists have sufficient hardware , software & tag capacity to integrate the new Bays . TSP will consider the integration services of SCADA for the same. Kindly confirm TSP understanding is correct.		Required for correct estimation of scope of work	Yes, at 220kV Malur the additional bays can be integrated to existing RTU (CMU card to be provided along with MFT for analog data,Digital Input card & Opto-Coupler for status, Digital Output card for control with necessary accessories) The supply, installation, testing and commissioning with integration to existing RTU to be done by the EPC at Sub-station end. However, the integration at

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						SLDC will be done by KPTCL. For Kolar SS: Bidders are advised to visit the substation
129	RFP	B.2.15 a) Substation Automation Syst	Kindly confirm list of SLDCs to which data is to be sent.		Required for correct estimation of scope of work	Main Control Center-SLDC, Bengaluru Backup Control Center-SLDC, Nelamanagala
130	RFP	B.2.15 a) Substation Automation Syst	As per our understanding SAS system shall be sized for both hardware and software for requirements including proposed future bays and equipment. Kindly confirm		Required for correct estimation of scope of work	Yes

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
131	RFP	B.2.15 a) Substation Automation Syst	For Remote Stations - Please share the reference architecture of SAS as well as its integration with RLDC/SLDC. Also share typical I/O list.		Required for correct estimation of scope of work	The existing SAS architecture of the sub-station may be obtained from P&C wing. The sample I/O list is attached however final I/O list will be furnished at the time of integration For Kolar SS: Bidders are advised to visit the substation
132	RFP	2.23 Phasor Measurement Unit	We understand PMU is to be integrated with Single PDC at SLDC. Kindly confirm location of PDC		Required for correct estimation of scope of work	Yes, it has to report to single PDC, Bengaluru
133	RFP	2.23 Phasor Measurement Unit	Kindly share PMU Details at Remote Stubstations. Details should contrain		Required for correct estimation of scope of work	For Kolar SS: Bidders are advised to visit the substation

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
			name of Substation,Line and availability of PMU			
134	RFP	Annexure: SPECIFIC TECHNICAL REQUIREMENTS FOR COMMUNICATION (Pg. 427 3rd paragraph) The communication services viz. SCADA, VoIP, PMU, AGC & AMR (wherever applicable) have been identified as critical services and therefore shall be provisioned with 2+2 redundancy i.e. 2 channels for Main Control Centre (SLDC) and 2 channels for Backup Control Centre (SLDC). In order to meet this requirement, suitable redundancy at port and card level need to be ensured by the TSP to avoid any single point of failure which may lead to interruption in real-time grid operation	(i) We understand connectivity of SCADA, AGC (wherever applicable), VoIP, AMR and PMU will be provisioned from existing FOTE at Warora substation or Kolari substation to Main control center and Backup Control Center, PDC at Main Control Center through existing KPTCL SDH or VSAT network. Please confirm. (ii) Request to provide details like location, utilities, channel availability to SLDC, Backup SLDC, RLDC e.t.c., for all the data communication connectivity end-points.		Required for correct estimation of scope of work	For Kolar SS: Bidders are advised to visit the substation

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135	RFP	Annexure: SPECIFIC TECHNICAL REQUIREMENTS FOR COMMUNICATION (Pg no. 428) C.2.0 2Nos. of 400 kV line bays line bays at 400/220kV Ryapte for termination of 400kV Doddattaggalli DC lines II. TSP shall supply, install & commission One or more STM-16 (FOTE) equipment along with panel/s supporting minimum Nine (9) directions with Multiplex Section Protection – 1+1 (MSP)with necessary interfaces to meet the voice and data communication requirement among proposed 400kV Doddataggalli S/s. These directions shall exclude protected (1+1) local patching among equipment (if any).	Request to provide details of local and remote ends FOTE details (make, model, spare port availability) for integration.		Required for correct estimation of scope of work	1. Kolar_PGCIL : Bidders are advised to visit the substation 2. Malur, Ekarajapura and Sarjapura Substations are provided with Tejas make,TJ1400 model and spare ports are available 3. Hoskote_New: Upcoming S/s

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Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
136	RFP	Annexure: SPECIFIC TECHNICAL REQUIREMENTS FOR COMMUNICATION (Pg no. 429)C.4.0 4Nos. of 400 kV line bays line bays at 400/220kV Doddataggalli for termination of 400kV Kolar and 400 kV Ryapte DC lines. II. TSP shall supply, install & commission One or more STM-16 (FOTE) equipment along with panel/s supporting minimum Nine (9) directions with Multiplex Section Protection – 1+1 (MSP)with necessary interfaces to meet the voice and data communication requirement among proposed 400kV Ryapte and existing 400kV Kolar S/s. These directions shall exclude protected (1+1) local patching among equipment (if any).	Request to provide details of local and remote ends FOTE details (make, model, spare port availability) for integration.		Required for correct estimation of scope of work	

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137	RFP	Annexure: SPECIFIC TECHNICAL REQUIREMENTS FOR COMMUNICATION (Pg no. 432) C.9.0 8Nos. of 220kV line bays at 400/220kV Doddathaggalli for termination of proposed 220 kV DC lines. II. TSP shall supply, install & commission One or more STM-16 (FOTE) equipment along with panel/s supporting minimum Nine (9) directions with Multiplex Section Protection – 1+1 (MSP)with necessary interfaces to meet the voice and data communication requirement among 220kV Sarjapura, 220kV Malur, 220kV Ekarajapura, 220kV Hosakote_New S/s.	Request to provide details of local and remote ends FOTE details (make, model, spare port availability) for integration.		Required for correct estimation of scope of work	1. Kolar_PGCIL: Bidders are advised to Visit the substation. 2. Malur, Ekarajapura and Sarjapura: Tejas make,TJ1400 model and spare ports are available 3. Hoskote_New: Upcoming S/s
138	RFP	Annexure: SPECIFIC TECHNICAL REQUIREMENTS FOR COMMUNICATION (Pg no. 441)	As the points indicate PLCC panels to be provided at both ends of 400kV and 220kV lines. But, the next sentence		Required for correct estimation of scope of work	Yes, PLCC to be considered at Malur

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		C.11.0 PLCC and PABX: 1. The PLCC Equipment to be provided at both ends of Sub-station for 400kV and 220kV lines. 2. The PLCC Equipment to be provided only at 400kV Ryapte, 400kV Doddatagalli, 220kV Malur.	indicates PLCC panels to be considered only at Ryapte, Doddatagalli and Malur stations. Request to confirm if PLCC panels to be considered at Malur substation or not. Please clarify.			
139	RFP	SPECIFIC TECHNICAL REQUIREMENTS FOR INTEGRATION OF COMMUNICATION EQUIPMENT WITH STATE LEVEL NMS & REGIONAL UNMS (Pg no. 443): The new communication equipment/ system for all the substations under the present scope shall be compatible for integration with existing regional level NMS system/ Centralized Supervision and Monitoring System (CSMS) i.e. Regional UNMS. The local configuration of the new communication equipment	Request to provide details of NMS (make, model, version) for considering compatible communication equipments		Required for correct estimation of scope of work	Detail of NMS system of KPTCL Make:Tejas Model:TJ5500 Version:8.1 For Kolar ss: Bidders are advised to visit the substation.

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		at the station end shall be the responsibility of TSP				
140	RFP – Annexure C – Technical Specifications	General	24F OPGW will be used as per RFP however as per CEA (Power Communication Development Division) letter no: CEA-PS-17-24/1/2024-PCD Division on Dated 22-11-2024, TSP will be the laying of at least 48F OPGW instead of 24F OPGW schemes. Kindly clarify.		Required for correct estimation of scope of work	48F OPGW to be provided
141	RFP for Selection of Bidder as Transmission Service Provider & Transmission Service Agreement	***Schedule: 9*** *d = Discount rate as notified by the KERC, applicable on the Bid Deadline, in case KERC notification is not available, then Discount rate shall be as per CERC.*	BPC is requested to confirm whether KERC has published any Discount Rate for Discount rate as per TSA of the Tariff based Competitive Bidding Guidelines for Transmission service as same is not available on KERC website.		Bidder needs the information for proper estimation	Kindly refer Clause 2.5.7 of the RFP Document.
142	Amendment issued by MoP in Late Payment		This is to bring to your attention the recent amendment issued by MoP in Late Payment Surcharge and Related		Bidder needs the information for proper estimation	Refer amendment

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	Surcharge and Related Matters *(LPS)* Rules, 2022, vide gazette reference CG-DL-E-05052025-262902 dated 2nd May 2025		Matters *(LPS)* Rules, 2022, vide gazette reference CG-DL-E-05052025-262902 dated 2nd May 2025 wherein in rule 1, in sub-rule (3), for the words **"generating companies inter-state transmission licensees",** the words **"generating companies, transmission licensees"** shall be substituted. Therefore, as per the LPS rules 2022, the transmission licensee must be provided with a payment security mechanism with distribution licensee or other user of transmission system. Accordingly, it is requested to amend the TSA to include a robust payment security mechanism for the TSP's.			
143	**Transmission**	**Definitions**: "**Due Date**" in relation to any Invoice shall	As per Amendment-I dated 20.06.2025 to the RFP	The due date shall mean the thirtieth (30th) day after the	The provision of due date being 30	No change

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	Service Agreement for Development and Operation of Intra-State Transmission System for Transmission of Electricity through Tariff Based Competitive Bidding to establish Intra-State Transmission System for "Evacuation	mean the thirtieth (30th) day after the date on which any Invoice is received and duly acknowledged by the Nodal Agency (or, if that day is not a Business Day, the immediately following Business Day), and by such date, the Invoice is payable by the Nodal Agency;	Documents of the subject transmission scheme, **"Due Date"** in relation to any Invoice shall mean the forty fifth (45th) day after the date on which any Invoice is received (or, if that day is not a Business Day, the immediately following Business Day).	date on which any Invoice is received and duly acknowledged by the Nodal Agency (or, if that day is not a Business Day, the immediately following Business Day), and by such date, the Invoice is payable by the Nodal Agency;	days is in line with the TSAs being adopted for Intra-state schemes in Maharashtra, Odisha, UP, MP. This provision provides comfort to the developers with respect to the receivables, and should not be modified.	

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	Scheme for 2000MW solar park at Ryapte Village, Tumkur District"					
144		**Article 11 Force Majeure Clause 11.3**	As per Amendment-I dated 20.06.2025 to the RFP Documents of the subject transmission scheme, **various events have been excluded** from the list of Natural Force Majeure events, Direct Non–Natural Force Majeure Events and Indirect Non–Natural Force Majeure Events. Please explain the rationale behind excluding the following four clause from list of aforementioned events:		Changes in the RFP documents pertaining to only commercial terms (Article 10) may be aligned with the existing practices by the incumbent STU. No changes should be made to the Articles 11 (Force Majeure) and 12 (Change in Law) of the TSA considering that these are part of	No change

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			i) Omitting **"epidemic/ pandemic notified by Indian Governmental Instrumentality"** from the list of Natural Force Majeure Events ii) Omitting **"Nationalization or compulsory acquisition by any Indian Governmental Instrumentality of any material assets or rights of the Affected Party;"** and **"any other unlawful, unreasonable or discriminatory action on the part of an Indian Governmental Instrumentality which is directed against the Project, provided that a**		the SBD issued by Ministry of Power. **Omission to such clauses significantly reduce the chances of the affected party to claim relief / compensation as defined under Article 6.3, Article 11.7, Article 12.2, Schedule 9, etc.**	

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			Competent Court of Law declares the action to be **unlawful**" from the list of Direct Non–Natural Force Majeure Events iii) Omitting "**radio active contamination or ionising radiation originating from a source in India or resulting from any other Indirect Non Natural Force Majeure Event mentioned above, excluding circumstances where the source or cause of contamination or radiation is brought or has been brought into or near the Site by the Affected Party or those employed or engaged by the**			

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			Affected Party;" from the list of Indirect Non - Natural Force Majeure Events			
145		**Article 12.1 Change in Law: Change in Law' means the occurrence of any of the following events:**	As per Amendment-I dated 20.06.2025 and amendment – II dated 30.06.2025 to the RFP Documents of the subject transmission scheme, the following two conditions have been excluded from the events listed under Change in Law: i) **change in wind zone; or** ii) **any change in tax or introduction of any tax made applicable for providing Transmission Service by the TSP as per the**		Changes in the RFP documents pertaining to only commercial terms (Article 10) may be aligned with the existing practices by the incumbent STU. No changes should be made to the Articles 11 (Force Majeure) and 12 (Change in Law) of the TSA considering that these are part of the SBD issued by Ministry of Power.	No change

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			terms of this Agreement Please explain the rationale behind exclusion of the above two events from the list of events which can constitute change in law whenever they occur.		**Omission to such clauses significantly reduce the chances of the affected party to claim relief / compensation as defined under Article 6.3, Article 11.7, Article 12.2, Schedule 9, etc.**	
146	RFP	Section – 1 Note: KPTCL to provide land for the construction of 400/220 kV sub-station at Doddathagalli and Ryapte and shall be handed over to TSP as is where basis. TSP shall coordinate with KPTCL for acquisition of land	BPC to provide the exact land coordinates for proposed Hampaura Substation for which land to be provided by KPTCL and also provide the one time land Lease rate.			Hampapura S/S is not envisaged in the scope of work

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147	RFP & Survey Report	Coordinates of both end I. Existing 220/66kV Malur Sub Station II. Existing 220/66kV Ekarajapura Substation III. Existing 220/66kV Sarjapura Substation IV. 765/400kV Kolar Substation (PGCIL)	We understand that the coordinates provided for the Existing 220/66kV Malur Sub Station, Existing 220/66kV Ekarajapura Substation, Existing 220/66kV Sarjapura Substation, 765/400kV Kolar Substation (PGCIL) are fixed and no change in substations locations are envisaged at a later stage. Please confirm.			Bidders are advised to visit the Substations.
148	**RFP & TSA**	General	We request you to clarify whether there are any deviations/addition in the RFP/TSA documents from the Standard Bidding documents (SBD) and if any, whether approval for the same has been taken or not. Please provide the list of the same, if any.			The RFP/ TSA Documents are as per the Standard Bidding Documents (SBDs) and subsequent amendments issued by the Ministry of Power, GoI; however, wherever

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						required, the provisions have been amended/ modified to align the same to meet the Intra State Rules and Regulations stipulated by the GoK and applicable to the Project.
149	**RFP**	General	Please let us know the status of Regulatory Approvals for the project.		SPV Acquisition is linked to regulatory approval and it is very important to get the clearance before RFP Submission as this will impact the initiation of projects.	Government of Karnataka vide its Government Order no. Energy 73 PPT 2024, Bengaluru dated 04.03.2025 notified the subject scheme.
150	**RFP**	General	We request you to let us know the status of TSA signing.		SPV Acquisition is linked to TSA Signing and it is very important to	As per revised TBCB Guidelines and SBD issued by MOP, GoI, TSP

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					get the clearance before RFP Submission as this will impact the initiation of projects	on the date of acquisition of SPV from the BPC, will enter into a Transmission Service Agreement (TSA) with Nodal Agency of the project.
151	RFP	**Clause 1.6.2.1 (2):** To obtain approval for laying of overhead transmission lines under Section 68 of Electricity Act, from the Government at least twenty (20) days prior to Bid Deadline.	It is requested you to kindly provide present status of process initiated by BPC with regard to section 68 approval.			The approval u/s 68 of Electricity Act will be shared with the successful bidder.
152	RFP	**Clause 1.6.2.1 (4):** To initiate process of seeking forest clearance, if required.	It is requested you to kindly provide present status of Forest Clearances if any transmission line corridor area falling in wildlife forest / reserve forest/ mangroves.			BPC will complete its responsibilities as listed in the RFP documents. Please also refer Clause 1.6 & 2.5.7 of the RFP document.

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153	RFP	Clause 1.6.2.2: The details and documents as may be obtained by the BPC/ project specific SPV in relation to the Project shall be handed over to the TSP on an as-is-where-is basis, so that it may take further actions to obtain Consents, Clearances and Permits	Please provide copy of all such document available with you from the State Government and/or Ministry of Power and/or kindly facilitate for State Support Agreement.			Pursuant to the selection of the TSP, the support will be provided on case-to-case basis, within applicable laws and regulatory framework.
154	RFP	Clause 1.10 The Ministry of Power and the appropriate state government(s) shall provide their support to the TSP, on best endeavor basis, in enabling the TSP to develop the Project.	We request you to share all such documents or correspondence happened with MOP and State Government, this will help the TSP is taking further approvals for the project.			Pursuant to the selection of the TSP, the support will be provided on case-to-case basis, within applicable laws and regulatory framework.
155	RFP	Clause 2.15.2	BPC will appreciate that the completion of said activities by the Selected			Referred clause of the RFP issued dated 10.06.2025 is as per SBD and amendments

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		Within ten (10) days of the issue of the Letter of Intent, the Selected Bidder shall: a) provide the Contract Performance Guarantee in favour of the Nodal Agency as per the provisions of Clause 2.12 b) execute the Share Purchase Agreement and the Transmission Service Agreement acquire, for the Acquisition Price, one hundred percent (100%) equity shareholding of [Insert the name of the SPV] from REC Power Development and Consultancy Limited, who shall sell to the Selected Bidder, the equity shareholding of [Insert the name of the SPV], along with all its related assets and liabilities;	Bidder within ten (10) days after issuance of LoI is very stringent. Also, execution of SPV / signing of share purchase agreement is not within the control of TSP as it is dependent on certain regulatory approvals as well. We therefore request to consider at least 30 days' time for completion of these activities as well as provide a carve out for consequences if the delay is not on account of TSP.			thereof, issued by the Ministry of Power and hence, no change is envisaged.

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156	RFP	Clause 2.15.2 Stamp duties payable on purchase of one hundred percent (100%) of the equity shareholding of [Insert the name of the SPV], along with all its related assets and liabilities, shall also be borne by the Selected Bidder.	We request you to provide Applicable Stamp Duty Charges and Amount of Stamp Paper for the following agreements: i. Transmission Service Agreement ii. Share Purchase Agreement iii. Power of Attorney iv. Share Transfer Form It will be helpful if you can specify the name of 1st party and 2nd party for purchase of stamp papers.			Kindly refer Clause 2.5.7 of the RFP Document. Name of the 1st party and 2nd party would be as per respective document / agreement.
157	RFP	Clause 2.15.4 Within five (5) working days of the issue of the acquisition of the SPV by the Successful Bidder, the TSP shall apply to the Commission for grant of		Clause 2.15.4 may be reworded as below - Within ten (10) working days of the issue of the acquisition of the SPV by the Successful Bidder, the TSP shall apply to the Commission for grant of	The condition to apply for grant of transmission license and make application for adoption of transmission charges within 5 days is onerous.	This is as per the SBD and amendments thereof, issued by the Ministry of Power and hence, no change is envisaged.

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		Transmission License and make an application to the Commission for the adoption of Transmission Charges, as required under Section – 63 of The Electricity Act 2003.		Transmission License and make an application to the Commission for the adoption of Transmission Charges, as required under Section – 63 of The Electricity Act 2003.	Request to please change the relevant provisions as per the suggested text in RFP and TSA	
158	RFP	Clause 2.15.5 If the Selected Bidder / TSP fails or refuses to comply with any of its obligations under Clauses 2.15.2, 2.15.3 and 2.15.4, and provided that the other parties are willing to execute the Share Purchase Agreement and REC Power Development and Consultancy Limited is willing to sell the entire equity shareholding of [Insert the name of the	It is requested to kindly clarify as to what will be the consequences if the Selected Bidders fails to comply with any of Its obligations under 2.15.2, 2.15.3 and 2.15.3 due to reasons beyond the control of or not attributable to Selected Bidder / TSP. As the consequences for failure to comply the obligations under 2.15.2, 2.15.3 and 2.15.3 is the cancellation of Letter of			The provisions of RFP Document are amply clear in this regard and shall prevail.

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		SPV], along with all its related assets and liabilities, to the Selected Bidder, such failure or refusal on the part of the Selected Bidder shall constitute sufficient grounds for cancellation of the Letter of Intent. In such cases, the BPC / its authorized representative(s) shall be entitled to invoke the Bid Bond of the Selected Bidder.	Intent (LOI). We request you to reconsider the same as it would be unfair if LOI of selected bidder is cancelled due to reasons beyond its control.			
159	RFP	**Clause 2.4.3** The amendment to the RFP shall be notified to all the Bidders through the electronic bidding platform and shall be binding on them.	We understand that the BPC will also continue to share amendments / corrigendum through emails as per the current practice.			Yes
160	RFP	**Clause 3.6.1** However, if no bid is received during the e-	We request you to clarify, if two or more bidders quote the same initial offer which			As per provisions of RFP, bidders have to quote

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		reverse bidding stage then the Bidder with lowest quoted initial transmission charges ("Initial Offer") during e-bidding stage shall be declared as the Successful Bidder, ...	turns out to be prevailing lowest levelized tariff and no further discount is offered by any bidder during e-reverse auction. In such case what will be the modality BPC will follow for award of project. BPC to confirm			transmission charges up to 2 decimal points. Therefore, it is practically not possible to have same Initial Offer from two or more bidders. However, if such situation arises, appropriate decision will be taken by the competent authority.
161	**RFP**	General	We request you to kindly accept the Board resolutions passed by Management Committees formed by the Board of Directors of Bidding Company and TEE / affiliate respectively and duly authorized by the Board of Directors for		The board meeting of Bidding Company / TEE may not be scheduled till RFP submission. Thus, we request you to kindly	Provisions of RFP Document are amply clear in this regard and shall prevail.

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			participation in various tenders issued by Govt. authorities in response to the RFP submission.		consider the board resolution passed by the management committee formed by the board of directors' w.r.t. Authorization from Bidding Company and TEE.	
162	**RFP**	ANNEXURE 22 – FORMAT FOR AFFIDAVIT	We understand that the declaration and details with respect to conviction and investigation is to be provided for Affiliate / Parent company of the Bidding company only if such an Affiliate / Parent company is being used for meeting financial / technical qualification requirements.			The declaration and details with respect to Clause 2.1.9 of RFP is to be provided by the bidding company including Affiliate / Parent company of the Bidding company being used for meeting financial / technical Qualification requirements as per Annexure 22

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						of the RFP document.
163	TSA	**Article 3.3.1** If any of the conditions specified in Article 3.1.3 is not duly fulfilled by the TSP even within three (3) Months after the time specified therein, then on and from the expiry of such period and until the TSP has satisfied all the conditions specified in Article 3.1.3, the TSP shall, on a monthly basis, be liable to furnish to Power Company of Karnataka Limited (being the nodal agency) additional Contract Performance Guarantee of Rupees 4.95 Crores (Rs. Four Crore and Ninety-Five Lakh) Only within two (2) Business Days of expiry of every such Month. Such additional Contract Performance Guarantee	In view of the rationale provided here, it is requested to amend the provision regarding refund of additional CPG on fulfillment of Conditions Subsequent.		Additional CPG shall be recovered for the non-fulfillment of Conditions Subsequent. However, this additional CPG is then forming part of CPG and is being retained by Nodal Agency. Considering the fact that additional CPG is consequential guarantee for performance related to condition subsequent, it is requested to review the provision and amend the	This is as per the SBD and amendments thereof, issued by the Ministry of Power and hence, no change is envisaged.

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		shall be provided to Power Company of Karnataka Limited (being the nodal agency) in the manner provided in Article 3.1.1 and shall become part of the Contract Performance Guarantee and all the provisions of this Agreement shall be construed accordingly Power Company of Karnataka Limited (being the nodal agency) shall be entitled to hold and / or invoke the Contract Performance Guarantee, including such additional Contract Performance Guarantee, in accordance with the provisions of this Agreement.			provision to refund the additional CPG on fulfillment of Conditions Subsequent.	
164	**TSA**	**Clause 1.6.1.5** The TSP shall seek approval under Section 164 of Electricity Act, from CEA after acquisition of [Insert	It is requested you to kindly clarify whether process of obtaining authorization U/s	It is suggested that BPC may initiate the process for obtaining approval U/s 164	It may be appreciated that obtaining approval U/s 164	This is as per the SBD and amendments thereof, issued by the Ministry of Power and hence,

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		the name of the SPV], The approval shall be granted by CEA generally within 30 days but in no case later than 45 days from the date of receipt of application (complete in all aspects).	164 of Electricity Act, 2003 would be initiated by BPC.	based on the survey undertaken by BPC.	takes considerable time. In the interest of timely completion of project, it is suggested that BPC may initiate the process U/s 164.	no change is envisaged. However, BPC will complete its responsibilities as listed in the RFP documents.
165	**TSA**	**Article 4.4 Extension of Time**	TSP is required to obtain certain clearances/ approval such as authorization u/s 164, Forest clearance, Grant of Transmission License and approval for adoption of tariff etc. In case if there is any delay in these approvals beyond stipulated time, such delay shall be considered for extension of SCOD of the project and any consequential increase in cost shall be allowed		Clearances/ approval such as authorization u/s 164, Forest clearance, Grant of Transmission License and approval for adoption of tariff are not within the control of TSP once it has been applied after fulfilling all the necessary compliance, any consequential	This is as per the SBD and amendments thereof, issued by the Ministry of Power and hence, no change is envisaged.

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			through appropriate adjustment in the tariff.		delay is required to be allowed.	
166	**TSA**	**Article 5.1.2** The TSP acknowledges and agrees that it shall not be relieved from any of its obligations under this Agreement or be entitled to any extension of time or any compensation whatsoever by reason of the unsuitability of the Site or Transmission Line route(s).	TSP cannot be burdened with impact of unsuitability of the site or transmission line route due to reasons beyond control. Therefore, suitable revision may be carried out in clause 5.1.2.		There may be number of reasons for unsuitability of the site or transmission line route which are beyond control of the TSP. For such instances, suitable extension of time and appropriate adjustment in tariff shall be provided.	This is as per the SBD and amendments thereof, issued by the Ministry of Power and hence, no change is envisaged.
167	**TSA**	**Article 5.6** **Site regulations and Construction Documents** The TSP shall abide by the Safety Rules and	Inspection of Construction drawings and other documents related to construction may be deleted from clause no. 5.6.		Construction drawings and few specific documents may be proprietary/ confidential and is against commercial	This is as per the SBD and amendments thereof, issued by the Ministry of Power and hence,

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		Procedures as mentioned in Schedule 3 of this Agreement The TSP shall retain at the Site and make available for inspection at all reasonable times copies of the Consents, Clearances and Permits, construction drawings and other documents related to construction.			interest of the TSP.	no change is envisaged.
168	**TSA**	**Article. 6.4.1** Liquidated Damages for Delay in achieving COD of Project by TSP.	If the TSP fails to achieve COD for any Element of the Project or for the Project by SCOD, then the TSP is required to pay liquidated damages. It is noted that, Clause 6.4.1 of the TSA does not exclude delays caused due to a Force Majeure or Nodal Agency's default. This may well be a drafting oversight and may be clarified.			This is as per the SBD and amendments thereof, issued by the Ministry of Power and hence, no change is envisaged.

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			The TSP should also not be liable to pay liquidated damages in the event the delay is not attributable to the TSP. Accordingly, it may be clarified that no damages will be payable in the event the delay is on account of Force Majeure or Nodal Agency's default.			
169	**TSA**	**Article 11.3 Force Majeure** A 'Force Majeure' means any event or circumstance or combination of events and circumstances including those stated below that wholly or partly prevents or unavoidably delays an Affected Party in the performance of its obligations/ roles under this Agreement, but only if and to the extent that such events or circumstances are not within the reasonable control, directly or indirectly, of the Affected Party and could not have been avoided if the Affected Party had taken reasonable care or		Underlined text may be added under Article 11.3 : A 'Force Majeure' means any event or circumstance or combination of events and circumstances including those stated below that wholly or partly prevents or unavoidably delays an Affected Party or **makes performance of obligation commercially unviable for the Affected Party** in the performance of its obligations/ roles under this Agreement, but only if and to the extent	TSA	This is as per the SBD and amendments thereof, issued by the Ministry of Power and hence, no change is envisaged.

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		complied with Prudent Utility Practices:		that such events or circumstances are not within the reasonable control, directly or indirectly, of the Affected Party and could not have been avoided if the Affected Party had taken reasonable care or complied with Prudent Utility Practices:		
170	TSA & RFP	**Provisions in TSA** *(Provision related to non fulfilment of condition subsequent)* **3.3.6** The Nodal agency, on the failure of the TSP to fulfil its obligations, if it considers that there are sufficient grounds for so doing, apart from invoking the Contract			The blacklisting of TSP for a period of 5 years for default, failure to complete conditions subsequent & annulment of award, and for indefinite period for error in online and physical submission is onerous and harsh on TSP.	This is as per the SBD and amendments thereof, issued by the Ministry of Power and hence, no change is envisaged.

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		Performance Guarantee under para 3.3.3 may also initiate proceedings for blacklisting the TSP as per provisions of Article 13.2 of TSA. *(Termination procedure for TSP event of default)* **13.2** Further, the Nodal Agency may also initiate proceedings to blacklist the TSP & its Affiliates from participation in any RFP issued by BPCs for a period of 5 years. **Provisions in RFP**			TSP's event of default covers a lot of activities, and if TSP fails to comply with even one activity, TSP is at risk of getting blacklisted. Further, TSA provides discretionary right to Nodal agency to decide whether TSP would be blacklisted. In case of discrepancy in submission, it is requested that BPC shall seek clarification from bidder and upon failure to provide clarification and	

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		(Non fulfilment of Obligations by TSP post issuance of LoI and post acquisition of SPV) **2.15.8** The annulment of the award, under Clause 2.15.5 or 2.15.6 of this RFP, shall be sufficient grounds for blacklisting the bidder, whose award has been annulled, for a period of five years or more, as decided by the National Committee on Transmission, provided that the blacklisting shall be done only after giving the bidder an opportunity for showing cause. *(Discrepancy in online and physical submission of selected bidder)*			complete investigation only, should construe such activity as fraudulent practice. Hence it is requested to include blacklisting only in extreme cases and provide definite guidelines on Nodal Agency's right to blacklist bidders. Also in RFP, blacklisting for annulment of project award would be done by government, while in other cases it would done by Nodal Agency. It is	

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		3.6.1 In case, there is a discrepancy between the online submission and physical documents, the bid would be out rightly rejected and the bidder shall be construed to have engaged in the fraudulent practice as defined in Clause 2.19.3 with consequences as mentioned in Clause 2.19.2. Further, in such a case, the provisions of Clause 2.5.6 (j) shall apply.			requested that blacklisting rights shall only reside with government.	
171	TSA	**13.3 Procedure for Nodal Agency's non-fulfilment of Role**			The contract clauses as per TSA favors the Nodal Agency. All the termination	This is as per the SBD and amendments thereof, issued by

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		a. Upon the Nodal Agency not being able to fulfil its role under Article 4.2. the TSP may serve notice on the Nodal Agency, with a copy to CEA and the Lenders' Representative (a "TSP's Preliminary Notice"), which notice shall specify in reasonable detail the circumstances giving rise to such non-fulfillment of role by the Nodal Agency.		**13.3 Procedure for Nodal Agency's non-fulfilment of Role** a. Upon the Nodal Agency not being able to fulfil its role under Article 4.2. the TSP may serve **TERMINATION** notice on the Nodal Agency, with a copy to CEA and the Lenders' Representative (a "TSP's Preliminary **Termination** Notice").	rights are provided to Nodal Agency and the agreement does not provide the other party (TSP) right to terminate in case of default of Nodal Agency. In absence of termination right, TSP is at risk commercially, if Nodal agency fails to fulfill its assigned responsibilities, for example failure of Nodal Agency to pay the quoted transmission charges.	the Ministry of Power and hence, no change is envisaged.

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					Also, the methodology for computation of compensation to TSP, in case of mutual agreement to terminate, should be defined upfront.	
172	TSA	3.3.4 In case of inability of the TSP to fulfil the conditions specified in Article 3.1.3 due to any Force Majeure Event, the time period for fulfilment of the condition subsequent as mentioned in Article 3.1.3, may be extended for a period of such Force Majeure Event. Alternatively, if deemed necessary, this Agreement may be terminated by the Nodal Agency by giving a Termination Notice to the TSP, in writing, of at least seven (7) days, with a copy to CEA and the Lenders'		3.3.4 In case of inability of the TSP to fulfil the conditions specified in Article 3.1.3 due to any Force Majeure Event, the time period for fulfilment of the condition subsequent as mentioned in Article 3.1.3, may be extended for a period of such Force Majeure Event. **In case the Force Majeure Event continues even after a period of one hundred and eighty (180) days if deemed necessary, the Nodal Agency or TSP, upon mutual agreement may terminate the Agreement as** per the provisions of Article	In case of delay in SCOD due to FM event, the provision gives discretionary right to Nodal Agency to terminate TSA after occurrence of FM event. There should be gestation period of at least 6 months after start of FM event. Post completion of 6 months, both parties may decide to terminate the	This is as per the SBD and amendments thereof, issued by the Ministry of Power and hence, no change is envisaged.

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		Representative in order to enable the Lenders to exercise right of substitution in accordance with Article 15.3 of this Agreement and the Contract Performance Guarantee shall be returned as per the provisions of Article 6.5.1. 4.4.2 In the event that an Element or the Project cannot be commissioned by its Scheduled COD on account of any Force Majeure Event as per Article11, the Scheduled COD shall be extended, by a 'day to day' basis for a period of such Force Majeure Event. **Alternatively, if deemed necessary, the Nodal Agency may terminate the Agreement as** per the provisions of Article 13.4 by giving a Termination Notice		13.4 by giving a Termination Notice to **the other party**, in writing, of at least seven (7) days, with a copy to CEA and the Lenders' Representative in order to enable the Lenders to exercise right of substitution in accordance with Article 15.3 of this Agreement and the Contract Performance Guarantee shall be returned as per the provisions of Article 6.5.1. 4.4.2 In the event that an Element or the Project cannot be commissioned by its Scheduled COD on account of any Force Majeure Event as per Article11, the Scheduled COD shall be extended, by a 'day to day' basis for a period of such Force Majeure Event.	contract on mutual agreement. In case of FM, there should not be any unilateral right to terminate. Also, the methodology for computation of compensation to TSP, in case of mutual agreement to terminate, should be defined upfront.	

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		to the TSP, in writing, of at least seven (7) days, with a copy to CEA and the Lenders' Representative in order to enable the Lenders to exercise right of substitution in accordance with Article 15.3 of this Agreement. 13.4 Termination due to Force Majeure 13.4.1 In case the Parties could not reach an agreement pursuant to Articles 3.3.4 and 4.4.2 of this Agreement and the Force Majeure Event or its effects continue to be present, the Nodal Agency shall have the right to cause termination of the Agreement. In case of such termination, the Contract Performance Guarantee		**In case the Force Majeure Event continues even after a period of one hundred and eighty (180) days if deemed necessary, the Nodal Agency or TSP, upon mutual agreement may terminate the Agreement as** per the provisions of Article 13.4 by giving a Termination Notice to **the other party**, in writing, of at least seven (7) days, with a copy to CEA and the Lenders' Representative in order to enable the Lenders to exercise right of substitution in accordance with Article 15.3 of this Agreement.		

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		shall be returned to the TSP as per the provisions of Article 6.5.1.				
173	RFP	ANNEXURE C – Technical Specification of Transmission System 16.0 Transmission line route shall be finalized, in consultation with appropriate authorities so as to avoid the habitant zones of endangered species and other protected species. Bird diverters, wherever required or mandated, shall be provided on the line." **In order to optimize the route use of GATISHAKTI platform shall also be made"**	As per the 16.0 of Annexure C – BPC to provide the access of GATISHAKTI Platform to optimize the route			GATISHAKTI portal is not being managed by RECPDCL. Hence, the bidders may approach the appropriate authority.

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174	**TSA**	Clause 5.8 "Remedial Measures: The TSP shall take all necessary actions for remedying the shortfall in achievement of timely progress in execution of the Project, if any, as intimated by the Independent Engineer and/ or CEA and/ or the Nodal Agency. However, such intimation by the Independent Engineer and/ or CEA and/ or the Nodal Agency and the subsequent effect of such remedial measures carried out by the TSP shall not relieve the TSP of its obligations in the Agreement. Independent Engineer and/ or CEA and/ or the Nodal Agency may carry out random inspections during the Project execution, as and when deemed necessary			This is very stringent clause and provides for agreement termination at the subjective discretion of Nodal Agency. Request to modify the clause as: **..... If the shortfalls as intimated to the TSP are not remedied to the satisfaction of the CEA and/ or the Nodal Agency, it may refer the same to the Appropriate Commission for appropriate action.**	This is as per the SBD and amendments thereof, issued by the Ministry of Power and hence, no change is envisaged.

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		by it. **If the shortfalls as intimated to the TSP are not remedied to the satisfaction of the CEA and/ or the Nodal Agency, this Agreement may be terminated by the Nodal Agency by giving a Termination Notice to the TSP, in writing, of at least seven (7) days, with a copy to CEA and the Lenders' Representative in order to enable the Lenders to exercise right of substitution in accordance with Article 15.3 of this Agreement ."**				
175	**TSA**	13.7 Termination Payment 13.7.1 If Agreement is terminated on account of Force Majeure Events, no requirement of any Element or Project during Construction, Nodal Agency's non-fulfilment of Role & TSP's Event of			Guidelines on valuation of project assets conducted should be provided to ensure there is no ambiguity.	This is as per the SBD and amendments thereof, issued by the Ministry of Power and hence, no change is envisaged.

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		Default, the TSP shall be entitled for Termination Payment equivalent to valuation of Project Assets. Upon payment, the Nodal Agency shall take over the Project Assets.			Further if TSA is terminated during operating period of project, guidelines on valuation of assets in such event to be provided.	However, it is clarified that the valuation of project assets shall be done as per the prevailing industry practices.
176	**TSA**	13.5 Termination or amendment due to non-requirement of any Element or Project during construction 13.5.1 In case any Element or Project, which is under construction, is no longer required due to any reason whatsoever, the Nodal Agency may issue a notice to this effect to the TSP. 13.5.2 Nodal agency may also issue notice to the TSP seeking their response to			Guidelines on amendment of TSA in case of non-requirement of any element during construction should be clearly specified, especially the treatment of Quoted Transmission Charges and capital cost of element no longer required.	This is as per the SBD and amendments thereof, issued by the Ministry of Power and hence, no change is envisaged. However, it is clarified that the valuation of project assets shall be done as per the prevailing industry practices.

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		the proposed termination/ amendment (as the case may be) of the Agreement. The Nodal Agency shall issue copy of such notice to Lenders. In the notice, Nodal Agency shall also include an assessment of the physical progress made by TSP in the Element/ Project (as the case may be) that is no longer required. 13.5.3 The TSP shall neither carry out further Investment nor carry out any work on the Element/ Project (as the case may be) that is no longer required after delivery of the notice. 13.5.4 After taking into account the comments of the TSP, the Nodal Agency may terminate the Agreement or amend it if			For example, if 50% construction of an element is completed and that element is not required, how would the TSP be compensated for the capital cost of the element.	Further, please refer Clause 18.2 e) of TSA.

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		both Parties agree to the amendment.				
177	**TSA**	12. Change in Law	Inclusion of change in acquisition price in Change in Law		As SPV acquisition price is part of capital cost of project, any change in Acquisition price after bidding would directly affect the bidder commercially and it is totally beyond the control of TSP. Hence, it is requested to kindly allow change in acquisition price under CIL event.	This is as per the SBD and amendments thereof, issued by the Ministry of Power and hence, no change is envisaged. Please refer Amendment-I & II in this regard.
178	**TSA**	D)The TSP has agreed to make an application for a Transmission License to the Commission for setting up the Project on **build, own, operate and transfer basis.**		D)The TSP has agreed to make an application for a Transmission License to the Appropriate Commission for setting up the Project **on build, own, operate and maintain basis**.	As per revised TSA, asset to be transferred to Nodal agency post 35 years (BOOT). The assets created	This is as per the SBD and amendments thereof, issued by the Ministry of Power and hence,

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					would be **Financial assets instead of Fixed assets**. Under IndAS accounting rules, **depreciation** of financial assets is **not allowed**. Further, TSP would be at risk of authorities levying 18% GST upfront on construction revenue recognized on COD. **Higher taxation** would impact the project economics eventually leading to higher tariff for the Consumers.	no change is envisaged.

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					Under BOOT model, **asset condition may degrade** towards end of concession period due to lack of incentive for developer to maintain the asset by incurring some capex. Hence it is requested to continue with the BOOM model.	
179	**TSA**	5.5.6 For any delay in commissioning any critical Element(s), as identified in Schedule 1 & Schedule 2 of this Agreement, **beyond a period of 45 days** shall lead to a sequestration of 10% of the Contract Performance Guarantee.		5.5.6 For any delay in commissioning any critical Element(s), as identified in Schedule 1 & Schedule 2 of this Agreement, **beyond a period of 6 months (as per clause 13.1.b) unless extended by Nodal Agency due to FM/CIL as per provisions of this agreement,** shall lead to a sequestration of 10% of the	Clause 13.1.b of TSA allows upto 6 months' delay in commissioning of element after SCOD. 10% sequestration clause does not cover any delay due FM or CIL event. If in case all	This is as per the SBD and amendments thereof, issued by the Ministry of Power and hence, no change is envisaged.

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		6.4.5 For avoidance of doubt, it is clarified that amount payable by TSP under this Article is over and above the penalty payable by TSP under Article 5.5.6 of this Agreement.		Contract Performance Guarantee.	the elements of projects are declared as "critical elements", TSP is liable for 10% CPG sequestration. It is requested to kindly extend period beyond which CPG sequestration shall occur to 6 months. Further, TSP should not be made liable for LD payments on account of delay in project / element commissioning more than as identified under	

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					clauses 6.4.1 and 6.4.2	
180	**TSA**	AA- Actual Availability ; MTC- Monthly transmission charges; Tmn = transmission charges for month "m" in contract year "n" *For incentive* *a. If 98%< AA < 98.5%; MTC= Tmn*1;* *b. If 98.5% < AA < 99.75% ;* *MTC= Tmn* (AA / 98.5 %);* *c. If AA> 99.75%; MTC = Tmn* (99.75 % /98.5 %);* *For Penalty* *d. If 95 % < AA < 98 %*		*Incentive = 0.02 x Annual Transmission Charges x (Actual Annual Availability – Target Availability)* Target Availability: AC -98% & HVDC -95% *Incentive = 0.02 x Annual Transmission Charges x (Actual Annual Availability – Target Availability)* Target Availability: AC -98% & HVDC -95%	The tariff for projects under TBCB has seen a reduction of 30%-50% as compared to RTM projects. The incentive for maintaining availability above target availability aids in increasing reliability of the transmission system. As the incentive is reduced as per revised provisions, developers may increase the Quoted tariffs to compensate which may result in increased cost of electricity to end consumer.	Please refer Amendment-I issued on 20.06.2025 in this regard

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		MTC = Tmn (AA / 98 %);* *e. If AA < 95 %* *MTC = Tmn* (AA/98 %) – 0.02* (Tmn* (AA/98%))*			Further there is no incentive for maintaining actual availability between 98% and 98.5%. Hence it is requested to continue with existing provisions for penalty and incentive calculation.	
181	**TSA**	3.3.4 Provided, that due to the provisions of Article 3.3.4, any increase in the time period for completion of conditions subsequent mentioned under Article 3.1 .3, shall lead to an equal increase in the time period for the Scheduled COD. **If the Scheduled COD is extended beyond a period of one hundred eighty**		3.3.4 Provided, that due to the provisions of Article 3.3.4, any increase in the time period for completion of conditions subsequent mentioned under Article 3.1 .3, shall lead to an equal increase in the time period for the Scheduled COD. **The TSP will be allowed to recover the interest cost during**	In event of FM/CIL event, provisions under revised TSA do not provide for any adjustment in transmission charges for a period of 180 days. TSP is allowed to recover interest cost	This is as per the SBD and amendments thereof, issued by the Ministry of Power and hence, no change is envisaged.

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		(180) days due to the provisions of this Article 3.3.4, the TSP will be allowed to recover the interest cost during construction corresponding to the period exceeding one hundred eighty (180) days by adjustment in the Transmission Charges in accordance with Schedule 9.		construction corresponding for the period of FM/CIL event by adjustment in the Transmission Charges in accordance with Schedule 9.	during construction for period exceeding 180 days. As large portion (70%) of project cost is funded through debt, repayment of which does not start till COD, any delay in SCOD leads to higher interest built up. This severely affects the project economics of developer. Hence it is requested to allow for recovery of interest cost during construction for entire period of FM/CIL event.	

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182	TSA	18. 1 The Nodal Agency shall appoint an agency/ company as Independent Engineer (IE)..... Responsibilities of IE include progress monitoring, ensuring quality, determine costs of works/services, determine valuation of project assets, assist parties in dispute resolution.		-	It is requested to not appoint an external agency (Independent Engineer-IE) and the Nodal Agency to execute the functions such as progress monitoring, quality assurance, determination of works/services, valuation of projects assets. Any delay in appointment of IE would delay the project execution. Further addition of an external agency would also be an additional expense which would eventually	This is as per the SBD and amendments thereof, issued by the Ministry of Power and hence, no change is envisaged.

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					result in tariff increase.	
183		3.1 Satisfaction of Conditions Subsequent by the TSP c. Execute this Agreement;			Since the execution of TSA will require coordination with the STU, it is requested that the TSA be executed before project acquisition by the project SPV in the interest of saving time. This will also facilitate early completion of the project critical activities	As per revised TBCB Guidelines and SBD issued by MOP, GoI, TSP on the date of acquisition of SPV from the BPC will enter into a Transmission Service Agreement (TSA) with the Nodal Agency of the project.
184		3.1.3 The TSP agrees and undertakes to duly perform and complete the following activities within six (6) months from the Effective Date	While the TSP will apply to the respective commission for grant of license, time required for the issuance is beyond the control of TSP once the application is made. We request to modify the clause suitably to incorporate the above.			This is as per the SBD and amendments thereof, issued by the Ministry of Power and hence, no change is envisaged.

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		To obtain the Transmission License for the Project from the Commission;				
185	**SPA**	Clause 3.5 The Selected Bidder hereby acknowledges and agrees that after the date of acquisition of one hundred percent (100%) of the Shares of the Company by the Selected Bidder as per Clause 3.3, (a) the authority of the BPC in respect of the Bid Process shall forthwith cease and any actions to be taken thereafter regarding the Bid Process will be undertaken by the Central Transmission Utility of India Limited themselves, (b) all rights and obligations of the BPC shall cease forthwith,	We understand that acquisition price towards acquisition of one hundred percent (100%) of the equity shareholding of the Company, communicated to bidder would include all liabilities pertaining to SPV prior to closing date. Please confirm			Bidder's understanding is generally in order.

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		(c) all other rights and obligations of the Company shall be of the TSP and (d) any decisions taken by the BPC on behalf of the Company prior to the date of acquisition, shall continue to be binding on the Company and/or Central Transmission Utility of India Limited as the case may be.				
186	RFP for Selection of Bidder as Transmission Service Provider	RFP, Clause 1.6. Clause no. 1.6.1.5 – **Scope of Transmission Service Provider** The TSP shall seek approval under Section 164 of Electricity Act, Government of Karnataka after acquisition of ..... (Insert the name of SPV). The approval shall be granted by **Government of Karnataka** generally within 30 days but in no case later than 45 days from the date	We request BPC to confirm that in case of delay in grant of section 164 approval beyond 30 days by State of Karnataka, will this qualify as Force Majeure (FM) event under TSA, and TSP can get relief as per TSA.		Bidder needs the information for proper estimation	This is as per the SBD and amendments thereof, issued by the Ministry of Power and hence, no change is envisaged.

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		of receipt of application (complete in all aspects).				
187	Transmission Service Agreement	TSA ARTICLE: 5 Clause no. 5.5.6 - For any delay in commissioning any critical Element(s), as identified in Schedule 1 & Schedule 2 of this Agreement, beyond a period of 45 days shall lead to a sequestration of 10% of the Contract Performance Guarantee.	We understand that of List of Element(s) along with the critical Element(s) are defined and provided in TSA and there will no separate list of Elements(s) to be provided.		Bidder needs the information for proper estimation	All the elements mentioned at Schedule 1 and Schedule 2 of TSA are critically important. Therefore, there is no such critical element other than the elements mentioned
188	Transmission Service Agreement	Clause 5.1.2 The TSP acknowledges and agrees that it shall not be relieved from any of its obligations under this Agreement or be entitled to any extension of time or any compensation whatsoever by reason of the	BPC to clarify, what are the determining factors/criteria for deciding the unsuitability of site and transmission line route? BPC to clarify that incase of unsuitability of the land that are provided by the KPTCL for the scope of		Bidder needs the information for proper estimation	Provisions of RFP Documents are amply clear in this regard and shall prevail. Please also refer Clause 2.5.7 of the RFP document and

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		unsuitability of the Site or Transmission Line route(s).	work, who shall be held responsible?			Clause 5.1.4 of TSA document.
189	RFP for Selection of Bidder as Transmission Service Provider	Clause 1.6.1.1 Scope of Work ....land compensation	Whether the new Supplementary guidelines dated 21st March 2025 issued by the Ministry of Power for payment of compensation will be applicable for the payment of land compensation?		Bidder needs the information for proper estimation	The RoW compensation is in the scope of TSP.
190	Transmission Service Agreement	Clause 5.5.6 For any delay in commissioning any critical Element(s), as identified in Schedule 1 & Schedule 2 of this Agreement, beyond a period of 45 days shall lead to a sequestration of 10% of the Contract Performance Guarantee	As a general practice, the KERC considers any request for extension of time post COD of the Project. BPC to clarify that whether the 10% of CPBG will be invoked even when such delay is caused due to FM events and without adjudication on the validity of such claims?		Bidder needs the information for proper estimation	This is as per the SBD and amendments thereof, issued by the Ministry of Power.

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191	Transmission Service Agreement	Clause 2.2.2 Post the Expiry Date of this Agreement, the TSP shall ensure transfer of Project Assets to KPTCL or its successors or an agency as decided by the Government of Karnataka at zero cost and free from any encumbrance and liability. The transfer shall be completed within 90 days of expiry of this Agreement failing which KPTCL or its successors or an agency as decided by the State Government shall be entitled to take over the Project Assets Suo moto.	BPC to clarify the following: a. Who will be responsible for O&M of the Project post Expiry Date till the Project is transferred as the Agreement will automatically terminate on Expiry Date? Whether the TSP will be paid for the O&M for the period post Expiry Date till the Project is transferred if the TSP will manage the O&M post Expiry Date?		Bidder needs the information for proper estimation	The transfer of all project assets along with substation land, right of way and clearances shall be completed at the end of 35 years from COD of the Project. All the expenditure till the transfer of all project assets along with substation land, right of way and clearances shall be borne by TSP.
192	Transmission Service Agreement	Clauses 4.1(f) and 4.2.1(e) These clauses provide assistance by TSP to the Arbitrators as required for the performance of their duties and responsibilities.	BPC to provide the definition of Arbitrators used as defined term.		Bidder needs the information for proper estimation	This is as per the SBD and amendments thereof, issued by the Ministry of Power.

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<tr><th>Sl. No</th><th>Name of the Document</th><th>Clause No. and Existing provision</th><th>Clarification required</th><th>Suggested text for the amendment</th><th>Rationale for the Clarification or Amendment</th><th>Reply</th></tr>
<tr>
<td>193</td>
<td>Transmission Service Agreement & Share Purchase Agreement</td>
<td>Execution of the TSA and SPA.</td>
<td>As per the provisions of the Indian Stamp Act, the execution of the Share Purchase Agreement ('SPA') and the Transmission Service Agreement ('TSA') should be made on the stamp papers of INR 1200 and INR 500 respectively. The relevant provisions of the Indian Stamp Act are provided below:
<table>
<tr><th>SN.</th><th>Document</th><th>Stamp Paper for Execution (in INR)</th><th>Indian Stamp Act, 1899 ('Act') read with Delhi Schedule 1A ('Schedule')</th></tr>
<tr><td>1.</td><td>Share Purchase Agr</td><td>1200</td><td>Section 5 of Act read with (i) Item no. 5(b) of Schedule- sale of shares in an</td></tr>
</table>
</td>
<td></td>
<td>Bidder needs the information for proper estimation</td>
<td>Kindly refer Clause 2.5.7 of the RFP Document.</td>
</tr>
</table>

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			<table><tr><td></td><td>eem ent</td><td></td><td>incorporated company: Rs. 1000/-, (ii) Item 5(c) Arbitration: Rs. 50/-, (iii) Item No. 34 Indemnity: Rs. 100/-</td></tr><tr><td>2.</td><td>Tra nsm issi on Ser vice Agr eem ent</td><td>500</td><td>Section 5 of Act read with (i) Item 5(c), agreement (other): Rs. 50/-, (ii) Item No. 37, guarantee: Rs. 50/-, (iii) Item No. 34, indemnity: Rs. 100/-, and others.</td></tr></table> BPC to confirm the amount of stamp papers on which the execution of the SPA and TSA will be executed.			
194	RFP for Selection of Bidder as Transmissi	ANNEXURE 22 – FORMAT FOR AFFIDAVIT	We would like to mention that with reference to the RFP Clause 2.1.9 Bidders shall confirm a notarized affidavit as per Annexure 22.		Bidder needs the information for preparation of techno-commercial bid.	The declaration and details with respect to Clause 2.1.9 of RFP is to be provided by the

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	on Service Provider		Please note for large conglomerates signing on behalf of all the affiliates can run into hundreds of numbers and different geographies, is practically impossible. We request you to allow Annexure-22 to be signed by the Authorized signatory of the Bidding company on behalf of Bidding entity only.			bidding company including Affiliate / Parent company of the Bidding company being used for meeting financial / technical qualification requirements as per Annexure 22 of the RFP document. The signing of the format has to be done as per provisions of RFP Document.
195	RFP for Selection of Bidder as Transmission Service Provider	RFP, section-1, Clause 1.5, Para 3: The TSP shall ensure transfer of all project assets along with substation land, right of way and clearances to	1. Please note that there is no clarity about the liability of the TSP post Transfer of asset. We request BPC to define the process of Transfer. 2. As the project is BOOT basis, we request BPC to provide Transfer Agreement for bidder's review and assessment.		Bidder needs the information for proper estimation.	1. The project assets along with substation land, right of way and clearances shall be transferred to STU or its successors or an agency as

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		KPTCL or its successors or an agency as decided by the State Government after 35 years from COD of project at zero cost and free from any encumbrance and liability. The transfer shall be completed within 90 days after 35 years from COD of project failing which KPTCL or its successors or an agency as decided by the State Government shall be entitled to take over the project assets Suo moto.	3. As the project is BOOT basis, what will be the Liability of TSP in case of any Default post Transfer to KPTCL. 4. As per the RFP, the transfer shall be completed within 90 days after 35 years from COD of project failing which KPTCL shall be entitled to take over the project assets Suo moto. We request BPC to confirm whether the Project is required to be given on as is where is basis or if KPTCL can ask for certain refurbishments to be done? It is requested to BPC to confirm will there be an obligation of the TSP to obtain re obtain the clearance at the time of Transfer, in case of NHAI, Road, Highways etc.			decided by the Government of Karnataka after 35 years from COD of project at zero cost and free from any encumbrance and liability and no elaborate process is required to be laid down. Further, other issues, if any, shall be dealt as per prevailing laws & regulations. 2. Transfer Agreement, if required, may be mutually agreed between the parties at that point of time.

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						3. In case there is any liability due to an event that has occurred post transfer to STU or its successors or an agency as decided by the Government of Karnataka, the same shall be dealt with as per prevailing laws & regulations. 4. The project assets will be transferred in working condition subject to observations of STU in the examination to be carried out three (3) years prior to the expiry of the project to assess

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						the need of upgradation of the system or renovation and modernization of the existing system. 5. Please refer to the definition of "Project Assets" in this regard which is amply clear and shall prevail.
196	RFP for Selection of Bidder as Transmission Service Provider	Request for Proposal Notification, Disclaimer This RFP may be withdrawn or cancelled by the BPC at any time without assigning any reasons thereof. BPC further reserves the right, at its complete discretion to reject any or all of the Bids without assigning any reasons whatsoever."	We would like to mention that it will be unreasonable on the part of BPC to reject a bid without assigning any reason. Since the BPC can be construed as 'state' under the Constitution, conduct of BPC ought to have transparent and as such BPC cannot take any decision without assigning proper reason/ justification.		Bidder needs the information for proper estimation.	This is as per the SBD and amendments thereof, issued by the Ministry of Power. The provisions of RFP shall prevail.

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197	RFP for Selection of Bidder as Transmission Service Provider	Definition: Conflict of Interest" A Bidder shall be considered to be in a Conflict of Interest with one or more Bidders in the same bidding process if they have a relationship with each other, directly or through a common company, that puts them in a position to have access to information about or influence the Bid of another Bidder	It needs to be noted that this definition is vague and wide in as much as it only requires that an entity is able to have access; it is immaterial whether information was accessed or not, just the fact that a party is in a position to access information or influence bid of another party is enough. As far as this aspect is concerned, this definition should be amended. This should further cover any conflict-of-interest situation between the BPC and any of the bidder		Bidder needs the information for proper estimation	This is as per the SBD and amendments thereof, issued by the Ministry of Power. The provisions of RFP shall prevail.
198	RFP for Selection of Bidder as Transmission Service Provider	Definitions: "Bid Bond" shall mean the unconditional and irrevocable bank guarantee for Rupees Sixteen Crore Thirty-Nine Lakh Only (Rs. 19.78 Crore), to be submitted along with the Technical Bid by the Bidder under Clause 2.11 of this RFP, as	We would like to bring to your kind attention the Government's progressive decision to allow Insurance Surety bonds as a security mechanism. This was announced by the Hon'ble finance minister during the Union budget for FY-23. The Hon'ble Ministry of Road Transport & Highways has already taken a significant		Bidder needs information for proper estimation	Referred clauses of the RFP issued dated 10.06.2025 is as per SBD and amendments thereof, issued by the Ministry of Power and hence, no change is envisaged.

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		per the format prescribed in Annexure 14;	step by amending the bidding documents for EPC, HAM, and BOT (ToT) projects, incorporating provisions for accepting insurance surety bonds as 'Bid Security' and 'Performance Security'. Considering the capital-intensive nature of transmission projects, we request BPC to also allow submission of Insurance Surety Bonds as an alternative to Bank Guarantees as a security mechanism.			
	RFP for Selection of Bidder as Transmission Service Provider	2.12 Contract Performance Guarantee Within ten (10) days from the date of issue of the Letter of Intent, the Selected Bidder, on behalf of the TSP, will provide to the Nodal Agency the Contract Performance Guarantee for an amount of Rs. **49.46** Crore (Rupees Forty Crore Ninety-Eight Lakh Only).				
199	RFP for Selection of Bidder as Transmission Service Provider	Pre Award Integrity Pact: Clause 3.3 provides that "the Bidder shall disclose the name and address of agents and representatives and Indian Bidder shall disclose their foreign principals or associates". Clause 3.4 states that "the Bidder shall disclose the payments to be made by them to agents/brokers or	BPC is requested to clarify the rationale for having this clause? We understand that The Bidder is free to engage any consultant as long as it is under the purview of applicable law.		Bidder needs the information for proper estimation	This is as per the SBD and amendments thereof, issued by the Ministry of Power. The provisions of RFP shall prevail.

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		any other intermediary, in connection with this bid".				
200	RFP for Selection of Bidder as Transmission Service Provider	Definitions: Transmission Service Agreement" or "TSA" shall mean the agreement entered into between PCKL and the TSP, pursuant to which the TSP shall build, own, operate and transfer the Project and make available the assets of the Project to PCKL on a commercial basis	As per the bidding documents TSA shall be signed between PCKL and TSP only. We request BPC to clarify role of Designated Customers and linkage of Designated Customers to TSA.		Bidder needs the information for proper estimation	Please refer Clause 2.5.7 of RFP.
201	RFP/ Annexure no. 15- format for Contract Performance Guarantee	Annexure no. 15- format for Contract Performance Guarantee/ Last Para Notwithstanding anything ..... (365) days thereafter. This BANK GUARANTEE shall be extended from time to time for such period, as may be	Kindly note that the Government banks are not issuing the contract Performance Guarantee. We request BPC to modify the last Para of the Performance Guarantee format as highlighted in red font below: Notwithstanding anything ..... (365) days thereafter. This BANK		Bidder needs the information for proper estimation	This is as per the SBD and amendments thereof, issued by the Ministry of Power. The provisions of RFP shall prevail.

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		desired by..... [Insert name of the Selected Bidder or Lead Member in case of the Consortium or SPV].	GUARANTEE ~~shall~~ may be extended from time to time for such period, as may be desired by..... [Insert name of the Selected Bidder or Lead Member in case of the Consortium or SPV and ..... [Insert name of the Bank].			
202	Transmission Service Agreement	Definitions and Interpretations Independent Engineer" shall mean an agency/ company, appointed by Nodal Agency in accordance with the Guidelines for Encouraging Competition in Development of Transmission Projects	We understand that as the Independent Engineer to be appointed by Nodal Agency (PCKL), the fee and charges of the Independent Engineer shall be paid by PCKL and TSP does not have to consider any fee and charges of the Independent Engineer in its bid.		Bidder needs the information for proper estimation	Provisions of the TSA are amply clear in this regard and shall prevail.

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		TSA ARTICLE: 18 18.3 Remuneration of Independent Engineer				
203	Transmission Service Agreement	TSA ARTICLE: 1 Definitions and Interpretations Definition of Nodal Agency- shall mean PCKL, which shall execute and implement the Transmission Service Agreement (TSA);	The provision to the definition states that while taking major decisions, PCKL shall consult CEA on technical matters and any other matter if it feels necessary. BPC is requested to provide clarity on what would constitute 'major decisions'; further, what would be the nature of consultation is not clear, whether such consultation would be binding or just advisory in nature? Further, there is an element of discretion as well on the part of PCKL, which should be done away with.		Bidder needs the information for proper estimation	Provisions of the TSA are amply clear in this regard and shall prevail.
204	Transmission Service Agreement	TSA ARTICLE: 11 Clause no. 11.4.1 ..... (g) Any error or omission in the survey report provided	We request BPC to remove the point no g from the Force Majeure Exclusions.		Bidder needs the information for proper estimation	This is as per the SBD and amendments thereof, issued by the Ministry of Power and hence,

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		by BPC during the bidding process				no change is envisaged.
205	Transmission Service Agreement	**TSA ARTICLE: 8** **8.2 Target availability** The Target Availability of each Element and the Project shall be 98%.	As per previous TSA, target availability was at project level not for each element. We request BPC to maintain target availability at Project level only.		Bidder needs the information for proper estimation	This is as per the SBD and amendments thereof, issued by the Ministry of Power and hence, no change is envisaged.
206	Transmission Service Agreement	**TSA ARTICLE: 6** **Clause no. 6.1.1** The TSP shall give the RLDC(s), CTU, / STU, as the case may be, and any other agencies as required, at least sixty (60) days advance written notice of the date on which it intends to connect an Element of the Project, which date shall not be earlier than its Scheduled COD or Schedule COD extended as per Article 4.4.1 & 4.4.2 of this Agreement, unless mutually agreed to by Parties. Further, any preponing of COD of any element prior to Scheduled	BPC is requested to clarify in case of preponement of COD, whether the agreement will be effective for a period of 35 years from the date of such COD, or will there be extra period that will be granted to TSP as an incentive for declaring the commissioning earlier than the SCOD?		Bidder needs the information for proper estimation	Provisions of the TSA are amply clear in this regard and shall prevail.

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		COD must be approved by the Nodal Agency.				
207	Transmission Service Agreement	**TSA ARTICLE: 3** **Clause No. 3.3.4** Provided, that due to the provisions of this Article 3.3.4, any increase in the time period for completion of conditions subsequent mentioned under Article 3.1.3, shall lead to an equal increase in the time period for the Scheduled COD. If the Scheduled COD is extended beyond a period of one hundred eighty (180) days due to the provisions of this Article 3.3.4, the TSP will be allowed to recover the interest cost during construction corresponding to the period exceeding one hundred eighty (180) days by adjustment in the Transmission Charges in accordance with Schedule 9.	What is the rationale for only IDC recovery and no other expenditure like project cost overrun (such as overheads & price variation etc.)		Bidder needs the information for proper estimation	This is as per the SBD and amendments thereof, issued by the Ministry of Power and hence, no change is envisaged.

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208	Transmission Service Agreement	**TSA ARTICLE: 13** **Clause no.13.7** Termination Payment – If Agreement is terminated on account of Force Majeure Events, nonrequirement of any Element or Project during Construction, Nodal Agency's non-fulfilment of Role & TSP's Event of Default, the TSP shall be entitled for Termination Payment equivalent to valuation of Project Assets. Upon payment, the Nodal Agency shall take over the Project Assets.	As there is no mechanism for termination payment. We request BPC to provide the mechanism for compensating the cost incurred by the TSP for construction of asset, in case of non-requirement of any element during construction stage.		Bidder needs the information for proper estimation	Provisions of the TSA are amply clear in this regard and shall prevail.
209	Transmission Service Agreement	**TSA ARTICLE: 12** **Relief for change in law 12.2.3 –** For any claims made under Articles 12.2.1 and 12.2.2 above, the TSP shall provide to the Nodal	Please note that No timelines defined for response by Nodal Agency in case of CIL event. We request BPC to define timeline in which Nodal Agency will respond to the TSP.		Bidder needs the information for proper estimation	This is as per the SBD and amendments thereof, issued by the Ministry of Power and hence,

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		Agency documentary proof of such increase / decrease in cost of the Project / revenue for establishing the impact of such Change in Law.				no change is envisaged.
210	Transmission Service Agreement	**TSA ARTICLE: 12** **Payment on account of Change in** **Law 12.4.1** The payment for Change in Law shall be through a separate Bill. However, in case of any change in Monthly Transmission Charges by reason of Change in Law, as determined in accordance with this Agreement, the Bills to be raised by the Nodal Agency after such change in Transmission Charges shall appropriately reflect the changed Monthly Transmission Charges.	BPC is requested to provide the format and timeline for submission of sperate bill of separate bill for settlement of CIL events?		Bidder needs the information for proper estimation	Provisions of the TSA are amply clear in this regard.

Clarifications dated 18.09.20205 on the RFP Documents for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process

Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
211	Transmission Service Agreement	**Schedule 2** The payment of Transmission Charges for any Element, irrespective of its successful commissioning on or before its Scheduled COD, shall only be considered after successful commissioning of the Element(s), which are prerequired for declaring the commercial operation of such Element as mentioned in the above table.	BPC is requested to clarify that in case an element is successfully commissioned and is put to use/power flows, but the pre-required element is not successfully commissioned. Will TSP be eligible for getting Tariff?		Bidder needs the information for proper estimation	Provisions of the TSA are amply clear in this regard and shall prevail.

Clarifications dated 18.09.20205 on the RFP Documents for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process

Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
212	Transmission Service Agreement	**Schedule 9** Methodology for determining the Relief Under Force Majeure Event & Change in Law during Construction Period. The relief in the form of revision in tariff due to Force Majeure Event leading to extension of Scheduled COD for a period beyond one hundred eighty (180) days and/ or Change in Law during the construction period shall be as under: $\Delta T = [(P \times d)] \div [1-(1+ d)^{(-n)}]$	What is the rationale for the increase in Transmission Charges as stated above shall be applicable only if the value of increase in Transmission Charges as calculated above exceeds 0.30% (zero-point three percent) of the quoted Transmission Charges of the TSP.		Bidder needs the information for proper estimation	This is as per the SBD and amendments thereof, issued by the Ministry of Power.

Clarifications dated 18.09.20205 on the RFP Documents for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process

Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
213	**Transmission Service Agreement for Development and Operation of Intra-State Transmission System for Transmission of Electricity through Tariff Based Competitive Bidding to establish Intra-State Transmission System for**	**Definitions: " Letter of Credit"** shall mean an unconditional, rrevocable, revolving Letter of Credit opened by the Nodal Agency in favour of the TSP with any scheduled bank;	As per Amendment-I dated 20.06.2025 to the RFP Documents of the subject transmission scheme, "Letter of Credit" or "LC" shall mean an unconditional, irrevocable Letter of Credit opened by the Nodal Agency in favour of the TSP with any scheduled bank in line with Payment Security Mechanism mentioned in LPS Rules, 2022; However, **as per the LPS rules 2022, "payment security mechanism (PSM)"** means **Letter of Credit** or Letter of Credit backed by Escrow Account as per the agreement. **Please confirm** that the **Letter of Credit** mentioned under the definition of "PSM" in the LPS rules 2022 **refers to Chapter 4 Clause 19 of**	.	**The TSA Article 10.4.3.1** had a clearly defined process for establishing and invoking the Letter of Credit, which was in line with the TSAs being adopted for Intra-state schemes in Maharashtra, Odisha, UP, MP. Now the LC has been linked with LPS rules 2022 in Amendment -1 to the RFP documents of the subject transmission scheme. The LPS rules 2022 do not clearly define the	Refer RFP & TSA

Clarifications dated 18.09.20205 on the RFP Documents for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process

Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
	"Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District"		**the CERC (Sharing of ISTS Transmission Charges and Losses) Regulations, 2020.**		amount and term (months) of the Letter of credit. Hence, either the BPC should amend the condition for LC back to what was stated in the original TSA of the subject transmission scheme, or provide confirmation on the query raised by the bidder. Clarity on the commercial term shall provide comfort to the developer with respect to PSM.	
214	General	Project Capex Estimate	We request BPC to provide the capex estimate for the project to the prospective bidders as is generally		Bidder needs the information for proper estimation	RFP shall prevail

Clarifications dated 18.09.20205 on the RFP Documents for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process

Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	Reply
			provided for the ISTS bids in the NCT MoM's.			

Additional Clarifications dated 14.11.2025 on the RFP Documents for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process

Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	RECPDCL Reply
1	Specific Technical Requirement for Substation	Clause 3.0 General Facilities	We have not considered supply of any new LT panels (both AC & DC) for 400kV Kolar S/S (PGCIL).		Required for correct estimation of scope of work	For Kolar ss: Bidders are advised to visit the substation
2	Specific Technical Requirement for Substation	Clause 3.0 General Facilities	Battery and battery charger for 220V & 48V is not considered for 400KV Kolar S/s (PGCIL).		Required for correct estimation of scope of work	For Kolar ss: Bidders are advised to visit the substation
3	Specific Technical Requirement for Substation	Clause 3.0 General Facilities	No new VMS reqiurement is considered or argumentation work for exisiting VMS in not consider in present scope.		Required for correct estimation of scope of work	For Kolar ss: VMS for new bays & Line equipment's needs to be considered and to be integrated with existing VMS system
4	Specific Technical Requirement for Substation	Clause 3.0 General Facilities	Extension of existing fire hydrant system is not considered in present scope.		Required for correct estimation of scope of work	For Kolar ss: Fire hydrant system needs to be augmented for new GIS bays.
5	Specific Technical Requirement for Substation	Clause 3.0 General Facilities	Kindly share the ERT report for extension susbtations.		Required for correct estimation of scope of work	For Kolar SS: Will be shared to successful bidder.
6	Specific Technical Requirement for Substation	Clause 3.0 General Facilities	Kindly provide the fault level of existing substations.		Required for correct estimation of scope of work	For Kolar SS: 31 kA (2024 3Ph fault level)
7	Specific Technical Requirement for Substation	Clause 3.0 General Facilities	Since, for extension substations with additional bus isolator, kindly confirm the requirement of Bus PT.		Required for correct estimation of scope of work	For Kolar ss: As per scope of work.

Additional Clarifications dated 14.11.2025 on the RFP Documents for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process

Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	RECPDCL Reply
8	Specific Technical Requirement for Substation	Clause 2.13 Protection & Control	For augumentation work in existing S/S , SAS Architecture drawing, Bus bar protection details are required. Kindly provide the inputs for the same.		Required for correct estimation of scope of work	For Kolar ss: Indicative SCADA architecture drawing is attached. Existing bus bar protection is Hitachi make centralized scheme.
9	Specific Technical Requirement for Substation	Clause 2.13 Protection & Control	We are considering decentralized type bus bar protection for ext. 400kV Kolar Substation. Kindly confirm.		Required for correct estimation of scope of work	For Kolar ss: existing busbar protection is of centralized type. New bays are to integrated with the same.
10	Specific Technical Requirement for Substation	Clause 2.22 PT Distribution Scheme	Kindly clarify the requirement of separate PT Distribution Board for new and existing substations.		Required for correct estimation of scope of work	For Kolar ss: Bidders are advised to visit the substation
11	Amendment-III dated 11.08.2025	S.No.-4: 400kV DC line (Quad moose conductor) from Kolar S/s to Prop. 400/220 kV Doddathaggalli Sub-station with 2 no. of Outdoor GIS TB at Ex. Kolar S/s of PGCIL by extending existing AIS bus bar along with AIS isolator. Extension of 400kV Main Bus-I and II through GIB duct to proposed 400kV outdoor GIS bays with AIS isolators	BPC is requested to provide GA drawing of Kolar SS with space for GIS hall and GIB route clearly marked on it.		Bidder needs the information for proper estimation	For Kolar ss: the available GA drawing of Kolar SS already shared to Bidders.
12	Amendment-III dated 11.08.2025	Termination of one circuit in the spare 400kV AIS bay no. 415 by providing required bay	We understand that as per given clause, TSP needs to provide only line side equipments for		Bidder needs the information for proper estimation	For Kolar ss: Only Bus side isolator with

Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	RECPDCL Reply
		equipment to complete the 400kV Dia (413.414 and 415 bays)	line termination. Line bay and Tie bay (415 and 414) are already existing. Please confirm.			E/S exists in Bay no. 415. Bay isolator with E/S towards Line, CT & Circuit Breaker is required for the completion of the bay (i.e.415) along with Line side equipments (Line Isolator with E/S, CVT, LA, Wavetrap). Tie Bay 414 is existing in full. Refer SLD also.
13	Amendment-III dated 11.08.2025	S.No.-4: 400kV DC line (Quad moose conductor) from Kolar S/s to Prop. 400/220 kV Doddathaggalli Sub-station with 2 no. of Outdoor GIS TB at Ex. Kolar S/s of PGCIL by extending existing AIS bus bar along with AIS isolator. Construction of 2 nos. 400kV outdoor GIS bays in 2 CB configuration for termination of other circuit	We understand that as per the given clause, TSP needs to provide 2 nos of GIS bays in half dia scheme in a new GIS Hall. Please confirm. Also, BPC is requested to provide GA and SLD demarcating clearly the AIS bays to be used and space for GIS bays.		Bidder needs the information for proper estimation	For Kolar ss: The available GA drawing and SLD of Kolar SS already shared with Bidders.
14	RFP_Ryapte_16062025	General	With regard to 400 kV and 220 kV bays to be constructed by the TSP at 400kV Kolar S/s and 220 kV Malur, Ekrajapur, Hoskote	This is a standard practice followed in other Intra-state TBCBs.	Required for correct estimation of scope of work	For Kolar ss: O&M of bays at Kolar S/s shall be payable as per the attached CEA

Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	RECPDCL Reply
			and Sarjapur S/s, the following may be clarified: 1. Who shall be responsible for O&M of these bays at the respective S/s ? 2. In case it is to be carried out by existing owners, it is understood that O&M of these bays at 400kV Kolar S/s and 220 kV Malur, Ekrajapur, Hoskote and Sarjapur S/s are governed by CEA O&M guidelines. Kindly Confirm.			guidelines for O&M of TBCB projects.
15	BPC Survey report	Section-3: 400kV DC line (Quad moose conductor) from Prop. 400/220 kV Ryapte Sub-station to Prop. 400/220 kV Doddathaggalli S/s.	BPC may please note that during the site survey by the bidder for the transmission line route, it was observed that a minor portion of the transmission line route of the 400 kV D/C Ryapte - Doddathaggalli line (~ 5 km; AP-30, AP-31, AP-32, AP-33) passes through Andhra Pradesh state. *(Ref. Annexure-II).* The said project being an Intra State TBCB project of Karnataka state, solely to be utilized for power evacuation in Karnataka. BPC may please refer to the RFP Clause 1.6.1.5 which states, "*The TSP shall seek approval under Section 164 of Electricity Act, Government of Karnataka after*		Bidder needs the information for proper estimation	BPC shall deliver its responsibilities as per clause 1.6.2.1 of RFP. With regard to Section 164 approval, the clause 2.5.7.4 of RFP may be referred, wherein it is stated that "Bidders may also opt for any other route and is not bound to follow the route suggested in survey report provided by BPC". In case successful bidder opts for the route indicated in survey report, then

Additional Clarifications dated 14.11.2025 on the RFP Documents for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process

Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	RECPDCL Reply
			acquisition of Ryapte Power Transmission Limited". However, since the line is also traversing through State of Andhra Pradesh, whether the TSP shall seek approval under Section 164 of Electricity Act, from Government of Andhra Pradesh as well after acquisition of Ryapte Power Transmission Limited as some portion of transmission line is traversing through Andhra Pradesh. BPC is also requested to provide the status of Section-68 approval for the said project, and whether this approval is being sought from both the states or not.			section 164 approval is to be taken from both Government of Karnataka as well as Government of Andhra Pradesh, as conveyed by CEA vide letter dated 14.10.2025 (enclosed for reference).

REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited, a 'Maharatna CPSE'
under Ministry of Power, Govt. of India)

REC Power Development

Ref. No. RECPDCL/TBCB/Intra-State/Ryapte/2024-2025/2024 Date: 16.09.2025

The Conservator of Forest,
2nd floor, Climate Change and Research Building,
Jarakbande Kaval, Kamagondanahalli,
Bangalore-560015

Sub: Forest Clearance for the construction of 400 kV & 220 kV transmission lines covered under the project namely "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" to be implemented through Tariff Based Competitive Bidding Process.

Dear Sir,

The Government of Karnataka has initiated a scheme for development of Intra-State transmission system through Tariff Based Competitive Bidding process for evacuation of power from the Generating Stations, Transmission of power from pooling stations to other grid stations up to load centers and strengthening of transmission network.

In line with the above objective, The Government of Karnataka Order No. Energy 73 PPT 2024, Bengaluru dated 04.03.2025 has notified REC Power Development and Consultancy Limited as the Bid Process Coordinator (BPC) for the purpose of selection of Bidder as Transmission Service Provider (TSP) to establish Intra-State transmission system **"Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District"** to be implemented through tariff based competitive bidding process under "Tariff Based Competitive Bidding Guidelines for Transmission Services and "Guidelines for Encouraging Competition in Development of Transmission Projects " (the Guidelines), issued by Ministry of Power, Govt. of India. The preliminary survey work for the referred transmission scheme has been completed by us.

The process inter-alia involves carrying out preliminary survey work, identification of route, preparation of survey report, initiation of the process of seeking forest clearance and to conduct the bidding process for selection of developer for subject project.

The proposed transmission scheme comprises of the following elements:

- 400 kV D/c Doddathaggalli - Kolar line
- 400 kV D/c Quad Moose line from Ryapte Solar Park to 400 kV Doddathagalli substation.
- 220 kV D/c Line from proposed 400/220 kV Doddathagalli substation to existing 220/66 kV Malur substation
- 220 kV D/c Line proposed 400/220 kV Doddathagalli substation to 220 kV Ekarajapura substation
- 220 kV D/c line proposed 400/220kV Doddathagalli substation to proposed 220 kV Hosakote New substation
- 220 kV D/c line proposed 400/220 kV Doddathagalli substation to 220 kV Sarjapura substation.

13/10/2025

D-Block, REC World Headquarter, Plot No. I-4, Sector-29, Gurugram, (Haryana) - 122001.
E-mail: co@recpdcl.in | Tel.: 0124-4441300 | www.recpdcl.in | CIN No. RECPDCL-U40101DL2007GOI165779 GST No. 06AADCR7399K1ZP

RECPDCL has incorporated a SPV namely "**Ryapte Power Transmission Limited**" (a wholly owned subsidiary of RECPDCL). All the approvals, consents, clearances etc. are to be obtained in the name of the SPV. The process of preliminary survey work has been completed.

The preliminary survey work for the scheme has been completed. Based on the survey, forest clearance in favor of "**Ryapte Power Transmission Limited**" as detailed in the table below, is essential for the implementation of the proposed 400 kV & 220 kV transmission line covered under the project. The specific details of the forest areas are mentioned in the survey report and the SOI toposheet, which are enclosed herewith for your ready reference.

1. **Name of the transmission line:** 400 kV D/c Doddathaggalli - Kolar line

Sl. No.	AP. No.	Latitude	Longitude	Forest Stretches (M)	Type of the Forest
1.	AP-14	13°7 '12.56"	77°57 '20.3"	39.51	Reserved Forest (Yeshwantpura)
	AP-15	13°7 '19.49"	77°57 '31.3"		
2.	AP-15	13°7 '19.49"	77°57 '31.3"	818.09	
	AP-16	13°7 '45.96"	77°57 '33.97"		
3.	AP-16	13°7 '45.96"	77°57 '33.97"	255.01	
	AP-17	13°7 '54.25"	77°57 '34"		
4.	AP-17	13°7 '54.25"	77°57 '34"	894.34	
	AP-18	13°8 '19.88"	77°57 '53.19"		
Total Length of the forest area (In Meter)				**2006.95**	

2. **Name of the transmission line:** 400 kV D/c Quad Moose line from Ryapte Solar Park to 400 kV Doddathagalli substation.

Sl. No.	AP. No.	Latitude	Longitude	Forest Stretches (M)	Type of the Forest
1.	AP-99	13°24 '29.09"	77°36 '35.89"	487.31	Reserved Forest (Kallukote)
	AP-100	13°23 '21.88"	77°37 '14.76"		
2.	AP125D	13°17 '54.92"	77°46 '3.51"	14.19	Reserved Forest (Koramangala)
	AP126	13°17 '16.38"	77°46 '19.01"		
3.	AP126	13°17 '16.38"	77°46 '19.01"	1006.28	Reserved Forest (Koramangala)
	AP126A	13°16 '52.72"	77°46 '42.08"		
4.	AP126A	13°16 '52.72"	77°46 '42.08"	111.18	Reserved Forest (Koramangala)
	AP126B	13°16 '49.26"	77°46 '52.23"		
5.	AP127	13°16 '44.95"	77°47 '35.08"	717.38	Reserved Forest (Mandibele)
	AP127A	13°16 '40.23"	77°48 '1.95"		
6.	AP130A	13°16 '47.42"	77°51 '6.02"	1210.98	Reserved Forest (Mandibele)
	AP130B	13°16 '44"	77°52 '10.65"		
7.	AP133	13°15 '40.01"	77°53 '42.48"	111.46	Reserved Forest (Mandibele)
	AP134	13°15 '20.25"	77°53 '47.29"		
8.	AP134	13°15 '20.25"	77°53 '47.29"	1526.88	Reserved Forest

	AP135	13°14 '38.33"	77°54 '16.63"		(Mandibele)
Total Length of the forest area (In Meter)				**5186**	

3. **Name of the transmission line:** 220 kV D/c Line from proposed 400/220kV Doddathagalli substation to existing 220/66 kV Malur substation

Sl. No.	AP. No.	Latitude	Longitude	Forest Stretches (M)	Type of the Forest
1.	AP-13	13°2 '8.83"	77°56 '30.15"	0.685	Reserved Forest (Mallappanahalli)
	AP-14	13°1 '50.59"	77°57 '15.3"		

4. **Name of the transmission line:** 220 kV D/c Line proposed 400/220kV Doddathagalli substation to 220 kV Ekarajapura substation

Sl. No.	Forest Area in UG Cable Route	Latitude	Longitude	Forest Stretches (M)	Type of the Forest
1.	Start Point	13°7 '57.94"	77°49 '50.5"	1130	Reserved Forest (Gollahalli)
	End Point	13°7 '41.69"	77°49 '17.03"		

5. **Name of the transmission line:** 220 kV D/c line proposed 400/220 kV Doddathagalli substation to proposed 220 kV Hosakote New substation

Sl. No.	AP. No.	Latitude	Longitude	Forest Stretches (M)	Type of the Forest
1.	AP-14	13°3 '17.48"	77°51 '28.02"	73.6	Reserved Forest (Jadigenahalli)
	AP-15	13°3 '23.45"	77°51 '25.47"		
2.	AP-15	13°3 '23.45"	77°51 '25.47"	347.97	
	AP-16	13°3 '28.77"	77°51 '15.28"		
3.	AP-16	13°3 '28.77"	77°51 '15.28"	229.51	
	AP-17	13°3 '30.15"	77°51 '7.8"		
4.	AP-17	13°3 '30.15"	77°51 '7.8"	185.3	
	AP-18	13°3 '35.26"	77°51 '4.55"		
5.	AP-18	13°3 '35.26"	77°51 '4.55"	222.95	
	AP-19	13°3 '38.46"	77°50 '54.37"		
Total Length of the forest area (in Meter)				**1059.33**	

6. **Name of the transmission line:** 220 kV D/c line proposed 400/220 kV Doddathagalli substation to 220 kV Sarjapura substation.

Sl. No.	AP. No.	Latitude	Longitude	Forest Stretches (M)	Type of the Forest
1.	AP-04	13°2 '18.03"	77°54 '6.33"	88.51	Reserved Forest (Ramachandrapura)
	AP-05	13°2 '11.9"	77°54 '4.57"		
2.	AP-05	13°2 '11.9"	77°54 '4.57"	513.86	
	AP-06	13°1 '57"	77°53 '56.87"		
3.	AP-06	13°1 '57"	77°53 '56.87"	779.21	

Sl. No.	AP. No.	Latitude	Longitude	Forest Stretches (M)	Type of the Forest
	AP-07	13°1 '46.4"	77°53 '33.4"		
4.	AP-07	13°1 '46.4"	77°53 '33.4"	67.2	
	AP-08	13°1 '28.94"	77°53 '18.93"		
Total Length of the forest area (In Meter)				**1448.78**	

In view of the above, forest clearance for the aforementioned sections if required, may kindly be accorded.

An early action in this regard is solicited.

धन्यवाद,

भवदीय,

16/9

(विजय कुलकर्णी)

वरिष्ठ महाप्रबंधक (इंजीनियरिंग) एवं विभागाध्यक्ष

संलग्न :

1. Copy of Karnataka Government Order dated 04.03.2025.
2. Survey report along with SOI Toposheets.

Annexure P-8

RYAPTE POWER TRANSMISSION LIMITED
(A wholly owned subsidiary of REC Power Development and Consultancy Limited)
Registered Office: Core-4, SCOPE Complex, 7, Lodhi Road, New Delhi-110003
Corporate Office: D-Block, REC World Headquarter,
Plot No. I-4, Sector-29, Gurugram, Haryana-122001
(U42202DL2025GOI448817)

Ref No.. RYAPTE-PTL/InSTS/Approval/Section-68/2025-26/1384 Date: 08.10.2025

The Chief Engineer (Planning & Co-ordination)
Karnataka Power Transmission Corporation Ltd.,
Corporate Office, 4th Floor
Kaveri Bhavan, K.G. Road,
Bengaluru-560009, Karnataka

Sub: Approval for laying of overhead transmission line under Section-68 of the Electricity Act, 2003 for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" to be implemented through Tariff Based Competitive Bidding process.

Dear Sir,

As you are aware that, Government of Karnataka vide its Order no. Energy 73 PPT 2024, Bengaluru dated 04.03.2025 **(Copy enclosed),** has appointed REC Power Development and Consultancy Limited (RECPDCL), holding company of **RYAPTE POWER TRANSMISSION LIMITED** to establish transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, (Tumkur District)" through Tariff Based Competitive Bidding process. The scope of work covered under the project is as follows:

Sl. No.	Scope of the Transmission Scheme
1.	Establishment of 5x500 MVA, 400/220 kV S/s at Ryapte in Tumkur District along with 2x125MVAr 400 kV Bus Reactors • 400/220 kV ICTs: 5 Nos. (5x500 MVA) • 400 kV ICT Bays: 5 Nos. • 400 kV Line bays (along with space provision for switchable line reactors): 2 Nos. • 125 MVAr, 420 kV Bus reactor – 2 Nos. • 400 kV Bus reactor bay: 2 Nos • 220 kV ICT Bays: 5 Nos • 220 KV line Bay - 8 No. • 220 kV TBC bay – 2 No. • 220 kV BC bay – 2 No • 220 kV Sectionalization bay: 1 set • 400 kv Bus PT bay- 2 Nos • 220 kv Bus PT bay- 4 Nos **Space For Future Provision** • 400/220 KV ICTs - 5 Nos. • 400 KV ICT bay – 5 Nos. • 400 kV Bus Reactor: 3 Nos • 400 kV Bus Reactor bays : 3 Nos • 220 kV ICT Bays: 5 Nos • 220 Kv line bays – 8 Nos

Sl. No.	Scope of the Transmission Scheme
	• 400 kV Line bays (along with space provision for switchable line reactors) : 4 Nos.
2.	400kV DC line (Quad moose conductor) from Prop. 400/220 kV Ryapte Sub-station to Prop. 400/220 kV Doddathaggalli S/s.
3.	Establishing 3X500 MVA, 400/220kV GIS sub-station at Doddathaggalli (Near Hosakote) along with 2x125 MVAr, 400 kV Bus Reactors. • 400/220 kV ICTs: 3 no. • 400 kV ICT Bays: 3 Nos • 400 kV Line bays : 4 Nos • 125 MVAr, 420 kV Bus reactor – 2 No • 400 kV Bus reactor bay: 2 Nos • 220 kV ICT Bays: 3 Nos • 220 kV Line bays: 6 Nos • 220 kV BC bay – 1 No • 400 kv Bus PT bay- 2 Nos • 220 kv Bus PT bay- 2 Nos Future Provision: • 400 kV line bays – 4 Nos. • 400/220 kV ICTs - 2 Nos. • 400 kV ICT bays - 2 Nos • 400 kV Bus Reactor: 2 Nos. • 400 kV Bus Reactor bays: 2 Nos. • 220 kV ICT Bays: 2 Nos • 220 kV Line bays: 4 Nos
4.	400kV DC line (Quad moose conductor) from Kolar S/s to Prop. 400/220 kV Doddathaggalli Sub-station with following works at Kolar S/s:- One circuit of Kolar – Doddataggalli 400kV (quad) D/c line may be terminated in existing vacant bay no. 415 at Kolar S/s. Other circuit may be terminated in new GIS diameter with 2-CB scheme. This option requires following main elements: • Termination of one circuit in the spare 400kV AIS bay no. 415 by providing required bay equipment to complete the 400kV Dia (413, 414 and 415 bays) • Construction of 2 nos. 400kV outdoor GIS bays in 2 CB configuration for termination of other circuit • Extension of 400kV Main Bus-I and II through GIB duct to proposed 400kV outdoor GIS bays with AIS isolators • Dismantling and re-erection of one no. LM, if required Further, any requirement suggested by substation owners shall be followed as per site condition.
5.	220kV DC line with Single Zebra and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions) from proposed 400/220 kV Doddathagalli sub-station to 220kV Ekarajapura sub-station with 2 No.s of AIS TB at Ekarajapura S/s with rearrangement/Shifting of existing Bus PT bay Note: The Tower design shall be suitable for TWIN Zebra.
6.	220kV DC line with partial AAAC Moose and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions) from proposed 400/220 kV Doddathagalli sub-station to proposed 220kV Hosakote New sub-station.

Sl. No.	Scope of the Transmission Scheme
7.	220kV DC line with Single Zebra and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions) from proposed 400/220kV Doddathagalli to Sarjapura AIS S/s with 2 No.s of outdoor GIS TB at Sarjapura S/s by extending existing AIS bus bar along with AIS isolator Note: The Tower design shall be suitable for TWIN Zebra.

Accordingly, as per provisions of Tariff Based Competitive Bidding guidelines notified by Ministry of Power, GoI, RECPDCL has initiated the single stage Request for Proposal (RFP) process on 10.06.2025 for selection of Bidder as Transmission Service Provider for above Transmission System. Further, as per provisions of guidelines, a project specific SPV under the Companies Act 2013 by the name **"RYAPTE POWER TRANSMISSION LIMITED"** has been incorporated (**Copy of the Certificate of Incorporation is attached**) to initiate the activities for development of the above project. The said company shall be acquired by the successful Bidder as per terms and condition as may be prescribed in the Request for Proposal Document.

As per clause 1.6.2.1 of the Section-1 of single stage Request for Proposal (RFP) document, the scope of Bid Process Coordinator inter-alia includes obtaining approval for laying of overhead transmission lines under section-68 of Electricity Act, 2003 from the Government of Karnataka.

It is therefore requested that approval for laying of overhead transmission line under Section-68 of Electricity Act, 2003 may kindly be accorded for the above Transmission System in favour of the SPV i.e., **"RYAPTE POWER TRANSMISSION LIMITED"**.

The Certified True Copy (CTC) of the Minutes of the Meeting of the Board of Directors of **RYAPTE POWER TRANSMISSION LIMITED** authorizing any director to file any application is also attached herewith.

Thanking you,

Yours faithfully,

(Arvind Kumar)
Director

Encl.: As above

REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited, a 'Maharatna CPSE'
under Ministry of Power, Govt. of India)

Annexure P-9

संदर्भ संख्या:आरईसीपीडीसीएल/टीबीसीबी/रयाप्ते/2025-26/5599 दिनांक: 09.03.2026

मेसर्स टाटा पावर कंपनी लिमिटेड
बी-12/13, द्वितीय तल, शताब्दी भवन,
सेक्टर-04, नोएडा, यूपी- 201301, भारत

सादर ध्यानाकर्षण: श्री रजत उप्रेती

Subject: **Issuance of RFP documents along with clarifications & Survey report for selection of Transmission Service Provider to establish Transmission system for the project "Evacuation Scheme for 2000 MW solar park at Ryapte Village, Tumkur District" to be implemented through Tariff Based Competitive Bidding process.**

संदर्भ: RFP dated 10.06.2025

महोदय,

This is to inform that the bidding process for the subject transmission project, initiated vide RFP dated 10.06.2025 has been annulled and re-initiated vide NIT dated 07.03.2026.

In this regard, please find enclosed herewith the following documents:

1. Copy of Request for Proposal (RFP) document along with clarifications issued thereof.
2. Copy of Draft Transmission Service Agreement (TSA) - (Enclosure 1 of Annexure-20 of RFP),
3. Copy of Draft Share Purchase Agreement (SPA) - (Enclosure 2 of Annexure-20 of RFP).
4. One CD containing soft copy of RFP (.pdf & .doc), TSA (.pdf), SPA (.pdf).
5. The survey report along with Route Alignment Drawings and one CD containing soft copy of Survey Report and Route Alignment drawings.

We look forward to your participation in the aforesaid bidding process.

धन्यवाद,

भवदीय,

(विजय कुलकर्णी)
वरिष्ठ महाप्रबंधक (इंजी.) एवं विभागाध्यक्ष

संलग्न: जैसा कि ऊपर बताया गया है

SINGLE STAGE REQUEST FOR PROPOSAL DOCUMENT

FOR

SELECTION OF BIDDER AS TRANSMISSION SERVICE PROVIDER THROUGH TARIFF BASED COMPETITIVE BIDDING PROCESS

TO

ESTABLISH INTRA-STATE TRANSMISSION SYSTEM

FOR

EVACUATION SCHEME FOR 2000MW SOLAR PARK AT RYAPTE VILLAGE, TUMKUR DISTRICT

ISSUED BY

REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited)

Registered Office:
Core-4, SCOPE Complex,
7, Lodhi Road, New Delhi – 110 003
Email: vijay.kulkarni@recpdcl.in & tbcb@recpdcl.in

07.03.2026

REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited)
Core-4, SCOPE Complex,
7, Lodhi Road, New Delhi – 110 003

Request for Proposal Document for selection of Bidder as Transmission Service Provider through tariff based competitive bidding process to establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" is issued by REC Power Development and Consultancy Limited.

This RFP document is issued to -

M/s. _____

_____

_____

_____

_____

Chief Executive Officer,
REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited)

Email: …….

Place: ……

Date: ……

Signature: ……

REQUEST FOR PROPOSAL NOTIFICATION

REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited)
Core-4, SCOPE Complex,
7, Lodhi Road, New Delhi – 110 003

1. Government of Karnataka vide its Order No. Energy 73 PPT 2024, Bengaluru dated 04.03.2025 has appointed REC Power Development and Consultancy Limited (RECPDCL) to be the Bid Process Coordinator (BPC) for the purpose of selection of Bidder as Transmission Service Provider (TSP) to establish Intra-State transmission system for "**Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District**" through tariff based competitive bidding process.

2. REC Power Development and Consultancy Limited (hereinafter referred to as BPC) hereby invites all prospective Bidders for issue of Request for Proposal (RFP) for selection of Bidder as Transmission Service Provider (TSP) on the basis of international competitive bidding in accordance with the "Tariff Based Competitive Bidding Guidelines for Transmission Service" and "Guidelines for Encouraging Competition in Development of Transmission Projects" issued by Government of India, Ministry of Power under section – 63 of The Electricity Act, 2003 and as amended from time to time. The responsibility of the TSP would be to establish the following Intra-State Transmission System for "**Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District"** (hereinafter referred to as 'Project') on build, own, operate & transfer basis and to provide transmission service:

Sl. No.	**Scope of the Transmission Scheme**	**Scheduled COD in months from Effective Date**
1.	Establishment of 5x500 MVA, 400/220 kV S/s at Ryapte in Tumkur District along with 2x125MVAr 400 kV Bus Reactors • 400/220 kV ICTs: 5 Nos. (5x500 MVA) • 400 kV ICT Bays: 5 Nos. • 400 kV Line bays (along with space provision for switchable line reactors) : 2 Nos. • 125 MVAr, 420 kV Bus reactor – 2 Nos. • 400 kV Bus reactor bay: 2 Nos • 220 kV ICT Bays: 5 Nos • 220 KV line Bay - 8 No. • 220 kV TBC bay – 2 No. • 220 kV BC bay – 2 No • 220 kV Sectionalization bay: 1 set • 400 kv Bus PT bay- 2 Nos • 220 kv Bus PT bay- 4 Nos Space For Future Provision: • 400/220 KV ICTs - 5 Nos. • 400 KV ICT bay – 5 Nos. • 400 kV Bus Reactor: 3 Nos • 400 kV Bus Reactor bays : 3 Nos	30 months

Sl. No.	Scope of the Transmission Scheme	Scheduled COD in months from Effective Date
	• 220 kV ICT Bays: 5 Nos • 220 Kv line bays – 8 Nos • 400 kV Line bays (along with space provision for switchable line reactors) : 4 Nos.	
2.	400kV DC line (Quad moose conductor) from Prop. 400/220 kV Ryapte Sub-station to Prop. 400/220 kV Doddathaggalli S/s.	
3.	Establishing 3X500 MVA, 400/220kV GIS sub-station at Doddathaggalli (Near Hosakote) along with 2x125 MVAr, 400 kV Bus Reactors. • 400/220 kV ICTs: 3 no. • 400 kV ICT Bays: 3 Nos • 400 kV Line bays : 4 Nos • 125 MVAr, 420 kV Bus reactor – 2 No • 400 kV Bus reactor bay: 2 Nos • 220 kV ICT Bays: 3 Nos • **220 kV Line bays: 6 Nos.** • 220 kV BC bay – 1 No • 400 kv Bus PT bay- 2 Nos • 220 kv Bus PT bay- 2 Nos Future Provision: • 400 kV line bays – 4 Nos. • 400/220 kV ICTs - 2 Nos. • 400 kV ICT bays - 2 Nos • 400 kV Bus Reactor: 2 Nos. • 400 kV Bus Reactor bays: 2 Nos. • 220 kV ICT Bays: 2 Nos • 220 kV Line bays: 4 Nos	
4.	**400kV DC line (Quad moose conductor) from Kolar S/s to Prop. 400/220 kV Doddathaggalli Sub-station with following works at Kolar S/s:-** ***One circuit of Kolar – Doddataggalli 400kV (quad) D/c line may be terminated in existing vacant bay no. 415 at Kolar S/s. Other circuit may be terminated in new GIS diameter with 2-CB scheme. This option requires following main elements:*** • ***Termination of one circuit in the spare 400kV AIS bay no. 415 by providing required bay equipment to complete the 400kV Dia (413.414 and 415 bays)*** • ***Construction of 2 nos. 400kV outdoor GIS bays in 2 CB configuration for termination of other circuit*** • ***Extension of 400kV Main Bus-I and II through GIB duct to proposed 400kV outdoor GIS bays with AIS isolators*** • ***Dismantling and re-erection of one no. LM ,if required*** **Further, any requirement suggested by substation owners shall be**	

Sl. No.	Scope of the Transmission Scheme	Scheduled COD in months from Effective Date
	followed as per site condition.	
5.	**220kV DC line with Single Zebra and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions)** from proposed 400/220 kV Doddathagalli sub-station to 220kV Ekarajapura sub-station with 2 No.s of AIS TB at Ekarajapura S/s with rearrangement/Shifting of existing Bus PT bay **Note: The Tower design shall be suitable for TWIN Zebra.**	
6.	**220kV DC line with partial AAAC Moose and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions)**, from proposed 400/220 kV Doddathagalli sub-station to proposed 220kV Hosakote New sub-station.	
7.	**220kV DC line with Single Zebra and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions)** from proposed 400/220kV Doddathagalli to Sarjapura AIS S/s with 2 No.s of outdoor GIS TB at Sarjapura S/s by extending existing AIS bus bar along with AIS isolator **Note: The Tower design shall be suitable for TWIN Zebra.**	

Note:

1. *KPTCL to provide land for the construction of 5x500 MVA, 400/220 kV S/s at Ryapte in Tumkur District.*

   The land will remain under the ownership of KPTCL and a MoU between KPTCL and the TSP shall be executed for use of land.

   Currently, 150 Acres of land is identified for the substation and acquisition of land is under progress. The Land Cost of Rs 33,00,00,000 /- (as fixed by the DC, Tumkuru Dist) has to be borne by the TSP.

   At the time of execution of work, difference in land cost, if any, shall be borne by the TSP. Further applicable GST & Statutory payments shall be paid by the TSP.

   KPTCL shall hand over possession of the land to the TSP upon completion of the requisite formalities.

2. *KPTCL to provide land for the construction of 3x500 MVA, 400/220 kV GIS sub-station at Doddathagalli in Bangalore Rural District.*

   The land will remain under the ownership of KPTCL and a MoU between KPTCL and the TSP shall be executed for use of land.

   Currently, 16 Acres of land is identified for the substation and acquisition of land is under progress. Onetime Land Cost of Rs 11,20,00,000 /- arrived based on the prevailing guidance value has to be borne by the TSP.

   At the time of execution of work, difference in land cost, if any, shall be borne by the TSP. Further applicable GST & Statutory payments shall be paid by the TSP.

   KPTCL shall hand over possession of the land to the TSP upon completion of the requisite formalities.

3. *TSP to pay onetime charges (arrived as per KPTCL norms based on the prevailing guidance value) for use of land and common infrastructure for bay extension works at the existing Substation of KPTCL as cited below:*

   220kV Sarjapura S/s Rs 2,02,22,250/- (inclusive of GST)

   220kV Ekarajapura S/s Rs6,51,29,338/-(inclusive of GST)

   At the time of execution of work, difference in land cost, if any, shall be borne by the TSP.

   Operation and Maintenance (O&M) of the bays constructed by the TSP within existing KPTCL substations shall be undertaken by KPTCL. The O&M charges shall be recovered by KPTCL from TSP as per the rates prescribed by KERC from time to time.

   An O&M agreement shall be executed between KPTCL and the TSP in this regard and the agreement will be in line with the Standard Format for Memorandum of Understating between New TSP and Existing TSP" issued by CEA vide its letter No. I/28514/2023 dated 22.06.2023

4. *220 kV Line Bays at Prop. 220kV Hosakote New substation can be utilized for termination of 220 kV Doddathaggalli - Hosakote New substation DC Line.*

   The proposed 220kV Hosakote New substation is under bidding process (TBCB MODE), Hence any modalities related to use of land, O&M of bays, and any other applicable charges, TSP may co-ordinate with the successful bidder of Hoskote new Substation

3. The TSP shall ensure that design, construction and testing of all equipment, facilities, components and systems of the Project shall be in accordance with the provisions of the Transmission Service Agreement and applicable Rules/ Regulations, Orders and Guidelines issued by the State Government, State Commission, Central Government and Central Commission as may be applicable.

4. Transmission License: The TSP shall obtain the Transmission License from the State Commission.

5. **Bidding Process:** The Transmission Service Provider shall be selected through tariff based competitive bidding process for the Project based on meeting stipulated Qualification Requirements prescribed in Clause 2.1 of Section 2 of RFP and the lowest Quoted Transmission Charges discovered from Final Offers quoted during the e-reverse bidding. The selection of the TSP shall be subject to it obtaining Transmission License from the State Commission, which, after expiry, may be further extended by such period as deemed appropriate by the State Commission under powers vested with it to amend the conditions of the Transmission License.

   The entire bidding process shall be conducted on electronic platform created by MSTC Limited.

   The Bid shall be a single stage two envelope bid comprising the Technical Bid and the Financial Bid. The Bidders shall submit the Bid online through the electronic bidding platform. In addition to the online submission, the Bidder with lowest Final Offer will be required to submit original hard copies of Annexure 3, Annexure 4 (if applicable), Annexure 6 (if applicable) and Annexure 14/14A/14B before issuance of LoI. There shall be no physical submission of the Financial Bid.

The Technical Bid shall be opened first and the Financial Bid of only the bidders who have qualified in the Technical Bid shall be opened. The Financial Bid will comprise of two rounds. In the first round the Initial Offer of the responsive bids would be opened and Quoted Transmission Charges of Initial Offer shall be ranked on the basis of ascending order. The Bidders, in the first fifty per cent of the ranking (with any fraction rounded off to higher integer) or four Bidders, whichever is higher, shall qualify for participating in the electronic reverse auction stage and submit their Final Offer.

6. The objective of the bidding process is to select a Successful Bidder pursuant to this RFP, who shall acquire one hundred percent (100%) of the equity shares of Ryapte Power Transmission Limited along with all its related assets and liabilities as per the provisions of the Share Purchase Agreement, at the Acquisition Price to be intimated by the BPC, twenty (20) days prior to the Bid Deadline.

   The Ryapte Power Transmission Limited, of which one hundred percent (100%) equity shares will be acquired by the Selected Bidder, shall be responsible as the TSP, for ensuring that it undertakes ownership, financing, development, design, engineering, procurement, construction, commissioning, operation and maintenance of the Project, and to provide Transmission Service as per the terms of the RFP Project Documents.

   The TSP shall ensure transfer of all project assets along with substation land, right of way and clearances to KPTCL or its successors or an agency as decided by the State Government after 35 years from COD of project at zero cost and free from any encumbrance and liability. The transfer shall be completed within 90 days after 35 years from COD of project failing which KPTCL or its successors or an agency as decided by the State Government shall be entitled to take over the project assets Suo moto.

7. **Commencement of Transmission Service**: The Bidder shall have to commence Transmission Service in accordance with the provisions of the Transmission Service Agreement.

8. **Transmission Charges**: The Transmission Charges shall be payable by the PCKL on behalf of all ESCOMs/Long Term Transmission Customers (LTTCs), in Indian Rupees as per Transmission Service Agreement (TSA) / relevant KERC Regulations as amended from time to time. Bidders shall quote the Transmission Charges as per the pre-specified structure, as mentioned in the RFP.

9. **Issue of RFP document:** The detailed terms and conditions for qualification and selection of the Transmission Service Provider for the Project and for submission of Bid are indicated in the RFP document. All those interested in purchasing the RFP document may respond in writing to Chief Executive Officer, vijay.kulkarni@recpdcl.in & tbcb@recpdcl.in at the address given in para 12 below with a non-refundable fee of Rs. 5,00,000/- (Rupees Five Lakh Only) or US$ 7,000 (US Dollars Seven Thousand Only) plus GST @ 18%, to be paid latest by 02.04.2026 via electronic transfer to the following Bank Account:

Bank Name, Address & Branch	ICICI Bank 9A, Phelps Building, Inner Circle, Connaught Place, New Delhi-110001
Bank Account Name	REC Power Development & Consultancy Limited
Bank Account No	000705041275
Bank IFSC Code No	ICIC0000007

Immediately after issuance of RFP document, the Bidder shall submit the Pre-Award Integrity Pact in the format as prescribed in Annexure B, which shall be applicable for and during the bidding process, duly signed on each page by any whole-time Director/ Authorized Signatory, duly witnessed by two persons, and shall be submitted by the Bidder in two (2) originals in a separate envelope, duly superscripted with Pre-Award Integrity Pact. The Bidder shall submit the Pre-Award Integrity Pact on non-judicial stamp paper of Rs. 100/- each duly purchased from the National Capital Territory of Delhi. In case the Bidder is in a consortium, the Pre-Award Integrity Pact shall be signed and submitted by each member of the Consortium separately.

The RFP document shall be issued to the Bidders on any working day from 07.03.2026 to 02.04.2026 between 1030 hours (IST) to 1600 hours (IST). The BPC, on written request and against payment of the above-mentioned fee by any Bidder shall promptly dispatch the RFP document to such Bidder by registered mail/ air mail. BPC shall, under no circumstances, be held responsible for late delivery or loss of documents so mailed.

10. **Receipt and opening of Bid:** The Bid must be uploaded online through the electronic bidding platform on or before 1500 hours (IST) on 06.04.2026 Technical Bid will be opened by the Bid Opening Committee on the same day at 1530 hours (IST) in the office of -KPTCL (STU), in the online presence of Bidders' representatives who wish to attend. If the Bid Deadline is a public holiday at the place of submission of Bid, it shall be opened on the next working day at the same time and venue. In addition to the online submission, the Bidder with lowest Final Offer will be required to submit original hard copies of Annexure 3, Annexure 4 (if applicable), Annexure 6 (if applicable) and Annexure 14 before issuance of LoI. Bidders meeting the Qualification Requirements, subject to evaluation as specified in Clause **3.2** to **3.4** shall be declared as "Qualified Bidders" and eligible for opening of Initial Offer.

11. The RFP document is not transferable. BPC reserves the right to reject all Bids and/or annul the process of tariff based competitive bidding for selection of Bidder as TSP to execute the Project without assigning any reason. BPC shall not bear any liability, whatsoever, in this regard.

12. **Nodal person for enquiries and clarifications**

All correspondence and clarification in respect of RFP document shall be addressed to:

Chief Executive Officer,
REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited)
REC Corporate Head Quarter,
D Block, Plot No. I – 4,
Sec – 29 Gurugram – 122 001
Email: vijay.kulkarni@recpdcl.in & tbcb@recpdcl.in

DISCLAIMER

1. This Request for Proposal (RFP) document is not an agreement or offer by the BPC to the prospective Bidders or to any other party. The purpose of this RFP document is to provide interested parties with information to assist the formulation of their Bid. The RFP document is based on material and information available in public domain.

2. This RFP, along with its Annexure, is not transferable and the information contained therein are to be used only by the person to whom it is issued. It may not be copied or distributed by the recipient to third parties (other than in confidence to the recipient's professional advisors). In the event that the recipient does not continue with its involvement in the Project in accordance with this RFP, this RFP must be kept confidential.

3. While this RFP has been prepared in good faith, neither the BPC nor its employees or advisors/consultants make any representation or warranty expressed or implied as to the accuracy, reliability or completeness of the information contained in this RFP. The Bidders shall satisfy themselves, on receipt of the RFP document, that the RFP document is complete in all respects. Intimation of any discrepancy shall be given to this office immediately. If no intimation is received from any Bidder within ten (10) days from the date of issue of this RFP document on or before the date & time mentioned in this RFP, it shall be considered that the issued document, complete in all respects, has been received by the Bidders.

   This bidding process is in accordance with the Bidding Guidelines issued by Ministry of Power, Government of India under Section 63 of the Electricity Act, 2003. Revisions or amendments in these Bidding Guidelines may cause the BPC to modify, amend or supplement this RFP document, including the RFP Project Documents to be in conformance with the Bidding Guidelines.

4. This RFP document includes statements, which reflect various assumptions arrived at by BPC in order to give a reflection of current status in the RFP. These assumptions should not be entirely relied upon by Bidders in making their own assessments. This RFP document does not purport to contain all the information each Bidder may require and may not be appropriate for all persons. It is not possible for BPC to consider the investment objectives, financial situation and particular needs of each party who reads or uses this RFP document. Certain Bidders may have a better knowledge of the Project than the others. Each Bidder should conduct its own investigations and analysis and should check the accuracy, reliability and completeness of the information in this RFP document and obtain independent advice from appropriate sources.

5. Neither BPC nor their employees or consultants make any representation or warranty as to the accuracy, reliability or completeness of the information in this RFP document.

6. Neither BPC, its employees nor its consultants will have any liability to any Bidder or any other person under the law of contract, tort, the principles of restitution or unjust enrichment or otherwise for any loss, expense or damage which may arise from or be incurred or suffered in connection with anything contained in this RFP document, any matter deemed to form part of this RFP document, the award of the Project, the information supplied by or on behalf of BPC or its employees, any consultants or otherwise arising in any way from the qualification process for the said Project.

7. By participating in the bidding process, each of the Bidder shall have acknowledged and

accepted that it has not been induced to enter into such agreement by any representation or warranty, expressed or implied, or relied upon any such representation or warranty by or on behalf of BPC or any person working in the bidding process.

8. BPC may in its absolute discretion, but without being under any obligation to do so, update, amend or supplement this RFP document. Such updations, amendments or supplements, if any, will however be circulated to the Bidders not later than 15 days prior to the last date for submission of Bid.

9. Each Bidder unconditionally agrees, understands and accepts that the BPC reserves the rights to accept or reject any or all Bids without giving any reason. Neither the BPC nor its advisers shall entertain any claim of any nature, whatsoever, including without limitations, any claim seeking expenses in relation to the preparation of Bids.

10. This RFP may be withdrawn or cancelled by the BPC at any time without assigning any reasons thereof. BPC further reserves the right, at its complete discretion to reject any or all of the Bids without assigning any reasons whatsoever.

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DEFINITIONS

Any capitalized term, used but not defined in this RFP, shall have the meaning ascribed to such term in the RFP Project Documents, or the Bidding Guidelines, in that order. In absence of availability of definitions in the foregoing references, the capitalized terms shall be interpreted in accordance with the Electricity Act 2003, KERC (Multi Year Transmission, Distribution and Retail Supply Tariff) Regulations 2024, Grid Code, relevant KERC Regulations or any other relevant electricity law, rule or regulation prevalent in India, as amended or re-enacted from time to time, in that order.

The following terms are defined for use in this RFP:

"Acquisition Price" shall have the same meaning as defined in the Share Purchase Agreement;

"Affiliate" shall mean a company that either directly or indirectly

i. controls or
ii. is controlled by or
iii. is under common control with

a Bidding Company (in the case of a single company) or a Member (in the case of a Consortium) and "**control**" means ownership by one entity of at least twenty six percent (26%) of the voting rights of the entity. As an illustration a chart is annexed hereto as Annexure – 12;

"Bid" shall mean Technical Bid and Financial Bid (Initial Offer and Final Offer) submitted by the Bidder, in response to this RFP, in accordance with the terms and conditions thereof;

"Bidder" shall mean either a single company (including its permitted successors and legal assigns) or a Consortium of companies (including its permitted successors and legal assigns) submitting a Bid in response to this RFP. Any reference to the Bidder includes Bidding Company, Bidding Consortium/ Consortium, Member in a Bidding Consortium and Lead Member of the Bidding Consortium jointly and severally, as the context may require;

"Bidding Company" shall refer to such single company (including its permitted successors and legal assigns) that has submitted a Bid for the Project;

"Bidding Consortium/ Consortium" shall refer to a group of companies (including their permitted successors and legal assigns) that has collectively submitted a Bid for the Project;

"Bidding Guidelines" shall mean the "Tariff Based Competitive-Bidding Guidelines for Transmission Service" and "Guidelines for Encouraging Competition in Development of Transmission Projects" issued by Government of India, Ministry of Power under Section – 63 of Electricity Act as amended from time to time;

"Bid Bond" shall mean the unconditional and irrevocable bank guarantee or unconditional and irrevocable Insurance Surety Bond issued by Insurance Company authorized by Insurance Regulatory and Development Authority of India) or Payment on Order Instrument for Rupees Twenty Crore and Ninety Three Lakh Only (Rs. 20.93 Crore) only, to be submitted along with the Technical Bid by the Bidder under Clause 2.11 of this RFP, as per the format prescribed in Annexure 14 (for Bank Guarantee) or Annexure 14A (for Insurance Surety Bond) or Annexure 14B (for Payment on Order);

"Bid Deadline" shall mean the last date and time for submission of online Bid in response to this RFP, specified in Clause 2.7.1;

"Bid Process Coordinator or BPC" shall mean a person or its authorized representative as notified by the Government of Karnataka, responsible for carrying out the process for selection of Bidder who will acquire Transmission Service Provider;

"CEA" shall mean the Central Electricity Authority constituted under Section - 70 of the Electricity Act;

"**Central Government**" shall mean the Government of India;

"Central Commission" or "CERC" shall mean the Central Electricity Regulatory Commission of India constituted under Section-76 of The Electricity Act, 2003 and any successors and assigns;

"Conflict of Interest" A Bidder shall be considered to be in a Conflict of Interest with one or more Bidders in the same bidding process if they have a relationship with each other, directly or through a common company, that puts them in a position to have access to information about or influence the Bid of another Bidder.

Provided that if two or more bidders in the bidding process have formed a Joint Venture Company or Consortium to execute another project, the Bidders will not be considered to have Conflict of Interest;

"Commercial Operation Date (COD)" shall mean the date as per Article 6.2 of the Transmission Service Agreement;

"Consents, Clearances, Permits" shall mean all authorizations, licenses, approvals, registrations, permits, waivers, privileges, acknowledgements, agreements, or concessions required to be obtained from or provided by any concerned authority for the development, execution and performance of Project including without any limitation on the construction, ownership, operation and maintenance of the transmission lines and/or sub-stations;

"Contract Performance Guarantee" shall have the meaning as per Clause 2.12 of this RFP;

"Contract Year" shall mean the period beginning on the Scheduled COD, and ending on the immediately succeeding March 31 and thereafter each period of 12 months beginning on April 1 and ending on March 31 provided that:

(i) the last Contract Year shall end on the last day of the term of the Transmission Service Agreement;

"CTU/Central Transmission Utility" shall have same meaning as defined in the Electricity Act, 2003;

"Effective Date" shall have the meaning as ascribed thereto in the Transmission Service Agreement;

"Element" shall mean-each Transmission Line or each circuit of the Transmission Lines (where there are more than one circuit) or each bay of the Sub-station or switching station or HVDC terminal or inverter station of the Project, including ICTs, Reactors, SVC, FSC, etc. forming part of the Intra-State Transmission System which will be owned, operated and maintained by the concerned InSTS Licensee, and which may have a separate scheduled COD as per Schedule 2 of the Transmission Service Agreement and may have a separate percentage for recovery of Transmission Charges on achieving COD as per Schedule 5 of the Transmission Service Agreement;

"State Empowered Committee on Transmission" shall mean the committee constituted by the Government of Karnataka vide GO.: EN 124 VSC 2024 dated 01.08.2024;

"Final Offer" shall mean the Quoted Transmission Charges, required to be submitted as part of the Financial Bid on the electronic bidding platform during the e-reverse bidding stage. In case, no Final Offer is received during the e-reverse bidding stage then the lowest "Initial Offer" shall be deemed to be the Final Offer**;**

"Financial Bid" shall mean the Initial Offer and Final Offer, containing the Bidder's Quoted Transmission Charges, as per the format at Annexure – 21 of this RFP**;**

"Financially Evaluated Entity" shall mean the company which has been evaluated for the satisfaction of the financial requirement set forth in Clause **2.1.3** hereof;

"Grid Code" / "IEGC" or **"State Grid Code"** shall mean the Grid Code specified by the Central Commission under clause (h) of sub-section (1) of Section 79 of the Electricity Act and/or the State Grid Code as specified by the concerned State Commission referred under clause (h) of sub-section (1) of Section 86 of the Electricity Act as applicable;

"Infrastructure sector" shall mean such sectors notified by Department of Economic Affairs in its Gazette Notification no. 13/1/2017-INF dated 14th November, 2017 and as amended from time to time

"Initial Offer" shall mean the Quoted Transmission Charges, required to be submitted as part of the Financial Bid on the electronic bidding platform along with the Technical Bid**;**

"Inter State Generating Station" or "ISGS" shall mean a Central / other generating station in which two or more states have shares and whose scheduling is to be coordinated by the Regional Load Despatch Centre;

"Intra-State Transmission System" "InSTS" shall have same meaning as defined in the Electricity Act, 2003;

"Lead Member of the Bidding Consortium" or "Lead Member" shall mean a company who commits at least twenty six percent (26%) equity stake in the Project, meets the technical requirement as per Clause 2.1.2 and so designated by other Member(s) in Bidding Consortium;

"Letter of Intent" or "LoI" shall mean the letter to be issued by the BPC to the Bidder, who has been identified as the selected bidder, for award of the Project to such Bidder;

"Member in a Bidding Consortium/Member" shall mean each company in the Bidding Consortium;

"MOP" shall mean the Ministry of Power, Government of India;

"MOEF" shall mean the Ministry of the Environment and Forests, Government of India;

"National Committee on Transmission" shall mean the committee constituted by the Ministry of Power, Government of India in terms of the "Guidelines for Encouraging Competition in Development of Transmission Projects", as notified from time to time;

"Nodal Agency" shall mean Power Company of Karnataka Limited (PCKL), which shall execute and implement the Transmission Service Agreement (TSA);

"Parent Company" shall mean an entity that holds at least twenty six percent (26%) of the paid - up equity capital directly or indirectly in the Bidding Company or in the Member in a Bidding Consortium, as the case may be;

"Payment on Order Instrument" shall mean Letter of Undertaking from Indian Renewable Energy Development Agency Limited (IREDA) or Power Finance Corporation Limited (PFC) or REC Limited (REC) [the three non-banking financial institutions under Ministry of New & Renewable Energy (MNRE)/ Ministry of Power (MoP)], to pay in case situation of default of Transmission Service Provider (TSP) in terms of tender conditions/ Power Purchase Agreement (PPA) arises. Such Letter(s) will have same effect as that of a Bank Guarantee issued by any public sector bank. Such "Payment on Order instrument" would have terms and conditions similar to that of any Bank Guarantee given by any public sector bank and would promise to pay the Nodal Agency on demand within stipulated time. TSPs can seek such Letter(s) by offering due security to the above-mentioned three non-banking financial institutions mentioned above (IREDA, PFC & REC). Nodal Agency shall not accept the instrument of 'Letter of Undertaking' as described above or in any other form, from any other non-banking financial institutions or bank, except IREDA, PFC & REC;

"Qualification Requirements" shall mean the qualification requirements as set forth in Section-2, Clause 2.1 of this RFP;

"Quoted Transmission Charges" shall mean the quoted single annual Transmission Charges submitted online through the electronic bidding platform by the Bidder as part of its Financial Bid as per the format in Annexure – 21 of this RFP;

"RFP" shall mean Request for Proposal document along with all schedules, formats, annexure and RFP Project Documents attached hereto, issued by BPC for tariff based competitive bidding process for selection of bidder who will acquire the TSP through e-reverse bidding to execute the Project, and shall include any modifications, amendments or alterations or clarifications thereto;

"RFP Project Documents" shall mean the following documents to be entered into in respect of the Project, by the parties to the respective agreements:

a. Transmission Service Agreement (TSA),
b. Share Purchase Agreement,
c. Agreement(s) required, if any, under relevant KERC Regulations as amended from time to time and
d. Any other agreement, as may be required;

"Scheduled COD" shall have the meaning as ascribed hereto in Clause 2.6 of this RFP;

"Statutory Auditor" shall mean the auditor appointed under the provisions of the Companies Act, 1956 / Companies Act, 2013 (as the case may be) or under the provisions of any other applicable governing law;

"Share Purchase Agreement" shall mean the agreement amongst REC Power Development and Consultancy Limited, Ryapte Power Transmission Limited and the Successful Bidder for the purchase of one hundred (100%) per cent of the shareholding of the Ryapte Power Transmission Limited for the Acquisition Price, by the Successful Bidder on the terms and conditions as contained therein;

"Successful Bidder" or **"Selected Bidder"** shall mean the Bidder selected pursuant to this RFP to acquire one hundred percent (100%) equity shares of Ryapte Power Transmission Limited, along with all its related assets and liabilities, which will be responsible as the TSP to establish the Project on build, own, operate and transfer basis as per the terms of the Transmission Service Agreement and other RFP Project Documents;

"Survey Report" shall mean the report containing initial information regarding the Project and other details provided as per the provisions of Clause 1.6.2.1.1 of this RFP;

"State Commission" or "KERC" shall mean the Karnataka Electricity Regulatory Commission" and any or its successors and assigns;

"State Government" shall mean the Government of Karnataka;

"STU" or "State Transmission Utility" or "Karnataka Power Transmission Corporation Limited (KPTCL)" shall have same meaning as defined in the Electricity Act, 2003;

"Technical Bid" shall mean the bid submitted online through the electronic bidding platform, containing the documents as listed out in Clause 2.5.2 of this RFP;

"Technically Evaluated Entity" shall mean the company which has been evaluated for the satisfaction of the technical requirement set forth in Clause 2.1.2 hereof;

"Transmission Charges" shall mean the Final Offer quoted by Selected Bidder and adopted by the State Commission, and as computed in terms of the provisions of Schedule 4 of the TSA, payable to the Licensee by the PCKL on behalf of all ESCOMs/Long Term Transmission Customers (LTTCs), as per Transmission Service Agreement (TSA) / relevant KERC Regulations as amended from time to time;

"Transmission License" shall mean the license granted by the Commission in terms of the relevant regulations for grant of such license issued under the Electricity Act, 2003;

"Transmission Service Agreement" or **"TSA"** shall mean the agreement entered into between PCKL and the TSP, pursuant to which the TSP shall build, own, operate and transfer the Project and make available the assets of the Project to PCKL on a commercial basis;

"Transmission Service Provider" or "TSP" shall mean Ryapte Power Transmission Limited which has executed the Transmission Service Agreement and which shall be acquired by the Selected Bidder;

"Ultimate Parent Company" shall mean an entity which owns at least twenty six percent (26%) equity in the Bidding Company or Member of a Consortium, (as the case may be) and in the Technically Evaluated Entity and/or Financially Evaluated Entity (as the case may be) and such Bidding Company or Member of a Consortium, (as the case may be) and the Technically Evaluated Entity and/or Financially Evaluated Entity (as the case may be) shall be under the direct control or indirectly under the common control of such entity.

SECTION – 1

INTRODUCTION

SECTION 1

1. INTRODUCTION

1.1 Government of Karnataka vide its Order No. Energy 73 PPT 2024, Bengaluru dated 04.03.2025 has appointed REC Power Development and Consultancy Limited to be the Bid Process Coordinator (BPC) for the purpose of selection of Bidder as Transmission Service Provider (TSP establish Intra-State transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process.

The BPC hereby invites Bids from all prospective Bidders in accordance with this Request for Proposal (RFP) to select prospective Transmission Service Provider (TSP) in accordance with the "Tariff Based Competitive-Bidding Guidelines for Transmission Service" and "Guidelines for Encouraging Competition in Development of Transmission Projects" issued by Government of India, Ministry of Power under Section – 63 of the Electricity Act. The BPC shall select the Bidder having the prescribed technical and financial capability to become TSP and be responsible for establishing the Project in the state(s) of Karnataka. The TSP will make the Project available against payment of Transmission Charges, as adopted by the State Commission, payable to the TSP, as per Transmission Service Agreement (TSA) / relevant KERC Regulations as amended from time to time.

1.2 The TSP will be required to establish the following Intra-State Transmission System for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" (hereinafter referred to as 'Project') on build, own, operate and transfer basis, and to provide transmission service.

Sl. No.	Scope of the Transmission Scheme	Scheduled COD in months from Effective Date
1.	Establishment of 5x500 MVA, 400/220 kV S/s at Ryapte in Tumkur District along with 2x125MVAr 400 kV Bus Reactors • 400/220 kV ICTs: 5 Nos. (5x500 MVA) • 400 kV ICT Bays: 5 Nos. • 400 kV Line bays (along with space provision for switchable line reactors) : 2 Nos. • 125 MVAr, 420 kV Bus reactor – 2 Nos. • 400 kV Bus reactor bay: 2 Nos • 220 kV ICT Bays: 5 Nos • 220 KV line Bay - 8 No. • 220 kV TBC bay – 2 No. • 220 kV BC bay – 2 No • 220 kV Sectionalization bay: 1 set • 400 kv Bus PT bay- 2 Nos • 220 kv Bus PT bay- 4 Nos Space For Future Provision: • 400/220 KV ICTs - 5 Nos. • 400 KV ICT bay – 5 Nos. • 400 kV Bus Reactor: 3 Nos • 400 kV Bus Reactor bays : 3 Nos • 220 kV ICT Bays: 5 Nos • 220 Kv line bays – 8 Nos • 400 kV Line bays (along with space provision for switchable line reactors) : 4 Nos.	30 months
2.	400kV DC line (Quad moose conductor) from Prop. 400/220 kV Ryapte Sub-station to Prop. 400/220 kV Doddathaggalli S/s.	
3.	Establishing 3X500 MVA, 400/220kV GIS sub-station at Doddathaggalli (Near Hosakote) along with 2x125 MVAr, 400 kV Bus Reactors. • 400/220 kV ICTs: 3 no. • 400 kV ICT Bays: 3 Nos • 400 kV Line bays : 4 Nos • 125 MVAr, 420 kV Bus reactor – 2 No • 400 kV Bus reactor bay: 2 Nos • 220 kV ICT Bays: 3 Nos • **220 kV Line bays: 6 Nos.** • 220 kV BC bay – 1 No • 400 kv Bus PT bay- 2 Nos • 220 kv Bus PT bay- 2 Nos Future Provision: • 400 kV line bays – 4 Nos. • 400/220 kV ICTs - 2 Nos. • 400 kV ICT bays - 2 Nos	

Sl. No.	Scope of the Transmission Scheme	Scheduled COD in months from Effective Date
	• 400 kV Bus Reactor: 2 Nos. • 400 kV Bus Reactor bays: 2 Nos. • 220 kV ICT Bays: 2 Nos • 220 kV Line bays: 4 Nos	
4.	**400kV DC line (Quad moose conductor) from Kolar S/s to Prop. 400/220 kV Doddathaggalli Sub-station with following works at Kolar S/s:-** ***One circuit of Kolar – Doddataggalli 400kV (quad) D/c line may be terminated in existing vacant bay no. 415 at Kolar S/s. Other circuit may be terminated in new GIS diameter with 2-CB scheme. This option requires following main elements:*** • ***Termination of one circuit in the spare 400kV AIS bay no. 415 by providing required bay equipment to complete the 400kV Dia (413.414 and 415 bays)*** • ***Construction of 2 nos. 400kV outdoor GIS bays in 2 CB configuration for termination of other circuit*** • ***Extension of 400kV Main Bus-I and II through GIB duct to proposed 400kV outdoor GIS bays with AIS isolators*** • ***Dismantling and re-erection of one no. LM ,if required*** **Further, any requirement suggested by substation owners shall be followed as per site condition.**	
5.	**220kV DC line with Single Zebra and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions)** from proposed 400/220 kV Doddathagalli sub-station to 220kV Ekarajapura sub-station with 2 No.s of AIS TB at Ekarajapura S/s with rearrangement/Shifting of existing Bus PT bay **Note: The Tower design shall be suitable for TWIN Zebra.**	
6.	**220kV DC line with partial AAAC Moose and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions)**, from proposed 400/220 kV Doddathagalli sub-station to proposed 220kV Hosakote New sub-station.	
7.	**220kV DC line with Single Zebra and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions)** from proposed 400/220kV Doddathagalli to Sarjapura AIS S/s with 2 No.s of outdoor GIS TB at Sarjapura S/s by extending existing AIS bus bar along with AIS isolator **Note: The Tower design shall be suitable for TWIN Zebra.**	

Note:

1. *KPTCL to provide land for the construction of 5x500 MVA, 400/220 kV S/s at Ryapte in Tumkur District.*

   The land will remain under the ownership of KPTCL and a MoU between KPTCL and the TSP shall be executed for use of land.

   Currently, 150 Acres of land is identified for the substation and acquisition of land is under progress. The Land Cost of Rs 33,00,00,000 /- (as fixed by the DC, Tumkuru

Dist) has to be borne by the TSP.

At the time of execution of work, difference in land cost, if any, shall be borne by the TSP. Further applicable GST & Statutory payments shall be paid by the TSP.

KPTCL shall hand over possession of the land to the TSP upon completion of the requisite formalities.

2. *KPTCL to provide land for the construction of 3x500 MVA, 400/220 kV GIS sub-station at Doddathagalli in Bangalore Rural District.*

The land will remain under the ownership of KPTCL and a MoU between KPTCL and the TSP shall be executed for use of land.

Currently, 16 Acres of land is identified for the substation and acquisition of land is under progress. Onetime Land Cost of Rs 11,20,00,000 /- arrived based on the prevailing guidance value has to be borne by the TSP.

3. *TSP to pay onetime charges (arrived as per KPTCL norms based on the prevailing guidance value) for use of land and common infrastructure for bay extension works at the existing Substation of KPTCL as cited below:*

220kV Sarjapura S/s Rs 2,02,22,250/- (inclusive of GST)
220kV Ekarajapura S/s Rs6,51,29,338/-(inclusive of GST)

At the time of execution of work, difference in land cost, if any, shall be borne by the TSP.

Operation and Maintenance (O&M) of the bays constructed by the TSP within existing KPTCL substations shall be undertaken by KPTCL. The O&M charges shall be recovered by KPTCL from TSP as per the rates prescribed by KERC from time to time.

An O&M agreement shall be executed between KPTCL and the TSP in this regard and the agreement will be in line with the Standard Format for Memorandum of Understating between New TSP and Existing TSP" issued by CEA vide its letter No. I/28514/2023 dated 22.06.2023

4. *220 kV Line Bays at Prop. 220kV Hosakote New substation can be utilized for termination of 220 kV Doddathaggalli -Hosakote New substation DC Line. The proposed 220kV Hosakote New substation is under bidding process (TBCB MODE), Hence any modalities related touse of land,O&M of bays, and any other applicable charges,TSP may co-ordinate with the successful bidder of Hoskote new Substation*

1.3 Project Description

As per the Report on "Resource Adequacy Assessment of Karnataka from 2024-25 to

2034-35" about 25GW Solar and 13GW Wind generation capacity along with 6GW BESS needs to be added for which additional long term PPAs are to be signed by ESCOMs. M/s Karnataka Renewable Energy Development Ltd (KREDL), the State Nodal Agency for the Government of Karnataka which identifies, promotes and develops Renewable Energy projects in the state has planned to establish 2GW Solar Park at Ryapte in Pavagada Taluk, Tumakuru District.

The above Transmission Evacuation Scheme is planned for reliable evacuation of power from the proposed 2000MW Ryapte Solar Park.

1.4 Transmission Grid Map

Transmission Grid Map indicating the location of the Project is enclosed as Annexure 18 of this RFP for information and reference of the Bidders**.**

1.5 The objective of the bidding process is to select a Successful Bidder pursuant to this RFP, who shall acquire one hundred percent (100%) of the equity shares of Ryapte Power Transmission Limited along with all its related assets and liabilities as per the provisions of the Share Purchase Agreement, at the Acquisition Price to be intimated by the BPC, twenty (20) days prior to the Bid Deadline.

The Ryapte Power Transmission Limited, of which one hundred percent (100%) equity shares will be acquired by the Selected Bidder, shall be responsible as the TSP, for ensuring that it undertakes ownership, financing, development, design, engineering, procurement, construction, commissioning, operation and maintenance of the Project, and to provide Transmission Service as per the terms of the RFP Project Documents.

The TSP shall ensure transfer of all project assets along with substation land, right of way and clearances to KPTCL or its successors or an agency as decided by the State Government after 35 years from COD of project at zero cost and free from any encumbrance and liability. The transfer shall be completed within 90 days after 35 years from COD of project failing which KPTCL or its successors or an agency as decided by the State Government shall be entitled to take over the project assets Suo moto.

1.6 **Brief Scope of Work**

1.6.1 **Scope of Transmission Service Provider**

The TSP's scope of work for the Project shall comprise, but not necessarily be limited to the following:

1.6.1.1 Establishment, operation and maintenance of the Project on build, own, operate and transfer basis and completion of all the activities for the Project, including survey, detailed project report formulation, arranging finance, project management, necessary Consents, Clearances and Permits (way leave, environment & forest, civil aviation, railway/ road/river/canal/power crossing/PTCC, etc.), land compensation, design, engineering, equipment, material, construction, erection, testing & commissioning.
Further, the actual location of Greenfield substations (Switching Stations or HVDC Terminal or Inverter Stations) in the scope of TSP

- For a Generation Pooling Substation shall not be beyond 3 Km radius of the location proposed by the BPC in their Survey Report.
- For load Serving Substation within the scope of TSP shall not be beyond 5 Km radius of the location proposed by the BPC in their Survey Report

- For an intermediate Substation shall not be beyond 10 Km radius of the location proposed by the BPC in their Survey Report.

1.6.1.2 The TSP shall ensure that design, construction and testing of all equipment, facilities, components and systems of the Project shall be in accordance with Transmission Service Agreement and applicable Rules/ Regulations, Orders and Guidelines issued by the State Government, State Commission, Central Government and Central Commission, as may be applicable.

1.6.1.3 The TSP shall ensure timely completion of entire scope of Project in all respects and its operation and maintenance, as shall be specified in the RFP documents.

1.6.1.4 The TSP shall seek Transmission License from the State Commission, as per the provisions of the Electricity Act and regulations made thereunder.

1.6.1.5 The TSP shall seek approval under Section 164 of Electricity Act, Government of Karnataka after acquisition of Ryapte Power Transmission Limited. The approval shall be granted by Government of Karnataka generally within 30 days but in no case later than 45 days from the date of receipt of application (complete in all aspects).

1.6.2 **Scope of Bid Process Coordinator (BPC)**

BPC's scope of work is briefly outlined hereunder:

1.6.2.1 The BPC has initiated development of the Project and shall be responsible for the tasks in this regard as specified hereunder:

1. Provide to the Bidders a Survey Report for the Project at least forty five (45) days prior to the Bid Deadline. The Survey Report shall include the suggested route with approximate route length, type of terrain likely to be encountered and its likely implication in terms of Right of Way (ROW), statutory clearances, location of substations or converter stations and land area to be acquired for the substation or converter station.
2. To obtain approval for laying of overhead transmission lines under Section 68 of Electricity Act, from the State Government at least twenty (20) days prior to Bid Deadline.
3. To initiate acquisition of land for location specific substations, switching stations or HVDC terminal or inverter stations, if required.
4. To initiate process of seeking forest clearance, if required
5. The BPC shall intimate to the Bidders, the Acquisition Price payable by the Selected Bidder to the REC Power Development and Consultancy Limited for the acquisition of one hundred percent (100%) of the equity shareholding of Ryapte Power Transmission Limited, along with all its related assets and liabilities at least twenty (20) days prior to the Bid Deadline.
6. The BPC shall ensure issuance of all finalized RFP Project Documents, at least fifteen (15) days prior to the Bid Deadline.

   Provided that for any delay in meeting the above obligations of the BPC within the specified time period above, the Bid Deadline as per Clause 2.7.1 shall be extended on a day for day basis.

1.6.2.2 The details and documents as may be obtained by the BPC/ project specific SPV in relation to the Project shall be handed over to the TSP on an as-is-where-is basis, so that it may take further actions to obtain Consents, Clearances and Permits.

1.7 All costs (including direct and indirect) incurred by the BPC/ project specific SPV in connection with the activities concerning the Project shall be recovered from the TSP, which shall be included in the Acquisition Price.

1.8 The Project is required to be completed progressively in accordance with the schedule prescribed in this RFP.

1.9 A company under the Companies Act, 2013 by the name Ryapte Power Transmission Limited has been incorporated to initiate the activities for execution of the Project. The said company shall be acquired by the successful Bidder as per terms and conditions as may be prescribed in RFP.

1.10 The Ministry of Power and the appropriate state government(s) shall provide their support to the TSP, on best endeavor basis, in enabling the TSP to develop the Project.

1.11 All Bidders are required to submit their Bid in accordance with the instructions set forth in this RFP.

1.12 Once the Successful Bidder is selected, the details and documents as may be obtained by the BPC/ project specific SPV in relation to the Project, shall be handed over to the Successful Bidder on as is where basis, so that it may take further actions to obtain all necessary Consents, Clearances and Permits and the TSP shall not be entitled for any extensions in the Scheduled COD of the Project except as provided for in the TSA.

1.13 The assets of the Project shall be made available on a commercial basis as per the terms and conditions of the Transmission Service Agreement and relevant KERC Regulations as amended from time to time.

SECTION - 2

INFORMATION AND INSTRUCTIONS FOR BIDDERS

SECTION – 2

2. INFORMATION AND INSTRUCTIONS FOR BIDDERS

2.1 Qualification Requirements

2.1.1 The Bidder should be a company duly incorporated under the relevant laws (Bidding Company) or a Consortium of companies (Bidding Consortium) with one of the companies acting as the Lead Member of the Bidding Consortium. The Bidder shall be selected on meeting the Qualification Requirements specified in Section 2 of this RFP, as demonstrated by the Bidder's Technical Bid and the lowest Quoted Transmission Charges discovered from Final Offers quoted during the e-reverse bidding. A Bidding Consortium can participate in the bidding process for the Project if any Member of the Consortium has purchased the RFP document for such Project. Bidder who agree and undertake to procure the products associated with the Transmission System as per provisions of Public Procurement (Preference to Make in India) orders issued by Ministry of Power vide orders No. 11/5/2018 - Coord. dated 28.07.2020 as amended vide order No. A1/2021-FSC- Part (5) dated 16.11.2021 and No.: P45021/2/2017-PP (BE-II)-Part-4 Vol. II dated 19.07.2024 issued by Ministry of Power for transmission sector, as may be further amended from time to time read with Department for Promotion of Industry and Internal Trade (DPIIT) orders in this regard, shall be eligible hereunder. Further, it is clarified that Procuring Entity as defined in orders shall deemed to have included Selected Bidder and/ or TSP.

Besides, Department of Expenditure, Ministry of Finance in suppression of OMs issued vide Order (Public Procurement No 1) bearing File No. 6/18/2019-PPD dated 23.07.2020, Order (Public Procurement No 2) bearing File No. 6/18/2019-PPD dated 23.07.2020 and Order (Public Procurement No. 3) bearing File No. 6/18/2019-PPD, dated 24.07.2020, Office Memorandum (OM) No. F.18/37/2020-PPD dated 08.02.2021, OM No. F.12/1/2021-PPD(Pt.) dated 02.03.2021, OM No. F.7/10/2021-PPD dated 08.06.2021 and Order (Public Procurement No 4) bearing File No. F.7/10/2021-PPD dated 23.02.2023, as amended from time to time, have issued directions regarding public procurement from a bidder of a country, which shares land border with India are also applicable.

2.1.2 **Technical requirement to be met by the Bidding Company or Lead Member of Bidding Consortium**

The Bidder must fulfill any one of the following technical requirements:

(i) Experience of development of projects in the Infrastructure Sector in the last five (5) years with aggregate capital expenditure of not less than Rs**. 1046.61 Crore** or equivalent USD (calculated as per provisions in Clause 3.4.1**).** However, the capital expenditure of each project shall not be less than **Rs. 209.32 Crores** or equivalent USD (calculated as per provisions in Clause 3.4.1).

For this purpose, capital expenditure incurred on projects that have been commissioned/completed at least seven (7) days prior to Bid Deadline shall be considered. The capital expenditure discussed above shall be as capitalized and reflected in the audited books of accounts of the Technically Evaluated Entity. In case a clearly identifiable part of a project has been put into commercial operation, the capital expenditure on such part of the project shall be considered. The Technically Evaluated Entity must have either executed such projects itself

or must have held directly or indirectly at least twenty six percent (26%) of the shareholding in the company that has executed the project(s) from the date of financial closure of the project(s) till the time of commissioning/completion of such project(s).

OR

(ii) Experience in construction of project in infrastructure sector: The Technically Evaluated Entity should have received aggregate payments not less than Rs. 1046.61 Crores or equivalent USD (calculated as per provisions in Clause 3.4.1) from its client(s) for construction works fully completed during the last 5(five) financial years. However, the payment received from each project shall not be less than Rs.
209.32 Crores or equivalent USD (calculated as per provisions in Clause 3.4.1).

For this purpose, payments received on projects that have been commissioned/ completed at least seven (7) days prior to Bid Deadline shall be considered. Further only the payments (gross) actually received, during such 5 (five) financial years shall qualify for purposes of computing the technical capacity. For the avoidance of doubt, construction works shall not include cost of land, supply of goods or equipment except when such goods or equipment form part of a turn-key construction contract/ EPC contract for the project. Further, in cases where different individual contracts are signed between same entities for the same project, the cumulative payments received under such individual contracts shall be considered for meeting the qualification requirement.

The Technically Evaluated Entity may be the Bidding Company or the Lead Member of a Consortium or an Affiliate or Parent of such Bidding Company or the Lead Member, as the case may be.

Bidders shall furnish documentary evidence duly certified by authorized signatory of the Bidder who has been issued Power of Attorney in support of their technical capability as defined in Clause 2.1.2 of this RFP.

2.1.3 **Financial requirement to be met by the Bidding Company/Bidding Consortium**

2.1.3.1 The Bidder must fulfill following financial requirements:

A. Networth:

Networth should be not less than **Rs. 418.65 Crores** or equivalent USD (calculated as per provisions in Clause 3.4.1**)** computed as the Networth based on unconsolidated audited annual accounts (refer to Note below) of any of the last three (3) financial years as provided in Clause 2.2.3, immediately preceding the Bid Deadline. Also, the Networth of any of the last three (3) financial years should not be negative.

Note: Audited consolidated annual accounts of the Bidder may be used for the purpose of financial criteria provided the Bidder has at least 26% equity in each company whose accounts are merged in the audited consolidated accounts and provided further that the financial capability of such companies (of which accounts are being merged in the consolidated accounts) shall not be considered again for the purpose of evaluation of the Technical Bid. Bidders shall furnish prescribed Annexure 7 (A) duly certified by

authorized signatory of the Bidder who has been issued Power of Attorney and the Statutory Auditor and separate computation sheet for Networth duly certified by Statutory Auditor in support of their financial capability as defined in Clause 2.1.3 of this RFP.

2.1.3.2 The Networth shall be computed in the following manner by the Bidder:

A. Networth

=	Equity share capital
Add:	Reserves
Subtract:	Revaluation Reserves
Subtract:	Intangible Assets
Subtract:	Miscellaneous expenditures to the extent not written off and carry forward losses

2.1.3.3 If the Technical Bid is submitted by a Bidding Consortium the financial requirement shall be met individually and collectively by all the Members in the Bidding Consortium. The financial requirement to be met by each Member of the Bidding Consortium shall be computed in proportion to the equity commitment made by each of them for investment in the Project.

2.1.4 The Bidder may seek qualification on the basis of technical and financial capability of its Parent and/ or its Affiliate(s) for the purpose of meeting the Qualification Requirements. However, in the case of the Bidder being a Consortium, the Lead Member has to meet the technical requirement on its own or by seeking the technical capability of its Parent and/or its Affiliate(s). Authorization for use of such technical or financial capability shall have to be provided from its Parent and/or Affiliate(s) as per Annexure 9. The technical and financial capability of a particular company/ particular project, including its Parents and/or Affiliates, shall not be used directly or indirectly by more than one Bidder/ Member of a Bidding Consortium/ Bidding Company. However, development and construction experience of a particular project may be used by more than one company.

The determination of the relationship of Parent or Affiliate with the Bidding Company or with the Member of the Bidding Consortium, including the Lead Member, shall be on the date at the most seven (7) days prior to the last date of submission of the Bid. Documentary evidence to establish such relationship shall be furnished by the Bidder along with the Technical Bid.

If the Technically Evaluated Entity and/or Financially Evaluated Entity is an entity other than the Bidding Company or a Member in a Bidding Consortium, the Bidding Company or Member relying on such Technically Evaluated Entity and/or Financially Evaluated Entity will have to submit a legally binding undertaking supported by a board resolution from the Technically Evaluated Entity and/or Financially Evaluated Entity or its Ultimate Parent Company, that all the equity investment obligations of the Bidding Company or the Member of the Consortium shall be deemed to be equity investment obligations of the Technically Evaluated Entity and/or Financially Evaluated Entity or its Ultimate Parent Company, and in the event of any default the same shall be met by such evaluated entity or by or the Ultimate Parent Company. The Bidding Company or the Consortium Member shall have to provide information and documents relating to its relationship with such Technically Evaluated Entity and/or Financially Evaluated Entity including details about the equity shareholding between them as per Annexure 7(C).

2.1.5 A Bidder shall submit only one Bid in the same bidding process, either individually as Bidding Company or as a Member of a Bidding Consortium (including the Lead Member). It is further clarified that any of the Parent/ Affiliate/Ultimate Parent of the Bidder/ Member in a Bidding Consortium shall not separately participate directly or indirectly in the same bidding process. Further, if any Bidder is having a Conflict of Interest with other Bidders participating in the same bidding process, the Bids of all such Bidders shall be rejected.

2.1.6 Notwithstanding anything stated above, BPC reserves the right to verify the authenticity of the documents submitted for meeting the Qualification Requirements and request for any additional information and documents. BPC reserves the right at its sole discretion to contact the Bidder's bank and project references and verify the Bidder's information and documents for the purpose of bid evaluation.

2.1.7 The Qualified Bidder(s) will be required to continue to maintain compliance with the Qualification Requirements throughout the bidding process and till execution of the Transmission Service Agreement. Where the Technically Evaluated Entity and/or the Financially Evaluated Entity is not the Bidding Company or a Member in a Bidding Consortium, as the case may be, the Bidding Company or Member shall continue to be an Affiliate of the Technically Evaluated Entity and/or Financially Evaluated Entity till the execution of the Transmission Service Agreement. Failure to comply with the aforesaid provisions shall make the Bid liable for rejection at any stage.

2.1.8 The Selected Bidder will be required to continue to maintain compliance with the Qualification Requirements till the COD of the Project. Where the Technically Evaluated Entity and/or the Financially Evaluated Entity is not the Bidding Company or a Member in a Bidding Consortium, as the case may be, the Bidding Company or Member shall continue to be an Affiliate of the Technically Evaluated Entity and/or Financially Evaluated Entity till the COD of the Project. Failure to comply with the aforesaid provisions shall be dealt as per provisions of Transmission Service Agreement.

2.1.9 On the Bid Deadline, for the Bidder to be eligible to participate in the bidding process:

a. the Bidder & any of its Affiliate including any Consortium Member & any of its Affiliate, their directors or key personnel should not have been barred or included in the blacklist by any government agency or authority in India, the government of the jurisdiction of the Bidder or Members where they are incorporated or the jurisdiction of their principal place of business, any international financial institution such as the World Bank Group, Asian Development Bank, African Development Bank, Inter-American Development Bank, Asian Infrastructure Investment Bank etc. or the United Nations or any of its agencies; or

b. the Bidder & any of its Affiliate including any Consortium Member & any of its Affiliate or their directors should not have been convicted of any offence in India or abroad.

In case any investigation is pending against the Bidder, including any Consortium Member or Affiliate, or CEO or any of the directors/ manager/key managerial personnel of the Bidder /Consortium /Member or their Affiliates, full details of such investigation including the name of the investigating agency, the charge/offence for which the

investigation has been launched, name and designation of persons against whom the investigation has been launched and other relevant information should be disclosed while submitting the Bid.

The Bidders shall confirm the above though a notarized affidavit as per Annexure 22.

2.2 Submission of Bid by the Bidder

2.2.1 The information and documents in Technical Bid will be submitted by the Bidder as per the formats specified in Section – 4 (Formats for RFP) of this document

2.2.2 Strict adherence to the formats wherever specified, is required. Wherever, information has been sought in specified formats, the Bidder shall refrain from referring to brochures/ pamphlets. Non-adherence to formats and/ or submission of incomplete information may be a ground for declaring the Technical Bid as non-responsive. Each format has to be duly signed and stamped by the authorized signatory of Bidder.

2.2.3 The Technical Bid shall contain unconsolidated/consolidated audited annual accounts (consisting of unabridged Balance Sheet, Profit and Loss Account, profit appropriation account, Auditors Report, etc.), as the case may be, of Bidding Company or each Member in Consortium including Lead Member or the Financially Evaluated Entity for the last three (3) financial years immediately preceding the last date for submission of Bid for the purpose of calculation of Networth.

In case the annual accounts for the financial year immediately preceding the Bid Deadline is not audited, the Bidder shall give declaration in this regard duly certified by its statutory auditor. In such a case, the Bidder shall provide the audited annual accounts for the three (3) financial years preceding the financial year as above for which the annual accounts have not been audited.

2.2.4 <u>Bid submitted by a Bidding Consortium:</u>

2.2.4.1 The Technical Bid shall contain a legally enforceable Consortium Agreement entered amongst the Members in the Bidding Consortium, designating one of the Members to be the Lead Member (as per Annexure 6). There shall be only one Lead Member which shall continue to hold twenty six percent (26%) equity in the TSP and cannot be changed upto one (1) year from the Commercial Operation Date (COD) of the Project. Each Member in Bidding Consortium shall duly sign the Consortium Agreement making it liable for raising the required funds for its respective equity investment commitment as specified in the Consortium Agreement. In absence of Consortium Agreement, the Technical Bid will not be considered for evaluation and will be rejected.

Provided that the Lead Member of the Bidding Consortium will be required to be liable to the extent of 100% of the total proposed commitment of equity investment of the Bidding Consortium i.e. for both its own equity contribution as well as the equity contribution of other Members.

Provided further that the Consortium Agreement shall not be amended without the explicit approval of the BPC.

The Lead Member of the Consortium will be the single point of contact for the purposes of

the bid process before the date of signing of Share Purchase Agreement. Settlement of any dispute amongst the Consortium Members shall not be the responsibility of the BPC and/or the STU/Nodal Agency and the BPC and/or the STU/Nodal Agency shall not bear any liability whatsoever on this account.

2.2.4.2 The Lead Member should designate at the most two persons to represent the Consortium in its dealings with the BPC. The person(s) designated by the Lead Member should be authorized through a Power of Attorney (as per Annexure 3) to perform all tasks including, but not limited to providing information, responding to enquiries, signing of Technical Bid on behalf of the Consortium, etc. The Bidding Consortium shall provide board resolutions from their respective Boards for committing their respective portion of equity requirement for the Project. Additionally, the Lead member shall provide a Board resolution committing to make good any shortfall in the equity for the project, in case of any member not meeting its equity commitment.

2.2.4.3 The Technical Bid should also contain signed Letter of Consent (as per Annexure 2) from each Member in Consortium confirming that the entire Technical and Financial Bids has been reviewed and each element of the Technical and Financial Bids is agreed to by them including investment commitment for the Project.

In addition, the Technical Bid should also contain Board Resolution from each Member of the Consortium other than the Lead Member in favour of their respective authorized representatives for executing the POA, Consortium Agreement and signing of the requisite formats.

2.2.5 Bid submitted by a Bidding Company

2.2.5.1 The Bidding Company should designate at the most two persons to represent the Bidding Company in its dealings with BPC. The person(s) should be authorized to perform all tasks including, but not limited to providing information, responding to enquiries, signing of Technical and Financial Bids etc. The Bidding Company should submit, along with Technical Bid, a Power of Attorney (as per Annexure 3), authorizing the signatory of the Technical and Financial Bids. The Bidding Company shall submit the board resolution committing 100% of equity requirement for the Project, in the Technical Bid.

2.3 Clarifications & Pre-Bid Meeting

2.3.1 The Bidders may seek clarifications or suggest amendments to the RFP by sending an email to the BPC at the email id indicated in Clause 2.14 within the date and time mentioned in Clause 2.7.2. For any such clarifications or amendments, the Bidders should adhere to the format as per Annexure – 19.

2.3.2 Only those Bidders or their authorized representatives, who have purchased the RFP documents are invited to attend the pre-bid meeting(s), which will take place on date as specified in Clause 2.7.2, or any such other date as notified by the BPC. The time and address of this would be intimated later.

2.3.3 The purpose of the pre-bid meeting will be to clarify any issues regarding the RFP, including in particular, issues raised in writing by the Bidders as per the provisions of Clause 2.3.1.

2.3.4 Non-attendance at the pre-bid meeting will not be a cause for disqualification of a Bidder.

2.3.5 The BPC is not under any obligation to entertain / respond to suggestions made or to incorporate modifications sought for.

2.3.6 In case Bidders need any further clarifications not involving any amendments in respect of final RFP, they should ensure that request for such clarification is submitted through e-mail to the BPC at least ten (10) days prior to the Bid Deadline as mentioned in Clause 2.7.1. The BPC may issue clarifications only, as per its sole discretion, which is considered reasonable by it. Any such clarification issued shall be sent to all the Bidders to whom the RFP has been issued. Clarifications sought after this date shall not be considered in any manner and shall be deemed not to have been received. There shall be no extension in Bid Deadline on account of clarifications sought as per this clause 2.3.6.

2.4 Amendment of RFP

2.4.1. At any time before the timeline mentioned in Clause 2.7.1, the BPC may, for any reason, whether at its own initiative or in response to clarifications requested by any Bidder modify or amend the RFP, including the timelines specified in Clause 2.7.2 by issuance of addendum/modification/errata and/or revised document. Such document shall be notified in writing through a letter or fax or e-mail to all the entities to which the RFP has been issued and shall be binding on them. In order to ensure that Bidders have reasonable time to take the modification into account in preparing their Bid, or for any other reasons, BPC may at its discretion, extend the due date for submission of Bid. Late receipt of any addendum/modification/errata and/or revised document will not relieve the Bidder from being bound by that modification.

2.4.2. All modifications shall become part of the terms and conditions of this RFP. No interpretation, revision or communication regarding this RFP is valid, unless made in writing.

2.4.3. The amendment to the RFP shall be notified to all the Bidders through the electronic bidding platform and shall be binding on them.

2.5 The Bidding Process

The entire bidding process shall be conducted on electronic bidding platform created by MSTC Limited. The Bid shall comprise of the Technical Bid and the Financial Bid. The Bidders shall submit the Technical Bid & Financial Bid through the electronic bidding platform. In addition to the online submission, the Bidder with lowest Final Offer will be required to submit original hard copies of Annexure 3, Annexure 4 (if applicable), Annexure 6 (if applicable) and Annexure 14/14A/14B before issuance of LoI. There shall be no physical submission of the Financial Bid.

Evaluation of Technical Bid will be carried out considering the information and documents furnished by the Bidders as required under this RFP. This step would involve responsiveness check, technical and financial evaluation of the details/ documents furnished by the Bidding Company / Bidding Consortium in support of meeting the Qualification Requirements. Bidders meeting the Qualification Requirements, subject to evaluation as specified in Clause **3.2** to **3.4** shall be declared as "Qualified Bidders" and eligible for opening of Initial Offer. The BPC shall also upload the list of all Qualified

Bidders and Non-Qualified Bidders on the bidding portal along with the reasons for non-qualification. Also, the Financial Bids of Qualified Bidders shall be opened after at least 24 hours from the date of declaration of the Technically Qualified Bidders.

The Financial Bid will comprise of two rounds. In the first round the Initial Offer (submitted online along with the Technical Bids) of the responsive bids would be opened and Quoted Transmission Charges of Initial Offer shall be ranked on the basis of ascending order for determination of the Qualified Bidders as provided in Section-III of RFP. The Qualified Bidders, in the first fifty per cent of the ranking (with any fraction rounded off to higher integer) or four Qualified Bidders, whichever is higher, shall qualify for participating in the electronic reverse auction stage and submit their Final Offer.

Provided however, in case only one Bidder remains after the evaluation of Technical Bid as per Clause 3.2, 3.3 and Clause 3.4, the Initial Offer of such Bidder shall not be opened and the matter shall be referred to the State Government.

Provided that in the event the number of qualified Technical Bids is between two and four, then each of the qualified Bidder shall be considered as "Qualified Bidders".

Provided that in the event of identical Quoted Transmission Charges discovered from the Initial Offer having been submitted by one or more Bidders, all such Bidders shall be assigned the same rank for the purposes of determination of Qualified Bidders. In such cases, all the Qualified Bidders who share the same rank till 50% of the rank (with any fraction rounded off to higher integer) determined above, shall qualify to participate in the electronic e-reverse auction stage. In case 50% of the ranks (with any fraction rounded off to higher integer) is having less than 4 (four) Bidders and the rank of the fourth (4^{th}) Bidder is shared by more than one (1) Bidder, then all such Bidders who share the rank of the fourth (4^{th}) Bidder shall qualify to participate in the electronic reverse auction.

The applicable ceiling for electronic reverse bidding shall be the lowest Quoted Transmission Charges discovered from the Initial Offer received from the Qualified Bidders. The Qualified Bidders shall be permitted to place their Final Offer on the electronic bidding platform, which is lower than zero point two five (0.25) % of the prevailing lowest Quoted Transmission Charges.

The initial period for conducting the e-reverse bidding should be 2 hours which will be extended by 30 minutes from the last received bid time, if the bid is received during the last 30 minutes of the scheduled or extended bid time. Subsequently, it will be extended again by 30 minutes from the latest received bid time.

The technical details with respect to access to such electronic platform are provided in Annexure-A (Technical Details with respect to electronic reverse auction).

In case of any technical clarification regarding access to the electronic reverse auction platform or conduct of the auction process, the Bidders may contact MSTC Limited directly at the address provided in Annexure-A.

2.5.1 Bid Formats

The Bids in response to this RFP will be submitted online through the electronic bidding platform by the Bidders in the manner provided in Clause 2.9. The Bids shall comprise of the following:

2.5.2 Technical Bid comprising of:

1. Covering Letter (as per prescribed format enclosed as **Annexure 1**);

2. Letter of Consent from Consortium Members in **Annexure 2;**

3. Power of attorney issued by the Bidding Company or the Lead Member of the Consortium, as the case may be, in favour of the person signing the Bid, in the format attached hereto as **Annexure 3**.

   Additionally, in case of a Bidding Consortium, the power of attorney in favour of the Lead Member issued by the other Members of the Consortium shall be provided in as per format attached hereto as **Annexure 4**. Further, the Lead Member shall furnish Board resolution(s) from each Member of the Consortium other than the Lead Member in favour of their respective authorized representatives for executing the POA and signing of the requisite formats.

   Provided that in the event the Bidding Company or the Lead Member of the Consortium or any Member of the Bidding Consortium, as the case may be, is a foreign entity, it may issue Board resolutions in place of power of attorney for the purpose of fulfilling these requirements.

4. Bidder's composition and ownership structure in **Annexure 5**

5. Format for Authorization submitted in Non-Judicial stamp paper duly notarized as per **Annexure 5** from the Bidding Company / each Member of the Consortium authorizing the BPC to seek reference from their respective bankers & others.

6. In case of Bidding Consortium, the Consortium Agreement shall be provided in as per format attached hereto as **Annexure 6**

7. Format of Qualification Requirement (**Annexures 7A, 7B, 7C and 7D)**

8. Bidders Undertakings and details of equity investment in Project (as per prescribed formats 1 and 2 of **Annexure 8**);

9. Authorization from Parent / Affiliate of Bidding Company / Member of Bidding Consortium whose technical / financial capability has been used by the Bidding Company / Member of Bidding Consortium **(Annexure 9)**.

10. Undertaking from the Technically / Financially Evaluated Entity(ies) **OR** Undertaking from the Ultimate Parent Company, for total equity investment commitment, in the prescribed format in **Annexure – 10**, to meet any shortfall in the equity investment by the Selected Bidder in the Ryapte Power Transmission Limited.

    Note: The effective Equity holding of the Selected Bidder in the Ryapte Power

Transmission Limited, as specified in Clause 2.5.8.1 shall be computed as per the provisions of Clause 2.5.8.3 of this RFP.

Provided further, in case the Bidding Company or Member of a Consortium, (as the case may be) holds at least twenty six percent (26%) equity in such Technically/ Financially Evaluated Entities, whose credentials have been considered for the purpose of meeting the Qualification Requirements as per the RFP, no such Undertaking shall be required from the Technically / Financially Evaluated Entities.

11. Board resolutions, as per prescribed formats enclosed as Annexure – 11, duly certified by the Company Secretary or any Whole-time Director / Manager (supported by a specific Board Resolution), as applicable to the Bidder and mentioned hereunder,

    (a) Board resolution from the Bidding Company (and any investing Affiliate / Parent Company / Ultimate Parent Company) committing one hundred percent (100%) in aggregate of the equity requirement for the Project - Format-1 of **Annexure 11**;

    (b) Board resolutions from each of the Consortium Member of the Bidding Consortium (and any investing Affiliate / Parent Company / Ultimate Parent Company) together committing to one hundred percent (100%) in aggregate of equity requirement for the Project, in case Bidder is a Bidding Consortium - Format-1 of **Annexure 11**;

    (c) In either of the cases as in (a) or (b) above as applicable, Board resolutions as per Format 2 of **Annexure 11** for total equity investment commitment from the Technically / Financially Evaluated Entity(ies) whose technical / financial credentials had been considered for the purpose of meeting Qualification Requirements as per the RFP

    OR

    Board resolutions as per Format 2 of **Annexure 11** from the Parent Company or the Ultimate Parent Company for total equity investment commitment.

    Provided that such Board resolutions, as specified in (a) or (b) or (c) above, in case of a foreign entity, shall be supported by an unqualified opinion issued by an independent legal counsel practicing in the relevant country, stating that the Board resolutions are in compliance with the applicable laws of the respective jurisdictions of the issuing company and the authorizations granted therein are true and valid.

    For clarity sake, illustrations identifying which Board Resolution shall be applicable in typical cases are provided in **Annexure 11A**.

12. Format for Illustration of Affiliates at the most seven (7) days prior to Bid Deadline, duly certified by Company Secretary and supported by documentary evidence **(Annexure 12)**.

    Certified copy of the Register of Members / Demat Account Statement, Share Certificate, Annual Return filed with ROC etc. submitted as documentary evidence along with **Annexure 12.**

13. Disclosure as per **Annexure 13** regarding participation of any related companies in this bidding process.

14. Bid Bond, as per the prescribed format at **Annexure 14** or **Annexure 14A** or **Annexure 14B**

15. Checklist for Technical Bid submission requirements as per **Annexure 16**.

16. Last three (3) financial years' unconsolidated / consolidated audited annual accounts / statements, as the case may be, of the Financially Evaluated Entity / Technical Evaluated Entity

17. Unconsolidated audited annual accounts of both the TEE and the Bidding Company/Lead member, as applicable, for the financial years in which financial closure was achieved and the financial year in which the said project was completed / commissioned.

18. Copy of the Memorandum and Articles of Association and certificate of incorporation or other organizational document (as applicable), including their amendments, certified by the Company Secretary of Bidding Company or each Member in case of a Consortium including Lead Member.

19. For each project listed in Annexure 7(D), certified true copy of the certificates of final acceptance and / or certificates of good operating performance duly issued by owners or clients for the project, duly signed by duly signed by authorized signatory.

In addition to the online submission of above formats through the electronic platform, the Bidder with lowest Final Offer will be required to submit original hard copies of Annexure 3, Annexure 4 (if applicable), Annexure 6 (if applicable) and Annexure 14/14A/14B before issuance of LoI. In case, there is a discrepancy between the online submission and physical documents, the bid would be out rightly rejected and the bidder shall be construed to have engaged in the fraudulent practice as defined in Clause 2.19.3 with consequences as mentioned in Clause 2.19.2.

2.5.3 Financial Bid (as per prescribed format at Annexure-21)

Financial Bid shall comprise of: (i) the Initial Offer; and (ii) the Final Offer. The Initial Offer is required to be submitted along with the Technical Bid. It is hereby clarified that the Financial Bid will comprise of two rounds. In the first round the Initial Offer of the responsive bids would be opened and Quoted Transmission Charges of Initial Offer shall be ranked on the basis of ascending order for determination of the Qualified Bidders as provided in Section-III of RFP.

In accordance with clause 2.5 of this RFP, the qualified Bidders shall be eligible to participate in the electronic reverse auction and submit their Final Offer.

The applicable ceiling for electronic reverse bidding shall be the lowest Quoted Transmission Charges discovered from the Initial Offer received from the Qualified Bidders. The Qualified Bidders shall be permitted to place their Final Offer on the

electronic bidding platform, which is lower than zero point two five (0.25) % of the prevailing lowest Quoted Transmission Charges.

The initial period for conducting the e-reverse bidding should be 2 hours which will be extended by 30 minutes from the last received bid time, if the bid is received during the last 30 minutes of the scheduled or extended bid time. Subsequently, it will be extended again by 30 minutes from the latest received bid time.

The Bidders shall inter-alia take into account the following while preparing and submitting the Initial Offer and Final Offer of Financial Bid:-

a. The Bidders shall quote single annual Quoted Transmission Charges for a period of 35 years commencing from the Scheduled COD of the Project.

b. The Quoted Transmission Charges as per the format at Annexure-21 shall be inclusive of all charges and no exclusions shall be allowed. The Bidders shall take into account all costs including capital and operating, statutory taxes, duties, levies. Availability of the inputs necessary for operation and maintenance of the Project should be ensured by the TSP at the Project site and all costs involved in procuring the inputs (including statutory taxes, duties, levies thereof) at the Project site must be included in the Quoted Transmission Charges.

c. Annexure 21 duly digitally signed by authorized signatory.

2.5.4 Wherever information has been sought in specified formats, the Bidders shall fill in the details as per the prescribed formats and shall refrain from referring to any other document for providing any information required in the prescribed format.

2.5.5 Transmission Charges

2.5.5.1. The Transmission Charges shall be specified in the Transmission Service Agreement and shall be payable to the TSP in Indian Rupees only. The Bidders shall quote single Transmission Charges as per the format at Annexure – 21.

2.5.5.2. The Transmission Charges of the Selected Bidder shall be inserted in Schedule 5 of the Transmission Service Agreement.

2.5.6 Bidders may note that:

a) All the information and documents in Bid shall be submitted in English language only.

b) Bidders shall mention the name, designation, telephone number, fax number, email address of the authorized signatory and complete address of the Bidder in the covering letter.

c) All pages of the Bid submitted shall be initialed and stamped by the authorized signatory on behalf of the Bidder.

d) A Bidder shall submit only one Bid in the same bidding process, either individually as Bidding Company or as a Member of a Bidding Consortium.

e) The technical and financial capability of a particular company / particular project (Parent and/ or Affiliate) shall not be used directly or indirectly by more than one Bidder/ Member of a Bidding Consortium including Lead Member / Bidding Company.

f) This Request for Proposal (RFP) document is not transferable. The RFP document and the information contained therein is for the use only by the Bidder to whom it is issued. It may not be copied or distributed by the recipient to third parties (other than in confidence to the recipient's professional advisors). In the event that the recipient does not continue with its involvement in the Project, this RFP document must be kept confidential.

g) Though adequate care has been taken while preparing this RFP document, the Bidder shall satisfy himself that the document is complete in all respects. Intimation of any discrepancy shall be given to the BPC immediately. If no intimation is received from any Bidder within ten (10) days from the date of issue of RFP document, it shall be considered that the RFP document is complete in all respects and has been received by the Bidder.

h) Bids submitted by the Bidder and opened on scheduled date and time as stipulated in this RFP shall become the property of the BPC and BPC shall have no obligation to return the same to the Bidder.

i) If any Bidder conceals any material information or makes a wrong statement or misrepresents facts or makes a misleading statement in its Bid, in any manner whatsoever, the BPC reserves the right to reject such Bid or cancel the Letter of Intent, if issued. If such event is discovered after the Effective Date, consequences specified in Transmission Service Agreement shall apply.

j) If for any reason the Bid of the Bidder with the lowest Quoted Transmission Charges is not selected or Letter of Intent issued to such Selected Bidder is cancelled or such Bidder withdraws its Bids, the BPC may:-

   i. Invite all the remaining Bidders to revalidate or extend their respective Bid Security, as necessary, and match the Bid of the Bidder with the lowest Quoted Transmission Charges (the "second round of bidding") with following cases:

      - If in the second round of bidding, only one Bidder matches the Bid of the Bidder with lowest Quoted Transmission Charges, it shall be the Selected Bidder.

      - If two or more Bidders match the Bid of the Bidder with the lowest Quoted Transmission Charges in the second round of bidding, then the Bidder whose Quoted Transmission Charges was lower as compared to other Bidder(s) in the first round of bidding shall be the Selected Bidder. For example, if the third and fifth lowest Bidders in the first round of bidding offer to match the Bid of the Bidder with lowest Quoted Transmission Charges in the second round of bidding, the said third lowest Bidder shall be the Successful Bidder.

      - In the event that no Bidder offers to match the Bid of the Bidder with the lowest Quoted Transmission Charges in the second round of bidding, the BPC may, in its discretion, invite fresh Bids (the "third round of bidding") from all Bidders

except the Bidder which quoted the lowest Quoted Transmission Charges in the first round of bidding. In case the Bidders are invited for the third round of bidding to revalidate or extend their Bid Security, as necessary, and offer fresh Bids, they shall be eligible for submission of fresh Bids provided, however, that in such third round of bidding only such Bids shall be eligible for consideration which are lower than the Quoted Transmission Charges of the second lowest Bidder in the first round of bidding; or;

ii. Annul the bid process; or

iii. Take any such measure as may be deemed fit in the sole discretion of the BPC[1]

k) The BPC may, at its sole discretion, ask for additional information / document and/or seek clarifications from a Bidder after the Bid Deadline, inter alia, for the purposes of removal of inconsistencies or infirmities in its Bid. However, no change in the substance of the Quoted Transmission Charges shall be sought or permitted by the BPC.

l) Non submission and/or submission of incomplete data/ information required under the provisions of RFP shall not be construed as waiver on the part of BPC of the obligation of the Bidder to furnish the said data / information unless the waiver is in writing.

m) Bidders shall familiarize itself with the procedures and time frames required to obtain all Consents, Clearances and Permits.

n) All Bidders are required to ensure compliance with the standards and codes mentioned in Clause 1.6.1.2.

o) BPC reserves the right to reject all Bids and/or annul the process of tariff based competitive bidding for selection of Bidder as TSP to execute the Project without assigning any reason. BPC shall not bear any liability, whatsoever, in this regard.

p) Foreign companies submitting the Bid are required to follow the applicable law in their country for execution of POA, Consortium Agreement and affixation of Common Seal (wherever required) and in such cases, their Bid should be supported by an unqualified opinion issued by an independent legal counsel practicing in the relevant country, stating that execution of such POA, Consortium Agreement and the authorizations granted therein are true and valid. Foreign companies executing POA outside India shall necessarily pay the adequate stamp charges in India as per the provisions of Stamp Act.

2.5.7 Bidders to inform themselves fully

2.5.7.1. The Bidders shall make independent enquiry and satisfy themselves with respect to all the required information, inputs, conditions and circumstances and factors that may have any effect on his Bid. Once the Bidders have submitted their Bids, the Bidders shall be deemed to have inspected and examined the site conditions (including but not limited to its surroundings, its geological condition and the adequacy of transport facilities to the site), the laws and regulations in force in India, the transportation facilities available in India, the grid conditions, the adequacy and conditions of roads, bridges, railway sidings,

[1] **BPC shall record reasons for the same.**

ports, etc. for unloading and/or transporting heavy pieces of material and has based its design, equipment size and fixed its price taking into account all such relevant conditions and also the risks, contingencies and other circumstances which may influence or affect the transmission of power. Accordingly, each Bidder acknowledges that, on being selected as Successful Bidder and on acquisition of one hundred percent (100%) of the equity shares of the Ryapte Power Transmission Limited, the TSP shall not be relieved from any of its obligations under the RFP Project Documents nor shall the TSP be entitled to any extension in Scheduled COD mentioned in this RFP or financial compensation for any reason whatsoever.

2.5.7.2. In their own interest, the Bidders are requested to familiarize themselves with all relevant laws of India, including without limitation, the Electricity Act 2003, the Income Tax Act 1961, the Companies Act, 1956 / Companies Act, 2013 (as the case may be), Environment Protection Act 1986 and Forest (Conservation) Act, 1980, the Customs Act, the Foreign Exchange Management Act, Land Acquisition Act, 1894, the Indian Telegraph Act 1885, Labor & Employment Laws of India, [Insurance Act] the regulations/standards framed by the Central Commission, State Commission and CEA, all other related acts, laws, rules and regulations prevalent in India, as amended from time to time.

In addition to the above, the Bidders are required to familiarize themselves with all relevant technical codes and standards, including but not limited to the Grid Code / State Grid Code, Central Electricity Authority (Installation and Operations of Meters) Regulations, 2006, Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007, KERC (Multi Year Transmission, Distribution and Retail Supply Tariff) Regulations 2024, Central Electricity Regulatory Commission (Grant of Connectivity, Long-term Access and Medium-Term Open Access in Inter-State Transmission and related matters) Regulations, 2009, KERC (Term and Conditions for Open Access) Regulations 2025, Central Electricity Authority (Technical Standards for construction of Electrical Plants and Electric Lines) Regulation, 2010, Central Electricity Authority (Technical Standards for Communication System in Power System Operation) Regulations, 2020 and other relevant Rules/ Regulations/ Guidelines issued by the Central Government, State Government, Central Commission, State Commission and the CEA and amendments thereof.

The BPC shall not entertain any request for clarifications from the Bidders regarding the above laws / acts / rules / regulations / standards. Non-awareness of the same shall not be a reason for the Bidder to request for extension in Bid Deadline. The Bidders undertake and agree that, before submission of their Bid, all such factors as generally brought out above, have been fully investigated and considered while submitting their Bids.

2.5.7.3. The Survey Report has been prepared in good faith, and on best endeavor basis. Neither BPC & Nodal Agency nor their employees or advisors/consultants make any representation or warranty, express or implied, or accept any responsibility or liability, whatsoever, in respect of any statements or omissions made in the Survey Report, or the accuracy, completeness or reliability of information contained therein, and shall incur no liability under any law, statute, rules or regulations as to the accuracy, reliability or completeness of such Survey Report, even if any loss or damage is caused to the Bidders by any act or omission on their part.

2.5.7.4. Bidders shall make best efforts and carry out its own due diligence upon survey report

provided by BPC and shall consider all possible techno-commercial factors before submission of Bid. Bidders may also visit the route of the Transmission Lines associated with the Project and the surrounding areas and obtain / verify all information which they deem fit and necessary for the preparation of their Bid. Bidders may also carry out required surveys and field investigation for submission of their Bid. Bidders may also opt for any other route and is not bound to follow the route suggested in survey report provided by BPC.

2.5.7.5. Failure to investigate, examine and to inspect site or subsurface conditions fully shall not be grounds for a Bidder to alter its Bid after the Bid Deadline nor shall it relieve a Bidder from any responsibility for appropriately eliminating the difficulty or costs of successfully completing the Project.

2.5.7.6. The Selected Bidder shall obtain all necessary Consents, Clearances and Permits as required. The Bidders shall familiarize itself with the procedures and time frame required to obtain such Consents, Clearances and Permits.

2.5.7.7. The technical requirements of integrated grid operation are specified in the Indian Electricity Grid Code (IEGC))/ State Grid Code. The Bidders should particularly acquaint themselves with the requirements of connection conditions, operating code for regional grids, scheduling and dispatch instructions/codes, etc. The Bidders are also advised to fully familiarize themselves with the real time grid conditions in the country. Information regarding grid parameters such as voltage and frequency is available on the websites of Regional / State Load Despatch Centers.

2.5.8 Minimum Equity holding/Equity Lock-in

2.5.8.1. (a) The aggregate equity share holding of the Selected Bidder, in the issued and paid up equity share capital of Ryapte Power Transmission Limited shall not be less than Fifty one percent (51%) up to a period of (1) one year after COD of the Project;

(b) In case the Selected Bidder is a Bidding Consortium, then any Member (other than the Lead Member) of such Bidding Consortium shall be allowed to divest its equity as long as the other remaining Members (which shall always include the Lead Member) hold the minimum equity specified in (a) above.

(c) If equity is held by the Affiliates, Parent Company or Ultimate Parent Company, then subject to the second proviso of this Clause 2.5.8.1 (c), such Affiliate, Parent Company or Ultimate Parent Company shall be permitted to transfer its shareholding in Ryapte Power Transmission Limited to another Affiliate or to the Parent Company / Ultimate Parent Company. If any such shareholding entity, qualifying as an Affiliate / Parent Company / Ultimate Parent Company, is likely to cease to meet the criteria to qualify as an Affiliate / Parent Company / Ultimate Parent Company, the shares held by such entity shall be transferred to another Affiliate / Parent Company / Ultimate Parent Company.

Provided that in case the Lead Member or Bidding Company is holding equity through Affiliate/s, Ultimate Parent Company or Parent Company, such restriction shall apply to such entities.

Provided further, that the aggregate equity share holding of the Bidding Consortium or a Bidding Company in the issued and paid up equity share capital of Ryapte Power

Transmission Limited shall not be less than fifty one percent (51%) up to a period of one (1) year after COD of the Project and the lead Member of the Consortium shall have the equity share holding not less than twenty six percent (26%). In case the Selected Bidder is a Bidding Consortium, then any Member (other than the Lead Member) of such Bidding Consortium shall be allowed to divest its equity as long as the other remaining Members (which shall always include the Lead Member) hold the minimum equity specified in (a) above.

(d) All transfer(s) of shareholding of Ryapte Power Transmission Limited by any of the entities referred to above, shall be after prior written intimation to the Nodal Agency.

2.5.8.2. The Selected Bidder may invest in the equity share capital of Ryapte Power Transmission Limited through its Affiliate(s) or Ultimate Parent Company or Parent Company. Details of such investment will have to be specified in the Technical Bid as per Format 2 of Annexure 8 of the RFP. If the Selected Bidder so invests through any Affiliate(s) or Ultimate Parent Company or Parent Company, the Selected Bidder shall be liable to ensure that minimum equity holding/lock-in limits specified in Clause 2.5.8.1 and as computed as per the provisions of Clause 2.5.8.3 are still maintained.

2.5.8.3. For computation of effective Equity holding, the Equity holding of the Selected Bidder or its Ultimate Parent Company in such Affiliate(s) or Parent Company and the equity holding of such Affiliate (s) or Ultimate Parent Company in Ryapte Power Transmission Limited shall be computed in accordance with the example given below:

If the Parent Company or the Ultimate Parent Company of the Selected Bidder A directly holds thirty percent (30%) of the equity in Ryapte Power Transmission Limited then holding of Selected Bidder A in Ryapte Power Transmission Limited shall be thirty percent (30%);

If Selected Bidder A holds thirty percent (30%) equity of the Affiliate and the Affiliate holds fifty percent (50%) equity in Ryapte Power Transmission Limited, then for the purposes of ascertaining the minimum equity/equity lock-in requirements specified above, the effective holding of Bidder A in Ryapte Power Transmission Limited shall be fifteen percent (15%), (i.e., 30%* 50%);

2.5.8.4. The provisions as contained in this Clause 2.5.8 and Article 19.1 of the Transmission Service Agreement shall override the terms of the Consortium Agreement submitted by the Bidder as part of the RFP.

2.6 Project Schedule

2.6.1. All Elements of the Project are required to be commissioned progressively as per the schedule given in the following table;

Sl. No.	Name of the Transmission Element	Scheduled COD	Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project	Element(s) which are pre-required for declaring the commercial operation (COD) of the respective Element
1.	Establishment of 5x500 MVA, 400/220 kV S/s at Ryapte in Tumkur District along with 2x125MVAr 400 kV Bus Reactors • 400/220 kV ICTs: 5 Nos. (5x500 MVA) • 400 kV ICT Bays: 5 Nos. • 400 kV Line bays (along with space provision for switchable line reactors) : 2 Nos. • 125 MVAr, 420 kV Bus reactor – 2 Nos. • 400 kV Bus reactor bay: 2 Nos • 220 kV ICT Bays: 5 Nos • 220 KV line Bay - 8 No. • 220 kV TBC bay – 2 No. • 220 kV BC bay – 2 No • 220 kV Sectionalization bay: 1 set • 400 kv Bus PT bay- 2 Nos • 220 kv Bus PT bay- 4 Nos Space For Future Provision: • 400/220 KV ICTs - 5 Nos. • 400 KV ICT bay – 5 Nos. • 400 kV Bus Reactor: 3 Nos • 400 kV Bus Reactor bays : 3 Nos • 220 kV ICT Bays: 5 Nos • 220 Kv line bays – 8 Nos • 400 kV Line bays (along with space provision for switchable line reactors) : 4 Nos.	30 months from Effective date	100%	All elements of scheme are required to be commissioned simultaneously as their utilization is dependent on each other.

Sl. No.	Name of the Transmission Element	Scheduled COD	Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project	Element(s) which are pre-required for declaring the commercial operation (COD) of the respective Element
2.	400kV DC line (Quad moose conductor) from Prop. 400/220 kV Ryapte Sub-station to Prop. 400/220 kV Doddathaggalli S/s.			
3.	Establishing 3X500 MVA, 400/220kV GIS sub-station at Doddathaggalli (Near Hosakote) along with 2x125 MVAr, 400 kV Bus Reactors. • 400/220 kV ICTs: 3 no. • 400 kV ICT Bays: 3 Nos • 400 kV Line bays : 4 Nos • 125 MVAr, 420 kV Bus reactor – 2 No • 400 kV Bus reactor bay: 2 Nos • 220 kV ICT Bays: 3 Nos • **220 kV Line bays: 6 Nos.** • 220 kV BC bay – 1 No • 400 kv Bus PT bay- 2 Nos • 220 kv Bus PT bay- 2 Nos Future Provision: • 400 kV line bays – 4 Nos. • 400/220 kV ICTs - 2 Nos. • 400 kV ICT bays - 2 Nos • 400 kV Bus Reactor: 2 Nos. • 400 kV Bus Reactor bays: 2 Nos. • 220 kV ICT Bays: 2 Nos • 220 kV Line bays: 4 Nos			
4.	**400kV DC line (Quad moose conductor) from Kolar S/s to Prop. 400/220 kV Doddathaggalli Sub-station with following works at Kolar**			

Sl. No.	Name of the Transmission Element	Scheduled COD	Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project	Element(s) which are pre-required for declaring the commercial operation (COD) of the respective Element
	S/s:- ***One circuit of Kolar – Doddataggalli 400kV (quad) D/c line may be terminated in existing vacant bay no. 415 at Kolar S/s. Other circuit may be terminated in new GIS diameter with 2-CB scheme. This option requires following main elements:*** • ***Termination of one circuit in the spare 400kV AIS bay no. 415 by providing required bay equipment to complete the 400kV Dia (413.414 and 415 bays)*** • ***Construction of 2 nos. 400kV outdoor GIS bays in 2 CB configuration for termination of other circuit*** • ***Extension of 400kV Main Bus-I and II through GIB duct to proposed 400kV outdoor GIS bays with AIS isolators*** • ***Dismantling and re-erection of one no. LM ,if required*** **Further, any requirement suggested by substation owners shall be followed as per site condition.**			
5.	**220kV DC line with Single Zebra and partial 2 runs of 1200 Sq.mm UG cable**			

Sl. No.	Name of the Transmission Element	Scheduled COD	Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project	Element(s) which are pre-required for declaring the commercial operation (COD) of the respective Element
	(based on field conditions) from proposed 400/220 kV Doddathagalli sub-station to 220kV Ekarajapura sub-station with 2 No.s of AIS TB at Ekarajapura S/s with rearrangement/Shifting of existing Bus PT bay **Note: The Tower design shall be suitable for TWIN Zebra.**			
6.	**220kV DC line with partial AAAC Moose and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions)**, from proposed 400/220 kV Doddathagalli sub-station to proposed 220kV Hosakote New sub-station.			
7.	**220kV DC line with Single Zebra and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions)** from proposed 400/220kV Doddathagalli to Sarjapura AIS S/s with 2 No.s of outdoor GIS TB at Sarjapura S/s by extending existing AIS bus bar along with AIS isolator **Note: The Tower design shall be suitable for TWIN Zebra.**			

The payment of Transmission Charges for any Element irrespective of its successful commissioning on or before its Scheduled COD shall only be considered after successful commissioning of the Element(s) which are pre-required for declaring the commercial operation of such Element as mentioned in the above table.

Scheduled COD for overall Project: 30 months from Effective date.

2.7 Due dates

2.7.1. The Bidders should submit the Bids online through the electronic bidding platform before the Bid Deadline i.e. on or before 1500 hours (IST) on 06.04.2026. In addition to the online submission, the Bidder with lowest Final Offer will be required to submit original hard copies of Annexure 3, Annexure 4 (if applicable), Annexure 6 (if applicable) and Annexure 14/14A/14B before issuance of LoI.

2.7.2. Important timelines are mentioned below:

Date	Event
07.03.2026	Issuance of RFP
06.04.2026	Submission of Bid (Online submission of Bid through electronic bidding portal)
06.04.2026	Opening of Technical Bid
08.04.2026	Shortlisting and announcement of Qualified Bidders on bidding portal
09.04.2026	Opening of Financial Bid - Initial Offer
10.04.2026	Electronic reverse auction (Financial Bid – Final Offer) for the Qualified Bidders.
14.04.2026	Submission of original hard copies of Annexure 3, Annexure 4, Annexure 6, as applicable and Annexure 14/14A/14B by the bidder with lowest Final Offer
17.04.2026	Selection of Successful Bidder and issue of LOI
27.04.2026	Signing of RFP Project Documents and transfer of Ryapte Power Transmission Limited

2.7.3. To enable BPC to meet the schedule, all Bidders are expected to respond expeditiously during the bidding process. If any milestone/activity falls on a day which is not a working day or which is a public holiday then the milestone/activity shall be achieved/ completed on the next working day.

2.8 Validity of the Bid

2.8.1. The Bid shall remain valid for a period of one hundred and eighty (180) days from the Bid Deadline. The BPC reserves the right to reject any Bid which does not meet aforementioned validity requirement.

2.8.2. The BPC may solicit the Bidders' consent for an extension of the period of validity of the Bid. The request and the response, thereafter, shall be in writing. In the event any Bidder refuses to extend its Bid validity as requested by the BPC, the BPC shall not be entitled to invoke the Bid Bond. A Bidder accepting the BPC's request for validity extension shall not be permitted to modify its Bid and such Bidder shall, accordingly, extend the validity of the Bid Bond as requested by the BPC within seven (7) days of such request, failing which the Bid shall not be considered as valid.

2.9 Method of Submission

2.9.1. Both the Technical and Financial Bids duly filled in, all formats and supporting shall be scanned and uploaded online through electronic bidding platform in the manner specified in Annexure A

2.9.2. It may be noted that Technical Bid shall not contain any information/document relating to Financial Bid. If Technical Bid contains any such information/documents, the BPC shall not be responsible for premature opening of the Financial Bid.

All pages of the Bid, except for the Bid Bond (Annexure 14/14A/14B) and any other document executed on non-judicial stamp paper, forming part of the Bid and corrections in the Bid, if any, must be signed by the authorized signatory on behalf of the Bidder. It is clarified that the same authorized signatory shall sign all pages of the Bid. However, any published document submitted in this regard shall be signed by the authorized signatory at least on the first and last page of such document.

2.9.3. No change or supplemental information to a Bid already submitted will be accepted after the Bid Deadline, unless the same is requested for by the BPC as per Clause 2.5.6 (k).

Provided that a Bidder shall always have the right to withdraw / modify its Bid before the Bid Deadline. No Technical Bid or Initial Offer shall be modified, substituted or withdrawn by the Bidder on or after the Bid Deadline.

2.10 Preparation cost

2.10.1. The Bidders shall be responsible for all the costs associated with the preparation of the Bid and participation in discussions and attending pre-bid meetings, and finalization and execution of the RFP Project Documents (other than the TSA), etc. BPC shall not be responsible in any way for such costs, regardless of the conduct or outcome of the process of tariff based competitive bidding for selection of Bidder as TSP as per Bidding Guidelines.

2.10.2. The cost of this RFP is Rupees Five Lakh Only (Rs. 5,00,000) or U.S. Dollar Seven Thousand Only (US$ 7,000) plus GST as per applicable rate, which shall be non-refundable. This amount shall be paid via electronic transfer to the following Bank Account:

Bank Name, Address & Branch	ICICI Bank 9A, Phelps Building, Inner Circle, Connaught Place, New Delhi-110001
Bank Account Name	REC Power Development & Consultancy Limited
Bank Account No	000705041275
Bank IFSC Code No	ICIC0000007

Immediately after issuance of RFP document, the Bidder shall submit the Pre-Award Integrity Pact in the format as prescribed in Annexure B, which shall be applicable for and during the bidding process, duly signed on each page by any whole-time Director / Authorized Signatory, duly witnessed by two persons, and shall be submitted by the Bidder in two (2) originals in a separate envelope, duly superscripted with Pre-Award Integrity Pact. The Bidder shall submit the Pre-Award Integrity Pact on non-judicial stamp paper of Rs. 100/- each duly purchased from the National Capital Territory of Delhi. In case the Bidder is in a consortium, the Pre-Award Integrity Pact shall be signed and submitted by each member of the Consortium separately.

2.11 Bid Bond

2.11.1. Each Bidder shall submit the Bid accompanied by Bid Bond issued by any of the Banks listed in Annexure-17. The Bid Bond shall be valid for a period of thirty (30) days beyond the validity of the Bid.

2.11.2. Subject to the provisions of Clause 2.15.5, the Bid Bond may be invoked by the BPC or its

authorized representative, without any notice, demure, or any other legal process upon occurrence of any of the following:

- Bidder withdraws during the period of Bid Validity as specified in this RFP or as extended by mutual consent of the respective Bidder(s) and the BPC
- Failure to execute the Share Purchase Agreement as per the provisions of Clause 2.15.2; or
- Failure to furnish the Contract Performance Guarantee as per Clause 2.12; or
- Failure to acquire one hundred percent (100%) equity shares of Ryapte Power Transmission Limited, along with all its related assets and liabilities, in accordance with the provisions of Clause 2.15.2; or
- Failure to comply with the provisions of Clause 2.15.5 and Clause 2.15.6, leading to annulment of the award of the Project.
- Bidders submitting any wrong information or making any misrepresentation in their Bid as mentioned in Clause 2.5.6.

Intimation of the reasons of the invocation of the Bid Bond shall be given to the Selected Bidder by the BPC within three (3) working days after such invocation.

2.11.3. The Bid Bond of the Selected Bidder shall be returned on submission of the Contract Performance Guarantee as per Clause 2.12 and the relevant provisions of the Transmission Service Agreement.

2.11.4. The Bid Bond of all the Bidders, whose Bids are declared non-responsive, shall be returned within a period of thirty (30) days after the date on which the Financial Bids are opened.

2.11.5. The Bid Bond of all unsuccessful Bidders shall be returned and released by the BPC on the same day on which the Ryapte Power Transmission Limited is transferred to the Selected Bidder. The Bid Bond of the Successful Bidder shall be returned on submission of Contract Performance Guarantee as per Clause 2.12 of this RFP and the provisions of the Transmission Service Agreement.

2.12 Contract Performance Guarantee

2.12.1. Within ten (10) days from the date of issue of the Letter of Intent, the Selected Bidder, on behalf of the TSP, will provide to the Nodal Agency the Contract Performance Guarantee for an amount of Rs. 52.33 Crores (Rupees Fifty Two Crore and Thirty Three Lakh Only). The Contract Performance Guarantee shall be initially valid for a period up to three (3) months after the Scheduled COD of the Project and shall be extended from time to time to be valid for a period up to three (3) months after the COD of the Project and thereafter shall be dealt with in accordance with the provisions of the Transmission Service Agreement. The Contract Performance Guarantee shall be issued by any of the banks listed in Annexure-17 as per format given at Annexure-15 or any of the insurance companies authorized by Insurance Regulatory and Development Authority of India as per format given at Annexure-15 A or PFC/ REC/ IREDA as per Payment on Order Instrument format given at Annexure-15 B.

2.12.2. In case the Selected Bidder is unable to obtain the Contract Performance Guarantee for the total amount from any one bank specified in Annexure-17, the Selected Bidder may obtain the same from not more than three (3) banks specified in Annexure-17.

2.13 Opening of Bids

2.13.1. Technical Bid will be opened by the Bid Opening Committee as per the following time schedule and in the office of KPTCL (STU), in the online presence of Bidders' representatives who wish to attend:

Opening of Envelope (Technical Bid): 1530 hours (IST) on 06.04.2026.

or such other dates as may be intimated by BPC to the Bidders.

In the event of any of above dates falling on a day which is not a working day or which is a public holiday, then the bids shall be opened on the next working day at the same venue and time.

Opening of Initial Offer: Initial Offer shall be opened by the Bid Opening Committee in presence of the Bid Evaluation Committee at 1530 hours (IST) on 09.04.2026 in the office of KPTCL (STU).

2.13.2. The following information from each Bid will be read out to all the Bidders at the time of opening of Technical Bid:

- Name of the Bidding Company / Consortium Members in case of Bidding Consortium.

Information to be provided after opening of Initial Offer:

Only the lowest Initial Offer (s) shall be communicated to all the Qualified Bidders to participate in the e-reverse bidding process. During the e-reverse bidding process only the lowest prevailing bid should be visible to all the bidders on the electronic platform.

2.14 Enquiries

Written clarifications on the RFP and other RFP Project Documents as per Clause 2.3 and 2.4 may be sought from:

Chief Executive Officer,
REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited)
REC Corporate Head Quarter,
D Block, Plot No. I – 4,
Sec – 29 Gurugram – 122 001
Email: vijay.kulkarni@recpdcl.in & tbcb@recpdcl.in

2.15 Other Aspects

2.15.1. The draft of the Transmission Service Agreement has been attached to this RFP. In addition to above, the following documents have also been attached to this RFP:

a) Share Purchase Agreement

When the drafts of the above RFP Project Documents are provided by the BPC, these RFP Project Documents shall form part of this RFP as per Formats – 1 & 2 of Annexure 20.

Upon finalization of the RFP Project Documents after incorporating the amendments envisaged in Clause 2.4 of this RFP, all the finalized RFP Project Documents shall be provided by BPC to the Bidders at least fifteen (15) days prior to the Bid Deadline.

The Transmission Service Agreement and Share Purchase Agreement shall be signed in required number of originals so as to ensure that one (1) original is retained by each party to the Agreement(s) on the date of transfer of SPV.

2.15.2. Within ten (10) days of the issue of the Letter of Intent, the Selected Bidder shall:

a) provide the Contract Performance Guarantee in favour of the Nodal Agency as per the provisions of Clause 2.12;

b) execute the Share Purchase Agreement and the Transmission Service Agreement;

c) acquire, for the Acquisition Price, one hundred percent (100%) equity shareholding of Ryapte Power Transmission Limited from REC Power Development and Consultancy Limited, who shall sell to the Selected Bidder, the equity shareholding of Ryapte Power Transmission Limited, along with all its related assets and liabilities;

Stamp duties payable on purchase of one hundred percent (100%) of the equity shareholding of Ryapte Power Transmission Limited, along with all its related assets and liabilities, shall also be borne by the Selected Bidder.

Provided further that, if for any reason attributable to the BPC, the above activities are not completed by the Selected Bidder within the above period of ten (10) days as mentioned in this Clause, such period of ten (10) days shall be extended, on a day for day basis till the end of the Bid validity period.

2.15.3. After the date of acquisition of the equity shareholding of Ryapte Power Transmission Limited, along with all its related assets and liabilities, by the Selected Bidder,

i. the authority of the BPC in respect of this Bid Process shall forthwith cease and any actions to be taken thereafter will be undertaken by the Nodal Agency,

ii. all rights and obligations of Ryapte Power Transmission Limited, shall be of the TSP,

iii. any decisions taken by the BPC prior to the Effective Date shall continue to be binding on the Nodal Agency and

iv. contractual obligations undertaken by the BPC shall continue to be fulfilled by the TSP.

v. Further, the TSP shall execute the Agreement(s) required, if any, under relevant KERC Regulations as amended from time to time.

2.15.4. Within five (5) working days of the issue of the acquisition of the SPV by the Successful Bidder, the TSP shall apply to the State Commission for grant of Transmission License and make an application to the State Commission for the adoption of Transmission Charges, as required under Section – 63 of The Electricity Act 2003.

2.15.5. If the Selected Bidder / TSP fails or refuses to comply with any of its obligations under Clauses 2.15.2, 2.15.3 and 2.15.4, and provided that the other parties are willing to execute the Share Purchase Agreement and REC Power Development and Consultancy Limited is willing to sell the entire equity shareholding of Ryapte Power Transmission Limited, along with all its related assets and liabilities, to the Selected Bidder, such failure or refusal on the part of the Selected Bidder shall constitute sufficient grounds for cancellation of the Letter of Intent. In such cases, the BPC / its authorized representative(s) shall be entitled to invoke the Bid Bond of the Selected Bidder.

2.15.6. If the TSP fails to obtain the Transmission License from the State Commission, it will constitute sufficient grounds for annulment of award of the Project.

2.15.7. The annulment of award, as provided in Clauses 2.15.5 and 2.15.6 of this RFP, will be done by the State Government on the recommendations of State Empowered Committee on Transmission. However, before recommending so, State Empowered Committee on Transmission will give an opportunity to the Selected Bidder / TSP to present their view point.

2.15.8. The annulment of the award, under Clause 2.15.5 or 2.15.6 of this RFP, shall be sufficient grounds for blacklisting the bidder, whose award has been annulled, for a period of five years or more, as decided by the State Empowered Committee on Transmission , provided that the blacklisting shall be done only after giving the bidder an opportunity for showing cause.

2.16 Confidentiality

2.16.1. The parties undertake to hold in confidence this RFP and RFP Project Documents and not to disclose the terms and conditions of the transaction contemplated hereby to third parties, except:

a) to their professional advisors;

b) to their officers, contractors, employees, agents or representatives, financiers, who need to have access to such information for the proper performance of their activities;

c) disclosures required under Law, without the prior written consent of the other parties of the concerned agreements.

Provided that the TSP agrees and acknowledges that Nodal Agency may at any time, disclose the terms and conditions of the RFP and RFP Project Documents to any person, to the extent stipulated under the Law or the Bidding Guidelines.

2.17 Right of the BPC to reject any Bid

BPC reserves the right to reject all or any of the Bids/ or cancel the RFP without assigning any reasons whatsoever and without any liability.

2.18 Non submission and/or submission of incomplete data/ information required under the provisions of RFP shall not be construed as waiver on the part of BPC of the obligation of the Bidder to furnish the said data / information unless the waiver is in writing.

2.19 Fraudulent and Corrupt Practices

2.19.1. The Bidders and their respective officers, employees, agents and advisers shall observe the highest standard of ethics during the Bid process and subsequent to the issue of the LoI Notwithstanding anything to the contrary contained herein, or in the LoI, the BPC shall reject a Bid, withdraw the LoI, as the case may be, without being liable in any manner whatsoever to the Bidder, if it determines that the Bidder has, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice in the Bid process. In such an event, the BPC shall forfeit the Bid Bond, without prejudice to any other right or remedy that may be available to the BPC hereunder or otherwise.

2.19.2. Without prejudice to the rights of the BPC under Clause 2.19.1 hereinabove and the rights and remedies which the BPC may have under the LoI, if a Bidder is found by the BPC to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice during the Bid process, or after the issue of the LoI, such Bidder & its Affiliates shall not be eligible to participate in any tender or RFP issued by any BPC for an indefinite period from the date such Bidder is found by the BPC to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practices, as the case may be.

2.19.3. For the purposes of this Clause 2.19, the following terms shall have the meaning hereinafter respectively assigned to them:

a) **"corrupt practice"** means (i) the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the actions of any person connected with the Bid process (for avoidance of doubt, offering of employment to or employing or engaging in any manner whatsoever, directly or indirectly, any official of the BPC who is or has been associated or dealt in any manner, directly or indirectly with the Bid process or the LoI or has dealt with matters concerning the Transmission Service Agreement or arising there from, before or after the execution thereof, at any time prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of the BPC, shall be deemed to constitute influencing the actions of a person connected with the Bid Process); or (ii) engaging in any manner whatsoever, whether during the Bid Process or after the issue of the LoI or after the execution of the Transmission Service Agreement, as the case may be, any person in respect of any matter relating

to the Project or the LoI or the Transmission Service Agreement, who at any time has been or is a legal, financial or technical adviser of the BPC in relation to any matter concerning the Project;

b) **"Fraudulent practice"** means a misrepresentation or omission of facts or suppression of facts or disclosure of incomplete facts, in order to influence the Bid process;

c) **"Coercive practice"** means impairing or harming, or threatening to impair or harm, directly or indirectly, any person or property to influence any person's participation or action in the Bid process;

d) **"undesirable practice"** means (i) establishing contact with any person connected with or employed or engaged by the BPC with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the Bid process; or (ii) having a Conflict of Interest; and

e) **"Restrictive practice"** means forming a cartel or arriving at any understanding or arrangement among Bidders with the objective of restricting or manipulating a full and fair competition in the Bid process.

SECTION - 3

EVALUATION OF THE TECHNICAL AND FINANCIAL BID

SECTION 3

1. EVALUATION OF BID

3.1. The evaluation process of Technical Bid comprises the following five steps:

Step I – Responsiveness check
Step II- Compliance with submission requirements
Step III– Evaluation of Technical Bids
Step IV– Evaluation of Financial Bids
Step V – Bidder Selection

3.2. STEP I – Responsiveness check

The Technical Bid submitted by the Bidder shall be initially scrutinized to establish "Responsiveness". Subject to clause 2.5.6 (k), any of the following conditions shall cause the Technical Bid to be "Non-responsive":

a) Technical Bid that are incomplete.

b) Technical Bid not signed by authorized signatory and / or stamped in the manner indicated in this RFP.

c) All pages of the Technical Bid submitted but not initialed by the authorized signatories on behalf of the Bidder.

d) Technical Bid not including the covering letter as per Annexure 1.

e) Technical Bid submitted by a Bidding Consortium not including the Consortium Agreement.

f) Technical Bid contains material inconsistencies in the information and documents submitted by the Bidder, affecting the Qualification Requirements.

g) Bidder submitting or participating in more than one Bid either as a Bidding Company or as a Member of Bidding Consortium.

h) More than one Member of the Bidding Consortium or a Bidding Company using the credentials of the same Parent/Affiliate.

i) Information not submitted in formats specified in the RFP.

j) Applicable Board resolutions, or any other document, as provided in Clause 2.5.2, not being submitted;

k) Bid not accompanied by a valid Bid Bond;

l) Non submission of power of attorney, supported by a Board resolution;

m) Bid validity being less than that required as per Clause 2.8 of this RFP;

n) Bid not containing Format-1 (Bidders' Undertakings) of Annexure-8;

o) Bidder having Conflict of Interest

p) The Bidder has not submitted a disclosure as per Annexure 13.

q) Bidders delaying in submission of additional information or clarifications sought by the BPC.

r) If the Bidder makes any misrepresentation as specified in Clause 3.7.

s) Bid being conditional in nature.

t) More than one Member of the Bidding Consortium or a Bidding Company using the credentials of the same Parent/Affiliate.

3.3. STEP II - Compliance with submission requirements

Each Bidder's Technical Bid shall be checked for compliance with the submission requirements set forth in this RFP before the evaluation of Technical Bid is taken up. Annexure 16 and Annexure 11A shall be used to check whether each Bidder meets the stipulated requirements.

3.4. STEP III -Evaluation of Technical Bid

Evaluation of Technical Bid will be carried out considering the information and documents furnished by the Bidders as required under this RFP. This step would involve technical and financial evaluation of the details/ documents furnished by the Bidding Company / Bidding Consortium in support of meeting the Qualification Requirements

3.4.1. Interpolation of financial data.

For the Qualification Requirements data provided by the Bidders in foreign currency, equivalent rupees of Networth will be calculated using bills selling exchange rates (card rate) USD/INR of State Bank of India prevailing on the date of closing of the accounts for the respective financial year as certified by their Banker.

For the purpose of calculating the aggregate capital expenditure/construction experience of the projects completed/ commissioned where such projects are executed outside India and capital expenditure is denominated in foreign currency, bills selling exchange rates (card rate) USD/INR of State Bank of India prevailing on the date of closing of the financial year in which the projects were completed and as certified by their Banker shall be considered.

For the projects executed in the current financial year bills selling (card rate) USD/INR of State Bank of India prevailing on seven (7) days prior to the last date of submission of Technical Bid and as certified by their Banker shall be considered.

For currency other than USD, Bidders shall convert such currency into USD as per the exchange rates certified by their Banker prevailing on the relevant date and used for such conversion. Such Bidders shall submit necessary certification from their Banker for the exchange rate used in the conversation.

If the exchange rate for any of the above dates is not available, the rate for the immediately available previous day shall be taken into account.

3.4.2. Bidders meeting the Qualification Requirements, subject to evaluation as specified in Clauses 3.2 to 3.4 shall be declared as Qualified Bidders and eligible for opening of Initial Offer.

3.4.3. The BPC shall upload the list of all Qualified Bidders and Non-Qualified Bidders on the bidding portal along with the reasons for non-qualification.

3.5. STEP IV - Evaluation of Financial Bids

3.5.1. The Bids which have been found Qualified by the BPC, based on the Steps I to III as specified above in Clauses 3.2.to 3.4, shall be opened and Quoted Transmission Charges of such Initial Offer shall be ranked on the basis of the ascending Initial Offer submitted by each Qualified Bidder.

Based on such ranking of the Qualified Bidders, in the first fifty per cent of the ranking (with any fraction rounded off to higher integer) or four Qualified Bidders, whichever is higher, shall qualify for participating in the electronic reverse auction.

Provided however, in case only one Bidder remains after the Evaluation of Technical Bid (Steps 1 to III) as per Clause 3.2 to 3.4, the Initial Offer of such Bidder shall not be opened and the matter shall be referred to the Government.

Provided that in the event the number of Qualified Bidders is between two and four, then each of the responsive Bidder shall be considered as Qualified Bidders.

Provided that in the event of identical Quoted Transmission Charges discovered from the Initial Offer having been submitted by one or more Bidders, all such Bidders shall be assigned the same rank for the purposes of determination of Qualified Bidders. In such cases, all Qualified Bidders who shares the same rank till 50% of the rank (with any faction rounded off to higher integer) determined above, shall qualify to participate in the electronic reverse auction stage. In case 50% of the rank is having less than four (4) Bidders and the rank of the fourth (4^{th}) Bidder is shared by more than one Bidder, then all such all such Bidders who share the rank of the fourth Bidder shall qualify to participate in the electronic reverse auction.

3.5.2. The Financial Bids comprising of both Initial Offer and Final Offer submitted by the Bidders shall be scrutinized to ensure conformity with the provisions of Clause 2.5.3 of this RFP. Any Bid not meeting any of the requirements as per Clause 2.5.3 of this RFP may cause the Bid to be considered "Non-responsive", at the sole decision of the BPC. Financial Bid not in conformity with the requirement of SI. No. (c) of Clause 2.5.3 of this RFP shall be rejected.

3.5.3 The Bidders shall quote the single annual Quoted Transmission Charges as specified in the format at Annexure – 21.

3.6. STEP V - Bidder Selection

3.6.1. The prevailing lowest Quoted Transmission Charges discovered from Final Offers shall only be displayed during the e-reverse bidding and the Bidder quoting such Final Offer will always remain anonymous during the e-reverse bidding. The Bidder with the prevailing lowest Quoted Transmission Charges discovered from Final Offers at the close of the scheduled or extended period of e-reverse bidding as mentioned in clause 2.5 shall be declared as the Successful Bidder, subject to verification of the original hard copies of Annexure 3, Annexure 4 (if applicable), Annexure 6 (if applicable) and Annexure 14/14A/14B. The Letter of Intent shall be issued to such Successful Bidder in two (2) copies.

However, if no bid is received during the e-reverse bidding stage then the Bidder with lowest quoted initial transmission charges ("Initial Offer") during e-bidding stage shall be declared as the Successful Bidder, subject to verification of the original hard copies of Annexure 3, Annexure 4 (if applicable), Annexure 6 (if applicable) and Annexure 14/14A/14B. The Letter of Intent shall be issued to such Successful Bidder in two (2) copies.

In case, there is a discrepancy between the online submission and physical documents, the bid would be out rightly rejected and the bidder shall be construed to have engaged in the fraudulent practice as defined in Clause 2.19.3 with consequences as mentioned in Clause 2.19.2. Further, in such a case, the provisions of Clause 2.5.6 (j) shall apply.

3.6.2. The Selected Bidder shall unconditionally accept the LoI, and record on one (1) copy of the LoI, "Accepted unconditionally", under the signature of the authorized signatory of the Successful Bidder and return such copy to the BPC within seven (7) days of issue of LoI.

3.6.3. If the Successful Bidder, to whom the Letter of Intent has been issued, does not fulfill any of the conditions specified in Clauses 2.15.2, 2.15.3 and Clause 2.15.4, then subject to Clause 2.15.5, the BPC reserves the right to annul the award of the Project and cancel the Letter of Intent. Further, in such a case, the provisions of Clause 2.5.6 (j) shall apply.

3.6.4. The BPC, in its own discretion, has the right to reject all Bids if the Quoted Transmission Charges are not aligned to the prevailing prices.

3.7. Misrepresentation by the Bidder

If the Bidder conceals any material information or makes a wrong statement or misrepresents facts or makes a misleading statement in the Technical Bid or Bid, as the case may be, in any manner whatsoever, in order to create circumstances for the acceptance of its Technical Bid/Bid, the BPC reserves the right to reject such Technical Bid/Bid, and/ or cancel the Letter of Intent, if issued. Further, in case Letter of Intent is cancelled, consequences as per provisions of the RFP shall follow.

3.8. Disposition of Technical Bid

3.8.1. Technical Bid found to be Non-responsive as per Clause **3.2,** due to any of the following conditions, shall be liable for rejection.

- Technical Bid that is incomplete.
- Technical Bid not signed by authorized signatory and / or stamped in the manner indicated in this RFP.
- All pages of the Technical Bid submitted but not initialed by the authorized signatories on behalf of the Bidder.

- Technical Bid not including the covering letter as per Annexure 1.
- Technical Bid contains material inconsistencies in the information and documents submitted by the Bidder, affecting the Qualification Requirements.
- Information not submitted in formats specified in the RFP.
- The Bidder has not submitted a disclosure as per Annexure 13**.**
- Bidders delaying in submission of additional information or clarifications sought by the BPC.

3.8.2. Technical Bid found to be Non-responsive as per Clause **3.2,** due to any of the following conditions, shall be rejected.

- Technical Bid not received by the scheduled date and time.
- Technical Bid submitted by a Bidding Consortium not including the Consortium Agreement.
- Bidder submitting or participating in more than one response either as a Bidding Company or as a Member of Bidding Consortium.
- More than one Member of the Bidding Consortium or a Bidding Company using the credentials of the same Parent/Affiliate.
- Technical Bid having Conflict of Interest.
- If the Bidder makes any misrepresentation as specified in Clause **3.7.**

3.9. BPC reserves the right to interpret the Bid in accordance with the provisions of this RFP document and make its own judgment regarding the interpretation of the same. In this regard, BPC shall have no liability towards any Bidder and no Bidder shall have any recourse to BPC with respect to the qualification process.

BPC shall evaluate Bid using the process specified in Clause 3.1 to 3.6, at its sole discretion. BPC's decision in this regard shall be final and binding.

SECTION - 4

ANNEXURES FOR BID

SECTION – 4

I. Formats for Bid

The following formats are required to be included in the Bidder's Technical and Financial Bid. These formats are designed to demonstrate the Bidder's compliance with the Qualification Requirements set forth in Clause 2.1 of Section – 2.

Technical Bid

1. Format for the Covering Letter
2. Format for Letter of Consent from Consortium Members
3. Format for evidence of authorized signatory's authority (Power of Attorney)
4. Format for Power of Attorney from to be provided by each of the other Members of the Consortium in favor of the Lead Member
5. Format for Bidder's composition and ownership structure and Format for Authorization
6. Format for Consortium Agreement
7. Formats for Qualification Requirement
8. Format of Bidders Undertaking and details of Equity Investment
9. Authorization from Parent/Affiliate of Bidding Company/Member of Bidding Consortium whose technical/financial capability has been used by the Bidding Company/Member of Bidding Consortium.
10. Undertaking from the Technically / Financially Evaluated Entity(ies) or from Ultimate Parent Company for equity investment
11. Format of Board Resolutions
12. Format for Illustration of Affiliates
13. Format for Disclosure
14. Format for Bid Bond

14A. Format of the Surety Bond for Bid Security

14B Format of Payment on Order Instrument to be issued by IREDA/REC/PFC

15. Format for Contract Performance Guarantee

15A. Format for Surety Insurance Contract

15B. Format for issuance of Payment on Order Instrument

15. Checklist for Technical Bid submission requirements

22. Format for Affidavit

In addition to the online submission, the Bidder with lowest Final Offer will be required to submit original hard copies of Annexure 3, Annexure 4 (if applicable), Annexure 6 (if applicable) and Annexure 14/14A/14B before issuance of LoI.

Financial Bid

21. Format for Financial Bid

II. The following formats are for the information to the Bidders to enable them to submit their Bid.

11A. Illustration For Applicable Board Resolution Requirements Under Clause 2.5.2

17. List of Banks
18. GRID Map of the Project
19. Format for clarification/amendments on the RFP/RFP Project Documents
20. Formats for RFP Project Documents

Bidder may use additional sheets to submit the information for its detailed Bid.

ANNEXURE 1 - COVERING LETTER

(The covering letter should be on the Letter Head of the Bidding Company/ Lead Member of the Consortium)

Date: ……
From: ……
……
……
Tel. No.: ….....
Fax No.: .....
E-mail address: .....

To,

Chief Executive Officer,
REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited)
REC Corporate Head Quarter,
D Block, Plot No. I – 4,
Sec – 29 Gurugram – 122 001

Dear Sir,

Sub: **Bid for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District through tariff based competitive bidding process".**

1. Being duly authorized to present and act on behalf of M/s ..... (insert name of Bidding Company / Bidding Consortium) (hereinafter called the "Bidder") and having read and examined in detail the Request for Proposal (RFP) document, the undersigned hereby submit our Technical Bid with duly signed formats and Financial Bid (Initial Offer) as stipulated in RFP document for your consideration.

2. It is confirmed that our Bid is consistent with all the requirements of submission as stated in the RFP document and subsequent clarifications/amendments as per Clause 2.3 and 2.4 of RFP.

3. The information submitted in our Bid is complete, is strictly as per the requirements stipulated in the RFP document and is correct to the best of our knowledge and understanding. We would be solely responsible for any errors or omissions in our Bid.

4. We hereby agree and undertake to procure the products associated with the Transmission System as per provisions of Public Procurement (Preference to Make in India) orders issued by Ministry of Power vide orders No. 11/5/2018 - Coord. dated 28.07.2020 for transmission sector, as amended vide order No. A-1/2021-FSC- Part(5) dated 16.11.2021 and No.: P45021/2/2017-PP (BE-II)-Part-4 Vol.II dated 19.07.2024 issued by Ministry of Power for transmission sector, as may be further amended from time to time read with Department for Promotion of Industry and Internal Trade (DPIIT) orders in this regard.

We hereby also agree and undertake to comply with Department of Expenditure, Ministry of Finance revised OM dated 23.02.2023 issued in suppression of Order (Public Procurement No 1) bearing File No. 6/18/2019-PPD dated 23.07.2020, Order (Public Procurement No 2) bearing File No. 6/18/2019-PPD dated 23.07.2020 and Order (Public Procurement No. 3) bearing File No. 6/18/2019-PPD, dated 24.07.2020, Office Memorandum (OM) No. F.18/37/2020-PPD dated 08.02.2021, OM No. F.12/1/2021-PPD(Pt.) dated 02.03.2021, OM No. F.7/10/2021-PPD dated 08.06.2021 and Order (Public Procurement No 4) bearing File No. F.7/10/2021-PPD dated 23.02.2023, as amended from time to time, regarding public procurement from a bidder of a country, which shares land border with India.

5. We hereby agree to comply with Ministry of Power order no. 25-11/6/2018 – PG dated 02.07.2020 as amended from time to time.

6. We are herewith submitting legally binding board resolution for the total equity requirement of the Project.

7. We hereby confirm that in accordance with Clause 2.1.4 of the RFP, we are herewith submitting legally binding undertaking supported by a board resolution from the ….....(Insert name of Technically Evaluated Entity and/or Financially Evaluated Entity or its Ultimate Parent Company, as the case may be) that all the equity investment obligations of …….. (Insert name of the Bidding Company) shall be deemed to be equity investment obligations of the …… (Insert name of Technically Evaluated Entity and/or Financially Evaluated Entity or its Ultimate Parent Company, as the case may be) and in the event of any default by.....(Insert name of the Bidding Company), the same shall be met by..... (Insert name of Technically Evaluated Entity and/or Financially Evaluated Entity or its Ultimate Parent Company, as the case may be).

[Sl. No 7 to be inserted only in case the Bidder is a Bidding Company / Lead Member of a Consortium and has sought qualification on the basis of technical and financial capability of its Affiliate(s) and/or its Parent]

8. We confirm that there are no litigations or disputes against us, which materially affect our ability to fulfill our obligations with regard to the Project.

9. We hereby confirm that we shall continue to maintain compliance with Qualification Requirements till the execution of the Transmission Service Agreement. Further, in case we emerge as Selected Bidder for the Project, we shall continue to maintain compliance with Qualification Requirements till the COD of the Project.

10. We confirm that we have studied the provisions of relevant Indian laws and regulations required to enable us to build, own, operate and transfer the said Project and to prepare this Bid.

11. We hereby confirm that we shall abide unreservedly with BPC's decision in the qualification process for selection of Qualified Bidder and further warrant that under no circumstances we shall challenge either the BPC's decision or its right to make such decision at any time in the future.

12. We confirm that the Bid shall remain valid for a period of one eighty (180) days from the Bid Deadline.

13. The details of contact person are furnished as under:

Name: ……
Designation: ……
Name of the Company: ……
Address of the Bidder: ……
Phone Nos.: …….
Fax Nos.: …….
E-mail address: …….

14. Bid Bond

We have enclosed a Bid Bond of Rupees ……. Crores (Rs.....) only or US$ ..... (…….US Dollars), in the form of bank guarantee no……[Insert number of the Bank Guarantee] dated .....[Insert Date of the Bank Guarantee] as per your proforma (Annexure-14) from.....[Insert name of bank providing Bid Bond] and valid up to..... in terms of Clause 2.11 of the RFP or in the form of insurance surety bond no ..... [Insert number of the Insurance Surety Bond] dated …….. [Insert Date of the Insurance Surety Bond] as per your proforma (Annexure-14A) from ..... [Insert name of Insurance Company providing Insurance Surety bond] and valid up to.....n terms of Clause 2.11 of the RFP or in the form of Payment on Order Instrument no..... [Insert number of the Instrument] dated .....[Insert Date of the Instrument] as per your proforma (Annexure-14B) from .....[Insert name of company issuing Payment on Order Instrument] and valid up to ..... in terms of Clause 2.11 of the RFP.

15. Acceptance

We hereby unconditionally and irrevocably agree and accept that the decision made by the BPC on any matter regarding or arising out of the RFP shall be binding on us. We hereby expressly waive any and all claims in respect of Bid process.

16. Familiarity With Relevant Indian Laws & Regulations

We confirm that we have studied the provisions of relevant Indian laws and regulations as required to enable us to submit this Bid and execute the RFP Project Documents (other than TSA), in the event of our selection as the TSP. We further undertake and agree that all such factors as mentioned in Clause 2.5.7 of RFP have been fully examined and considered while submitting the Bid.

It is confirmed that our Bid is consistent with all the requirements of submission as stated in the RFP and subsequent communications from BPC.

The information submitted in our Bid is complete, strictly as per the requirements stipulated in the RFP and is correct to the best of our knowledge and understanding. We would be solely responsible for any errors or omissions in our Bid.

We confirm that we have not taken any deviation so as to be deemed non-responsive with respect to the provisions stipulated at Clause 2.5.1, of this RFP.

Thanking you,

Yours sincerely,

……
(Name and Signature of the authorized signatory in whose name Power of Attorney/ Board Resolution as per Clause 2.5.2 is issued)

Name: ……
Designation: ……
Address: ……

Date: …….
Place: ……

Company Rubber Stamp

ANNEXURE 2 - LETTER OF CONSENT FROM CONSORTIUM MEMBERS

(On the letter head of each Member of the Consortium including Lead Member)

Date: ……
From: ……
……
……
Tel. No.: ……
Fax No.: ……
E-mail address: ……..

To,

Chief Executive Officer,
REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited)
REC Corporate Head Quarter,
D Block, Plot No. I – 4,
Sec – 29 Gurugram – 122 001

Dear Sir,

Sub: **Bid for Selection of Bidder as Transmission Service Provider to establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process.**

We, the undersigned Member of …… (Insert name of the Bidding Consortium) have read, examined and understood the RFP document for the short-listing of Bidders as prospective TSP to establish Intra-State Transmission system for **"Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District"** through tariff based competitive bidding process. We hereby confirm our concurrence with the Bid including in particular the Consortium Agreement submitted by.....(Insert name of the Lead Member) in response to the RFP document.

We hereby confirm our commitment to participate in the said Bidding Consortium and invest ……. % of the total equity requirement for the Project as per the terms of the Consortium Agreement dated …… and board resolution for such investment commitment is enclosed herewith.

We hereby confirm that in accordance with Clause 2.1.4 of the RFP, we are enclosing legally binding undertaking supported by a board resolution from the.....(Insert name of Technically Evaluated Entity and / or Financially Evaluated Entity or its Ultimate Parent Company, as the case may be) that all the equity investment obligations of ……. (Insert name of the Member) shall be deemed to be equity investment obligations of the …… (Insert name of Technically Evaluated Entity and / or Financially Evaluated Entity or its Ultimate Parent Company, as the case may be) and in the event of any default by……. (Insert name of the Member), the same shall be met by.....(Insert name of Technically Evaluated Entity and / or Financially Evaluated Entity or its Ultimate Parent Company, as the case may be). [Insert if applicable]

[To be inserted by the Lead Member only] We are also enclosing legally binding board resolution for the total equity requirement of the Project in case of any breach of any of the equity investment commitment by any of the Consortium Members, in line with the provisions of the Consortium Agreement dated ..... [Bidder to insert date of Consortium Agreement].

The details of contact person are furnished as under:

Name: …….
Designation: …….
Name of the Company: …….
Address: …….
Phone Nos.: …….
Fax Nos.: …….
E-mail address: …….

Dated the ……. day of..... of 20…

Thanking you,

Yours faithfully,

……
(Signature)

Name: …….
Designation: …….

(Signature, Name, Designation of Authorized Signatory of Consortium Member and Company's Seal)

ANNEXURE 3 - FORMAT FOR EVIDENCE OF AUTHORIZED SIGNATORY'S AUTHORITY (POWER OF ATTORNEY)

POWER OF ATTORNEY

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution. Foreign companies submitting bids are required to follow the applicable law in their country)

Know all men by these presents, We …….(name and address of the registered office of the Bidder) do hereby constitute, appoint and authorize Mr./Ms……(name and residential address) who is presently employed with us and holding the position of ……. as our attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to our Bid for Selection of Bidder as Transmission Service Provider to establish Intra-State Transmission system for "**Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District"** through tariff based competitive bidding process in the country of India, including signing and submission of all documents related to the Bid, including, undertakings, letters, certificates, acceptances, clarifications, guarantees, etc., making representations to the BPC, and providing information / responses to the BPC, representing us in all matters before the BPC, and generally dealing with the BPC in all matters in connection with our Bid for the said Project till the completion of the bidding process in accordance with the RFP and signing of the Share Purchase Agreement by all the parties thereto.

We hereby agree to ratify all acts, deeds and things lawfully done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney shall and shall always be deemed to have been done by us.

All the terms used herein but not defined shall have the meaning ascribed to such terms under the RFP.

For.....**[Insert name of the Bidder on whose behalf PoA is executed]**

……..
(Signature)

Name: …….
Designation: …….

Accepted

……..……
(Signature of the Attorney)

Name: …….
Designation: ...……..
Address: .....
.....
(Name, Designation and Address of the Attorney)

Specimen signatures of attorney attested by the Executant

……
(Signature of the Executant)

……..
(Signature of Notary Public)

Place: ……
Date: ……

Notes:

1) To be executed by Bidding Company or the Lead Member, in the case of a Bidding Consortium, as the case maybe.

2) The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required, the same should be under common seal of the executant affixed in accordance with the applicable procedure. Further, the person whose signatures are to be provided on the power of attorney shall be duly authorized by the executant(s) in this regard.

3) Also, wherever required, the executant(s) should submit for verification the extract of the charter documents and documents such as a Board resolution / power of attorney, in favour of the Person executing this power of attorney for delegation of power hereunder on behalf of the executant(s).

4) In case of foreign Bidders, refer to clause 2.5.6 (p)

ANNEXURE 4 - FORMAT FOR POWER OF ATTORNEY TO BE PROVIDED BY EACH OF THE OTHER MEMBERS OF THE CONSORTIUM IN FAVOUR OF THE LEAD MEMBER

POWER OF ATTORNEY

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution. Foreign companies submitting bids are required to follow the applicable law in their country)

KNOW ALL MEN BY THESE PRESENTS THAT M/s....., having its registered office at ……..……., …..,..…and M/s ……..…. having its registered office at ....., (Insert names and registered offices of all Members of the Consortium), the Members of Consortium, have formed a Bidding Consortium named ……. (insert name of the Consortium) (hereinafter called the **"Consortium"**) vide Consortium Agreement dated…….…….. and having agreed to appoint M/s.....as the Lead Member of the said Consortium do hereby constitute, nominate and appoint M/s……..a company incorporated under the laws of..... and having its Registered / Head Office at ……..…….as our duly constituted lawful Attorney (hereinafter called as **"Lead Member"**) which is one of the Members of the Consortium, to act as the Lead Member and our true and lawful attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to submission of Consortium's Bid for the Project, including signing and submission of the Bid and all documents related to the Bid, including, undertakings, letters, certificates, acceptances, clarifications, guarantees, etc, making representations to the BPC, and providing information / responses to the BPC, representing us and the Consortium in all matters before the BPC, and generally dealing with the BPC in all matters in connection with our Bid for the said Project, till completion of the bidding process in accordance with the RFP and signing of the Share Purchase Agreement by all the parties thereto.

It is expressly understood that in the event of the Consortium being selected as Successful Bidder, this Power of Attorney shall remain valid, binding and irrevocable until the Bidding Consortium achieves execution of all RFP Project Documents.

We, as the Member of the Consortium, agree and undertake to ratify and confirm all whatsoever the said Attorney/Lead Member has done on behalf of the Consortium Members pursuant to this Power of Attorney and the same shall bind us and deemed to have been done by us.

All the terms used herein but not defined shall have the meaning ascribed to such terms under the RFP.

IN WITNESS WHEREOF M/s....., as the Member of the Consortium have executed these presents on this…….. day of .....

For and on behalf of
Consortium Member

…….
(Signature of the Authorized Signatory)

Name: ……
Designation: ..……....
Place: ……
Date: ……..

Name: ……
Designation: ..……....
Place: ……
Date: ……..

Accepted
Specimen signatures of attorney attested

……
(Signature)

……

……

(Signature of Notary Public)
……

(Name, Designation and Address of the Attorney)

Place: ……
Date: ……..

Notes:

1. The mode of execution of the power of attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required, the same should be under common seal of the executant affixed in accordance with the applicable procedure. Further, the person whose signatures are to be provided on the power of attorney shall be duly authorized by the executant(s) in this regard.

2. Also, wherever required, the executant(s) should submit for verification the extract of the charter documents and documents such as a Board resolution / power of attorney, in favour of the Person executing this power of attorney for delegation of power hereunder on behalf of the executant(s).

3. In case of foreign Bidders, refer to clause 2.5.6 (p)

ANNEXURE 5 - FORMAT FOR BIDDER'S COMPOSITION AND OWNERSHIP STRUCTURE

1. Corporate Details:

Please provide the following information for the Bidder. If the Bidder is a Consortium, please provide this information for each Member including the Lead Member:

a. Company's Name, Address, and Nationality:

Name: ……

Address: ……
……
……

Website Address: ……..

Country of Origin: ……

b. Year Organized: ……..

c. Company's Business Activities: ……
.....

d. Status as a Bidder:

i. Bidding Company
ii. Lead Member of the Bidding Consortium
iii. Member of the Bidding Consortium

Note: tick the applicable serial number

e. Company's Local Address in India (if applicable):

……
……
……

f. Name of the Authorized Signatory: .....

g. Telephone Number: …….

h. Email Address: ……..

i. Telefax Number: ……..

j. Please provide the following documents:

i. Copy of the Memorandum and Articles of Association and certificate of incorporation or other equivalent organizational document (as applicable), including their amendments, certified by the Company Secretary as

Attachment 1 for Bidding Company / each Member of Bidding Consortium including Lead Member.

ii. Authority letter (as per format for authorization given below) in favour of BPC from the Bidder/every Member of the Consortium authorizing BPC to seek reference from their respective bankers & others as **Attachment 2** as per Clause 2.1.6 of the RFP.

2. Details of Ownership Structure:

Equity holding of Bidding Company/ each Member of Bidding Consortium including Lead Member owning 10% or more of total paid up equity.

Name of the Bidding Company / Consortium Member: …….
Status of equity holding as on ……

Name of the Equity Holder	Type and No. of Shares owned	Extent of Voting Control (%)
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
....		

Notes:

1. The above table is to be filled in separately for each Consortium Member.
2. Status of equity holding should be provided not earlier than thirty (30) days prior to Bid Deadline.

For and on behalf of Bidding Company / Lead Member of the Bidding Consortium
M/s…….

……..
(Signature of authorized representative)
Name: ……..
Designation: ……

……..
(Stamp)

Date: ……
Place: ……

FORMAT FOR AUTHORISATION

(In case of Bidding Consortium, to be given separately by each Member)
(On Non – judicial stamp paper duly attested by notary public. Foreign companies submitting bids are required to follow the applicable law in their country)

The undersigned hereby authorize(s) and request(s) all our Bankers, including its subsidiaries and branches, any person, firm, corporation or authority to furnish pertinent information deemed necessary and requested by REC Power Development and Consultancy Limited to verify our Bid for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission system for "**Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District"** through tariff based competitive bidding process or regarding our project development experience, financial standing and general reputation.

For and on behalf of M/s..... **(Insert Name of Bidding Company or Member of the Consortium)**

.....
(Signature)

Name of Authorized Signatory: ……

(Signature and Name of the authorized signatory of the Company)

Place: ……
Date: ……

……..
(Company rubber stamp/seal)

…….
(Signature of Notary Public)

Place: ……
Date: ……

ANNEXURE 6 - FORMAT FOR CONSORTIUM AGREEMENT

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution. Foreign companies submitting bids are required to follow the applicable law in their country)

THIS CONSORTIUM AGREEMENT executed on this..... day of.....Two thousand.....between M/s....., a company incorporated under the laws of ..... and having its Registered Office at ..... (hereinafter called the "Party 1", which expression shall include its successors, executors and permitted assigns) and M/s.....a Company incorporated under the laws of ..... and having its Registered Office at.....(hereinafter called the "Party n", which expression shall include its successors, executors and permitted assigns) and for the purpose of submitting the Bid, acquisition of Ryapte Power Transmission Limited (in case of award) and entering into other Agreement(s) as specified in the RFP (hereinafter referred to as "Agreements") as may be entered into with the Nodal Agency.

WHEREAS, the BPC had invited Bid in response to RFP issued to …… (insert the name of purchaser of RFP) for selection of the bidder as the Transmission Service Provider to establish Intra-State Transmission System for "**Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District"**.

AND WHEREAS, Clause 2.2.4 of the RFP document stipulates that the Bidders qualifying on the strength of a Bidding Consortium will have to submit a legally enforceable Consortium Agreement in a format specified in the RFP document wherein the Consortium Members have to commit equity of a specific percentage in the Project.

AND WHEREAS, Clause 2.2.4 of the RFP document also stipulates that the Bidding Consortium shall provide along with the Bid, a Consortium Agreement as per prescribed format whereby the Consortium Members undertake to be liable for raising the required funds for its respective equity investment commitment as specified in Consortium Agreement.

NOW THEREFORE, THIS INDENTURE WITNESSTH AS UNDER:

In consideration of the above premises and agreement all the parties in this Consortium do hereby mutually agree as follows:

1. In consideration of the selection of the Consortium as the selected bidder by the BPC, we the Members of the Consortium and parties to the Consortium Agreement do hereby unequivocally agree that M/s ..... (Insert name of the Lead Member), shall act as the Lead Member as defined in the RFP for self and agent for and on behalf of ……., ..., ..., ...(the names of all the other Members of the Consortium to be filled in here).

2. The Lead Member is hereby authorized by the Members of Consortium and parties to the Consortium Agreement to bind the Consortium and receive instructions for and on behalf of the Members.

3. Notwithstanding anything contrary contained in this Consortium Agreement, the Lead Member shall always be liable for the equity investment obligations of all the Consortium Members, i.e., for both its own equity contribution as well as the equity contribution of other Members.

4. The Lead Member shall be liable and responsible for ensuring the individual and collective commitment of each of the Members of the Consortium in discharging all their respective equity obligations. Each Consortium Member further undertakes to be individually liable for the performance of its part of the obligations without in any way limiting the scope of collective liability envisaged in this agreement.

5. Subject to the terms of this agreement, the share of each Member of the Consortium in the "issued equity share capital of the project company" shall be in the following proportion: (if applicable)

Name	Percentage of equity holding in the Project
Party 1	……..
……..	……..
Party n	……..
Total	**100%**

[**Note:** The percentage equity holding for any Consortium Member in the Project cannot be zero in the above table]

6. The Lead Member shall inter alia undertake full responsibility for liaising with lenders and mobilizing debt resources for the Project and achieving financial closure.

7. In case of any breach of any of the equity investment commitment by any of the Consortium Members, the Lead Member shall be liable for the consequences thereof.

8. Except as specified in the Agreement, it is agreed that sharing of responsibilities as aforesaid and equity investment obligations thereto shall not in any way be a limitation of responsibility of the Lead Member under these presents.

9. It is further specifically agreed that the financial liability for equity contribution of Lead Member shall, not be limited in any way so as to restrict or limit its liabilities. The Lead Member shall be liable irrespective of their scope of work or financial commitments.

10. It is expressly understood and agreed between the Members that the responsibilities and obligations of each of the Members shall be as delineated as annexed hereto as **Appendix-I,** forming integral part of this Agreement. It is further agreed by the Members that the above sharing of responsibilities and obligations shall not in any way be a limitation of joint and several responsibilities and liabilities of the Members, with regards to all matters relating to the Project.

11. It is clearly agreed that the Lead Member shall ensure performance under the Agreements and if one or more Consortium Members fail to perform its /their respective obligations under the Agreement(s), the same shall be deemed to be a default by all the Consortium Members.

12. This Consortium Agreement shall be construed and interpreted in accordance with the Laws of India and courts at **Delhi** alone shall have the exclusive jurisdiction in all matters relating thereto and arising there under.

13. It is hereby agreed that, the Lead Member shall furnish the bid bond, as stipulated in the RFP, on behalf of the Consortium Members.

14. It is hereby agreed that in case of selection of Bidding Consortium as the selected bidder, the parties to this Consortium Agreement do hereby agree that they shall furnish the contract performance guarantee on behalf of the TSP in favor of the Nodal Agency, as stipulated in the RFP and Transmission Service Agreement.

15. It is further expressly agreed that the Consortium Agreement shall be irrevocable and shall form an integral part of the RFP Project Document and shall remain valid till the execution of the Share Purchase Agreement, unless expressly agreed to the contrary by the Nodal Agency. Over the term of the Transmission Service Agreement, relevant KERC Regulations as amended from time to time shall apply on the Consortium Members.

16. The Lead Member is authorized and shall be fully responsible for the accuracy and veracity of the representations and information submitted by the Consortium Members respectively from time to time in response to the RFP and for the purposes of the Project.

17. It is hereby expressly agreed between the parties to this Consortium Agreement that neither party shall assign or delegate its rights, duties or obligations under this Agreement except with the prior written consent of the Nodal Agency.

THIS CONSORTIUM AGREEMENT:

a. has been duly executed and delivered on behalf of each party hereto and constitutes the legal, valid, binding and enforceable obligation of each such party,

b. sets forth the entire understanding of the parties hereto with respect to the subject matter hereof;

c. may not be amended or modified except in writing signed by each of the parties and with prior written consent of the Nodal Agency.

IN WITNESS WHEREOF, the parties to the Consortium Agreement have, through their authorized representatives, executed these present on the Day, Month and Year first mentioned above.

For and on behalf of Consortium Member 1 (Party 1)
M/s…….

.....
(Signature of authorized signatory)

Name: …….
Designation: .....……
Place: ……..
Date: ……

For and on behalf of Consortium Member n (Party n)
M/s…….

.....
(Signature of authorized signatory)

Name: ……
Designation: .....……...
Place: …….
Date: ……...

Attested:
……..
(Signature)
(Notary Public)

Place: ……
Date: …….

Note: In case of foreign Bidders, refer to clause 2.5.6 (p)

Appendix 1 to the Consortium Agreement:

Name of the Consortium Member	Responsibilities under the Consortium Agreement
M/s …… (Party 1)	
M/s ……	
M/s …… (Party n)	

ANNEXURE 7 A - FORMAT FOR QUALIFICATION REQUIREMENT

A. NET WORTH

To,
Chief Executive Officer,
REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited)
REC Corporate Head Quarter,
D Block, Plot No. I – 4,
Sec – 29 Gurugram – 122 001

Dear Sir,

Sub: Bid for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission System for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process

1. [Note: Applicable in case of Bidding Company]

We certify that the Financially Evaluated Entity(ies) had a Networth of Rs ..... Crore or equivalent USD* computed as per instructions in this RFP based on unconsolidated audited annual accounts (refer Note-2 below) of any of the last three (3) financial years as provided in Clause 2.2.3, immediately preceding the Bid Deadline. Also, the Networth of any of the last three (3) financial years is not negative.

Name of Financially Evaluated Entity(ies)	Relationship with Bidding Company**	Financial Year	Networth (Rs. Crore)
1. ……..			
2. ……..			
3. ……..			
….			
Total Networth			

*Equivalent USD shall be calculated as per provisions of Clause 3.4.1.
** The column for "Relationship with Bidding Company" is to be filled in only in case financial capability of Parent/Affiliate has been used for meeting Qualification Requirements.

2. [Note: Applicable in case of Bidding Consortium]

We certify that the Financially Evaluated Entity(ies) had a minimum Networth of Rs. … Crore or equivalent USD* computed as per instructions in the RFP and based on unconsolidated audited annual accounts (refer Note-2 below) of any of the last three (3) financial years as provided in Clause 2.2.3, immediately preceding the Bid Deadline. Also, the Networth of any of the last three (3) financial years is not negative.

Name of Consortium Member	Equity Commitment in the Project (%)	Networth of Member (Rs. Crore)	Networth Requirement to be met by Member in proportion to the Equity Commitment (Rs. Crore)	Whether the Member meets the Networth Requirement
(1)	(2)	(3) (As per table below)	(4)= (2 x Total Networth requirement for the Project)	(5)
1. ……				Yes / No
2. ……				Yes / No
..				Yes / No
Total Networth for financial requirement				

Member – I (Lead Member)

[Note: Similar particulars for each Member of the Consortium is to be furnished, duly certified by the Member's Statutory Auditors]

i. Name of Member: .....

ii. Total Networth requirement: Rs .....Crore

iii. Percentage of equity commitment for the Project by the Member: .....%

iv. Networth requirement for the Member***: Rs..... Crore

v. Financial year considered for the Member: …….

Name of Financially Evaluated Entity(ies)	Relationship** with Member of Consortium	Financial Year	Networth (Rs. Crore)
1. …….			
2. …….			
3. …….			
Total Networth			

* Equivalent USD shall be calculated as per provisions of Clause 3.4.1;

** The column for "Relationship with Member of Consortium" is to be filled in only in case the financial capability of Parent / Affiliate has been used for meeting Qualification Requirements;

*** Networth requirement to be met by Member should be in proportion to the equity commitment of the Member for the Project.

Yours faithfully

……
(Signature and name of the authorized signatory of the Company and Stamp)

Name: …….
Date: …….
Place: …….

……
(Signature and Stamp of statutory Auditors of Bidding Company / each Member of Consortium)

Name: …….
Date: …….
Place: …….

Date: …….

Notes:

1. Along with the above format, in a separate sheet, please provide details of computation of Networth of last three (3) financial years duly certified by Statutory Auditor.

2. Audited consolidated annual accounts of the Bidder may be used for the purpose of financial criteria provided the Bidder has at least 26% equity in each company whose accounts are merged in the audited consolidated accounts and provided further that the financial capability of such companies (of which accounts are being merged in the consolidated accounts) shall not be considered again for the purpose of evaluation of the Bid.

3. In case Bidder or a Member of Consortium takes recourse to its Parent/Affiliate for meeting technical / financial requirements, then the financial years considered for such purpose should be same for the Bidder / Member of Consortium and their respective Parent / Affiliate.

ANNEXURE 7B - FORMAT FOR TECHNICAL REQUIREMENT

To,

Chief Executive Officer,
REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited)
REC Corporate Head Quarter,
D Block, Plot No. I – 4,
Sec – 29 Gurugram – 122 001

Dear Sir,

Sub: Bid for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission System for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process

1. To be used by Bidder using the development experience in infrastructure sector

We certify that M/s .....(Insert name of Technically Evaluated Entity(ies)) have experience of development of projects in the Infrastructure sector in the last five (5) years whose aggregate capital expenditure is Rs ..... Crore or equivalent USD*. We further certify that the capital expenditure of any single project considered for meeting the technical Qualification Requirement is not less than Rs Crore or equivalent USD*. For this purpose, capital expenditure incurred on projects which have been either wholly completed / commissioned or partly completed projects put under commercial operation and for which operation has commenced till at least seven (7) days prior to the Bid Deadline has been considered.

The project(s) considered for the purpose of technical experience (as per table given below) have been executed and owned to the extent as indicated in the table below (to be atleast twenty – six percent (26%)) by the Bidding Company / Lead Member of the Consortium / our Parent / our Affiliate(s) [strike off whichever is not applicable] on operation of the projects.

This technical requirement has been calculated as per the instructions provided in the RFP on the basis of following projects:

Name of Company (which has executed the project at (3)) whose technical capability has been used for Qualification Requirement	Relationship** with Bidding Company / Lead Member	Project name	Nature of Project (BOOT, BOT, BOOM, DBFOT etc.)	Relevant Infrastructure sector	Date of Financial Closure of the Project (in DD / MM / YYYY)	Date of Completion / Commissioning / Commercial Operation of partly completed projects	Project cost (Rs. Crore)	Percentage Equity Holding of Company at (1) in Completed project(s)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
……		……. (Project 1)						
……		…….						
Total (Rs. Crore)								

* Equivalent USD shall be calculated as per provisions of Clause

** The column for "Relationship with Bidding Company / Lead Member" is to be filled in only in case technical capability of Parent/Affiliate has been used for meeting Qualification Requirements.

We further certify that the Company(ies) as indicated in column (1) of the above table, whose technical capability has / have been used for meeting the qualification requirement, has / have held shareholding respectively of atleast twenty – six percent (26%) from the date of financial closure till the date of commissioning / completion of the above project(s).

2. To be used by Bidder using construction experience in infrastructure sector.

We certify that M/s..... (Insert name of Technically Evaluated Entity(ies)) have received aggregate payments not less than Rs.....Crore or equivalent USD (calculated as per provisions in Clause 3.4.1) from its client(s) for construction works fully completed during the last 5(five) financial years. We further certify that the payment received from each project shall not be less than Rs. ……. Crore or equivalent USD (calculated as per provisions in Clause 3.4.1). For this purpose, payments received on projects that have been commissioned/completed at least seven (7) days prior to the Bid Deadline shall be considered. Further only the payments (gross) actually received, during such 5 (five) financial years shall qualify for purposes of computing the technical capacity.

We also confirm that construction works does not include cost of land supply of goods or equipment except when such goods or equipment form part of a turn-key construction contract/ EPC contract for the project.

This technical requirement has been calculated as per the instructions provided in the RFP on the basis of following projects:

Name of Company (which has executed the project at (3)) whose technical capability has been used for Qualification Requirement	Relationship** with Bidding Company / Lead Member	Project name	Nature of Project (EPC, Turnkey etc)	Relevant Infrastructure sector	Date of award of contract (in dd/mm/yy)	Date of Completion / Commissioning	Payment received (Rs. Crore)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
……		……. Project 1					
……		…….					
……		…….					
	Total (Rs. Crore)						

Yours faithfully

……..
(Signature and name of the authorized signatory of the Company and stamp)

Name: ……..
Date: ……..
Place: ……..

…….
(Signature and Stamp of statutory Auditors of Bidding Company/ Lead Member of Consortium)
Name: ……..
Date: ……..
Place: ……..

Date: …….

Notes:

1. Along with the above format, in a separate sheet, please provide details of computation of capital expenditure of projects duly certified by Statutory Auditor of the project company. In addition, the Statutory Auditor of the project company should also certify that the capital expenditure of projects commissioned or completed 7 days prior to Bid Deadline has been capitalized in the books of accounts.

   Additionally, in case construction experience is used, a certificate(s) from the statutory auditors stating the payments received and the concerned client(s) stating the works commissioned during the past 5 years in respect of the projects specified above. In case a particular job/ contract has been jointly executed by the Bidder (as part of a consortium), it should further support its claim for the share in work done for that particular job/ contract by producing a certificate from its statutory auditor or the client.

2. In case the accounts for the financial year in which the project claimed for meeting qualification requirement has been commissioned are not audited, the Bidder shall give declaration in this regard duly certified by its statutory auditor. In such a case, Bidder shall provide details of computation of capital expenditure of such project(s) duly certified by Statutory Auditor of the project company and the Statutory Auditor of the project company should also certify that the capital expenditure of projects commissioned or completed shall be capitalized in the books of accounts upon finalization.

3. The unconsolidated audited annual accounts of both the TEE and the Bidding Company / Lead Member for the respective financial years (financial years in which financial closure was achieved to the financial year in which the said project was completed / commissioned) should be submitted.

ANNEXURE 7C - FORMAT FOR TECHNICAL & FINANCIAL REQUIREMENT – RELATIONSHIP & DETAILS OF EQUITY SHAREHOLDING

[To be filled by Bidding Company / each Member of the Bidding Consortium including Lead Member if credentials of Parent and / or Affiliates have been used by them]

To,

Chief Executive Officer,
REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited)
REC Corporate Head Quarter,
D Block, Plot No. I – 4,
Sec – 29 Gurugram – 122 001

Dear Sir,

Sub: Bid for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission System for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process

We certify that M/s. ……. (insert name of the **Bidding Company / Consortium Members**) have considered the technical and financial capability of its Parent and / or Affiliates, for the purpose of meeting Qualification Requirements as per the instructions provided in the RFP. The name of Parent and / or Affiliate, nature of relationship(s) with such Parent and / or Affiliate and details of equity holding are as follows:

Name of Company whose credentials considered	Type of credentials considered (technical and / or financial)	Relationship with Bidding Company / Consortium Member (Parent / Affiliate)	Details of equity shareholding (refer notes below)
Company 1			
…….			
…….			
…….			
……..			

NOTES:

i. In case of Parent, the equity holding of the Parent in the Bidding Company / Member of the Bidding Consortium, including the Lead Member of the Consortium, need to be specified.

ii. In case of Affiliate under direct control of Bidder, the equity holding of the Bidding Company / Member of the Bidding Consortium, including the Lead Member of the Consortium in the Affiliate, needs to be specified.

iii. In case of Affiliate under common control of Parent, the equity holding of the Parent in the Affiliate of the Bidding Company / Member of the Bidding Consortium, including the Lead Member of the Consortium, needs to be specified.

iv. Relationship of Parent / Affiliate with Bidding Company / Member of Consortium to be at the most seven (7) days prior to the Bid Deadline (as per Clause 2.1.4 of RFP)

Yours faithfully

……
(Signature and name of the authorized signatory of the Company and stamp)

Name: ……
Date: ……
Place: ……

……
(Signature and Stamp of statutory Auditors of Bidding Company / each Member of Bidding Consortium)

Name: ……..
Date: ……..
Place: ……..

ANNEXURE 7D - ADDITIONAL INFORMATION FOR VERIFICATION OF FINANCIAL AND TECHNICAL CAPABILITIES OF BIDDERS.

……..…….

(Name of Bidder (Bidding Company/ Bidding Consortium or Technically/Financially Evaluated Entity(ies))

(Note: In case of Consortium, details to be filled in by Lead Member for each Member of the Consortium including the Lead Member and in case of the qualification requirements of Technically / Financially Evaluated Entity(ies) being used, to be filled by each of such entity(ies)

i. Financial capability (Attachment 1):

1. Bidders shall attach unconsolidated / consolidated audited annual accounts, statements, as the case may be, (refer Clause 2.1.3) for the last three (3) financial years as Attachment 1. Such unconsolidated audited annual accounts shall include a Balance Sheet, Profit and Loss Account, Auditors Report and profit appropriation account.

ii. Technical capability (Attachment 2):

a. This attachment shall include details of projects completed/commissioned or partly completed projects for which commercial operation has commenced to be considered for the purpose of meeting Qualification Requirements.

1. To be used by Bidder using development experience in infrastructure sector

Particulars	Year 1	Year 2	Year 3	Year 4	Year 5
Name(s) of project(s) from Infrastructure sectors					
Location(s) including country(s) where project was set up					
Nature of Project					
Voltage level (if any)					
Capital cost of project(s) Rs. in Crore					
*Status of the project					
% of equity owned in the project(s)					

***Note 1:** Date of completion/commissioning/commercial operation to be mentioned

Note 2: For each project listed in the table, the Bidder shall furnish an executive summary including the following information:

- Project model, i.e., BOO, BOOT, BOOM;

- Debt financing and equity raised and provided by Bidder/Bidder's Parent/Bidder's Affiliate for the project, including names of lenders and investors;
- Size and type of installation;
- Technical data/information on major equipment installed
- Description of role performed by the Bidder/Bidder's Parent/Bidder's Affiliate on the project
- Clearances taken by the Bidder/Bidder's Parent/Bidder's Affiliate including but limited to right-of-way (RoW), forest clearance and other statutory / Govt. clearances.
- Cost data (breakdown of major components)
- Name of EPC and/or other major contractor
- Construction time for the project
- Names, addresses and contact numbers of owners of the projects
- Operating reliability over the past five (5) years or since date of commercial operation
- Operating environmental compliance history
- Names of supervisory entities or consultant, if any
- Date of commercial operation
- Total duration of operation

2. To be used by Bidder using construction experience in infrastructure sector

Particulars	Year 1	Year 2	Year 3	Year 4	Year 5
Name(s) of project(s) from Infrastructure sectors					
Location(s) including country(s) where project was set up					
Nature of Project					
Voltage level (if any)					
Revenue received Rs. in Crore					
*Status of the project					
% of equity owned in the project(s)					

***Note 1:** Date of completion/commissioning/commercial operation to be mentioned

Note 2: For each project listed in the table, the Bidder shall furnish an executive summary including the following information:

- Project model, i.e., EPC, Turnkey;
- Size and type of installation;
- Technical data/information on major equipment installed
- Description of role performed by the Bidder/Bidder's Parent/Bidder's Affiliate on the project
- Cost data (breakdown of major components)
- Name of sub-contractor
- Construction time for the project
- Names, addresses and contact numbers of owners of the projects
- Operating reliability over the past five (5) years or since date of commercial operation
- Operating environmental compliance history

- Names of supervisory entities or consultant, if any
- Date of commercial operation
- Total duration of operation

iii. Attachment-3:

a. For each project listed in Attachment 2 above, certificates of final acceptance and/or certificates of good operating performance duly issued by owners for the project and the same shall be certified as true by authorized signatory of the Bidding Company or the Lead Member of Consortium). In case the project listed in Attachment 2 is under BOOT / DBFOT mechanism, the certificates of final acceptance and/or certificates of good operating performance must be issued by the authority / independent engineer of the project as defined in the respective project agreement.

For and on behalf of Bidding Company/Consortium

M/s…….

……..
(Signature of authorized signatory)

Name: ……
Designation: ……
Date: ……
Place: ……

ANNEXURE 8 -UNDERTAKING AND DETAILS OF EQUITY INVESTMENT

Format 1: Bidders' Undertakings

[On the Letter Head of the Bidding Company/Lead Member of Bidding Consortium]

Date: .....

To,

Chief Executive Officer,
REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited)
REC Corporate Head Quarter,
D Block, Plot No. I – 4,
Sec – 29 Gurugram – 122 001

Dear Sir,

Sub: Bidders' Undertakings in respect of Bid for selection of Bidder as TSP to establish Intra-State transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District"

We hereby undertake on our own behalf and on behalf of the TSP, that if selected as the Successful Bidder for the Project:

1. The Project shall comply with all the relevant electricity laws, codes, regulations, standards and Prudent Utility Practices, environment laws and relevant technical, operational and safety standards, and we shall execute any agreements that may be required to be executed as per law in this regard.

2. We confirm that the Project shall also comply with the standards and codes as per Clause 1.6.1.2 of the RFP and the TSP shall comply with the provisions contained in the KERC (Terms and Conditions for Open Access) Regulations, 2025 and any other relevant KERC regulation as amended from time to time.

3. We give our unconditional acceptance to the RFP dated 07.03.2026 issued by the BPC and the RFP Project Documents, as amended, and undertake to ensure that the TSP shall execute all the RFP Project Documents, as per the provisions of this RFP.

4. We have submitted the Bid on the terms and conditions contained in the RFP and the RFP Project Documents. Further, the Financial Bid submitted by us is strictly as per the format provided in Annexure 21 of the RFP, without mentioning any deviations, conditions, assumptions or notes in the said Annexure.

5. Our Bid is valid up to the period required under Clause 2.8 of the RFP.

6. Our Bid has been duly signed by authorized signatory and stamped in the manner and to the extent indicated in this RFP and the power of attorney / Board resolution in requisite format as per RFP has been enclosed with this undertaking.

7. We have assumed that if we are selected as the Successful Bidder, the provisions of the Consortium Agreement, to the extent and only in relation to equity lock in and our liability thereof shall get modified to give effect to the provisions of Clause 2.5.8 of this RFP and Article 18.1 of the Transmission Service Agreement. ***(Note:*** *This is applicable only in case of a Bidding Consortium)*

8. We confirm that our Bid meets the Scheduled COD of each transmission Element and the Project as specified below:

Sl. No.	**Name of the Transmission Element**	**Scheduled COD**	**Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project**	**Element(s) which are pre-required for declaring the commercial operation (COD) of the respective Element**
1.	Establishment of 5x500 MVA, 400/220 kV S/s at Ryapte in Tumkur District along with 2x125MVAr 400 kV Bus Reactors • 400/220 kV ICTs: 5 Nos. (5x500 MVA) • 400 kV ICT Bays: 5 Nos. • 400 kV Line bays (along with space provision for switchable line reactors) : 2 Nos. • 125 MVAr, 420 kV Bus reactor – 2 Nos. • 400 kV Bus reactor bay: 2 Nos • 220 kV ICT Bays: 5 Nos • 220 KV line Bay - 8 No. • 220 kV TBC bay – 2 No. • 220 kV BC bay – 2 No • 220 kV Sectionalization bay: 1 set • 400 kv Bus PT bay- 2 Nos • 220 kv Bus PT bay- 4 Nos Space For Future Provision: • 400/220 KV ICTs - 5 Nos. • 400 KV ICT bay – 5 Nos. • 400 kV Bus Reactor: 3 Nos	30 months from Effective date	100%	All elements of scheme are required to be commissioned simultaneously as their utilization is dependent on each other.

Sl. No.	Name of the Transmission Element	Scheduled COD	Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project	Element(s) which are pre-required for declaring the commercial operation (COD) of the respective Element
	• 400 kV Bus Reactor bays : 3 Nos • 220 kV ICT Bays: 5 Nos • 220 Kv line bays – 8 Nos • 400 kV Line bays (along with space provision for switchable line reactors) : 4 Nos.			
2.	400kV DC line (Quad moose conductor) from Prop. 400/220 kV Ryapte Sub-station to Prop. 400/220 kV Doddathaggalli S/s.			
3.	Establishing 3X500 MVA, 400/220kV GIS sub-station at Doddathaggalli (Near Hosakote) along with 2x125 MVAr, 400 kV Bus Reactors. • 400/220 kV ICTs: 3 no. • 400 kV ICT Bays: 3 Nos • 400 kV Line bays : 4 Nos • 125 MVAr, 420 kV Bus reactor – 2 No • 400 kV Bus reactor bay: 2 Nos • 220 kV ICT Bays: 3 Nos • **220 kV Line bays: 6 Nos.** • 220 kV BC bay – 1 No • 400 kv Bus PT bay- 2 Nos • 220 kv Bus PT bay- 2 Nos Future Provision: • 400 kV line bays – 4 Nos. • 400/220 kV ICTs - 2 Nos. • 400 kV ICT bays - 2 Nos • 400 kV Bus Reactor: 2 Nos. • 400 kV Bus Reactor bays: 2 Nos.			

Sl. No.	Name of the Transmission Element	Scheduled COD	Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project	Element(s) which are pre-required for declaring the commercial operation (COD) of the respective Element
	• 220 kV ICT Bays: 2 Nos • 220 kV Line bays: 4 Nos			
4.	**400kV DC line (Quad moose conductor) from Kolar S/s to Prop. 400/220 kV Doddathaggalli Sub-station with following works at Kolar S/s:-** ***One circuit of Kolar – Doddataggalli 400kV (quad) D/c line may be terminated in existing vacant bay no. 415 at Kolar S/s. Other circuit may be terminated in new GIS diameter with 2-CB scheme. This option requires following main elements:*** • ***Termination of one circuit in the spare 400kV AIS bay no. 415 by providing required bay equipment to complete the 400kV Dia (413.414 and 415 bays)*** • ***Construction of 2 nos. 400kV outdoor GIS bays in 2 CB configuration for termination of other circuit*** • ***Extension of 400kV Main Bus-I and II through GIB duct to proposed 400kV outdoor GIS bays with AIS isolators*** • ***Dismantling and re-erection of one no. LM ,if required***			

Sl. No.	Name of the Transmission Element	Scheduled COD	Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project	Element(s) which are pre-required for declaring the commercial operation (COD) of the respective Element
	- **Further, any requirement suggested by substation owners shall be followed as per site condition.**			
5.	**220kV DC line with Single Zebra and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions)** from proposed 400/220 kV Doddathagalli sub-station to 220kV Ekarajapura sub-station with 2 No.s of AIS TB at Ekarajapura S/s with rearrangement/Shifting of existing Bus PT bay **Note: The Tower design shall be suitable for TWIN Zebra.**			
6.	**220kV DC line with partial AAAC Moose and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions)**, from proposed 400/220 kV Doddathagalli sub-station to proposed 220kV Hosakote New sub-station.			
7.	**220kV DC line with Single Zebra and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions)** from proposed 400/220kV Doddathagalli to Sarjapura AIS S/s with 2 No.s of outdoor GIS TB at Sarjapura S/s by extending existing AIS bus bar along with AIS isolator **Note: The Tower design shall be**			

Sl. No.	Name of the Transmission Element	Scheduled COD	Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project	Element(s) which are pre-required for declaring the commercial operation (COD) of the respective Element
	suitable for TWIN Zebra.			

We agree that the payment of Transmission Charges for any Element irrespective of its successful commissioning on or before its Scheduled COD shall only be considered after the successful commissioning of Element(s) which are pre - required for declaring the commercial operation of such Element as mentioned in the above table.

Scheduled COD for the Project: 30 Months from Effective date

9. We confirm that our Financial Bid conforms to all the conditions mentioned in this RFP, and in particular, we confirm that:

   a. Financial Bid in the prescribed format of Annexure 21 has been submitted duly signed by the authorized signatory.

   b. Financial Bid is unconditional.

   c. Only one Financial Bid has been submitted.

10. We have neither made any statement nor provided any information in this Bid, which to the best of our knowledge is materially inaccurate or misleading. Further, all the confirmations, declarations and representations made in our Bid are true and accurate. In case this is found to be incorrect after our acquisition of Ryapte Power Transmission Limited, pursuant to our selection as Selected Bidder, we agree that the same would be treated as a TSP's Event of Default under Transmission Service Agreement, and relevant provisions of Transmission Service Agreement shall apply.

11. We confirm that there are no litigations or other disputes against us which materially affect our ability to fulfill our obligations with regard to the Project as per the terms of RFP Project Documents.

12. Power of attorney/ Board resolution as per Clause 2.5.2 is enclosed.

Signature and name of the authorized signatory of the Company and stamp of Bidding Company or Lead member of Consortium

Note:

1. In case of foreign Bidders, refer to clause 2.5.6 (p)

Format 2: Details of equity investment in Project

1.1.a Name of the Bidding Company/ Bidding Consortium:

1.1.b Name of the Lead Member in the case of a Bidding Consortium:

1.2 Investment details of the Bidding Company/Member of the Bidding Consortium investing in Ryapte Power Transmission Limited as per Clause 2.5.8.2.

S. No.	Name of the Bidding Company/ Member in case of a Bidding Consortium	Name of the Company investing in the equity of the Ryapte Power Transmission Limited	Relationship with Bidding Company /Member of the Bidding Consortium	% of equity participation in the Ryapte Power Transmission Limited
(1)	(2)	(3)	(4)	(5)
TOTAL				100%

* In case the Bidder proposes to invest through its Affiliate(s) / Parent Company / Ultimate Parent Company, the Bidder shall declare shareholding pattern of such Affiliate(s) / Parent Company / Ultimate Parent Company and provide documentary evidence to demonstrate relationship between the Bidder and the Affiliate(s) / Parent Company / Ultimate Parent Company. These documentary evidences could be, but not limited to, demat account statement(s) / Registrar of Companies' (ROC) certification / share registry book, etc duly certified by Company Secretary.

Members of the Consortium or the Bidding Company making investment in the equity of the Ryapte Power Transmission Limited themselves to fill in their own names in the column (3)

Signature and Name of authorized signatory in whose name power of attorney has been issued

Signature of authorized signatory

Name: …….

Designation: ……...

Date…….

Company rubber stamp

ANNEXURE 9 -AUTHORISATION FROM PARENT / AFFILIATE OF BIDDING COMPANY / MEMBER OF BIDDING CONSORTIUM WHOSE TECHNICAL / FINANCIAL CAPABILITY HAS BEEN USED BY THE BIDDING COMPANY / MEMBER OF BIDDING CONSORTIUM.

[On the Letter Head of the Parent /Affiliate]

Name: …….
Full Address: …….
Telephone No.: ……...
E-mail address: ……...
Fax / No.: ……

To

Chief Executive Officer,
REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited)
REC Corporate Head Quarter,
D Block, Plot No. I – 4,
Sec – 29 Gurugram – 122 001

Dear Sir,

Sub: Authorization for use of Technical / Financial Capability of M/s……. (Insert name of Parent / Affiliate) by M/s …….. (Insert name of Bidding Company / Member of Bidding Consortium).

We refer to the RFP dated 07.03.2026 ('RFP') issued by you for selection of Bidder as Transmission Service Provider for establishing the Intra-State Transmission System for **"Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District"**.

We confirm that M/s .....(Insert name of Bidding Company/ Consortium Member) has been authorized by us to use our technical and/or financial capability [strikeout whichever is not applicable] for meeting the Qualification Requirements for "**Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District"**.

We have carefully read and examined in detail the RFP including in particular, Clause 2.1.4 of the RFP, and we are also submitting legally binding undertaking supported by a board resolution that all the equity investment obligations of M/s……..…. (Insert Name of Bidding Company / Consortium Member), shall be deemed to be our equity investment obligations and in the event of any default the same shall be met by us.
For and on behalf of M/s.....(Insert Name of Parent / Affiliate)

……
(Signature and Name of the authorized signatory of the Company and stamp)

Name: …….

Date: …….
Place: …….

Notes:

1. The above undertaking can be furnished by Ultimate Parent of Technically Evaluated Entity or Financially Evaluated Entity, as the case maybe, if legally binding undertaking is also furnished by the Ultimate Parent on behalf of such Financially Evaluated Entity/Technically Evaluated Entity.

ANNEXURE 10- FORMAT OF UNDERTAKING BY TECHNICALLY / FINANCIALLY EVALUATED ENTITY / ULTIMATE PARENT COMPANY

[On the Letter Head of the Technically / Financially Evaluated Entity / Ultimate Parent Company]

Name: …….

Full Address: ……

Telephone No.: ……

E-mail address: ……

Fax/No.: ……..

To:

Chief Executive Officer,
REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited)
REC Corporate Head Quarter,
D Block, Plot No. I – 4,
Sec – 29 Gurugram – 122 001

Sub: **Undertaking for equity investment**

Dear Sir,

We refer to the Request for Proposal dated 07.03.2026 ('RFP') issued by you regarding setting up of Intra-State transmission system for "**Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District"** Project on build, own, operate and transfer basis.

We have carefully read and examined in detail the RFP and the RFP Project Documents, including in particular, Clause 2.1.4 of the RFP and Clauses 2.5.2 and 2.5.8 of the RFP, regarding submission of an undertaking regarding the investment in the equity share capital of.....(Insert the name of SPV) and provisions for minimum equity holding and equity lock-in. We have also noted the amount of the equity investment required to be made in.....(Insert the name of SPV) by the.....[Insert the name of the Bidder or the Consortium Member] for the Project.

In view of the above, we hereby undertake to you and confirm that in the event of failure of ….....[Insert the name of the Bidder or the Consortium Member] to invest in full or in part, in the equity share capital of.....(Insert the name of SPV) as specified in the Bid, we shall invest the said amount not invested by.....[Insert the name of the Bidder or the Consortium Member] in .....(Insert the name of SPV) by purchase of existing shares or subscribing to the new shares of.....(Insert the name of SPV), as stipulated by you.

We have attached hereto certified true copy of the Board resolution whereby the Board of Directors of our Company has approved issue of this Undertaking by the Company.

All the terms used herein but not defined, shall have the meaning as ascribed to the said terms under the RFP.

Certified as true.

……..

(Signature and Name of the authorized signatory of the Company and stamp)

Note:

1. Wherever required, extract of the charter documents and documents such as a Board resolution should be submitted for verification.

ANNEXURE 11 - FORMATS FOR BOARD RESOLUTIONS

Format 1
Format of the Board resolution for the Bidding Company / each Member of the Consortium / investing Affiliate / Parent Company / Ultimate Parent Company, where applicable

[Reference Clause 2.5.2 of the RFP and the illustrations in Annexure 11A]

[Note: The following resolution no.1 needs to be passed by the Boards of each of the entity/(ies) making equity investment]

The Board, after discussion, at the duly convened Meeting on ..... [Insert date], with the consent of all the Directors present and in compliance of the provisions of the Companies Act, 1956/2013, passed the following Resolution:

1. RESOLVED THAT pursuant to the provisions of the Companies Act, 1956 / Companies Act 2013 (as the case may be) and compliance thereof and as permitted under the Memorandum and Articles of Association of the company, approval of the Board be and is hereby accorded for investment of…….% (……per cent) of the total equity share capital of.....(Insert the name of SPV) representing the entire amount proposed to be invested by the company for the transmission system for **"Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District"**, partly by acquisition of the existing equity shares from .....[Insert the name of the BPC] and / or partly by subscribing to the new equity shares, as per the terms of the RFP.

[Note: Equity investment obligations by the Bidding Company/each Member of the Bidding Consortium/investing Affiliate or Parent or Ultimate Parent should add up to 100%.]

[Note: In the event the Bidder is a Bidding Consortium, the following Board resolution no. 2 also needs to be passed by the Lead Member of the Bidding Consortium]

2. RESOLVED THAT approval of the Board be and is hereby accorded to contribute such further amount over and above the ……. percentage (__%) limit to the extent becoming necessary towards the total equity share in the.....(Insert the name of SPV), obligatory on the part of the company pursuant to the terms and conditions contained in the Consortium Agreement dated ..... executed by the company as per the provisions of the RFP.

[Note: In the event, the investing entity is an Affiliate or Parent or Ultimate Parent of the Bidder, the following Board resolution no. 3 shall also be passed by the Bidder]

3. FURTHER RESOLVED THAT the Board hereby acknowledges the Board Resolution(s) passed by the..... [Name of the Affiliate(s)/ Parent / Ultimate Parent] regarding the investment of…….(….%) of the equity share capital requirements of.....(Insert the name of SPV), which is to be invested by the …….[Name of the Affiliate(s)/ Parent / Ultimate Parent] for the.....(Insert the name of SPV), partly by acquisition of the existing equity shares from _____[Name of BPC] and partly by subscribing to the new equity shares, as per the terms of the RFP.

[Note: The following resolution no. 4 is to be provided by the Bidding Company / Lead Member of the Consortium only]

4. FURTHER RESOLVED THAT MR/MS ……..be and is hereby authorized to take all the steps required to be taken by the Company for submission of the Bid, including in particular, signing of the Bid, making changes thereto and submitting amended Bid, all the documents related to the Bid, certified copy of this Board resolution or letter or undertakings etc, required to be submitted to BPC as part of the Bid or such other documents as may be necessary in this regard.

Certified True Copy

Company rubber stamp to be affixed

[Notes:

1) This certified true copy should be submitted on the letterhead of the Company, signed by the Company Secretary or any Whole Time Director/ Manager (supported by a specific board resolution) of the Bidding Company or the Lead Member of Consortium.

2) The contents of the format may be suitably re-worded indicating the identity of the entity passing the resolution, i.e., the Bidding Company, each Member of the Bidding Consortium.

3) This format may be modified only to the limited extent required to comply with the local regulations and laws applicable to a foreign entity submitting this resolution. For example, reference to Companies Act 1956 / Companies Act 2013 (as the case may be) may be suitably modified to refer to the law applicable to the entity submitting the resolution. However, in such case, the foreign entity shall submit an unqualified opinion issued by the legal counsel of such foreign entity, stating that the Board resolutions are in compliance with the applicable laws of the respective jurisdictions of the issuing company and the authorizations granted therein are true and valid.]

Format 2

Format for the Board resolution of Technically / Financially Evaluated Entity / Ultimate Parent Company (in case credentials of such TEE/ FEE has been utilized by the Bidding Company or Bidding Consortium)

The Board, after discussion, at the duly convened Meeting on ..... [Insert date], with the consent of all the Directors present and in compliance of the provisions of the Companies Act, 1956 / 2013, passed the following Resolution:

RESOLVED THAT pursuant to the provisions of the Companies Act, 1956 / Companies Act, 2013 (as the case may be) and compliance thereof and as permitted under the Memorandum and Articles of Association of the company, approval of the Board be and is hereby accorded for issuing an Undertaking to the BPC, in the format specified in the RFP issued by the BPC, draft of which is attached hereto and initialed by the Chairman whereby the company undertakes to invest …….percent (.... %) of the total equity share capital of.....(Insert the name of SPV) representing the entire amount proposed to be invested by..... [insert the name of the Bidder or Member] for the said Project, in case of failure of.....[Insert the name of the Bidder or Member] to make such investment".

FURTHER RESOLVED THAT..... ,be and is hereby authorized to take all the steps required to be taken by the Company, including in particular, signing the said Undertaking, submitting the same to the BPC through ..... [Insert name of Bidding Company/Lead Member of the Consortium] of all the related documents, certified copy of this Board resolution or letter, undertakings etc, required to be submitted to BPC as part of the Bid or such other documents as may be necessary in this regard.

Certified True Copy

Company rubber stamp to be affixed

Note:

1. This certified true copy should be submitted on the letterhead of the Company, signed by the Company Secretary or any Whole-time Director/Manager (supported by a specific board resolution) of Bidding Company or Lead Member of the Consortium.

2. The contents of the format may be suitably re-worded indicating the identity of the entity passing the resolution.

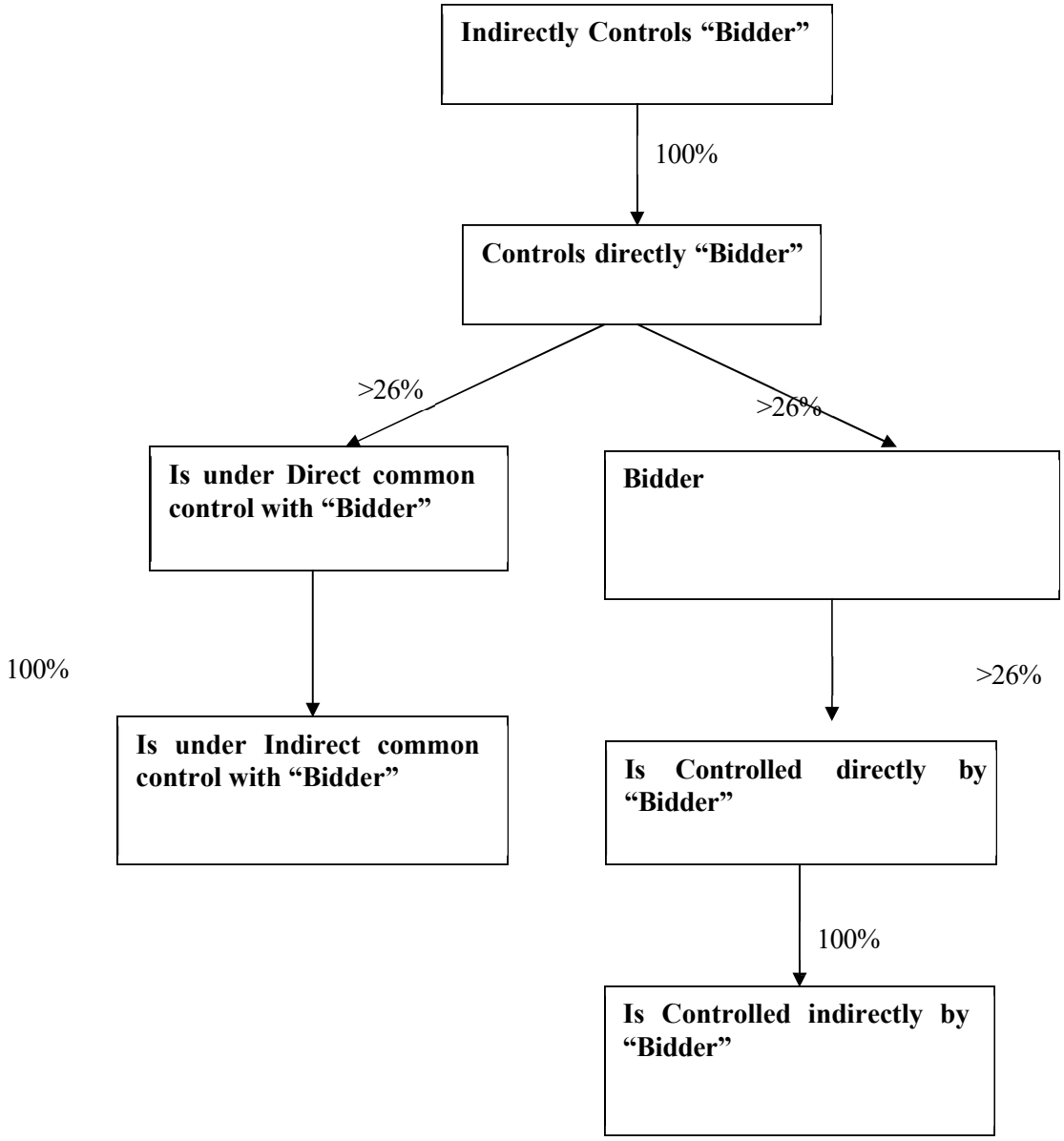
3. This format may be modified only to the limited extent required to comply with the local regulations and laws applicable to a foreign entity submitting this resolution. For example, reference to Companies Act 1956 / Companies Act 2013 (as the case may be) may be suitably modified to refer to the law applicable to the entity submitting the resolution. However, in such case, the foreign entity shall submit an unqualified opinion issued by the legal counsel of such foreign entity, stating that the Board resolutions are in compliance with the applicable laws of the respective jurisdictions of the issuing company and the authorizations granted therein are true and valid.

ANNEXURE 11A – ILLUSTRATION FOR APPLICABLE BOARD RESOLUTION REQUIREMENTS UNDER CLAUSE 2.5.2

Investor in the TSP	Entities (other than Bidder) whose credentials (financial and/or technical) used by the Bidder for meeting RFP criteria	Applicable Board Resolutions	Requirement of Undertaking (Annexure 10)
Bidder himself for 100% equity	None	a) Format 1 of Annexure 11 - Resolution: 1, 2 and 4 from the Bidder	None
Bidder himself for 100% equity	Affiliate and/or Parent Company and/or Ultimate Parent	a) Format 1 of Annexure 11 - Resolution: 1, 2, and 4 from the Bidder b)Format 2 of Annexure 11 by either Technically/ Financially Evaluated Entity(ies) whose credentials have been used, or Ultimate Parent. Provided, if the Bidder himself is the Ultimate Parent, then Format 2 need not be provided.	Yes, by either Technically / Financially Evaluated Entity(ies) Affiliate(s) whose credentials have been used, or Ultimate Parent. Provided, if the Bidder himself is the Ultimate Parent, then the undertaking need not be provided.
Bidder himself + others (Affiliate and/or Parent Company and/or Ultimate Parent) in aggregate holding 100% equity	None	a) Format 1 of Annexure 11 - Resolution: 1,2, 3 and4 from the Bidder. b) Format 1 of Annexure 11 - Resolution: 1 from the Affiliate and /or Parent and /or Ultimate Parent investing in the equity	None
Bidder himself + others (Affiliate and/or Parent Company and/or Ultimate Parent) in aggregate	Affiliate and/or Parent Company and/or Ultimate Parent	a) Format 1 of Annexure 11 - Resolution: 1,2, 3 and 4 from the Bidder. b) Format 1 of Annexure 11 - Resolution: 1 from the Affiliate and/or Parent and/or Ultimate Parent	Yes, by either Parent/ Affiliate(s) whose credentials have been used, or Ultimate Parent

holding 100% equity		investing in the equity c) Format 2 of Annexure 11 by either Parent / Affiliate(s) whose credentials have been used and /or Ultimate Parent investing in the equity	

ANNEXURE 12 - FORMAT FOR ILLUSTRATION OF AFFILIATES



NOTE: Bidder to provide the illustration, as applicable in their case, duly certified by the Company Secretary and supported by documentary evidence in this regard.

ANNEXURE 13 - FORMAT FOR DISCLOSURE

[On the letter head of Bidding Company / Each Member in a Bidding Consortium]

Date: ……

DISCLOSURE

We hereby declare that the following companies with which we/ have direct or indirect relationship are also separately participating in this Bid process as per following details

S. No.	Name of the Company	Relationship
1.		
2.		
3.		

In case there is no such company please fill in the column "name of the company" as Nil.

Further we confirm that we don't have any Conflict of Interest with any other company participating in this bid process.

Certified as True

……..
(Signature)

Name: .....

Signature & Name of authorized signatory of the Company and Stamp

The above disclosure should be signed and certified as true by the authorized signatory of the Bidding Company or of the Member, in case of a Consortium).

ANNEXURE 14 - FORMAT OF THE BID BOND

FORMAT OF THE UNCONDITIONAL AND IRREVOCABLE BANK GUARANTEE FOR BID BOND

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution.)

In consideration of the .....[Insert name of the Bidder] submitting the Bid inter alia for establishing the Intra-State transmission system for _____[Name of Project] on build, own, operate and transfer basis, in response to the RFP dated _____issued by _____[Name of BPC], and the Bid Process Coordinator (hereinafter referred to as BPC) agreeing to consider such Bid of …. .....[Insert the name of the Bidder] as per the terms of the RFP, the [Insert name and address of the bank issuing the Bid Bond, and address of the Head Office] (hereinafter referred to as "Guarantor Bank") hereby agrees unequivocally, irrevocably and unconditionally to pay to _____[Name of BPC] or its authorized representative at _____[Address of BPC] forthwith on demand in writing from _____[Name of BPC] or any representative authorized by it in this behalf, any amount up to and not exceeding Rupees _____Only (Rs Crore), on behalf of M/s .....[Insert name of the Bidder].

This guarantee shall be valid and binding on the Guarantor Bank up to and including …. .....[Date to be inserted on the basis of Clause 2.11 of this RFP] and shall not be terminable by notice or any change in the constitution of the Guarantor Bank or by any other reasons whatsoever and our liability hereunder shall not be impaired or discharged by any extension of time or variations or alternations made, given, or agreed with or without our knowledge or consent, by or between concerned parties.

Our liability under this Guarantee is restricted to Rupees ... _____Only (Rs __Crore). Our Guarantee shall remain in force until ..... [Date to be inserted on the basis of Clause 2.11 of this RFP]. _____[Name of BPC] or its authorized representative shall be entitled to invoke this Guarantee until..... [Insert Date, which is three sixty five days (365) days after the date in the preceding sentence]. The Guarantor Bank hereby expressly agrees that it shall not require any proof in addition to the written demand from _____[Name of BPC] or its authorized representative, made in any format, raised at the above mentioned address of the Guarantor Bank, in order to make the said payment to _____[Name of BPC] or its authorized representative.

The Guarantor Bank shall make payment hereunder on first demand without restriction or conditions and notwithstanding any objection, disputes, or disparities raised by the Bidder or any other person. The Guarantor Bank shall not require _____ [Name of BPC] or its authorized representative to justify the invocation of this BANK GUARANTEE, nor shall the Guarantor Bank have any recourse against _____[Name of BPC] or its authorized representative in respect of any payment made hereunder.

This BANK GUARANTEE shall be interpreted in accordance with the laws of India.

The Guarantor Bank represents that this BANK GUARANTEE has been established in such form and with such content that it is fully enforceable in accordance with its terms as against the Guarantor Bank in the manner provided herein.

This BANK GUARANTEE shall not be affected in any manner by reason of merger, amalgamation, restructuring or any other change in the constitution of the Guarantor Bank.

This BANK GUARANTEE shall be a primary obligation of the Guarantor Bank and accordingly _____[Name of BPC] or its authorized representative shall not be obliged before enforcing this BANK GUARANTEE to take any action in any court or arbitral proceedings against the Bidder, to make any claim against or any demand on the Bidder or to give any notice to the Bidder to enforce any security held by _____[Name of BPC] or its authorized representative or to exercise, levy or enforce any distress, diligence or other process against the Bidder.

Notwithstanding anything contained hereinabove, our liability under this Guarantee is restricted to Rupees _____Only (Rs _____Crore) and it shall remain in force until.....[Date to be inserted on the basis of Clause 2.11 of RFP], with an additional claim period of three hundred sixty five (365) days thereafter. We are liable to pay the guaranteed amount or any part thereof under this BANK GUARANTEE only if _____[Name of BPC] or its authorized representative serves upon us a written claim or demand.

In witness whereof the Bank, through its authorized officer, has set its hand and stamp on this…….. day of ..... at……

Witness:

1……. Signature: ……..

Name and Address Name: ……..……..

2. …….. Designation with Stamp:

Name and Address

Signature …….

Attorney as per power of attorney No.……

For:

… ..... [Insert Name of the Bank]

Banker's Stamp and Full Address:

Dated this……day of……. 20……..

Notes:

1. The Stamp Paper should be in the name of the Executing Bank.

ANNEXURE 14A- FORMAT OF THE SURETY BOND FOR BID SECURITY

FORMAT OF THE SURETY BOND

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution.)

In consideration of the ..... [Insert name of the Bidder] submitting the Bid inter alia for establishing the Inter-State transmission system for _____[Name of Project] on build, own, operate and transfer basis, in response to the RFP dated _____issued by _____[Name of BPC], and the Bid Process Coordinator (hereinafter referred to as BPC) agreeing to consider such Bid of ..... [Insert the name of the Bidder] as per the terms of the RFP, the [Insert name of Surety Insurer issuing the surety bond and address of Head Office] (hereinafter referred to as "Surety Insurer") hereby agrees unequivocally, irrevocably and unconditionally to pay to ____ [Name of BPC] or its authorized representative at ___ [Address of BPC] forthwith on demand in writing from _____[Name of BPC] or any representative authorized by it in this behalf, any amount up to and not exceeding Rupees __Only (Rs _____ Crore) (the "Surety Bond"),on behalf of M/s.....[Insert name of the Bidder].

This surety bond shall be valid and binding on the Surety Insurer up to and including ..... [Date to be inserted on the basis of Clause 2.11 of this RFP] and shall not be terminable by notice or any change in the constitution of the Surety Insurer or by any other reasons whatsoever and our liability hereunder shall not be impaired or discharged by any extension of time or variations or alternations made, given, or agreed with or without our knowledge or consent, by or between concerned parties.

Our liability under this Surety Bond is restricted to Rupees _____Only (Rs ___ Crore). The Surety Bond shall remain in force until .....[Date to be inserted on the basis of Clause 2.11 of this RFP]. _____ [Name of BPC] or its authorized representative shall be entitled to invoke this Surety bond until ..... [Insert Date, which is one hundred eighty (180) days after the date in the preceding sentence]. The Surety Insurer hereby expressly agrees that it shall not require any proof except for the written demand from _____[Name of BPC] or its authorized representative, made in any format, raised at the above mentioned address of the Surety Insurer, in order to make the said payment to ____[Name of BPC] or its authorized representative.

The Surety Insurer shall make payment hereunder on first demand without restriction or conditions and notwithstanding any objection, disputes, or disparities raised by the Bidder or any other person. The Surety Insurer shall not require _____[Name of BPC] or its authorized representative to justify the invocation of this surety bond, nor shall the Surety Insurer have any recourse against _____[Name of BPC] or its authorized representative in respect of any payment made hereunder.

This Surety Bond shall be interpreted in accordance with the laws of India.

The Surety Insurer represents that this Surety Bond has been established in such form and with

such content that it is fully enforceable in accordance with its terms as against the Surety Insurer in the manner provided herein.

This Surety Bond shall not be affected in any manner by reason of merger, amalgamation, restructuring, liquidation, winding up, dissolution or any other change in the constitution of the Surety Insurer.

This Surety Bond shall be a primary obligation of the Surety Insurer and accordingly _____ [Name of BPC] or its authorized representative shall not be obliged before enforcing this Surety Bond to take any action in any court or arbitral proceedings against the Bidder, to make any claim against or any demand on the Bidder or to give any notice to the Bidder to enforce any security held by _____[Name of BPC] or its authorized representative or to exercise, levy or enforce any distress, diligence or other process against the Bidder.

The Surety Insurer declares that it has power to issue this Surety Bond and discharge the obligations contemplated herein, the undersigned is duly authorised and has full power to execute this Surety Bond for and on behalf of the Surety Insurer.

Notwithstanding anything contained hereinabove, our liability under this surety bond is restricted to Rupees _____Only (Rs ____ Crore) and it shall remain in force until ..... [Date to be inserted on the basis of Clause 2.11 of RFP], with an additional claim period of one hundred eighty (180) days thereafter. We are liable to pay the guaranteed amount or any part thereof under this Surety Bond only if _____[Name of BPC] or its authorized representative serves upon us a written claim or demand.

In witness where of:

Signature.....

Name: .....

Power of attorney No/ Employee No. as applicable.:

For:

..... [Insert Name of the Surety-Insurance Company]
Banker's Seal and Full Address, including mailing address of the Head Office

Notes:

1. The Stamp Paper should be in the name of the Executing Insurance Company.

ANNEXURE 14B - FORMAT OF PAYMENT ON ORDER INSTRUMENT TO BE ISSUED BY IREDA/ REC/ PFC

(to be submitted separately for each Project)

No. Date

…..... [Insert name of BPC]

Reg: M/s_____(insert name of the bidding entity)- **Issuance of Payment on Order Instrument for an amount of Rs._____**

Dear Sir,

1. At the request of M/s..... (Insert name of the bidding entity), this Payment on Order Instrument (POI) for an amount of Rs..... (Rupees (In words)) is being issued by M/s. (Insert Name of the POI issuing Agency) ('IREDA/REC/PFC'). This Payment on Order Instrument comes into force immediately.
2. In consideration of the .... [Insert name of the Bidding Entity] (hereinafter referred to as 'Bidder') submitting the response to RFP issued by [Insert name of BPC] for the project ..... [Insert name of the project] and [Insert name of BPC] considering such response to the RfP of M/s..... [Insert the name of Bidding Entity] as per the terms of the RFP, the .... [Insert name & address of IREDA/PFC/REC] hereby agrees unequivocally, irrevocably and unconditionally to pay to _____[Insert name of BPC] at [Insert Name of the Place from the address of the BPC] forthwith without demur on demand in writing from..... [Insert name of BPC] or any Officer authorized by it in this behalf, any amount up to and not exceeding Rupees [Insert amount not less than the bid bond value indicated in RFP] only, on behalf of M/s. ____[Insert name of the Bidding Entity].
3. In consideration of the above facts, IREDA/REC/PFC, having its registered office at ..... agrees to make payment for the sum of Rs (in words .....) to.....[Insert name of BPC] on the following conditions:

   (a) IREDA/REC/PFC agrees to make payment of the above said amount unconditionally, without demur and without protest within a period of days of receipt of request from _____ [Insert name of BPC] within the validity period of this letter as specified herein;

(b) The commitment of IREDA/REC/PFC, under this Payment on Order Instrument will have the same effect as that of the commitment under the Bank Guarantee issued by any Public Sector Bank and shall be enforceable in the same manner as in the case of a Bank Guarantee issued by a Bank and the same shall be irrevocable and shall be honoured irrespective of any agreement or its breach between IREDA/REC/PFC or its constituents notwithstanding any dispute that may be raised by them against _____[Insert name of BPC];

(c) The liability of IREDA/REC/PFC continues to be valid and binding on IREDA/REC/PFC and shall not be terminated, impaired, and discharged by virtue of change in its constitution and specific liability under this POI shall be binding on its successors or assignors;

(d) The liability of IREDA/REC/PFC shall continue to be valid and binding on IREDA/REC/PFC and shall not be terminated/impaired/discharged by any extension of time or variation and alteration made, given or agreed with or without knowledge or consent of the parties _____ ([Insert name of BPC] and Bidder), subject however to the maximum extent of amount stated herein and IREDA/REC/PFC is not liable to any interest or costs etc.;

(e) This Payment on Order Instrument can be invoked either partially or fully, till the date of validity;

(f) IREDA/REC/PFC agrees that it shall not require any proof in addition to the written demand by _____[Insert name of BPC] made in any format within the validity period. IREDA/REC/PFC shall not require [Insert name of BPC] to justify the invocation of the POI against the Bidder, to make any claim against or any demand against the Bidder or to give any notice to the Bidder;

(g) The POI shall be the primary obligation of IREDA/REC/PFC and .....[Insert name of BPC] shall not be obliged, before enforcing the POI, to take any action in any court or arbitral proceedings against the Bidder;

(h) The POI shall not be affected in any manner by reason of merger, amalgamation, restructuring or any other changes in constitution of IREDA/REC/PFC;

(i) Neither the ..... [Insert name of BPC] is required to justify the invocation of this POI nor shall IREDA/REC/PFC have any recourse against the .....[Insert name of BPC] in respect of the payment made under this POI.

4. Notwithstanding anything contrary contained anywhere in this POI or in any other documents, this POI is and shall remain valid up to _____[Insert the date of validity of the POI as per Clause 2.11.1 of the RFP], with an additional claim period of three hundred and sixty-five (365) days thereafter and IREDA/REC/PFC shall make payment thereunder only if a written demand or request is raised within the said date and to the maximum extent of Rs..... and IREDA/REC/PFC shall in no case be liable for any interest, costs, charges, and expenses and IREDA's/REC's/PFC's liability in no case will exceed more than the above amount stipulated.

5. In pursuance of the above, IREDA/REC/PFC and .. [Insert name of BPC] have signed an Umbrella Agreement dated .....setting out the terms and conditions for issue of letter of undertaking by IREDA/REC/PFC to ..... [Insert name of BPC] and the said terms and conditions shall be read as a part of this POI issued for the project of PP mentioned above.

Thanking you,

Yours faithfully
For and on behalf of
M/s.....

(Name of the POI issuing agency)

( )

General Manager

Copy to

M/s..... as per their request

( )

General Manager

ANNEXURE 15 - FORMAT FOR CONTRACT PERFORMANCE GUARANTEE

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution. Foreign entities submitting Bids are required to follow the applicable law in their country)

In consideration of the.....[Insert name of the SPV or Selected Bidder on behalf of SPV or Lead Member in case of the Consortium, with address] agreeing to undertake the obligations under the Transmission Service Agreement dated..... and the other RFP Project Documents and the Nodal Agency and..... …_[Name of BPC], agreeing to execute the RFP Project Documents with the Selected Bidder, regarding setting up the Project, the .....[Insert name and address of the bank issuing the guarantee and address of the head office] (hereinafter referred to as "Guarantor Bank") hereby agrees unequivocally, irrevocably and unconditionally to pay to the Nodal Agency at.....[Insert Place and Address of the Nodal Agency indicated in TSA] forthwith on demand in writing from the Nodal Agency or any Officer authorized by it in this behalf, any amount up to and not exceeding Rupees……Crores (Rs…….) only [Insert the amount of the bank guarantee] on behalf of M/s.....[Insert name of the Selected Bidder / SPV].

This guarantee shall be valid and binding on the Guarantor Bank up to and including … .....and shall not be terminable by notice or any change in the constitution of the Bank or the term of the Transmission Service Agreement or by any other reasons whatsoever and our liability hereunder shall not be impaired or discharged by any extension of time or variations or alternations made, given, or agreed with or without our knowledge or consent, by or between parties to the respective agreement.

Our liability under this Guarantee is restricted to Rupees.....Crores (Rs……) only. Our Guarantee shall remain in force until.....[Insert the date of validity of the Guarantee as per Clause 2.12.1 of the RFP]. The Nodal Agency shall be entitled to invoke this Guarantee up to three hundred sixty five (365) days of the last date of the validity of this Guarantee.

The Guarantor Bank hereby expressly agrees that it shall not require any proof in addition to the written demand from the Nodal Agency, made in any format, raised at the above mentioned address of the Guarantor Bank, in order to make the said payment to the Nodal Agency.
The Guarantor Bank shall make payment hereunder on first demand without restriction or conditions and notwithstanding any objection by _____[Name of SPV],.....[Insert name of the Selected Bidder],.....[Insert name of the TSP] and/or any other person. The Guarantor Bank shall not require the Nodal Agency to justify the invocation of this BANK GUARANTEE, nor shall the Guarantor Bank have any recourse against the Nodal Agency in respect of any payment made hereunder.

This BANK GUARANTEE shall be interpreted in accordance with the laws of India.

The Guarantor Bank represents that this BANK GUARANTEE has been established in such form and with such content that it is fully enforceable in accordance with its terms as against the Guarantor Bank in the manner provided herein.

This BANK GUARANTEE shall not be affected in any manner by reason of merger, amalgamation, restructuring, liquidation, winding up, dissolution or any other change in the constitution of the Guarantor Bank.

This BANK GUARANTEE shall be a primary obligation of the Guarantor Bank and accordingly the Nodal Agency shall not be obliged before enforcing this BANK GUARANTEE to take any action in any court or arbitral proceedings against _____[Name of SPV] or the Selected Bidder, to make any claim against or any demand on _____[Name of SPV] or the Selected Bidder, as the case may be, or to give any notice to _____[Name of SPV] or the Selected Bidder, as the case may be, or to enforce any security held by the Nodal Agency or to exercise, levy or enforce any distress, diligence or other process against ……_[Name of SPV] or the Selected Bidder, as the case may be.

The Guarantor Bank acknowledges that this BANK GUARANTEE is not personal to the Nodal Agency and may be assigned, in whole or in part, (whether absolutely or by way of security) by Nodal Agency to any entity to whom the Nodal Agency is entitled to assign its rights and obligations under the Transmission Service Agreement.

The Guarantor Bank hereby agrees and acknowledges that the Nodal Agency shall have a right to invoke this Bank Guarantee either in part or in full, as it may deem fit.

Notwithstanding anything contained hereinabove, our liability under this Guarantee is restricted to Rupees ……..Crores (Rs ……..) only and it shall remain in force until [Date to be inserted on the basis of Article 3.1.2 of TSA], with an additional claim period of three hundred sixty five (365) days thereafter. This BANK GUARANTEE shall be extended from time to time for such period, as may be desired by ..... [Insert name of the Selected Bidder or Lead Member in case of the Consortium or SPV]. We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only if the Nodal Agency serves upon us a written claim or demand.

In witness where of:

Signature……..

Name: ……

Power of attorney No.: ……...

For:

… .....[Insert Name of the Bank]

Banker's Seal and Full Address, including mailing address of the Head Office

Notes:

1. The Stamp Paper should be in the name of the Executing Bank.

ANNEXURE 15A - FORMAT FOR SURETY INSURANCE CONTRACT

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution.

Foreign entities submitting Bids are required to follow the applicable law of India)

In consideration of the ..... [Insert name of the SPV or Selected Bidder on behalf of SPV or Lead Member in case of the Consortium, with address] (hereinafter referred to as the '**Principal Debtor**' for the purposes of this Surety Insurance Contract as provided in Section 126 of the Indian Contract Act, 1872) having been selected to undertake the Transmission Project on the terms and conditions contained in the Transmission Service Agreement dated ...../ to be executed as per the Model Transmission Service Agreement provided along with the Request for Proposal ('**RFP**') and other RFP Project Documents, subject to the condition of providing a Performance Bank Guarantee or a Surety Insurance Contract guaranteeing/insuring the due performance of the obligations under the Transmission Service Agreement, to the Central Transmission Utility of India Limited ('**CTUIL**') [herein after referred to as the Nodal Agency], the [Insert name and address of the Insurance Company issuing the Surety Insurance Contract and address of the head office] (hereinafter referred to as "**Surety**") hereby agrees unequivocally, irrevocably, absolutely and unconditionally, without demur, to pay to the Nodal Agency at_____ [Insert Place and Address of the Nodal Agency indicated in Transmission Service Agreement, or to the designated Bank Account of the Nodal Agency, namely] forthwith on demand in writing from the Nodal Agency, or any Officer authorized by it in this behalf, intimated to the Surety at the address mentioned above, any amount as may be decided by the Nodal Agency not exceeding Rupees .....Crores (Rs.....) only [Insert the amount of the Surety Insurance Contract]

The Surety hereby acknowledges, accepts and confirms that the Surety has received from the Principal Debtor, by way of premium the entire consideration for the Surety to execute, in favour of the Nodal Agency, this Surety Insurance Contract, as extended by the Surety from time to time and assuming the obligation to pay to the Nodal Agency the amount in terms hereof, without any requirement for payment of any other consideration to the Surety by the Principal Debtor, or otherwise.

This Surety Insurance Contract shall be valid and binding on the Surety, as the principal obligation of the Surety to pay on demand by the Nodal Agency, and shall not be terminable by notice or any change in the constitution of the Surety or the term of the Transmission Service Agreement or by any other reasons whatsoever and the liability hereunder of the Surety shall not be impaired or discharged by any extension of time or variations or alternations made, given, or agreed (with or without the knowledge or consent of the Surety) by or between the Principal Debtor and the Nodal Agency.

The liability of the Surety under this Surety Insurance Contract is restricted to Rupees ..... Crores (Rs) only. The Surety Insurance Contract shall remain in force until [Insert the date of validity of the Surety Insurance Contract]. The Nodal Agency shall be entitled to invoke this

Surety Insurance Contract up to three hundred sixty five (365) days after the last date of the validity of this Surety Insurance Contract.

The Surety hereby expressly agrees that it shall not require any proof except for the written demand from the Nodal Agency, containing the statement that the contractor has failed to meet its contractual obligations raised at the above mentioned address of the Surety (address of Surety office should be a place in NCR only) and the Surety shall pay the amount without reference to the Principal Debtor.

Any such demand made by the Nodal Agency on the Surety shall be conclusive and binding not withstanding any difference between the Nodal Agency and the Principal Debtor or any dispute pending before any Court, Tribunal, Arbitrator or any other authority. The Surety undertakes not to revoke this guarantee during its currency without previous consent of the Nodal Agency and further agrees that the Surety Insurance Contract herein contained shall continue to be enforceable till the Nodal Agency discharges this contract or till the expiry of tenor (including Claim period) whichever is earlier.

The Surety shall make payment hereunder within two (02) working days on first demand without restriction or conditions and notwithstanding any objection by the Principal Debtor, namely, ... [Insert name of SPV], or..... [Insert name of the Selected Bidder], or ..... [Insert name of the TSP] and/or any other person. The Surety shall not require the Nodal Agency to justify the invocation of this Surety Insurance Contract, nor shall the Surety have any recourse against the Nodal Agency in respect of any payment made hereunder.

This SURETY INSURANCE CONTRACT shall be interpreted in accordance with the laws of India.

This SURETY INSURANCE CONTRACT is being executed by the Surety in terms of the IRDAI (Surety Insurance Contract) Guidelines, 2022 and the Surety hereby acknowledges, accepts and confirms that this Surety Insurance Contract shall be a Contract of Guarantee as provided under Section 126 of the Indian Contract Act, 1872 and further shall be covered by Section 14(3)(b) of the Insolvency and Bankruptcy Code, 2016 (as amended) shall be enforceable as such.

The Surety represents that this Surety Insurance Contract has been established in such form and with such content that it is fully enforceable in accordance with its terms as against the Surety in the manner provided herein.

This SURETY INSURANCE CONTRACT shall not be affected in any manner by reason of merger, amalgamation, restructuring, liquidation, winding up, dissolution or any other change in the constitution of the Surety.
In order to give effect to this surety Bond, the Nodal Agency shall be entitled to act as if the surety insurer were the principal debtor and any change in the constitution of the contractor and/or the surety

insurer, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the surety insurer under this surety Bond.

This SURETY INSURANCE CONTRACT shall be a primary obligation of the Surety as a Principal to pay on demand by the Nodal Agency and the Nodal Agency shall not be obliged before enforcing this Surety Insurance Contract to take any action in any court or arbitral proceedings against the Principal Debtor, namely, ... [Insert name of SPV], or .....[Insert name of the Selected Bidder], or .....[Insert name of the TSP] and/or any other person, as the case may be, to make any claim against or any demand on the Principal Debtor, namely, ...[Insert name of SPV], or ..... [Insert name of the Selected Bidder], or.....[Insert name of the TSP] and/or any other person, as the case may be, or to give any notice to Principal Debtor, namely..... [Insert name of SPV], or ..... [Insert name of the Selected Bidder], or.....[Insert name of the TSP] and/or any other person, as the case may be, or to enforce any security held by the Nodal Agency or to exercise, levy or enforce any distress, diligence or other process against the Principal Debtor, namely, ... [Insert name of SPV], or ..... [Insert name of the Selected Bidder], or .....[Insert name of the TSP] and/or any other person, as the case may be.

The Surety acknowledges that this Surety Insurance Contract is not personal to the Nodal Agency and may be assigned, in whole or in part, (whether absolutely or by way of security) by Nodal Agency to any entity to whom the Nodal Agency is entitled to assign its rights and obligations under the Transmission Service Agreement Provided that any such assignment shall be in compliance with the relevant provisions of the Insurance Act 1938

The Surety hereby agrees and acknowledges that the Nodal Agency shall have a right to invoke this Surety Insurance Contract either in part or in full, as it may deem fit. In case of invocation of this Surety Insurance Contract in part, besides making payment for the part of Surety Insurance Contract invoked, surety at the request of nodal agency shall amend the value of Surety Insurance Contract to the extent of balance amount.

The Surety undertakes not to revoke this Surety Contract during its currency, except with the previous express consent of the Nodal Agency in writing and declares and warrants that it has the power to issue this Surety Contract and the undersigned has full powers to do so on behalf of the Surety

In witness where of:

Signature.....

Name: .....

Power of attorney No/ Employee No. as applicable.: ……

For:

. ..... [Insert Name of the Surety-Insurance Company]
Banker's Seal and Full Address, including mailing address of the Head Office

Notes:

1. The Stamp Paper should be in the name of the Executing Insurance Company.

ANNEXURE 15B - FORMAT FOR ISSUANCE OF PAYMENT ON ORDER INSTRUMENT

Dear Sir,

1. Indian Renewable Energy Development Agency Limited ('IREDA")/PFC/REC has sanctioned a non-fund based limit loan of Rs. (Rupees..... Only) to M/s ..... [Insert name of SPV or selected Bidder] under the Loan Agreement executed on ..... to execute Transmission System Projects.

2. In consideration of the .....[Insert name of the SPV or Selected Bidder on behalf of SPV or Lead Member in case of the Consortium, with address] for the purposes of this Payment on Order Instrument ("POI") having been selected to undertake the Transmission Project on the terms and conditions contained in the Transmission Service Agreement dated..... / to be executed as per the draft of the Model Transmission Service Agreement provided along with the Request for Proposal („RFP") and other RFP Project Documents, subject to the condition of providing a POI guaranteeing the due performance of the obligations under the Transmission Service Agreement to the Nodal Agency/Central Transmission Utility of India Limited („CTUIL"), the.....[Insert name and address of the non-banking financial institutions(IREDA/PFC/REC) issuing the POI and address of the head office] (hereinafter referred to as **"Guarantor")** hereby agrees unequivocally, irrevocably, absolutely and unconditionally, without demur, to pay to the Nodal Agency at..... [Insert Place and Address of the Nodal Agency indicated in Transmission Service Agreement, or to the designated Bank Account of the Nodal Agency, namely .....] forthwith on demand in writing from the Nodal Agency, or any Officer authorized by it in this behalf, intimated to the Guarantor at the address mentioned above, any amount as may be decided by the Nodal Agency not exceeding Rupees ..... Crores (Rs) only [Insert the amount of Payment on Order Instrument]

3. At the request of .....and on behalf of M/s. ....., [Insert name of SPV or selected Bidder] this Payment on Order Instrument (POI) for an amount of Rs. ..... (Rupees .....) is being issued with IREDA/PFC/REC assuming the obligations to remit such amount to CTUIL from the sanctioned loan.

4. This Payment on Order Instrument comes into force immediately and IREDA/PFC/REC confirms that it has sufficient amount out of the sanctioned loan and shall maintain the required amount to pay under this Payment on Order Instrument, during the validity and claim period of this Payment on Order Instrument.

5. This POI has been issued by IREDA/PFC/REC utilizing the credit limit of M/s.....[Insert name of SPV or selected Bidder] IREDA/PFC/REC confirms that its liability to pay under this Payment on Order Instrument shall be primary and independent of whether at the time of invocation of Payment on Order Instrument, the sanctioned funds are available or not and notwithstanding, the status of M/s .....[Insert name of SPV or selected Bidder] at the relevant time and to whether IREDA/PFC/REC is able to recover the amount advanced by it to the said developer.

6. IREDA/PFC/REC and M/s .....[Insert name of SPV or selected Bidder] hereby acknowledges, accepts and confirms that this Payment on Order Instrument shall be a Contract of Guarantee as provided under Section 126 of the Indian Contract Act, 1872 and further shall be covered by Section 14(3)(b) of the Insolvency and Bankruptcy Code, 2016 (as amended) shall be enforceable as such.

7. IREDA/PFC/REC liability under this POI is restricted to Rupees Crores (Rs.....) only. This POI shall remain in force until..... [Insert the date of validity of the POI]. The Nodal Agency shall be entitled to invoke this POI up to three hundred sixty-five (365) days after the last date of the validity of this POI. This POI shall be extended from time to time for such period, as may be desired by the TSP.

8. The Guarantor hereby expressly agrees that it shall not require any proof except for the written demand from the Nodal Agency, raised at the above-mentioned address of the Guarantor (address of Guarantor office should be in NCR only) and the Guarantor shall pay the amount to the Nodal Agency without reference to the TSP.

9. Any such demand made by the Nodal Agency on the Guarantor shall be conclusive and binding not withstanding any difference between the Nodal Agency and the TSP or any dispute pending before any Court, Tribunal,

Arbitrator or any other authority. The Guarantor undertakes not to revoke this guarantee during its currency without previous consent of the Nodal Agency and further agrees that the POI herein contained shall continue to be enforceable till the Nodal Agency discharges this contract or till the expiry of tenure or (including Claim period) whichever is earlier.

10. The Guarantor shall make payment hereunder within two (02) working days on first demand without restriction or conditions and notwithstanding any objection or disputes raised by the TSP, namely, ... [Insert name of SPV], or [Insert name of the Selected Bidder], or ..... [Insert name of the TSP] and/or any other person. The Guarantor shall not require the Nodal Agency to justify the invocation of this POI, nor shall the Guarantor have any recourse against the Nodal Agency in respect of any payment made hereunder.

11. This POI shall be interpreted in accordance with the laws of India.

12. The Guarantor represents that this POI Contract has been established in such form and with such content that it is fully enforceable in accordance with its terms as against the Guarantor in the manner provided herein.

13. This POI shall not be affected in any manner by reason of merger, amalgamation, restructuring, liquidation, winding up, dissolution or any other change in the constitution of the Guarantor.

14. This POI Contract shall be a primary obligation of the Guarantor as a Principal to pay on demand by the Nodal Agency and the Nodal Agency shall not be obliged before enforcing this POI Contract to take any action in any court or arbitral proceedings against the TSP, namely, ... [Insert name of SPV], or..... [Insert name of the Selected Bidder], or.....[Insert name of the TSP] and/or any other person, as the case may be to make any claim against or any demand on the TSP, namely, ... [Insert name of SPV], or.....[Insert name of the Selected Bidder], or.....[Insert name of the TSP] and/or any other person, as the case may be, or to give any notice to TSP, namely..... [Insert name of SPV], or.....[Insert name of the Selected Bidder], or .....[Insert name of the TSP] and/or any other person, as the case may be, or to enforce any security held by the Nodal Agency or to exercise, levy

or enforce any distress, diligence or other process against the TSP, namely, ... [Insert name of SPV], or ……. [Insert name of the Selected Bidder], or ..... [Insert name of the TSP] and/or any other person, as the case may be.

15. The Guarantor acknowledges that this POI Contract is not personal to the Nodal Agency and may be assigned, in whole or in part, (whether absolutely or by way of security) by Nodal Agency to any entity to whom the Nodal Agency is entitled to assign its rights and obligations under the Transmission Service Agreement.

16. The Guarantor hereby agrees and acknowledges that the Nodal Agency shall have a right to invoke this POI Contract either in part or in full, as it may deem fit. In case of invocation of this POI Contract in part, besides making payment for the part of POI Contract invoked, Guarantor at the request of Nodal Agency shall amend the value of POI Contract to the extent of balance amount.

IN WITNESS WHERE OF the non- banking financial institutions through its authorized officer, has set its hand and stamp on this..... day of.....at.....

Signature .....

Name:

Power of attorney No.:

. .....For:

.....[Insert Name of the non- banking financial institutions Company]

Seal and Full Address, including mailing address of the Head Office

ANNEXURE 16 – FORMAT OF CHECKLIST FOR TECHNICAL BID SUBMISSION REQUIREMENTS

[This format needs to be duly filled in, signed by the authorized signatory of the Bidder (Bidding Company / Lead Member in case of a Bidding Consortium) and submitted along with the Bidder's Technical Bid]

Technical Bid Submission Requirements	Response (Yes / No)
1. Format for the Covering Letter on the letterhead of Bidding Company or Lead Member of the Consortium, as applicable;	
2. Format for Letter of Consent from each Consortium Member, including Lead Member, on their respective letterheads;	
3. Format for evidence of authorized signatory's authority;	
4. Board resolution from the Bidding Company / Lead Member of the Consortium in favour of the person executing the Power of Attorney as per **Annexure 3**;	
5. Power of Attorney from each Consortium Member in favour of Lead Member to be provided by each of the other Members of the Consortium as per **Annexure 4**;	
6. Board Resolution from each Member of the Consortium, other than the Lead Member, in favour of their respective authorized representatives for executing the POA, Consortium Agreement and signing of the requisite formats;	
7. Format for Bidder's composition and ownership structure, along with status of equity holding (owning ten percent or more of the total paid up equity) not earlier than thirty (30) days prior to the Bid Deadline as per **Annexure 5**;	
8. Consortium Agreement duly signed as per **Annexure 6**, along with Appendix-1, indicating the responsibilities and obligations of each Member of the Consortium;	
9. Format for Qualification Requirement:	
a. Calculation sheets, detailing computation of Networth considered for meeting Qualifying Requirements, duly signed and stamped by the Statutory Auditor of the Bidding Company / each Member in case of a Bidding Consortium / FEE in cases where credentials of FEE is taken;	
b. Calculation sheets, detailing computation of capital expenditure of projects and revenue received in construction projects considered for meeting Qualification Requirements, duly signed and stamped by the Statutory Auditor of the Bidding Company / Lead Member in case of Bidding	

Technical Bid Submission Requirements	Response (Yes / No)
Consortium / TEE in cases where credentials of TEE is taken;	
c. Last financial year unconsolidated / consolidated audited annual accounts / statements, as the case may be, of the Financially Evaluated Entity / Technical Evaluated Entity d. Unconsolidated audited annual accounts of both the TEE and the Bidding Company/Lead member, as applicable, from the financial years in which financial closure was achieved till the financial year in which the said project was completed / commissioned. 10. Copy of the Memorandum and Articles of Association and certificate of incorporation or other organizational document (as applicable), including their amendments, certified by the Company Secretary of Bidding Company or each Member in case of a Consortium including Lead Member. 11. Attachment of **Annexure 7(D)**, detailing projects completed / commissioned and for which commercial operation has commenced including Executive Summary for each project. 12. For each project listed in the attachment above, certified true copy of the certificates of final acceptance and / or certificates of good operating performance duly issued by owners or clients for the project, duly signed by authorized signatory in support of technical capability as defined in Clause 2.1.2 of RFP. 13. Authority letter in favour of BPC from the Bidder/every Member of the Consortium authorizing the BPC to seek reference from their respective bankers & others. 14. Authorization from Parent / Affiliate of Bidding Company / Member of Bidding Consortium whose technical / financial capability has been used by the Bidding Company / Member of Bidding Consortium. 15. Initialing of all pages of Technical Bid by the Authorized Signatory in whose favour the POA (**Annexure 3**) has been executed. 16. Format for Illustration of Affiliates at the most seven (7) days prior to the Bid Deadline, duly certified by Company Secretary and supported by documentary evidence. 17. Certified copy of the Register of Members / Demat Account Statement, Share Certificate, Annual Return filed with ROC	

Technical Bid Submission Requirements	Response (Yes / No)
etc. submitted as documentary evidence along with **Annexure 12**. 18. Format for Disclosure by Bidding Company / each Member of the Consortium. 19. Format for Affidavit by the Bidding Company / each Member of the Consortium 20. Format for Authorization submitted in Non-Judicial stamp paper duly notarized.	
21. Bidders Undertaking and details of Equity Investment 22. Proof of Payment of RFP Fees 23. Bid Bond 24. Board Resolution as per Annexure 11 (If required)	

[**Note:** The checklist is not exhaustive. Bidders are required to submit all the information/documents as per requirement of RFP]

For and on behalf of Bidder

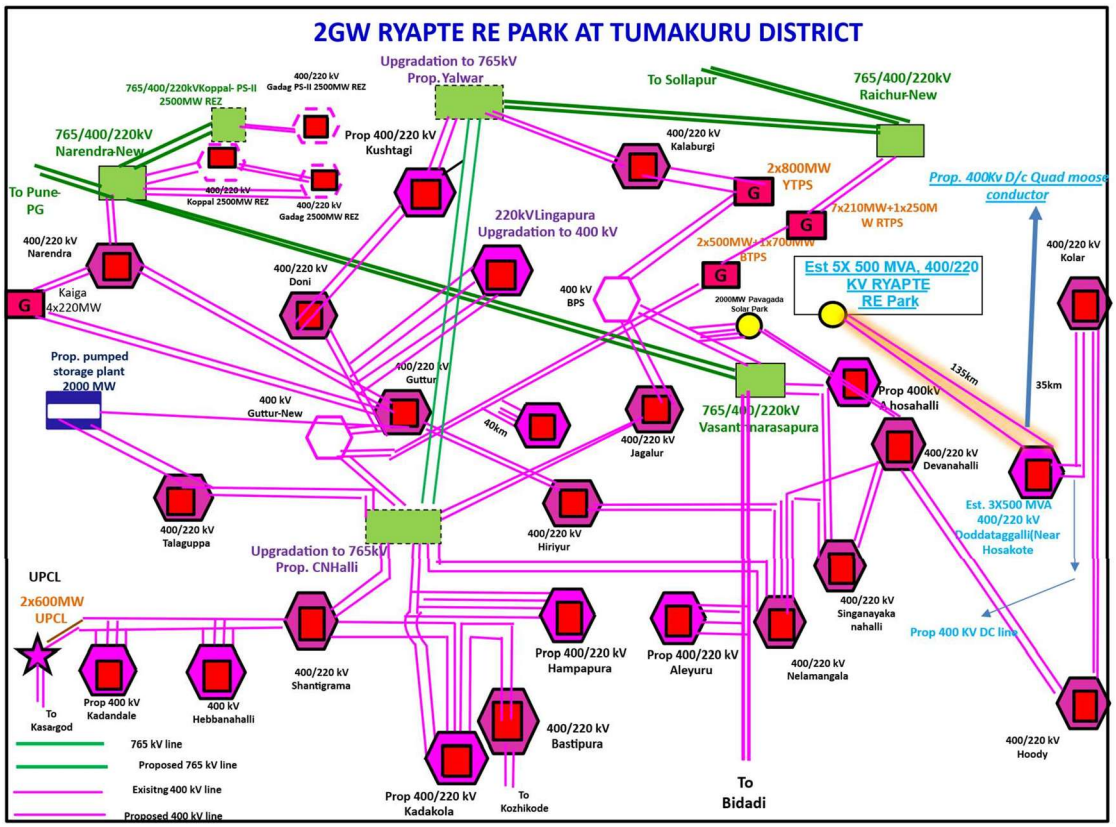
M/s. …….

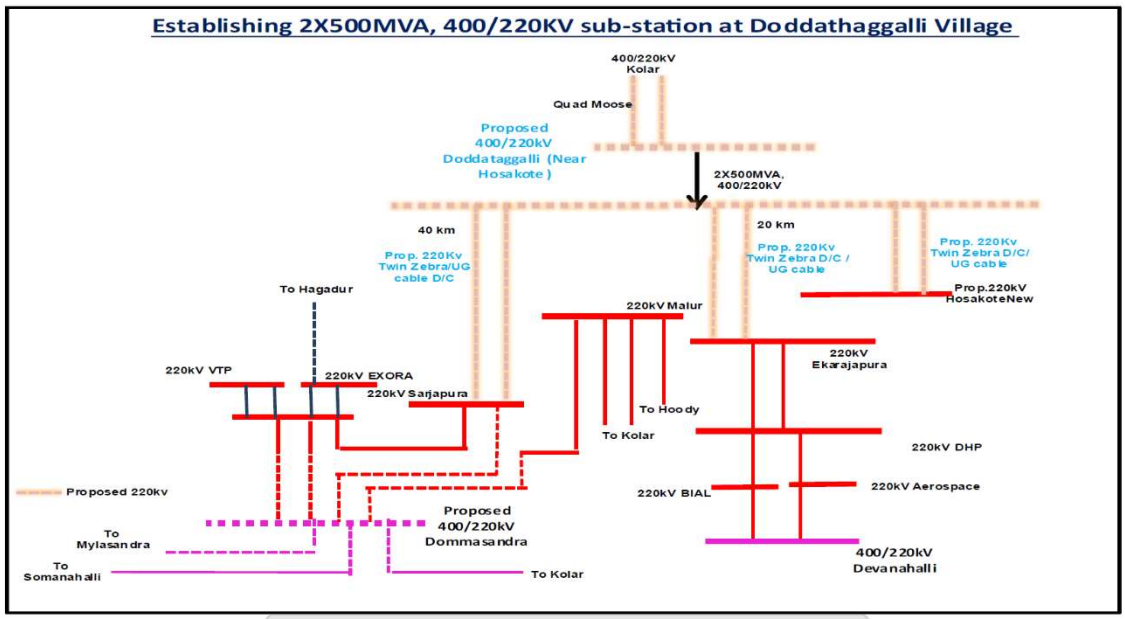
……..
(Signature of authorized signatory)

ANNEXURE 17 – LIST OF BANKS

All Scheduled Commercial Banks as per Second Schedule of RBI Act-1934 and any amendments thereof.

ANNEXURE 18 - GRID MAP OF THE PROJECT




Establishing 2X500MVA, 400/220KV sub-station at Doddathaggalli Village
400/220kV Kolar
Quad Moose
Proposed 400/220kV Doddataggalli (Near Hosakote)
2X500MVA, 400/220kV
40 km
Prop. 220Kv Twin Zebra/UG cable D/C
20 km
Prop. 220Kv Twin Zebra D/C / UG cable
Prop. 220Kv Twin Zebra D/C/ UG cable
Prop.220kV HosakoteNew
To Hagadur
220kV Malur
220kV VTP
220kV EXORA
220kV Sarjapura
220kV Ekarajapura
To Hoody
To Kolar
220kV DHP
220kV BIAL
220kV Aerospace
Proposed 220kv
Proposed 400/220kV Dommasandra
To Mylasandra
To Somanahalli
To Kolar
400/220kV Devanahalli

ANNEXURE 19 - FORMAT FOR CLARIFICATIONS / AMENDMENTS ON THE RFP / RFP PROJECT DOCUMENTS

S. No.	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment

Signature ……

Name……...

For

Bidder's Rubber Stamp and Full Address.

(Note: This format shall be used for submission of requests for clarifications/ amendments on the draft RFP Project Documents as per the provisions of Clause 2.3.1)

ANNEXURE 20 - LIST FOR RFP PROJECT DOCUMENTS

ENCLOSURE 1: **TRANSMISSION SERVICE AGREEMENT (Provided separately)**

ENCLOSURE 2: **SHARE PURCHASE AGREEMENT (Provided Separately)**

ANNEXURE 21 - FORMAT FOR FINANCIAL BID

[To be uploaded online]

Quoted Transmission Charges ……..

Notes

1. The Bidders are required to ensure compliance with the provisions of Clause 2.5.3 of this RFP.

2. Quotes to be in Rupees Millions and shall be up to two (2) decimal points.

3. The contents of this format shall be clearly typed.

4. The Financial Bid shall be digitally signed by the authorized signatory in whose name power of attorney as per Clause 2.5.2 is issued.

5. Ensure only one value for annual Transmission Charges is quoted. The same charge shall be payable every year to TSP for the term of TSA.

ANNEXURE 22 – FORMAT FOR AFFIDAVIT

[On non-judicial stamp paper. Foreign companies submitting bids are required to follow the applicable law in their country]

AFFIDAVIT

We [including any of our Affiliate and Consortium Member & any of its Affiliate], hereby declare that as on Bid Deadline:

a. the Bidder & any of its Affiliate including any Consortium Member & any of its Affiliate, their directors or key personnel have not been barred or included in the blacklist by any government agency or authority in India, the government of the jurisdiction of the Bidder or Members where they are incorporated or the jurisdiction of their principal place of business, any international financial institution such as the World Bank Group, Asian Development Bank, African Development Bank, Inter-American Development Bank, Asian Infrastructure Investment Bank etc. or the United Nations or any of its agencies; or

b. the Bidder & any of its Affiliate including any Consortium Member & any of its Affiliate or their directors have not been convicted of any offence in India or abroad.

We further declare that following investigations are pending / no investigation is pending [strike off whichever is not applicable] against us [including any of our Consortium Member or Affiliate or Parent or Ultimate Parent or Affiliate] or CEO or any of our directors/ manager/key managerial personnel of the Applicant /Consortium Member or their Affiliates.

We further undertake to inform the BPC of any such matter as mentioned above on its occurrence after the date of this affidavit till the Effective Date.

We undertake that, in case, any information provided in relation to this affidavit is found incorrect at any time hereafter, our BID / Letter of Intent / contract (if entered) would stand rejected / recalled / terminated, as the case may be.

……..
Signature and Name of the authorized signatory of the Company Bidding Company / Lead Member of the Bidding Consortium

……..
(Signature of Notary Public)

Place: ……
Date: ……

Note: In case any investigation is pending against the Applicant, including any Consortium Member or Affiliate, or CEO or any of the directors/ manager/key managerial personnel of the Applicant /Consortium /Member or their Affiliates, full details of such investigation including the name of the investigating agency, the charge/offence for which the investigation has been launched, name and designation of persons against whom the investigation has been launched and other relevant information should be disclosed under this affidavit.

ANNEXURE A

Technical Details with respect to electronic bidding

Registration Methodology

In order to submit online bids in the e-bidding process for selection of Transmission Service Provider, interested Bidders are required to register themselves with the e-procurement website of MSTC Limited namely www.mstcecommerce.com/eprochome/tsp/index.jsp. To register with the website, the Bidder is required to fill up the online form available under the link Register as Vendor in the above website and fill up the same and click on Submit.

During this process, the bidder shall create his user id and password and keep note of the same. The bidder shall ensure that the secrecy of his user id and password is maintained at all time and he/she shall alone be responsible for any misuse of the user id and password.

The bidder may check the details entered by it before final submission. On successful submission of the online registration Form, the bidder shall receive a confirmation mail in the registered email address advising the bidder to submit the following documents.

i. Self-attested Income Tax PAN Card. In case of a registered Company or Firm, the Firm's PAN card and in case of a proprietorship firm, proprietor's personal PAN card is required. In case of partnership firm, PAN of the firm and that of the authorized partner are to be submitted.
ii. Copy of the confirmation email Letter received from MSTC after successful completion of on-line registration.
iii. A non-refundable registration fee of Rs 10,000/- plus applicable GST to be paid online.

Please provide details of payment made like UTR No, remitting bank name, date of payment and amount in the covering letter.

The bidder shall have to submit all the above documents to MSTC Limited for verification and activation of their login ids. The bidders should send scanned copies of the above documents to the designated email id only which is given below.

tsp@mstcindia.co.in

It may be noted that bidders need not visit any of the offices of MSTC Limited for submission of the documents.

Contact persons of MSTC Limited:

Mr. Setu Dutt Sharma, 7878055855

Once the complete set of documents and requisite registration fee are received from a bidder, MSTC shall activate the bidder's login after verification / scrutiny of the documents. MSTC Limited reserves the right to call for additional documents from the bidder if needed and the bidder shall be obliged to submit the same.

On completion of the above stated registration process, a bidder shall be able to login to MSTC's website.

ANNEXURE B

Draft Pre-Award Integrity Pact

GENERAL

This pre-bid contract Agreement (herein after called the Integrity Pact) is made on …….. day of the month of ……. 20……, between, on one hand, ……. [Insert name of BPC] through Shri …….. [Insert Name & designation of representative of BPC] (hereinafter called the "Bid Process Coordinator/ BPC", which expression shall mean and include, unless the context otherwise requires, his successors in the office and assigns) of the First Part and M/s …… represented by Shri …….. [Insert Name & Designation of Authorized Signatory of the Bidder/ Lead Member of Consortium] (hereinafter called the "Bidder" which expression shall mean and include, unless the context otherwise requires, his successors and permitted assigns) of the Second Part.

WHEREAS the BPC is conducting the bidding process for selection of bidder as Transmission Service Provider (TSP) for **"Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District"** who will be responsible to set up the transmission project on build, own, operate and transfer (BOOT) basis and to provide Transmission Service.

WHEREAS the Bidder is a Private Company/Public Company/Government Undertaking/ Partnership, constituted in accordance with the relevant law in the matter and the BPC is a Public Sector Undertaking (PSU) performing its function on behalf of the Ministry of Power, Government of India.

NOW, THEREFORE,

To avoid all forms of corruption by following a system that is fair, transparent and free from any influence/prejudiced dealings during the complete bidding process with a view to:-

Enabling the BPC to select the bidder as TSP in conformity with the defined procedures by avoiding the high cost and the distortionary impact of corruption on public procurement, and

Enabling Bidder to abstain from bribing or indulging in any corrupt practice in order to emerge as selected bidder by providing assurance to them that their competitors will

also abstain from bribing and other practices and the BPC will commit to prevent corruption, in any form, by its officials by following transparent procedures.

The parties hereto hereby agree to enter into this Integrity Pact and agree as follows:

Commitments of BPC

1.1 The BPC undertakes that no official of the BPC, connected directly or indirectly with the bidding process, will demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favour or any material or immaterial benefit or any other advantage from the BIDDER, either for themselves or for any person, organization or third party related to the bidding process in exchange for an advantage in the bidding process, bid evaluation, contracting or implementation process related to the contract.

1.2 The BPC will, during the bidding stage, treat all bidders alike, and will provide to all bidders the same information and will not provide any such information to any particular bidder which could afford an advantage to that particular bidder in comparison to the other bidders.

1.3 All the officials of the BPC will report the appropriate Government office any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach.

2. In case of any such preceding misconduct on the part of such official(s) is reported by the Bidder to the BPC with the full and verifiable facts and the same is *prima facie* found to be correct by the BPC, necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings may be initiated by the BPC and such a person shall be debarred from further dealings related to the bidding process. In such a case while an enquiry is being conducted by the BPC the proceedings under the bidding process would not be stalled.

Commitments of Bidder

3. The Bidder commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its bid or during any pre award stage in order to emerge as Selected Bidder or in furtherance to secure it and in particular commits itself to the following: -

3.1 The Bidder will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the

BPC, connected directly or indirectly with the bidding process, or to any person, organization or third party related to the bidding process in exchange for any advantage in the bidding, evaluation, contracting and implementation of the bidding process.

3.2 The Bidder further undertakes that it has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the BPC or otherwise in bidding process or for bearing to do or having done any act in relation to bidding process or any other contract with the Government for showing or forbearing to show favour or disfavour to any person in relation to the bidding process or any other contract with the Government.

3.3 The Bidder shall disclose the name and address of agents and representatives and Indian Bidder shall disclose their foreign principals or associates.

3.4 The Bidder shall disclose the payments to be made by them to agents/brokers or any other intermediary, in connection with this bid.

3.5 The Bidder further confirms and declares to the BPC that the Bidder has not engaged any individual or firm or company whether Indian or foreign to intercede, facilitate or in any way to recommend to the BPC or any of its functionaries, whether officially or unofficially for selection of Bidder as TSP, nor has any amount been paid, promised or intended to be paid to any such individual, firm or company in respect of any such intercession, facilitation or recommendation.

3.6 The Bidder, either while presenting the bid or during pre-award negotiations or before signing the Share Purchase Agreement, shall disclose any payments he has made, is committed to or intends to make to officials of the BPC or their family members, agents, brokers or any other intermediaries in connection with the bidding process and the details of services agreed upon for such payments.

3.7 The Bidder will not collude with other parties interested in the bidding process to impair the transparency, fairness and progress of the bidding process.

3.8 The Bidder will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.

3.9 The Bidder shall not use improperly, for purpose of competition or personal gain, or pass on to others, any information provided by the BPC as part of the business relationship, regarding plans, technical proposal and business details,

including information contained in any electronic data carrier. The Bidder also undertakes to exercise due and adequate care lest any such information is divulged.

3.10 The Bidder commits to refrain from giving any complaint directly or through any other manner without supporting it with full and verifiable facts.

3.11 The Bidder shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.

3.12 The Bidder shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of the BPC.

4. Previous Transgression

4.1 The Bidder declares that no previous transgression occurred in the last three years immediately before signing of this Integrity Pact, with any other company in any country in respect of any corrupt practices envisaged hereunder or with any Public Sector Enterprise in India or any Government Department in India that could justify Bidder's exclusion from the bidding process.

4.2 The Bidder agrees that if it makes incorrect statement on this subject, Bidder can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

5. Bid Bond (Security Deposit)

5.1 Along with the technical bid, the Bidder shall submit Bid Bond for an amount of Rs. ……. (as per the amount specified in Request for Proposal (RFP) Document) issued by …… [Insert Name of the Banks from the list provided in RFP Document] as Earnest Money/Security Deposit, with the BPC.

5.2 The Earnest Money/Security Deposit shall be valid & retained by the BPC for such period as specified in the RFP Document.

5.3 No interest shall be payable by the BPC to the Bidder on Earnest Money/Security Deposit for the period of its currency.

6. Sanctions for Violations

6.1 Any breach of the aforesaid provisions by the Bidder or any one employed by it or acting on its behalf (whether with or without the knowledge of the Bidder) shall entitle the BPC to take all or anyone of the following actions, wherever required: -

(i) To immediately call off the pre-award negotiations without assigning any reason or giving any compensation to the Bidder. However, the proceedings with the other Bidder (s) would continue.

(ii) The Bid Bond (in pre-award stage) shall stand forfeited either fully or partially, as decided by the BPC and the BPC shall not be required to assign any reason therefore.

(iii) To immediately cancel the award, if already awarded, without giving any compensation to the Bidder.

(iv) To cancel all or any other contracts with the Bidder. The Bidder shall be liable to pay compensation for any loss or damage to the BPC resulting from such cancellation/rescission.

(v) To debar the Bidder from participation in any tender or RFP issued by any BPC for an indefinite period.

(vi) To recover all sums paid in violation of this Pact by Bidder to any middleman or agent or broker with a view to securing the award.

6.2 The BPC will be entitled to take all or any of the actions mentioned at para 6.1 (i) to (vi) of this Pact also on the Commission by the Bidder or anyone employed by it or acting on its behalf (whether with or without the knowledge of the Bidder), of an offence as defined in Chapter IX of the Indian Penal code, 1860 or Prevention of Corruption Act, 1988 or any other statute enacted for prevention of corruption.

6.3 The decision of the BPC to the effect that a breach of the provisions of this Pact has been committed by the Bidder shall be final and conclusive on the Bidder. However, the Bidder can approach the Independent Monitor(s) appointed for the purposes of this Pact.

7. Independent Monitors

7.1 The BPC has appointed Independent Monitors (hereinafter referred to as Monitors) for this Pact in consultation with the Central Vigilance Commission (Names and Addresses of the Monitors to be given).

7.2 The task of the Monitors shall be to review independently and objectively, whether and to what extent the parties comply with the obligations under this Pact.

7.3 The Monitors shall not be subject to instructions by the representatives of the parties and perform their functions neutrally and independently.

7.4 Both the parties accept that the Monitors have the right to access all the documents relating to the project/procurement, including minutes of meetings.

7.5 As soon as the Monitor notices, or has reason to believe, a violation of this Pact, he will so inform the Authority designated by the BPC.

7.6 The Bidder accepts that the Monitors has the right to access without restriction to all Project documentation of the BPC including that provided by the Bidder. The Monitor shall be under contractual obligation to treat the information and documents of the Bidder /Subcontractors(s) with confidentially. [As all the bid documents are with BPC only]

7.7 The BPC will provide to the Monitors sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the parties. The parties will offer to the monitor the option to participate in such meetings.

7.8 The Monitor will submit a written report to the designated Authority of the BPC/Secretary in the Department within 8 to 10 weeks from the date of reference or intimation to him by the BPC / Bidder and, should the occasion arise, submit proposals for correcting problematic situations.

8. Facilitation of Investigation

In case of any allegation of violation of any provisions of this Pact or payment of commission, the BPC or its agencies shall be entitled to examine all the documents including the Books of Accounts of the Bidder and the Bidder shall provide necessary information and documents in English and shall extend all possible help for the purpose of such examination.

9. Law and Place of Jurisdiction

This Pact is subject to Indian Law. The place of performance and jurisdiction is the seat of the BPC.

10. Other Legal Actions

The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the any extent law in force relating to any civil or criminal proceedings.

11. Validity

11.1 The validity of this Integrity Pact shall be from date of its signing and upto 6 months from the date of transfer of project specific SPV i.e. signing of Share Purchase Agreement with BPC. In case Bidder is unsuccessful, this Integrity Pact shall expire after 15 days from the date of transfer of project specific SPV to successful bidder.

11.2 Should one or several provisions of this Pact turn out to be invalid, the remainder of this Pact shall remain valid. In this case, the parties will strive to come to an agreement to their original intentions.

12. The Parties hereby sign this Integrity Pact at on _____

Bid Process Coordinator (BPC)	BIDDER
Name of the Officer Designation Name of the BPC with address Witness: 1._____ 2. _____	Name of Whole time Director/Authorized Signatory Name of the Bidder with address Witness: 1._____ 2. _____

ANNEXURE C

Technical Specifications of Transmission System

SPECIFIC TECHNICAL REQUIREMENTS FOR TRANSMISSION LINE

1. The design, routing and construction of transmission lines shall be in accordance with Chapter V, Part-A of CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations 2022, as amended from time to time. Other CEA Regulations and MoP guidelines, as applicable, shall also be followed.

2. Selection of tower type shall be made as per CEA Regulations, however in case lattice type towers are used, the following shall also be applicable:

2.1 Steel section of grade E 250 and/or grade E 350 as per IS 2062, only are permitted for use in towers, extensions, gantry structures and stub setting templates. For towers in snowbound areas, steel sections shall conform to Grade-C of IS-2062. The minimum size of sections shall be 50 x 50 x 5 for cross arm lower and upper member and 45 x 45 x5 for all other stress carrying members. Use of unequal sections is not permitted. The minimum thickness of angle sections used in the design of towers shall be kept not less than:

6mm: For Main corner leg members including the ground wire peak (including inner & outer members and cross arm).

5mm: For all other members.

2.2 Towers shall be designed as per IS-802:2015, however the drag coefficient of the tower shall be as follows:

Solidity Ratio	Drag Coefficient
Up to 0.05	3.6
0.1	3.4
0.2	2.9
0.3	2.5
0.4	2.2
0.5 and above	2.0

As per Clause 12.1.2.1 b) 2) of IS 802:2015, Under security condition for tension and dead end towers, the transverse loads due to line deviation shall be the component of 100 percent mechanical tension of conductor and ground wire/ OPGW corresponding to 100% of design wind pressure at everyday temperature or 36% design wind pressure at minimum temperature after accounting for drag coefficient and gust response factor. The above loading shall also be considered for design of suspension tower.

Transmission Service Provider (TSP) shall adopt any additional loading/ design criteria for ensuring reliability of the line, if so desired and/ or deemed necessary in accordance with CEA "Technical Standard for Construction of Electrical Plants and Electric Lines" Regulation 2022, as amended from time to time.

3. Type testing of newly designed fully galvanized towers shall be carried out in CPRI/any other NABL accredited tower testing station in India. The Towers shall be erected in vertical position in the test bed and testing shall be carried out in accordance with IS 802 (part-III) with +6M body

extensions. All standard tests, including quality control tests in accordance with relevant IS shall be carried out.

4. For power line crossing of 400 kV or above voltage level, large angle & dead end towers (i.e. D/DD/QD) shall be used on either side of power line crossing (i.e. D/DD/QD- D/DD/QD arrangement).

   For overhead crossing of existing power line of 110/132kV and 220kV voltage level, only (D/DD/QD) angle towers shall be used on either side of power line crossing.

   For power line crossing of 66kV and below voltage level, suspension/tension towers shall be provided on either side of power line crossing depending upon the merit of the prevailing site condition and line deviation requirement.

   For crossing of Railways, National highways and state highways, the rules/regulations of appropriate authorities shall be followed.

5. The conductor configuration shall be as follows:

   For transmission lines with ACSR/AAAC/AL59/HPC conductor:

Transmission line	**ACSR Conductor specified**	**Equivalent AAAC conductor based on 53% conductivity of Al Alloy**	**Equivalent minimum size of AL59 conductor based on 59% conductivity of AL Alloy***	**Sub-conductor Spacing**
400kV D/C (Quad Moose) transmission lines	Moose: Stranding 54/3.53 mm-Al + 7/3.53 mm-Steel, 31.77 mm diameter 528.5 mm2, Aluminium area, Maximum DC Resistance at 20°C (Ω/km): 0.05552 Minimum UTS: 161.20 kN	Stranding details: 61/3.55 mm 31.95 mm diameter; 604 mm2 Aluminium alloy area Maximum DC Resistance at 20°C (Ω/km): 0.05506 Minimum UTS: 159.80 kN	Stranding details: 61/3.31 mm 29.79 mm diameter; 525 mm2 Aluminium alloy area Maximum DC Resistance at 20°C (Ω/km): 0.0566 Minimum UTS: 124.70 kN	457 mm
220 kV D/C (Zebra) transmission lines	Zebra: Stranding 54/3.18 mm-Al + 7/3.18 mm-Steel, 428 Sq mm, Aluminium area, 28.62 mm diameter	Stranding Details: 61/3.19 mm 28.71 mm diameter; 487.5 sq.mm Aluminum alloy area	Stranding Details: 61/3.08 mm 27.7 mm diameter; 454 sq.mm Aluminium alloy area	NA
132 kV D/C (Panther) transmission lines	Panther: Stranding 30/3.0 mm-Al + 7/3.0 mm-Steel, 261.5 Sq mm, Aluminium area, 21.05 mm diameter	Stranding Details:37/3.15 mm 22.05mm Diameter; 288.3 Sq.mm Aluminum alloy area	Stranding Details: 37/3.08 mm 21.56mm Diameter; 275.66 Sq.mm Aluminum alloy area	NA

Note:

*i. *To select any size above the minimum, the sizes mentioned in the Indian standard IS-398(part-6) shall be followed.*

ii. The transmission lines shall have to be designed for a maximum operating conductor temperature of 85 deg C for ACSR, 95deg C for AAAC & Al-59.

6. The High-Performance Conductors (HPC) shall be as per the standard technical specification issued by CEA.

7. The required phase to phase spacing and horizontal spacing for 400kV, 220kV, and 132kV line shall be governed by the tower design as well as minimum live metal clearances for each voltage level respectively under different insulator swing angles. All electrical clearances including minimum live metal clearance, ground clearance and minimum mid span separation between earth wire and conductor shall be as per Central Electricity Authority (Measures Relating to Safety & Electric Supply) Regulations as amended from time to time and IS: 5613.

For 400kV transmission lines:

The minimum live metal clearances for 400 kV D/C transmission lines shall be considered as follows:

i Under stationary conditions : From tower body: 3.05m
ii Under swing conditions:

Wind pressure Condition	Minimum electrical clearance
a) Swing angle (22º)	3.05 mtrs
b) Swing angle (44º)	1.86 mtrs

However, the phase to phase spacing for 400kV D/C Line shall not be less than 8m.

For 220kV Transmission Lines:

The minimum live metal clearances for 220kV D/C transmission lines shall be considered as follows:

i Under stationary conditions : From tower body: 2.13m
ii Under swing conditions:

Wind pressure Condition	Minimum electrical clearance
a) Swing angle (15º)	1.98 mtrs
b) Swing angle (30º)	1.83 mtrs
c) Swing angle (45º)	1.675 mtrs

However, the phase to phase spacing for 220kV D/C Line shall not be less than 5m.

For 132kV Transmission Lines:

The minimum live metal clearances for 132kV D/C transmission lines shall be considered as follows:

i Under stationary conditions: From tower body: 1.53 m
ii Under swing conditions:

Wind pressure Condition	Minimum electrical clearance
a) Swing angle (15º)	1.53 mtrs
b) Swing angle (30º)	1.37mtrs
c) Swing angle (45º)	1.22 mtrs
d) Swing angle (60º)	1.07 mtrs

However, the phase to phase spacing for 132 kV D/C Line shall not be less than 4m.

8. The minimum ground clearance for 400kV D/C transmission lines shall be 8.84m, for 220 kV D/C line shall be 7.015 m and for 132 kV D/C line shall be 6.10 m so that maximum electric field does not exceed 10kV/m within the ROW and does not exceed 5kV/m at the edge of the ROW as per international guidelines.

   An allowance of 4% of max sag shall be provided to account for errors in stringing.

   Conductor creep shall be compensated by over tensioning the conductor at a temperature of 26° C lower than the stringing temperature.

9. The minimum mid span separation between earth wire and conductor shall be 9.0 m for 400 kV D/C transmission lines, 8.5 m for 220 kV D/C transmission lines & 6.1 m for 132 kV D/C transmission lines. Shielding angle shall not exceed 20 deg for 400 kV D/C & 30 deg for 220 kV D/C lines and 132 kV D/C lines.

10. Transposition is to be done for all transmission lines whose length is greater than 100km. Transposition should be carried out at 1/3 and 2/3 of line length tower positions.

11. The switching impulse withstand voltage (wet) for 400kV line shall be 1050kVp. Lightning impulse withstand voltage (dry) for 400kV line shall be 1550kVp, for 220 kV line shall be 1050kVp & for 132kV line shall be 650kVp.

12. The Fault current for design of line shall be 63 kA for 1 sec for 400 kV, 50 kA for 1 sec for 220 kV and 40 kA for 1 sec for 132 kV.

13. Porcelain / Glass / Polymer insulators shall be used in the line as per requirement and site conditions. However, porcelain /glass disc insulators string shall be required to be used for Pilot string irrespective of type of insulators used for suspension/tension location.

14. Each tower shall be earthed such that tower footing resistance does not exceed 10 ohms. Pipe type or Counterpoise type earthing shall be provided in accordance with relevant IS. Additional earthing shall be provided on every 7 to 8 kms distance at tension tower for direct earthing of both shield wires. If site condition demands, multiple earthing or use of earthing enhancement compound shall be used. The line surge arrester, if required, may be used in lightning prone areas.

15. Pile type foundation shall be used for towers located in river or creek bed or on bank of river having scourable strata or in areas where river flow or change in river course is anticipated, based on detailed soil investigation and previous years' maximum flood discharge of the river, maximum velocity of water, highest flood level, scour depth & anticipated change in course of river based on river morphology data of at least past 20 years to ensure availability and reliability of the transmission line.

16. Transmission line route shall be finalized, in consultation with appropriate authorities so as to avoid the habitant zones of endangered species and other protected species. Bird diverters, wherever required or mandated, shall be provided on the line. In order to optimize the route use of GATISHAKTI platform shall also be made.

17. Wherever, transmission lines are passing through cyclone prone areas (i.e. areas up to 60 km from coast)/ creek regions/ aggressive soil areas following shall also be applicable:

    a. The fabricated tower parts and stubs shall have a minimum overall zinc coating of 900 g/m2 of surface area except for plates and sections below 5mm which shall have a minimum overall zinc coating of 610g/m2 of surface area. The average zinc coating for all sections and plates 5mm and above shall be maintained as 127 microns and that for plates and sections below 5mm shall be maintained as 87 microns.

    b. Ready mix concrete of M30 Grade shall be used to avoid use of locally available saline water. However, design mix concrete of M30 Grade conforming to IS 456 with potable water can be used at locations where transportation of ready-mix concrete is not feasible. Minimum cement content in any case shall not be less than 330 kg/m3.

    c. The surface of the reinforced steel shall be treated with epoxy-based coating to enhance corrosion performance of foundation. Use of epoxy coated reinforcement in foundation shall be as per IS 13620. In addition, two (2) coats of bituminous painting of minimum 1.6 kg/m2 per coat shall be applied on all exposed faces of foundation (i.e. pedestal and base slab).

    d. Double coat 20 mm thick cement plaster shall be provided on all exposed concrete surface as well up to 300 mm below ground level to give protection to concrete surface from environmental and saline effect.

    e. Before coping of chimney top portion, three coats of anti-corrosive paint of minimum 30-35 microns dry film thickness each shall be applied on the stub in the 50 mm coping portion as well as up to 350 mm above CL portion.

18. In case of 400kV voltage class lines, at least one out of two earth wires shall be OPGW and second earth wire, if not OPGW, shall be either of galvanized standard steel (GSS) or AACSR or any other suitable conductor type depending upon span length and other technical consideration.

19. The raised chimney foundation is to be provided in areas prone to flooding/water stagnation like paddy field /agricultural field & undulated areas to avoid direct contact of water with steel part of tower. The top of the chimney of foundation should be at least above HFL (High Flood Level) or the historical water stagnation/ logging level (based on locally available data) or above High Tide Level or 500 mm above Natural Ground level (whichever is higher).

20. Transmission line shall be designed considering wind zones as specified in wind map given in National Building Code 2016, Vol.1 and IS:802-2015. The developer shall also make his own assessment of local wind conditions and frequent occurrences of high intensity winds (HIW) due to thunderstorms, dust-storms, downburst etc. along the line route and wherever required, higher wind zone than that given in wind map shall be considered for tower design for ensuring reliability of line. Further, for transmission line sections passing within a distance of 50 km from the boundary of two wind zones, higher of the two wind zones shall be considered for design of towers located in such sections. The other design parameters such as Reliability level, Terrain category etc, are as per IS:802-2015 and CBIP-2014.

21. Routing of transmission line through protected areas of India shall be avoided to the extent possible. In case, it is not possible to avoid protected areas, the towers of the transmission line up to 400 kV levels which are installed in protected areas shall be designed for Multi-circuit (4 circuits) configuration of same voltage level considering reliability level of at least two (2). The top two circuits of these multi-circuit towers shall be used for stringing of the transmission line under present scope and the bottom two circuits shall be made available for stringing of any future transmission line of any transmission service providers/ State transmission utilities/Central

transmission utilities passing through the same protected area. Further, the configuration and coordinates of such transmission towers shall be submitted to KPTCL and BPC by the TSP.

22. The TSP shall abide by the Guidelines of CEA w.r.t. shifting of transmission lines for NHAI projects and other projects.

23. Safety precautions in regards to gas/oil pipelines in vicinity of Transmission lines shall be taken in coordination with gas/ petroleum authorities.

24. The last span from dead end tower to existing KPTCL substation gantry should be less than 90mtr.

25. In case the LILO of existing line is to be done, and any modification in the existing line is required for the above LILO work the same should be done by the TSP after obtaining necessary approval of KPTCL. Further, the span on either side of LILO points shall be maintained by the TSP.

26. The stringing of the transmission line in forest area shall be carried out through drone.

27. RoW width and Span in different terrain shall be as per Schedule VII of CEA (Technical Standards for Construction of Electrical plants and Electric Lines) Regulations 2022 and RoW guidelines issued vide CEA-PS-14-

SPECIFIC TECHNICAL REQUIREMENTS FOR SUBSTATION

The proposed **400/220kV Substation at Ryapte Substation, Pavagada Taluk, tumkur district shall be AIS type & 400/220kV Doddathagalli Substation (near Hoskote), Bengaluru shall** be GIS type generally conforming to the requirements of CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations 2022, as amended from time to time.

The proposed extension of 220/66 kV Sarjapura & 400kv Kolar S/s shall be GIS type and 220/66 kV Ekrajpura shall be conventional AIS type conforming to the requirements of CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations 2022, as amended from time to time.

Note: The technical Specification for bay extension work at Kolar S/s shall be as per PGCIL.

Other CEA Regulations/guidelines as amended up to date and MoP guidelines, as applicable, shall also be followed.

2.1 Salient features of 400/220 kV Sub Station Equipment and Facilities

The design and specification of substation equipment are to be governed by the following factors:

2.2 Insulation Coordination

420kV System would be designed to limit the Switching over voltage to 2.5 p.u and is expected to decay to 1.5 p.u. in 5 to 6 cycles. Consistent with these values and protective levels provided by lightning arrestors, the following insulation levels shall be adopted for 420kV, 245kV and 36 kV systems:

SL No	Description of parameters	400kV System	220kV System	33kV System
1.	System operating voltage (rms)	400kV	220kV	33kV
2.	Maximum voltage of the system (rms)	420kV	245kV	36kV
3.	Rated frequency	50Hz	50Hz	50Hz
4.	No. of phases	3	3	3
5.	Impulse withstand voltage for - Transformer and reactors - for other Equipment - for insulator strings	 1300 kVP 1425 kVP 1550 kVP	 950 kVP 1050 kVP 1050 kVP	 250kVP 170kVP
6.	Switching surge withstand Voltage	1050 kVP	-NA-	-NA-
7.	Minimum creepage distance - for insulator strings - for other Equipment	 13020 mm	 7595 mm	 900 mm
8.	Max. fault current	63 kA	50 KA	31.5 KA
9.	Duration of fault	1 Sec	1 Sec	3 Sec
10.	Corona extinction voltage	320kV rms	156kV rms	NA

2.3 Switching Schemes

It is essential that the system should remain secured even under conditions of major equipment or bus- bar failure. Sub-stations being the main connection points have large influence on the security of the system as a whole. The selection of the bus switching scheme is governed by the various technical and other related factors. One & Half breaker bus scheme for 400kV system and Double Main and Transfer bus scheme for the 220kV system, have been considered for all proposed **AIS** substations and One & Half breaker bus scheme for 400kV system and Double bus scheme for the 220kV system, have been considered for all proposed **GIS** substations under present scope of work due to their merits in terms of reliability, security, operational flexibility and ease of maintenance of equipments. In 400kV substations, each circuit of a double circuit transmission line shall be terminated in different diameter. Similarly, 400kV ICTs shall also be terminated in different diameter. Accordingly, following switching schemes shall be adopted.

Voltage / Type of Substation	**400kV side**	**220kV side**
GIS Type	One & half breaker	Double bus scheme
AIS Type	One & half breaker	Double main bus and Transfer bus scheme (DMT)

2.4 Substation Equipment and facilities:

The switch-gear shall be designed to withstand operating conditions and duty requirements. The equipment shall be designed considering the transmission line capacity.

Sl. No	**Description of Bay**	**400kV**	**220kV**
1	Bus Bar	4500A	3500A
2	Line bays	3150A	1600A
3	ICT bays	3150A	1600A (for 400/220kV)
4	Bus Reactor bays	2000A	NA
5	Bus coupler bays	NA/4500A	3500A
6	Transfer Bus Coupler bay	NA	1600 A

2.5 Power Transformer

500MVA, 400/220/33kV 3-Phase Auto Transformer shall conform to CEA's "Standard Specifications and Technical Parameters for Transformers and Reactors (66 kV and above)" available on CEA website.

2.6 Shunt Reactors

125 MVAR, 420 KV, 3-Phase Reactor shall conform to CEA's "Standard Specifications and Technical Parameters for Transformers and Reactors (66 kV and above)" available on CEA website.

A. Controlled Switching Device at Bus & Line Reactor

The controlling relay shall record and monitor the switching operations and make adjustments to the switching instants to optimize the switching behavior as necessary. It shall provide self-

diagnostic facilities, signaling of alarms and enable downloading of data captured from the switching events.

The controller shall be designed to operate correctly and satisfactorily with the excursion of auxiliary A/C & DC voltages and frequency as specified below:

Normal Voltage	Variation in Voltage	Frequency in Hz	Phase/Wire	Neutral Connection
415V	±10%	50±5%	3/4 Wire	Solidly Earthed
240V	±10%	50±5%	1/2 Wire	Solidly Earthed
220V	190V to 240V	DC	-	Isolated 2 wire system

The controller shall meet the requirements of IEC-60255-4 Appendix 'E' class III regarding HF disturbance test, and fast transient test shall be as per IEC-61000 – 4 level III and insulation test as per 60255 – 5.

2.7 Gas Insulated Switchgear: Refer Technical specification for SF6 gas insulated metal enclosed switchgear (GIS).

2.8 SF6 Circuit Breakers (AIS)

The circuit breakers and accessories shall conform to IEC: 62271-100, IEC: 62271-01 and shall be of SF6 Type. The circuit breakers shall be class C2-M2 (as per IEC) with regard to restrike probability during capacitive current breaking and mechanical endurance. The rated break time shall not exceed 40 ms for 400kV circuit breakers and 60 ms for 220kV circuit breakers. 400kV and 220kV Circuit breakers shall be provided with single phase and three phase auto reclosing. The Circuit breakers controlling 400kV lines wherever required shall be provided with pre insertion closing resistor of about 450 ohms maximum with 8 milliseconds minimum insertion time for lines longer than 200km. The short line fault capacity shall be same as the rated capacity and this is proposed to be achieved without use of opening resistors. 400kV Circuit Breaker shall be equipped with controlled switching device for controlling of transformer and shunt reactor. The controlled switching device shall be provided in 400kV Circuit breakers of switchable line reactor bay and in Main & Tie bay circuit breakers of line with non- switchable line reactors, Bus reactors and ICTs. All the type test shall be done as per relevant IEC/IS standard. And validity of Type test report shall confirm to CEA guidelines.

The Technical Particulars / Parameters of Circuit Breakers:

Sl. No.	Parameter	400kV system	220kV system
1.	Rated voltage (Umax) kV (rms)	420	245
2.	Rated frequency (Hz)	50	50
3.	No. of poles	3	3
4.	Type of circuit breaker	SF6 gas insulated	SF6 gas insulated
5.	Rated continuous current (A) at an ambient temperature of 50°. C	3150	3150

6.	Rated short circuit capacity with percentage of DC component as per IEC-62271-100 corresponding to minimum opening time under operating conditions specified.	63kA	50 kA
7.	Symmetrical interrupting capability (rms)	63kA	50 kA
8.	Rated short circuit making current	157.5 kAp	125 kAp
9.	Short time current carrying capability (rms)	63 for one second	50 for one second
10.	Out of phase breaking current carrying capability (rms)	15.75	As per IEC
11.	Rated line charging interrupting current at 90°. Leading power factor angle (rms) (The breaker shall be able to interrupt the rated line charging current with test voltage immediately before opening equal to the product of U/√3 and 1.4 as per IEC-62271-100	600 A	As per IEC
12.	First pole to clear factor	1.3	1.3
13.	Temperature rise over an ambient temperature of 50°C	As per IEC: 62271-100	As per IEC: 62271-100
14.	Rated break time as IEC (with limiting auxiliary voltage at all duties)	40 ms	60 ms
15.	Total break time	40ms	50ms
16.	Total closing time	Not more than 110ms	Not more than 100ms
17.	Operating mechanism or a combination of these	Spring	Spring
18.	Rated operating duty cycle	O-0.3s-CO-3 min-CO	O-0.3s-CO-3 min-CO
19.	Reclosing	Single phase &Three phase auto reclosing.	Single phase &Three phase auto reclosing.
20.	Pre-insertion resistor requirement		
i)	Rating (ohms)	400(max.) with tolerance as applicable	NA
ii)	Minimum electrical (mechanical insertion time+pre-arcing time) pre-insertion time (ms)	8	NA

iii)	Opening of PIR contacts	PIR contacts should open immediately after closing of main contacts OR At least 5 ms prior to opening of main contacts at rated air/gas pressure where the PIR contacts remain closed.	NA
21.	Max. difference in the instants of closing/opening of contacts (ms) between poles at rated control voltage and rated operating & quenching media pressures	2.5 (within a pol 3.3(opening) 5.0 (closing)	3.3(opening) 5.0(closing)
22.	Maximum allowable switching over voltage under any switching condition	2.3 p.u.	As per IEC
23.	Trip coil and closing coil voltage with variation as specified	220V DC	220V DC
24.	Noise level at base and up to 50 m distance from base of circuit breaker	140dB (max.)	140dB (max.)
25.	Rating of Auxiliary contacts	10A	10A
26.	Breaking capacity of Aux. Contacts	10A DC with circuit time constant not less than 20ms	10A DC with circuit time constant not less than 20ms
27.	Rated insulation levels		
i)	Full wave impulse withstand (1.2 /50 µs) between line terminals and ground	±1425 kVp	±1050 kVp
ii)	Full wave impulse withstand (1.2 /50 µs) between terminals with circuit breaker open	1425 kVp impulse on one terminal & 240 kVp power frequency voltage of opposite polarity on the other terminal	±1050 kVp
iii)	Rated switching impulse withstand voltage (250/2500 µs) Dry & wet between line terminals and ground	+1050 kVp .	NA
iv)	Rated switching impulse withstand voltage (250/2500 µs) Dry &wet Between terminals with circuit breaker open voltage of opposite polarity on the other terminal	900 kVp impulse on one terminal & 345 kVp power frequency	NA
v)	One minute power frequency dry withstand voltage between line terminals and ground	520 kV rms.	460 kV rms.
vi)	One minute power frequency dry withstand voltage between terminals with circuit breaker open	610 kV rms.	460 kV rms.

28.	Minimum corona extinction voltage with CB in all positions	320kV rms	156 kV rrms
29.	Max. radio interference voltage for frequency between 0.5 MHz and 2 MHz (Micro volts)	1000 μV (at 266kV rms)	1000 μV (at 156kV rms)
30.	Minimum Creepage distance		
i)	Phase to ground (25mm/kV)	13020mm	7595mm
ii)	Between CB terminals	13020mm	7595mm
31.	Rated capacitance current switching duty	C2	C2
32.	Rated Mechanical Endurance duty	M2	M2

2.9 Isolators (AIS)

The isolators shall comply to IEC 62271-102 in general. 400kV& 220kV isolators shall be double break type. All Isolators and earth switches shall be motor operated. Earth switches are provided at various locations to facilitate maintenance. Isolator rated for 400kV & 220kV shall be of extended mechanical endurance class-M2 and suitable for bus transfer current switching duty as per IEC-62271-102 Main blades and earth blades shall be interlocked and interlock shall be fail safe type. 400kV & 220kV earth switch for line isolator shall be suitable for induced current switching duty as defined for Class-B as per relevant standard. All the type test shall be done as per relevant IEC/IS standard. And validity of Type test report shall confirm to CEA guidelines.

The Technical Particulars / Parameters of Isolators:

Sl. No.	Description	Unit	420kV Isolator	245kV Isolator
1	Rated voltage	kVrms	420	245
2	Rated frequency	Hz	50	50
3	No. of poles	Nos.	3	3
4	Design ambient Temperature	°C	50	50
5	Type		Outdoor, AC Motor Operated	Outdoor, AC Motor Operated
6	Rated current at 50°. C ambient temperature	A	2000A/3150A (as applicable)	1600A/2500A (as applicable)
7	Rated short time withstand current of isolator and earth switch	kA	63 for 1 sec	50 for 1 sec
8	Rated dynamic short time withstand current of isolator and earth switch	kAp	157.5 kAp	125 kAp
9	Temperature rise over design ambient temperature	-	-	-
10	Operating mechanism of isolator/earth switch		A.C. Motor operated	A.C. Motor operated
11	Max. Operating time	secs	20 secs or less	12 secs or less
12	Rated Insulation levels			
a)	Full wave impulse Withstand voltage (1.2/50 microsec.)			
i)	between line terminals and ground	kVp	±1425	±1050

ii)	between terminals with isolator open	kVp	±1425 kVp impulse on one terminal and 240 kVp power frequency voltage of opposite polarity on other terminal	±1200
b)	Switching impulse Withstand voltage (250/2500 micro- second) dry and wet			
i)	between line terminals and ground	kV peak	± 1050	-NA
ii)	between terminals with Isolator open	kV peak	900 kVp impulse on one terminal and 345 kVp power frequency voltage of opposite polarity on other terminal	-NA
c)	One minute power frequency dry withstand voltage			
i)	between line terminals and ground	kV rms	520	460
ii)	between terminals with isolator open	kV rms	610	530
13	Minimum Corona extinction voltage with Isolator in all positions	kV rms	320	156
14	Max. radio interference Voltage for frequency between0.5 MHz and 2 MHz in all positions	Micro volts	500 at 320 kVrms	500 at 156 kVrms
15	Seismic acceleration		As per	As per
			IS:1893	IS:1893
16	Thermal Rating of Auxiliary Contacts	A	10 A at 220V DC	10 A at 220V DC
17	Breaking Capacity of auxiliary contacts		2 A DC with circuit time constant not less than 20 ms	2 A DC with circuit time constant not less than 20 ms
18	System neutral earthing		Effectively Earthed	Effectively Earthed

2.10 Current Transformers (AIS)

Current Transformers shall comply with IEC 61869. All ratios shall be obtained by secondary taps. Generally, Current Transformers (CT) for 400kV & 220 kV shall have six cores (four for protection

and two for metering). The burden and knee point voltage shall be in accordance with the requirements of the system including possible feeds for telemetry. Accuracy class for protection core shall be PS and for metering core it shall be 0.2S. The rated burden of cores shall be closer to the maximum burden requirement of metering & protection system (not more than 20VA for metering core) for better sensitivity and accuracy. The instrument security factor shall be less than 5 for CTs upto 400 kV voltage class. All the type test shall be done as per relevant IEC/IS standard. And validity of Type test report shall confirm to CEA guidelines.

The Technical Particulars / Parameters of Current Transformers:

Sl. No.	Description	400kV system	220kV system
1	Rated voltage, Um (kVrms)	420	245
2	Rated frequency (Hz)	50	50
3	No. of Poles	1	1
4	Design ambient temperature (°C)	50	50
5	Rated Primary Current (A)	3000-2000/1A) 2000-1000-500/1A	(i) 1600-800/1A (ii) 3000-2000/1A
6	Rated extended primary Current	125%	125%
7	Rated short time thermal withstand current (kA)	63 for 1 sec	50 for 1 sec
8	Rated dynamic current	157.5 kAp	125 kAp
i)	between line terminals and ground (kVpeak)	±1425	±1050
i)	between line terminals and ground (kVpeak)	± 1050	-NA-
i)	between line terminals and ground (kVrms)	630 (dry only)	460
9	No. of Cores	6 (4 nos. for Protection & 2 nos. for metering)	6 (4 nos. for Protection & 2 nos. for metering)

2.11 Capacitor Voltage Transformers (CVT)/Potential Transformers (PT)

Capacitive Voltage transformers shall comply to IEC-61869. These shall have three secondaries out of which two shall be used for protection and one for metering. Accuracy class for protection cores shall be 3P and for metering core shall be 0.2. The voltage transformers on lines shall be suitable for Carrier Coupling. The Capacitance of CVT shall be 4400/8800 pF depending on PLCC requirements. The rated burden of cores shall be closer to the maximum burden requirement of metering & protection system (not more than 100 VA for metering core) for better sensitivity and accuracy. All the type test shall be done as per relevant IEC/IS standard. And validity of Type test report shall confirm to CEA guidelines.

The Technical Particulars / Parameters of Capacitor Voltage Transformers:

Sl. No.	Description	420kV CVT	245kV CVT
1	Rated primary voltage (kV rms)	420	245
2	Rated frequency (Hz)	50	50
3	No. of Poles	1	1
4	Design ambient temperature (°C)	50	50
5	System fault level (kA for 1 sec)	63 for 1 sec	50 for 1 sec
6	Standard reference range of frequencies for which the accuracy are valid	96% to 102%for protection and 99% to 101 % for measurement	
7	High frequency capacitance for entire carrier frequency range (for CVT only)	Within 80% to 150% of rated capacitance	
8	Equivalent series resistance over entire carrier frequency range (for CVT)	Less than 40 Ohms	
9	Stray capacitance and stray conductance of HF terminal over entire carrier frequency range (for CVT)	As per IEC-60358	
10	Temperature rise over design ambient temperature	As per IEC-61869	
11	Rated Insulation levels		
a)	Full wave impulse withstand voltage (1.2/50 microsec.)		
i)	Between line terminals and ground	±1425 kVp	±1050kVp
b)	Switching impulse withstand voltage (250/2500 micro-second) dry and wet		
i)	Between line terminals and ground	±1050 kVp	-NA-
c)	One minute power frequency dry withstand voltage		
i)	between line terminals and ground (kVrms)	630 (dry only)	460
d)	One minute power frequency withstand voltage between secondary terminals & earth		
i)	Between LV (HF) terminal and earth terminal (kVrms)	10kV rms for exposed terminals and 4kV rms for terminals enclosed in a weather proof box	

ii)	For secondary winding	3kVrms	
12	Max. radio interference voltage for frequency between0.5 MHz and 2 MHz at (microvolts)	1000 at 266kV rms	1000 at 156kV rms
13	Minimum Corona extinction voltage (kVrms)	320	176
14	Partial Discharge	As per IEC	As per IEC
15	Type	Single phase Electromagnetic or Capacitor VT	
16	No. of secondaries	3 cores	3 cores
17	Rated voltage factor	1.2 - continuous 1.5 - 30seconds	1.2 - continuous 1.5 - 30seconds
18	Phase angle error	± 10 minutes (For metering core)	± 10 minutes (For metering core)
19	Capacitance (pf) (for CVT)	8800/4400 (+10%/-5%)	8800/4400 (+10%/-5%)
20	Core details	Core-1, Core-2 & Core-3	Core-1, Core-2 & Core-3
a)	Voltage Ratio	Core-1:-(400/√3)/ (0.11/√3) Core-2:-(400/√3)/ (0.11/√3) Core-3:-(400/√3)/ (0.11/√3)	Core-1:-(220/√3)/ (0.11/√3) Core-2:-(220/√3)/ (0.11/√3) Core-3:-(220/√3)/ (0.11/√3)
b)	Application	Core-1:- Protection Core-2:- Protection Core-3:-Metering	Core-1:- Protection Core-2:- Protection Core-3:-Metering
c)	Accuracy	Core-1:-3P Core-2:-3P Core-3:- 0.2	Core-1:-3P Core-2:-3P Core-3:- 0.2
d)	Min. Output burden (VA)	Core-1:- 100VA Core-2:-100VA Core- 3:- 100VA	Core-1:- 100VA Core-2:-100VA Core- 3:- 100 VA
21	Rated Total Thermal Burden (VA)	300 VA (100 VA/winding)	
22.	Minimum Cantilever Strength	500kg	

2.12 Surge Arresters (AIS)

Station class, heavy duty gapless type Surge arresters conforming to IEC 60099-4 in general shall be provided. The rated voltage of Surge arrester and other characteristics are chosen in accordance with system requirements. Surge arresters shall be provided near line entrances, Transformers & Reactor so as to achieve proper insulation coordination. Porcelain/Polymer housing if provided for SA shall be fitted

with pressure relief devices and diverting ports suitable for preventing shattering of Porcelain/Polymer housing provide path for the flow of rated currents in the event of arrestor failure. A leakage current monitor with surge counter shall be provided with each surge arrestor. All the type test shall be done as per relevant IEC/IS standard. And validity of Type test report shall confirm to CEA guidelines.

The Technical Particulars / Parameters of Surge Arresters:

Sl. No.	Description	Unit	420kV SA	245kV SA
1	Nominal System Operating voltage	kV, rms	400	220
2	Rated frequency	Hz	50	50
3	No. of Poles	No.	1	1
4	Design ambient Temperature	°C	50	50
5	Rated arrester voltage	kV	336	198
6	Continuous operating voltage at 50°.C	kV	390	216
7	Nominal discharge current		20 kA of 8/20 microsecond wave	10 kA of 8/20 microsecond wave
8	Discharge current at which insulation co- ordination will be done		20 kA of 8/20 microsecon d wave	10 kA of 8/20 microsecon d wave
9	Minimum discharge capability (referred to rated arrester Voltage) or Corresponding to minimum discharge voltage as per clause-2.0(d) whichever is higher	kJ/kV	12kJ/kV	7kJ/kV
10	Max. switching surge residual voltage	kVp	670 (at 2kA) 650 (at 500A)	500 (at 1kA)
11	Max. residual voltage at			
i)	5kA	kVp	-	560
ii)	10kA nominal discharge current	kVp	800	480
iii)	20kA nominal discharge current	kVp	850	-
12	Cantilever Strength (for 1 minute withstand test)	kg	1000	1000

2.13 Protection & Control

The protective relaying system proposed to be provided for transmission lines, auto-transformers, reactors and bus bars to minimize the damage to the equipment in the events of faults and abnormal conditions, is dealt in this section. All main protective relays shall be numerical type with IEC 61850 (Edition-I &II, site selector) communication interface. All numerical relays shall have built in disturbance recording feature. The auto transformer protection should be provided with two no. differential relays of different make &algorithm.

The protection circuits and relays of transformer and reactor shall be electrically and physically segregated into two groups each being independent and capable of providing uninterrupted protection even in the event of one of the protection groups failing, to obtain redundancy, and to take protection systems out for maintenance while the equipment remains in service.

a) Transmission Lines Protection

400kV and 220kV lines shall have MAIN-I numerical four zones distance protection scheme with carrier aided inter-tripping feature. The fourth zone shall be the reverse zone. 400 kV and 220 kV lines shall also have MAIN-II numerical distance protection scheme like Main-I but from different make that of MAIN-I. However, Line Current Differential relay (with back up distance protection feature) as Main–I & Main-II may be considered, for short lines (line length less than 10 kM) having Fibre Optic communication link for which line differential relay have to be provided for remote end also. In case of loop in loop out of transmission lines, the existing protection scheme shall be studied and suitable up-gradation (if required) shall be carried out. The Main-I and Main-II protection relays of same make may be provided only if they are of different hardware, manufacturing platform or different principle of operation. Associated power & control cabling and integration with SAS at remote end shall be provided by respective bay owner.

All 400kV lines shall also be provided with two stages over voltage protection. Further, all 400kV & 220kV lines shall be provided with single and three phase auto-reclosing facility to allow reclosing of circuit breakers in case of transient faults. These lines shall also be provided with distance to fault locators to identify the location of fault on transmission lines.

Over voltage protection & distance to fault locator may be provided as in-built feature of Main-I & Main- II protection relays. Auto reclose as built in function of Bay Control Unit (BCU) is also acceptable.

The Main-I and Main-II protection relays shall be fed from separate DC sources and shall be mounted in separate panels. For 400kV and 220kV transmission lines, directional IDMT earth fault relay should be provided as standalone unit or in-built feature of Main-I and Main -II feature.

b) Auto Transformer Protection/Transformer protection:

These shall have the following protections:

(i) Numerical Differential protection
(400/220/11 kV shall have two differential protection relays. The second differential relay shall be provided on IV side C&R panel to avoid congestion on HV side C&R panel. The differential relay shall have different make and algorithm.)

(ii) Numerical Restricted earth fault protection

(iii) Numerical Over-current and earth fault protection on HV & IV side

(iv) Numerical Over fluxing protection on HV & IV side

(v) Numerical Overload alarm

(vi) Neutral displacement

Further, Numerical Back-up Over-current and earth fault protection on HV & IV side of auto- transformer shall not be combined with other protective functions in the main relays and shall be independent relays. Besides these, power transformers shall also be provided with BUCHOLZ relay, protection against high oil and winding temperature and pressure relief device, OSR etc. The auto transformer protection should be provided with two no. differential relays of different make & algorithm.

Suitable monitoring, control (operation of associated circuit breaker & isolator) and protection for LT auxiliary transformer connected to tertiary winding of auto- transformer for the purpose of auxiliary supply shall be provided. The Over current and other necessary protection shall be provided for the auxiliary transformer. These protection and control may be provided as built in feature either in the bay controller to be provided for the auxiliary system or in the control & protection IEDs to be provided for autotransformer.

c) 400 kV Reactor Protection

Reactor shall be provided with the following protections:

(i) Numerical Differential protection.
(ii) Numerical Restricted earth fault protection
(iii) Numerical Back-up impedance protection
(iv) Numeric back up – over current & Earth fault protection

Besides these, reactors shall also be provided with Buchholz relay, protection against oil and winding temperatures & pressure relief device etc.

d) Numerical Bus Bar Protection

The high speed low impedance bus bar differential protection, which is essential to minimize the damage and maintain system stability at the time of bus bar faults, shall be provided for 400kV and 220kV buses. Duplicated bus bar protection is envisaged for 400kV bus-bar protection. Bus bar protection scheme shall be such that it operates selectively for each bus and incorporate necessary features required for ensuring security. The scheme shall have the complete bus bar protection for present as well for present as well as for future bays envisaged i.e. input / output modules for future bays shall also be provided. Bus bar protection system for new substation shall be de-centralized (distributed) type. For existing substations, the existing bus bar protection shall be augmented wherever required.

e) Numerical Local Breaker Back up Protection

This shall be provided for each 400kV and 220kV breakers and will be connected to de-energize the affected stuck breaker from both sides.

2.14 Control Concept

All the EHV breakers in substation/switching stations shall be controlled and synchronized from the switchyard control room and remote control center. Each breaker would have two sets of trip circuits which would be connected to separately fused DC supplies for greater reliability. All the isolators shall have control from remote/local whereas the earth switches shall have local control only.

2.15 Substation Automation System

(a) For all the new substations, state of art Substation Automation System (SAS) conforming to IEC-61850 (Edition-I & II site selectable) shall be provided. The distributed architecture shall be used for Substation Automation System, where the controls shall be provided through Bay control units. The

Bay Control Unit is to be provided bay wise for voltage level 220 kV and above. All bay control units as well as protection units are normally connected through an Optical fibre high speed network. The control and monitoring of circuit breaker, dis-connector, re-setting of relays etc can be done from redundant Human Machine Interface (HMI) from the Control Room. Additionally IEC 61850 based annunciator system shall be provided for backup.

The functions of control, annunciation, disturbance recording, event logging and measurement of electrical parameters shall be integrated in the Substation Automation System.

At new substations, the Substation Automation System (SAS) shall be suitable for the operation and monitoring of the complete substation including proposed future bays/elements.

In the existing substations with a Substation Automation System (SAS), augmentation of existing SAS shall be done for bays under the present scope.

In the existing Substations where Substation automation is not provided, control functions shall be done through control panels & also interfaced to existing RTU/SCADA.

Necessary gateway and modems (as required) shall be provided to send data to RLDC/ SLDC as per their requirement and shall be provisioned with 2+2 redundancy i.e. 2 channels for Main Control Centre and 2 channels for Backup Control Centre. In order to meet this requirement, suitable redundancy at port and card level need to be ensured by the TSP to avoid any single point of failure which may lead to interruption in real-time grid operation. Accordingly, all the hardware for communication services of station as stated above shall support dual redundancy for data transmission of station to respective main and backup RLDCs. Any augmentation work at RLDC/ SLDC is in TSP's scope. However, all the configuration work at substation end required to send data to RLDC/ SLDC shall be in the scope of TSP.

(b) Time Synchronisation Equipment

Time synchronization equipment complete in all respect including antenna, cable and processing equipment required to receive time signal through GPS or from National Physical Laboratory (NPL) through INSAT shall be provided at new substations. This equipment shall be used to synchronize SAS and IEDs etc.

2.16 Substation Support facilities

Certain facilities required for operation & maintenance of substations as described below shall be provided in new substation. In existing substation, these facilities have already been provided and would be extended/ augmented, wherever required.

2.17 AC & DC power supplies

For catering to the requirements of three phase & single phase AC supply and DC supply for various substation equipment's, the following arrangement is envisaged. However, for substation extension / augmentation, existing facilities shall be augmented as required -

i) For LT Supply at 400/220kV New Substation, one (1) no. 630kVA, 11/0.433kV Transformers shall be provided which shall be connected with 11kV bus of nearby substation and one (1) no. 1MVA, 33/0.433kV on tertiary of 400/220/33kV Auto-transformer. The maximum permissible losses shall be as per Table 6 of IS-1180.

ii) Metering arrangement with Special Energy Meters (SEMs) shall be provided by TSP at 33kV tertiary

of Transformer for drawing auxiliary supply at new substation. Such SEMs may be provided by STU at the cost of the TSP. Accounting of such energy drawn by the TSP shall be done by SLDC as part of State Energy Accounting. Additionally, Active Energy Meters may be provided at the same point in the 33kV tertiary of Transformer by local SEB/DISCOM for energy accounting,

iii) 2 Sets batteries of 220V for control & protection and 2 Sets 48V batteries for PLCC/ Communication equipment shall be provided at each new Substation with at least 10 hours battery backup and extended back up as required. Each battery bank would have a float-cum- boost charger. Battery shall be of plante type.

iv) Suitable AC & DC distribution boards and associated LT Switchgear would be provided at new Substations. Sizing of LT Switchgear shall be suitable to cater the requirement for all present and future bays. AC & DC distribution boards shall have modules for all the present and future feeders as specified.

For Substation Extensions, existing facilities shall be augmented as required. For new substations following switchboards shall be considered with duplicate supply with bus coupler/ sectionalizer and duplicate outgoing feeders except for Emergency lighting distribution board which shall have only one incoming feeder:

(a) 415V Main Switch board – 1 no.
(b) AC distribution board – 1 no.
(c) Main lighting distribution board – 1no.
(d) Emergency lighting distribution board – 1no.
(e) 220 Volt DC distribution board – 2nos.
(f) 48 Volt DC distribution board – 2nos.

415V Main Switch Board & AC distribution board shall be provided with at least two incomers with one bus coupler and AC supply shall have redundancy.

v) In new Substations, one No. 250 KVA DG set shall be provided for emergency applications.

vi) Sizing of Auxiliary system (like battery, charger, LT switchgear) may be done considering future bay requirements to avoid replacement in future with higher sizes.

2.18 Fire Fighting System

Fire-fighting system in general conforms to fire insurance regulations of India. The fire-fighting system is proposed with both AC motor & diesel engine driven pump house in a fire fighting pump house building along with water storage tank of adequate capacity and oil soak pit of adequate capacity in line with Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022 to drain transformer oil in case of fire or otherwise. Automatic heat actuated emulsifying system to be provided for fire protection of Transformers. However, Nitrogen Injection Fire Protection System (NIFPS) shall be required for 400 kV and 220 kV Class Transformers. In addition, for alarm system based on heat/smoke detectors are proposed to be installed at sensitive points in a substation e.g. Cable Vault, Control Room building and other buildings etc. Further, adequate water hydrants and portable fire extinguishers shall be provided in the substations. The main header of firefighting system shall be suitable for extension to bays covered under the future scope; necessary piping interface in this regard shall be provided.

Optical Beam type heat detection for GIS hall fire protection system shall be provided for all the GIS halls. All fire protection system shall also comply with the requirement of CEA (Measures Relating to Safety & Electric Supply) regulations.

2.19 Oil evacuating, filtering, testing & filling apparatus

To monitor the quality of oil for satisfactory performance of transformers, shunt reactors and for periodical maintenance necessary oil evacuating, filtering, testing and filling apparatus would be provided at new substations. Oil tanks of adequate capacities for storage of transformer oil would be provided.

2.20 Illumination

Normal & emergency AC & DC illumination shall be provided adequately in the control room & other buildings of the substation. The switchyard shall also be provided with adequate illumination.
The entire control room building, fire-fighting pump house, other buildings (if any) and switchyard shall be done by LED based low power consumption luminaries.

2.21 Control Room & GIS Building

Substation control room shall be provided to house substation work station for station level control (SAS) along with its peripheral and recording equipment's, AC & DC distribution boards, DC batteries & associated battery chargers, Fire Protection panels, Telecommunication panels & other panels as per present requirements. Air conditioning shall be provided in the building as functional requirements. Main cable trenches from the control room shall have adequate space provision for laying of cables from control room for all the future bays also. Modular multidiamter cable sealing system which is water proof, fire proof, rodent proof wherever the control cable/Power cable/Instrumentation cable enter or leave the control room, shall be provided.

2.22 PT Distribution Scheme

A suitable PT distribution scheme for 400kV & 220 kV has to be provided by TSP. TSP may visit the existing Sub-Stations in order to familiarize themselves with the existing system. The PT distribution board must be suitable for distributing the main bus PTs to all the feeder/transformers. The Potential transformers shall comply with the relevant codes/standards. The number of secondary cores, accuracy class and burden shall be in accordance with the requirements of the protection and metering system. Rated burden shall be nearest to the burden computed; however it shall not exceed 100 VA. The accuracy class for metering core shall be equal to or better than the accuracy class of the meter specified in the Central Electricity Authority (Installation and Operation of Meters) Regulations.

2.23 Phasor Measurement Unit (PMU)

The substations are provided with CTs on each bay of the switchyard and CVTs/PTs in each transmission line bay and on each bus. The CTs have one metering core and four protection cores. The CVTs are provided with three cores for metering/protection. The offered Phasor Measurement Unit (PMU) shall be connected to either of these CT and CVT cores. PMUs shall be suitable for measurement on both the cores (Meter & Protection).
The PMUs to be installed at the Substations / Power stations, shall communicate to the existing Phasor Data Concentrator (PDC) installed at SLDC as per IEEE C37.118.1-2011, IEEE C37.118.2-2011 & C37.118.1a-2014 standard or IEC/IEEE 60255-118-1:2018 Standard with all amendments. PMU complying IEC/IEEE 60255-118-1:2018 Standard shall be preferred. The PMU shall be capable of reporting with its full features to the existing PDC installed at SLDC under the Unified Real Time Dynamic State Monitoring (URTDSM) Project. The PMU's are to be provided for each feeder bays and transformers in 400kV substations and the data is to be transferred through single channel to SLDC.

3.0 GENERAL FACILITIES

Following facilities shall be provided:

- Substation Gantry/Towers are envisaged for present scope of bays only. However, for adjacent future bay, gantry/towers shall be designed for extension (considering Quad conductor for 400kV future lines, Single/Double conductor for 220kV future lines) wherever required.
- The sub-station shall be confirming to the requirement of CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations 2022, as amended from time to time.
- In addition, the scope for development of communication system at the Substations & Transmissions lines is in the scope of TSP. The communication equipment at both ends of the transmission line terminating at KPTCL's substation, along with its O&M, shall be in the scope of the TSP. For all the new substations, PLCC, Substation Automation System (SAS) & Time synchronization equipment, shall be provided by the TSP as per guidelines & amendments thereof.
- Bay extension works at existing substation shall be executed by TSP in accordance with the requirements/provisions mentioned above. However, interface points shall be considered keeping in view the existing design/arrangement at the substation.

- TSP has to arrange for construction power and water on its own.

- Space for storage of O&M spares shall be arranged by TSP on its own.

- Security compound using Solid Block Masonry/ Burnt Brick Masonry with steel fabrication and barbed wire fencing shall be constructed around the switchyard area. For vacant/ unused land, boundary compound using Solid Block Masonry/ Burnt Brick Masonry shall be constructed. Wherever there is a demarcation of switchyard and vacant land, chain link security fencing shall be constructed along that line. The minimum height of the boundary wall shall be of 1.8 m from finished ground level (FGL).

- All electrical equipment shall be installed above the Highest Flood Level (HFL) and where such equipment is not possible to be installed above Highest Flood Level, it shall be ensured that there is no seepage or leakage or logging of water.

EXTENSION OF EXISTING SUBSTATION

The following drawings/details of existing substation are attached with the RfP documents for further engineering by the bidder.

Sl. No.	Drawing Title	Drawing No./Details	Rev. No.
A.	**220kV Ekarajapura substation**		
1.0	Single Line Diagram	KPTCL/TECH/SS-220/HKT-1/R2	
2.0	Layout Plan	KPTCL/TECH/SS-220/BNK-4/R2	
3.0	Cross Section	KPTCL/TECH/SS-220/BNK-5/R2	
4.0	Earthmat Layout	SEE/R&D/F4 (1)	
B.	**220kV Sarjapura substation**		
1.0	Single Line Diagram	KPTCL/TECH/SS-220/SJP-1	
2.0	Layout Plan	KPTCL/TECH/SS-220/SJP-4	
3.0	Cross Section	KPTCL/TECH/SS-220/SJP-5	
4.0	Earthmat Layout	SEE/R&D/F9(8)	
C.	**PGCIL Kolar S/s**		
1.0	Single Line Diagram	**PGCIL/Kolar/01**	
2.0	Layout Plan	**CG/973/003**	
3.0	Cross Section	**CG/973/072**	
4.0	Earthing Layout	**CG/973/007**	
5.0	Bus Bar Protection layout	**3100137898 , IN-56323017**	
6.0	Control room layout	**CG/973/101**	
7.0	SLD CCTV	**PGCIL/Kolar/02**	
8.0	HVAC COMMUNICATION ARCHITECTURE	**PGCIL/Kolar/03**	

Note: The existing drawings provided above and in subsequent amendments to the RfP are as received from the developer of existing substation and provided only for reference. Bidders shall follow the RfP for scope of work. Actual site conditions may be different due to other schemes being executed or subsequent revisions by the developer. Therefore, Bidders are advised to visit the substation sites and acquaint themselves with the actual site conditions, layout, topography, infrastructure such as the requirement of roads, cable trench, drainage, boundary etc. and also the design philosophy.

Details of existing substation								
S.no	**From**	**To**	**Capacity available in LT transformer**	**Spare feeder in ACDB**	**Spare feeder in DCDB**	**Battery capacity**	**Availability of Busbar protection**	**Availability of fire hydrant system**
1	Prop.400/220 kV Doddathagalli S/s	Ex. 220 kV Ekrajapura S/s	Available	ACDB with 1 I/C and 5 feeders required	Available	Available		
2		Ex. 220 kV Sarjapura S/s	Available	ACDB with 1 I/C and 5 feeders required	DCDB with 2 I/C and 6 feeders required	Available	Available	NA
3		Kolar S/s	Yes	Yes	Yes	500 Ah	Yes	Not available nearby to be extended from ICT -2 which is 300 m away (approx.) HVWS Pumps capacity increase may be required

TECHNICAL SPECIFICATION FOR SF6 GAS INSULATED METAL ENCLOSED SWITCHGEAR (GIS)

1.0 GENERAL CHARACTERISTICS

The SF6 gas insulated metal enclosed switchgear shall be totally safe against inadvertent touch of any of it's live constituent parts. It should be designed for indoor/outdoor (as specified) application with meteorological conditions at site as per Section Project. All parts of the switchgear should be single phase enclosed for 400 kV and single phase/three phase enclosed for 220 kV.

The arrangement of gas sections or compartments shall be such as to facilitate future extension of any make on either end without any drilling, cutting or welding on the existing equipment. To add an equipment, it shall not be necessary to move or dislocate the existing switchgear bays. As the 400/220kV GIS is likely to be extended in future on either side, the contractor shall make available during detailed engineering stage, all details such as cross section, gas pressure, extension conductor piece to extend existing bus bar and all required material etc. for design of adopter in future for extension of GIS. GIS must be complete in all respects for future extension and there should be no requirement of any component/material of GIS from the present supplier at the time of future extension by another GIS manufacturer.The design should be such that all parts subjected to wear and tear are easily accessible for maintenance purposes. The equipment offered shall be protected against all types of voltage surges and any equipment necessary to satisfy this requirement shall be deemed to be included. The required overall parameters of GIS are as follows :-

Sl. No.	Technical particulars	400 kV System	220 kV System
a	Rated Voltage	420 kV (rms)	245 kV (rms)
b	Rated frequency	50 HZ	50 HZ
c	Grounding	Effectively earthed	Effectively earthed
d	Rated power frequency withstand Voltage (1min) line to earth	650 kV (rms)	460 kV (rms)
e	Impulse withstand BIL (1.2/50/mic. Sec) Line to earth	±1425 kVp	±1050 kVp
f	Switching impulse voltage (250/2500 mic.-sec)	1050 kVp	-
g	Rated short time withstand current (1 sec)	63/50/ 40 kA (rms) (As applicable)	50/ 40 kA (rms) (As applicable)
h	Rated peak withstand current	157.5/125/100 kA (peak) (as applicable)	125/100 kA(peak) (as applicable)
i	Guaranteed maximum gas losses for complete installation as well as for all individual sections in %	As per IEC- 62271-203	As per IEC- 62271-203
j	Rated current normal/ at site (at 50 degree C design ambient temperature)	As per schedule of requirement	As per schedule of requirement
k	Seismic level	Zone – II as per IS-1893, Year-2002	Zone – II as per IS-1893, Year-2002

The metal-enclosed gas insulated switchgear, including the operating devices, accessories and auxiliary equipment forming integral part thereof, shall be designed, manufactured, assembled and tested in accordance with the IEC-62271-203 publications including their parts and supplements as amended or revised to date.

2.0 REFERENCE STANDARDS

The metal-enclosed gas-insulated switchgear, including the operating devices, accessories and auxiliary equipment forming integral part thereof, shall be designed, manufactured, assembled and tested in accordance with the following International Electro-technical Commission (IEC)
Publications including their parts and supplements as amended or revised to date:

IEC 62271-203	Gas Insulated metal-enclosed switchgear for rated voltages above 52KV
IEC 60376	New sulphur hexafluoride
IEC 62271-	100 High voltage alternating current Circuit breakers
IEC 62271-1	High voltage Switchgear and control-gear standards – common specifications
IEC 62271-102	Alternating current disconnectors(isolators) and earthing switches
IEC 61128	Alternating current disconnectors. Bus-transfer current switching by disconnectors.
IEC 61129	Alternating current earthing switches. Induced current switching
IEC 61869-2/1	Current transformers
IEC 61869-3/1	Voltage transformers
IEC 60137	Bushings for alternating voltages above 1000 V
IEC 62271-209	Cable connections for gas-insulated metal enclosed switchgear for rated voltage above 52kV
IEC 60480	Guide to checking of sulphur hexafluoride taken from electrical equipment
IEC 60099 -1/4	Non-linear resistor type arresters for AC systems
IEC 60439	Factory-built assemblies of low-voltage switchgear and control Gear.
IEC 62271-101	High-voltage Switchgear & control gear – synthetic test.
IEEE 80 (2000)	IEEE Guide for Safety in AC Substation grounding.
CIGRE-44	Earthing of GIS- an application guide. (Electra no.151,Dec'93).
IEC 61639	Direct connection between Power Transformers and gas insulated metal enclosed switchgear for rated voltage 72.5 kV and above.

The components and devices which are not covered by the above standards shall conform to, and comply with, the latest applicable standards, rules, codes and regulations of the internationally recognized standardizing bodies and professional societies as may be approved by the Employer. The manufacturer shall list all applicable standards, codes etc. and provide copies thereof for necessary approval.

In case the requirements laid down herein differ from those given in above standard in any aspect the switchgear shall comply with the requirements indicated herein in regard thereto.

3.0 DEFINITIONS

3.1 Assembly

Assembly refers to the entire completed GIS equipment furnished under contract.

3.2 Bay

Bay refers to the area occupied by one Circuit Breaker and associated equipments used to protect one line/transformer/Reactor/bus coupler in double bus scheme/one and half breaker scheme and which comprises of atleast one circuit breaker, two disconnectors & 3 Nos. of single phase CT's/bushing CT's.

3.3 Compartment

When used in conjunction with GIS equipment, compartment refers to a gas tight volume bounded by enclosure walls and gas tight isolating barriers.

3.4 Enclosure

When used in conjunction with GIS equipment, enclosure refers to the grounded metal housing or shell which contains and protects internal Power system equipment (breaker, disconnecting switch, grounding switch, voltage transformer, current transformer surge arresters, interconnecting bus etc.)

3.5 Manual Operations

Manual operation means operation by hand without using any other source of Power.

3.6 Module

When used in conjunction with GIS equipment, module refers to a portion of that equipment. Each module includes its own enclosure. A module can contain more than one piece of equipment, for example, a module can contain a disconnecting switch and a grounding switch.

3.7 Reservoir

When used in conjunction with GIS equipment reservoir refers to a larger gastight volume.

4.0 GENERAL DESIGN AND SAFETY REQUIREMENT

4.1. The GIS assembly shall consist of separate modular compartments e,g Circuit Breaker compartment, Bus bar compartment filled with SF6 Gas and separated by gas tight partitions so as to minimize risk to human life, allow ease of maintenance and limit the effects of gas leaks failures & internal arcs etc. These compartments shall be such that maintenance on one feeder may be performed without de-energising the adjacent feeders. These compartments shall be designed to minimize the risk of damage to adjacent sections and protection of personnel in the event of a failure occurring within the compartments. Rupture diaphragms with suitable deflectors shall be provided to prevent uncontrolled bursting pressures developing within the enclosures under worst operating conditions ,thus providing controlled pressure relief in the affected compartment.

4.2. The workmanship shall be of the highest quality and shall conform to the latest modern

practices for the manufacture of high technology machinery and electrical switchgear.

4.3. The switchgear, which shall be of modular design, shall have complete phase isolation. The conductors and the live parts shall be mounted on high graded epoxy resin insulators. These insulators shall be designed to have high structural strength and electrical dielectric properties and shall be free of any voids and free of partial discharge at a voltage which is atleast 5 % greater than the rated voltage .They should be designed to have high structural and dielectric strength properties and shall be shaped so as to provide uniform field distribution and to minimize the effects of particle deposition either from migration of foreign particles within the enclosures or from the by-products of SF6 breakdown under arcing conditions.

4.4. Gas barrier insulators and support insulators shall have the same basis of design. The support insulators shall have holes on both sides for proper flow of gas.

4.5. Gas barrier insulators shall be provided so as to divide the GIS into separate compartments. They shall be suitably located in order to minimize disturbance in case of leakage or dismantling. They shall be designed to withstand any internal fault thereby keeping an internal arc inside the faulty compartment. Due to safety requirement for working on this pressurized equipment, whenever the pressure of the adjacent gas compartment is reduced, it should be ensured by the bidder that adjacent compartment would remain in service and also isolate/earth the gas compartments which is not at minimum operating pressure. The gas tight barriers shall be clearly marked on the outside of the enclosures. The service continuity of GIS shall confirm to Annexure-F of IEC :62271-203.

4.6. The material and thickness of the enclosures shall be such as to withstand an internal flash over without burn through for a period as specified in IEC at rated short time withstand current. The material shall be such that it has no effect of environment as well as from the by-products of SF6 breakdown under arcing condition.

4.7. Each section shall have plug- in or easily removable connection pieces to allow for easy replacement of any component with the minimum of disturbance to the remainder of the equipment. Inspection windows shall be provided for disconnector and earth switches.

4.8. The material used for manufacturing the switchgear equipment shall be of the type, composition and have physical properties best suited to their particular purposes and in accordance with the latest engineering practices. All the conductors shall be fabricated of aluminum/ copper tubes of cross sectional area suitable to meet the normal and short circuit current rating requirements. The finish of the conductors shall be smooth so as to prevent any electrical discharge. The conductor ends shall be silver plated and fitted into finger contacts or tulip contacts. The contacts shall be of sliding type to allow the conductors to expand or contract axially due to temperature variation without imposing any mechanical stress on supporting insulators.

4.9. Each pressure filled enclosure shall be designed and fabricated to comply with the requirements of the applicable pressure vessel codes and based on the design temperature and design pressures as defined in IEC-62271-203.

4.10. The manufacturer shall guarantee that the pressure loss within each individual gas-filled compartment shall not be more than half percent (0.5%) per year.

4.11. Each gas-filled compartment shall be equipped with static filters, density switches, filling valve

and safety diaphragm. The filters shall be capable of absorbing any water vapour which may penetrate into the enclosures as well as the by-products of SF6 during interruption. Each gas compartment shall be fitted with separate non-return valve connectors for evacuating & filling the gas and checking the gas pressure etc.

4.12. The switchgear line-up when installed and operating under the ambient conditions shall perform satisfactorily and safely under all normal and fault conditions. Even repeated operations up to the permissible servicing intervals under 100% rated and fault conditions shall not diminish the performance or significantly shorten the useful life of the switchgear. Any fault caused by external reasons shall be positively confined to the originating compartment and shall not spread to other parts of the switchgear.

4.13. The thermal rating of all current carrying parts shall be minimum for one sec. for the rated symmetrical short-circuit current.

4.14. The switchgear shall be of the free standing, self-supporting with easy accessibility to all the parts during installation & maintenance with all high-voltage equipment installed inside gas-insulated metallic and earthed enclosures, suitably sub-divided into individual arc and gas-proof compartments preferably for:

a) Bus bars

b) Intermediate compartment

c) Circuit breakers

d) Line disconnectors

e) Voltage Transformers

f) Gas Insulated bus duct section between GIS and XLPE cable/Overhead Conductor.

g) Gas Insulated bus section between GIS & Oil filled Transformer/ Reactor

The bus enclosure should be sectionalized in a manner that maintenance work on any bus disconnector (when bus and bus disconnector are enclosed in a single enclosure) can be carried out by isolating and evacuating the small effected section and not the entire bus. The design of GIS shall be such that in case a circuit breaker module of a feeder is removed for maintenance, both busbars shall remain in service. For achieving the above requirements, adequate number of intermediate compartments, if required, shall be provided to ensure equipment and operating personnel's safety. The service continuity of GIS shall confirm to Annexure-F of IEC :62271-203.

4.15. The arrangement of the individual switchgear bays shall be such so as to achieve optimum space-saving, neat and logical arrangement and adequate accessibility to all external components.

4.16. The layout of the substation equipment ,busbars and switchgear bays shall preferably be based on the principle of _ phase grouping _ . Switchgear layout based on the _ mixed phases _ principle shall not be accepted without mutual agreement between supplier and owner. The arrangement of the equipment offered must provide adequate access for operation, testing and maintenance.

4.17. LOCAL CONTROL CUBICLE (LCC)

4.17.1. Functions

4.17.1.1 Each circuit-breaker bay shall be provided with a local control cubicle containing local control switches and a mimic diagram for the operation and semaphore/indicating lamp for status indication of the circuit-breaker and all associated isolators and earth switches together with selector switches to prevent local and remote and supervisory controls being in operation simultaneously.

4.17.1.2. Status indications in the LCC shall be semaphore type or LED type.

4.17.1.3. Closing of the circuit- breaker from the local control unit shall only be available when the breaker is isolated for maintenance purposes. Circuit-breaker control position selector, operating control switch and electrical emergency trip push button shall be installed in the Local Control Cubicle. Circuit-breaker control from this position will be used under

Technical Specification Gas Insulated Switchgear Page 37 of 80 Rev 05 (April 2018) maintenance and emergency conditions only. The emergency trip push buttons shall be properly shrouded.

4.17.1.4. If Disconnector or earth switch is not in the fully open or closed position a "Control Circuit Faulty" alarm shall be initiated, and electrical operation shall be blocked.

4.17.1.5. 20% spare terminals shall be provided in each LCC apart from terminals provided for the termination and interconnection of all cabling associated with remote and supervisory control, alarms, indications, protection and main power supply etc .

4.17.1.6. Where plugs and sockets connect control cabling between the local control cubicle and the switchgear these shall not be interchanged. In plug in connector type cable arrangement, min 2 cores of the cable with connected condition on both side up to the TB to be left unused as spare.

4.17.1.7. Hydraulic/pneumatic and SF6 auxiliary equipment necessary for the correct functioning of the circuit breaker, isolators and earth switches shall be located in a separate cubicle compartment.

4.17.1.8. LCC shall be suitable for remote operation from substation automation system (SAS). Each gas tight compartment shall be monitored individually per phase basis through SAS

4.17.2. Constructional features

4.17.2.1. Local Control cubicle shall be either mounted on the GIS with front access or free standing, floor mounting type. It shall comprise structural frames completely enclosed with specially selected smooth finished, cold rolled sheet steel of thickness not less than 3 mm for weight bearing members of the panels such as base frame, front sheet and door frames, and 2.0mm for sides, door, top and bottom portions. There shall be sufficient

reinforcement to provide level transportation and installation. Alternatively folded sheet panels of adequate thickness and strength is also acceptable.

4.17.2.2. Access to all compartments shall be provided by doors. All fastenings shall be integral with the panel or door and provision made for locking. Cubicles shall be well ventilated through vermin-proof louvers (if required) having anti insect screen. All doors shall be gasketed all around with suitably profiled Neoprene/EPDM/PU gaskets conforming to the provision of IS 11149. However, XLPE gaskets can also be used for fixing protective glass doors.

4.17.2.3. For LCC panel of each feeder bay (i.e. line, transformer, and reactor etc.), Bus Coupler bay and Bus Sectionalizer bay, separate AC/DC supply for power circuit of GIS switchgear shall be provided, fed directly from ACDB/DCDB. The control DC supply (for control, interlocking, signaling) shall be tapped from respective relay & protection panel. For LCC panel illumination and heating purpose Loop in Loop out AC Supply can be provided.

4.17.2.4. Each panel shall be provided with necessary arrangements for receiving, distributing and isolating of DC and AC supplies for various control, signaling, lighting and space heater circuits. The incoming and sub-circuits shall be separately provided with Fuses/MCBs. All fuses shall be HRC cartridge type conforming to IS: 13703 mounted on plug-in type fuse Technical Specification Gas Insulated Switchgear Page 38 of 80

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bases. The short time fuse rating of Fuses shall be not less than 9 KA. Fuse carrier base shall have imprints of the fuse 'rating' and 'voltage'.

4.17.2.5. Each LCC Panel shall be provided with the following

1. **Plug Point**: 240V, Single phase 50Hz, AC socket with switch suitable to accept 5/15 Amps pin round standard Indian plug, shall be provided in the interior of each cubicle with ON-OFF switch.

2. **Interior Lighting**: Each panel shall be provided with a door-operated LED lighting fixture rated for 240 Volts, single phase, 50 Hz supply for the interior illumination of the panel controlled by the respective panel door switch.

3. **Space Heater**: Each panel shall be provided with a thermostatically connected space heater rated for 240V, single phase, 50 Hz AC supply for the internal heating of the panel to prevent condensation of moisture. The fittings shall be complete with switch unit.

4.17.2.6. Operating mechanisms, auxiliary switches and associated relays, control switches, control cable terminations, and other ancillary equipment shall be accommodated in sheet steel vermin proof cubicles.

4.17.2.7. The arrangement of equipment within cubicles shall be such that access for maintenance or removal of any item shall be possible with the minimum disturbance of associated apparatus. All the control switches shall be internal i.e. installed behind a lockable glass

door, that allows a complete view of the annunciator and mimic diagram when the LCC door is closed. Necessary protection shall be provided to avoid inadvertent operation of control switches.

4.17.2.8. An interlocking scheme shall be provided that takes into account the following basic requirements.

i. To safeguard maintenance personnel who may be working on one section of the equipment with other sections live.

ii. prevent incorrect switching sequences that could lead to a hazardous situation to plant, equipment and personnel.

4.17.2.9. Electrical bolt interlocks shall be energized only when the operating handle of the mechanism is brought to the working position. Visible indication shall be provided to show whether the mechanism is locked or free. Means, normally padlocked/handle lock, shall be provided whereby the bolt can be operated in the emergency of a failure of interlock supplies.

4.17.2.10. Where key interlocking is employed tripping of the circuit breaker shall not occur if any attempt is made to remove the trapped key from the mechanism. Any local emergency tripping device shall be kept separate and distinct from the key interlocking.

4.17.2.11. Disconnecting switches shall be so interlocked that they cannot be operated unless the associated circuit-breaker is open except that where double bus bar arrangements are specified, on-load transfer of feeder circuits from one bus bar to another shall be made Technical Specification Gas Insulated Switchgear Page 39 of 80 Rev 05 (April 2018) possible by interlocks which ensure that the associated bus coupler and its isolators are closed.

4.17.2.12. Bus coupler circuit breaker shall be interlocked so that it shall not be possible to open a bus coupler circuit breaker while on load change over on that side of the breaker is in progress.-

4.17.2.13. All isolating devices shall be interlocked with associated circuit-breakers and isolators in the same station so that it shall not be possible to make or break current on an isolating device unless a parallel circuit in that station is already closed.

4.17.3 Cabling between LCC Panel and GIS equipment

4.17.3.1. The unarmored screen cable shall be of 1.1kV grade, multi core, annealed copper conductor, Tinned copper braided screen (approx. 85% coverage).

4.17.3.2. The core insulation and outer sheath of cable shall be of halogen-free special polymer.

4.17.3.3. The cable shall be flame-retardant, flexible, abrasion-and wear-resistant.

4.17.3.4. The size of core shall not be less than 2.5 sq. mm for instrument transformers and 1.5 sq.mm for other control cable.

4.17.3.5. Prefabricated cables with heavy duty multi-point plug-in connections on GIS end shall be provided.

4.17.3.6. All instrument transformer connections shall be hard wired to terminal block via ring type connection.

The LCC panel as a separate item may be considered if the bidder desires to supply from the manufacturer other than GIS supplier. The make of LCC panel shall be KPTCL approved C&R panel vendors make only. Also, the interfacing of LCC panel with original GIS module in respect of schemes, TB nos, Ferrule nos etc., is in the scope of Bidder

The supply of power and control cables and cabling from GIS module up to Local Control Panels shall be in GIS module supplier/BIDDER's scope.

4.18. All the elements shall be accessible without removing support structures for routine inspections and possible repairs. The removal of individual enclosure parts, or entire breaker bays shall be possible without disturbing the enclosures of neighboring bays.

4.19. It should be impossible to unwillingly touch live parts of the switchgear or to perform operations that lead to arcing faults without the use of tools or brute force.

4.20. In case of any repair or maintenance on one busbar disconnectors, the other busbar should be live and in service.

4.21. All interlocks that prevent potentially dangerous mal-operations, shall be constructed such that they can not be operated easily, i.e. the operator must use tools or brute force to over-ride them.

4.22. In general the contours of energized metal parts of the GIS and any other accessory shall be such, so as to eliminate areas or points of high electrostatic flux concentrations. The surfaces shall be smooth with no projection or irregularities which may cause visible corona. No corona shall be visible in complete darkness which the equipment is subjected to specified test voltage. There shall be no radio interference from the energized switchgear at rated voltage.

4.23. The enclosure shall be of continuous design and shall meet the requirement as specified in clause no. 10 (special considerations for GIS) of IEEE- 80, Year- 2000 . The enclosure shall be sized for carrying induced current equal to the rated current of the Bus. The conductor and the enclosure shall form the concentric pair with effective shielding of the field internal to the enclosure.

4.24. The fabricated metal enclosures shall be of Aluminium alloy having high resistance to corrosion, low electrical loses and negligible magnetic losses. All joint surfaces shall be machined and all castings shall be spot faced for all bolt heads or nuts and washers. All screws, bolts, studs and nuts shall conform to metric system.

4.25. The breaker enclosure shall have provision for easy withdrawal of the interrupter assemblies. The removed interrupter assembly must be easily and safely accessible for inspection and possible repairs.

4.26. The enclosure shall be designed to practically eliminate the external electromagnetic field and thereby electrodynamic stresses even under short circuit conditions.

4.27. The elbows, bends, cross and T-sections of interconnections shall include the insulators bearing the conductor when the direction changes take place in order to ensure that live parts remain perfectly centered and the electrical field is not increased at such points.

4.28. The Average Intensity of electromagnetic field shall not be more than 50 micro –Tesla on the surface of the enclosure. The contractor shall furnish all calculations and documents in support of the above during detailed engineering.

4.29. The Bidder shall furnish the following information regarding the loosely distributed metallic particles within the GIS encapsulation.

a) Calculations of critical field strength for specific particles of defined mass and geometry.

b) The methodology and all the equipment for electrical partial discharge (PD) detection including that mentioned in the specification else-where.

4.30. The switchgear shall have provision for connection with ground mat risers. This provision shall consist of grounding pads to be connected to the ground mat riser in the vicinity of the equipment.

4.31. The ladders and walkways shall be provided wherever necessary for access to the equipment. A portable ladder with adjustable height may also be supplied to access to the equipment.

4.32. Wherever required, the heaters shall be provided for the equipment in order to ensure the proper functioning of the switchgear at specified ambient temperatures. The heaters shall be rated for 240V AC supply and shall be complete with thermostat, control switches and fuses, connected as a balanced 3-phsase. 4-wire load. The possibility of using heaters without thermostats in order to achieve the higher reliability may be examined by the bidder and accordingly included in the offer but it shall be ensured by the bidder that the temperature rise of different enclosures where heating is provided should be within safe limits as per relevant standards. One copy of the relevant extract of standard to which the above arrangement conforms along with cost reduction in offer. If any, shall also be furnished along with the offer. The heaters shall be so arranged and protected as to create no hazard to adjacent equipment from the heat produced.

4.33. The enclosure & support structure shall be designed that a mechanic 1780 mm in height and 80 Kg in weight is able to climb on the equipment for maintenance.

4.34. The sealing provided between flanges of two modules / enclosures shall be such that long term tightness is achieved.

4.35. Alarm circuit shall not respond to faults for momentary conditions. The following indications including those required elsewhere in the specifications shall be generally provided in the alarm and indication circuits.

4.35.1. Gas Insulating System:

a) Loss of Gas Density.

b) Loss of Heater power(if required)

c) Any other alarm necessary to indicate deterioration of the gas insulating system.

4.35.2. Operating System:

a) Low operating pressure.

b) Loss of Heater power.

c) Loss of operating power.

d) Loss of control.

e) Pole Disordance.

4.36. The equipment will be operated under the following ambient conditions:

a) The ambient temperature varies between 0 degree-C and 50 degree-C. However, for design purposes, ambient temperature should be considered as 50 degree-C.

b) The humidity will be about 95% (indoors)

c) The elevation is less than 1000 metres.

4.37. Temperature rise of current carrying parts shall be limited to the values stipulated in IEC-62271-1, under rated current and the climatic conditions at site. The temperature rise for accessible enclosure shall not exceed 20 degree C above the ambient temperature of 50 degree C. In the case of enclosures, which are accessible but need not be touched during normal operation, the temperature rise limit may be permitted upto 30 degree C above the ambient of 500 C.

These conditions shall be taken into account by the supplier in the design of the equipment.

5.

5.1 Type tests The offered 400/220kV GIS equipments shall conform to the type tests as per IEC-62271-203.

The type tests certificates should not be older than Ten (10) years as on the last date of submission of bid.

a) For equipments manufactured in India:

i. Type tests on indigenous equipment for which testing facility is available in India, should have been conducted in any independent laboratories approved by Government or accredited by National accreditation body of the country like Central Power Research Institute (CPRI), Electrical Research and Development Association (ERDA), etc.

ii. Type tests on indigenous equipment, for which testing facility is not available in India, should have been conducted in a laboratory of foreign country accredited by National accreditation body of that country.

iii. The type tests conducted in-house by manufacturers shall also be acceptable provided the lab (manufacturer's) is accredited by National accreditation body of the country and the tests have been witnessed by a representative of NABL accredited Independent laboratory/Power utility.

b) For equipments manufactured Abroad:

i. Type tests on imported equipment should have been conducted in an Indian Laboratory or foreign laboratory accredited by National accreditation body of respective country.
ii. Type tests conducted in-house by manufacturers shall also be acceptable provided the laboratory is accredited by National accreditation body of the country and the tests have been witnessed by a representative of accreditation body / Power utility.

Contractor shall submit type test reports for the following type tests & additional type tests.

Sl. No.	Description of the Type Test for 400kV and 220kV GIS
1	Tests to verify the insulation level of the equipment and dielectric test on auxiliary circuits
2	Tests to prove the temperature rise of any part of the equipment and measurement of the resistance of the main circuit
3	Tests to prove the ability of the main and Earthing circuits to carry the rated peak and rated short time withstand current.
4	Tests to verify the making and breaking capacity of the included switching devices.
5	Tests to prove the satisfactory operation of the included switching devices
6	Tests to prove the strength of the enclosures
7	Gas tightness tests
8	Tests on partitions
9	Tests to prove the satisfactory operation at limit temperatures
10	Tests to assess the effects of arcing due to internal fault
11	Verification of the degree of protection of the enclosure
12	Tests to prove performance under thermal cycling and gas tightness tests on insulators
13	Additional tests on auxiliary and control circuits
14	Tests to prove the radio interference voltage (RIV) level (if applicable)
15	Electromagnetic Compatibility Test (EMC)
16	Reactor current switching test.
17	Test to demonstrate the Power frequency withstand capability of breaker in open condition at lock out pressure [ref clause No. 11.4(vi)]

The test reports of the above type tests for GIS as well as all type tests on 400kV SF6/ Air bushing as per IEC 60137 shall be submitted for approval as per section-GTR of Technical specification.

5.2: **Routine Tests:**

a) Routine tests shall be made either in the course of component assembly and / or on the complete shipping unit assembly.

The following routine tests shall be performed as per IEC 62271-203 at the factory on every unit following its manufacture:

i. Dielectric test on the main circuit.
ii. Tests on auxiliary and control circuits
iii. Measurement of the resistance of the main circuit.
iv. Tightness test.
v. Design and visual checks.
vi. Pressure tests of enclosures.
i. Mechanical operation tests.
ii. Tests on auxiliary circuits, equipment and interlocks in the control mechanism.
iii. Pressure test on partitions.

Note: Tests on transport units.
GIS modules or components shall be assembled in the factory to transport units. The size of the transport units shall be defined by engineering and shall be as large as practical for shipment to the site and handling during installation. On assembly units without support or barrier insulator dielectric tests are not necessary.

5.3 KPTCL may insist for conducting all or some of the routine tests at the factory premises during inspection of the GIS module by KPTCL Engineers.

5.4 Tests after installation on site:

After the switchgear has been completely installed on site & filled with SF6 gas, the complete assembly shall be subjected to the following site test as per IEC: 62271-203.

a) Dielectric tests on the main circuit.
b) Dielectric tests on auxiliary circuit.
c) Measurement of the resistance of the main circuit.
d) Gas tightness tests.
e) Checks and verifications.
f) Gas quality verifications.
g) ON SITE HV TESTINGS.

6. Bellows or Compensating Units :-

Adequate provision shall be made to allow for the thermal expansion of the conductors and of differential thermal expansion between the conductors and the enclosures. The bellows shall be metallic (preferably of stainless steel) of following types or other suitable equivalent arrangement shall be provided wherever necessary.

1. Lateral / Vertical mounting units: These shall be inserted, as required, between sections of busbars, on transformer, shunt reactor and XLPE cable etc. Lateral mounting shall be made possible by a sliding section of enclosure and tubular conductors.
2. Axial compensators : These shall be provided to accommodate changes in length of busbars due to temperature variations.
3. Parallel compensators: These shall be provided to accommodate large linear expansions and angle tolerances.
4. Tolerance compensators: These shall be provided for taking up manufacturing, site assembly and

foundation tolerances.

5. Vibration compensators: These bellow compensators shall be provided for absorbing vibrations caused by the transformers and shunt reactors when connected to SF6 switchgear by oil- SF6 bushings.
6. The electrical connections across the bellows or compensating units shall be made by means of suitable connectors.

7. INDICATION AND VERIFICATION OF SWITCH POSITIONS

Indicators shall be provided on all circuit breakers, isolators and earth-switches, which shall clearly show whether the switches are open or closed. The indicators shall be mechanically coupled directly to the main cntact operating drive rod or linkages and shall be mounted in a position where they are clearly visible from the floor or the platform in the vicinity of the equipment. Windows shall also be provided with all isolators and earthswitches so that the switch contact positions can be verified by direct visual inspection.

8. PRESSURE RELIEF:-

Pressure relief devices shall be provided in the gas sections to protect the main gas enclosures from damage or distortion during the occurrence of abnormal pressure increase or shock waves generated by internal electrical fault arcs (preferably in downward direction). Pressure relief shall be achieved either by means of diaphragms or plugs venting directly into the atmosphere in a controlled direction. If the pressure relief devices vent directly into the atmosphere, suitable guards and deflectors shall be provided. Contractor shall submit to the owner the detailed criteria/ design regarding location of pressure relief devices/rupture diaphragms.

9. PRESSURE VESSEL REQUIREMENTS

The enclosure shall be designed for the mechanical and thermal loads to which it is subjected in service. The enclosure shall be manufactured and tested according to the pressure vessel code (ASME/CENELEC code for pressure Vessel) Each enclosure has to be tested as a routine test at 1.5 time the design pressure for one minute. The bursting strength of Aluminium castings has to be at least 5 times the design pressure. A bursting pressure test shall be carried out at 5 times the design pressure as a type test on each type of enclosure.

10. EARTHING:

10.1 The MANUFACTURER shall provide a “Main Ground Bus Earth mat”, rated 63kA/50kA for 3 sec (as required)., to which all intentionally earthed parts of the assembly must be connected.

10.2 It shall be the responsibility of the VENDOR to provide a sufficient number of earth points so that dangerous voltages are not induced in the enclosure by the fault currents circulating in the inner conductor.

10.3 Earthing pads shall be provided for at-least two paths to earth from the “Main Earth Bus” or each metallic enclosure and auxiliary equipment designated for connection to the station earth grid. The VENDOR shall provide data to assure that the connections from the “Main Earth Bus” to the station earth will not interfere with required enclosure current paths or any operational feature of the assembly. A copper earth bar, located near the control cable entrances of all main and auxiliary equipment, shall be provided for the purpose of terminating the shield of each control cable.

10.4 Provision shall be made for future extension and/or connection to earth buses of other interconnecting switchgear.

10.5 The BIDDER shall be responsible for supplying all earthing materials required for bonding all the

equipment and steel work included in this contract to the main station earth mat also to be provided by the BIDDER.

10.6 The design of the earth system and connection to the switchgear equipment shall also be compatible with the circulating currents that are present in the switchgear metal cladding. On the design of the earth mat mesh, the VENDOR shall provide full details of the circulating currents expected to flow in the earth mat system.

10.7 Every section of the SF6 switchgear equipment including all panels, cubicles, kiosks and boxes shall be solidly bonded to the earthing system.

10.8 Earth switches, voltage transformers, panels and kiosks, shall be bonded to the earthing system as specified in the relevant previous clauses.

10.9 All steelwork, access decking and gangways, handrails, etc., shall also be effectively bonded to the earthing system.

10.10 The design of the earthing system along with the station earth mat shall be such as to ensure the safety and protection of all operating and maintenance personnel under all normal and fault conditions. Detailed earthing drawings shall be prepared for the complete installation which shall be provided under this contract and submitted to the PURCHASER for approval.

10.11 The enclosure of the equipment and support structure of GIS shall be earthed in such a way that the following conditions are obtained:

a)The touch potential at any part of the enclosure is less than 65 V.

b) The induced current during normal operation is prevented from entering the earthing grid.

10.12 GIS Module earth mat has to be provided by the bidder for which detailed calculation and drawings to be furnished.

10.13 GROUNDING

The grounding system shall be designed and provided as per IEEE-80-2000 and CIGRE-44 to protect operating staff against any hazardous touch voltages and electro-magnetic interferences. The GIS supplier shall define clearly what constitutes the main grounding bus of the GIS. The GIS supplier must supply the entire material for grounding bus of GIS viz conductor, clamps, joints, operating and safety platforms etc. The GIS supplier is also required to supply all the earthing conductors and associated hardware material for the following:

1) Connecting all GIS equipment, bus ducts, enclosures, control cabinets, supporting structure etc. to the ground bus of GIS.

2). The enclosure of the GIS may be grounded at several points so that there shall be grounded cage around all the live parts. A minimum of two nos. of grounding connections should be provided for each of circuit breaker, transformer terminals, cable terminals, surge arrestors, earth switches and at each end of the bus bars. The grounding continuity between each enclosure shall be effectively interconnected with Cu/ Al bonds of suitable size to bridge the flanges. In case the bidder does not offer external bonding, the bidder shall demonstrate that the connectivity offered by them between each enclosure is effective and does not require external bonding. Further similar design should have been in service. Subassembly to subassembly bonding shall be provided to provide gap & safe voltage gradients between all intentionally grounded parts of the GIS assembly & between those parts and the main grounding bus of the GIS.

Each marshalling box, local control panel, power and control cable sheaths and other non current carrying metallic structures shall be connected to the grounding system of GIS via connections that are separated from GIS enclosures. The grounding connector shall be of sufficient mechanical strength to withstand electromagnetic forces as well as capable of carrying the anticipated maximum fault current without overheating. At least two grounding paths shall be provided to connect each point to the main grounding bus. Necessary precautions should be under taken to prevent excessive currents from being induced into adjacent frames, structures of reinforcing steel and to avoid establishment of current loops via other station equipment.

All flexible bonding leads shall be tinned copper. All connectors, for attaching flexible bonding leads to grounding conductors and grounding conductors to support structures shall be tinned bronze with stainless steel or tinned bronze hardware.

The contractor shall provide suitable measure to mitigate transient enclosure voltage caused by high frequency currents caused by lightning strikes, operation of surge arrestor, ph./ earth fault and discharges between contacts during switching operation. The grounding system shall ensure safe touch & step voltages in all the enclosures. The contractor shall provide suitable barrier of non-linear resistor/ counter discontinued SF6/ Air termination, SF6/ Transformer or Reactor termination, SF6/ HV cable bushing etc. to mitigate transient enclosure voltage.

11. CIRCUIT BREAKERS

11.1 General

SF6 gas insulated metal enclosed circuit breakers shall comply with the latest revisions of IEC- 62271-100 & relevant IEC except to the extent explicitly modified in the specification and shall meet with requirements specified.

Circuit breakers shall be equipped with the operating mechanism. Circuit breakers shall be of single pressure type. Complete circuit breaker with all necessary items for successful operation shall be supplied. The circuit breakers shall be designed for high speed single and three phase reclosing with an operating sequence and timing as specified.

11.2. Duty Requirements

Circuit breaker shall be C2 - M2 class as per IEC 62271-100.

Circuit breaker shall meet the duty requirements for any type of fault or fault location also for line charging and dropping when used on 400/220 kV effectively grounded system, with transmission lines of lengths and characteristics as indicated in Section Project and perform make and break operations as per the stipulated duty cycles satisfactorily.

11.3 PRE INSERTION RESISTER

400 kV circuit breakers for line bay shall be provided with single step pre insertion closing resistors (wherever the requirement of PIR is explicitly specified so) to limit the switching surges to a value of less than 2.3 p.u. The value of the pre-insertion resistor and the duration of pre-insertion time shall be as given in clause 10.7.3 of this chapter. The resistor shall have thermal rating for the following duties :

i) TERMINAL FAULT

Close .... 1 Min ..... Open ..... Close open 2 min ..... close ..... 1 Min ..... open close open.

ii) RECLOSING AGAINST TRAPPED CHARGES

Duty same as under (i) above. The first, third and fourth closures are to be on de-energised line while second closing is to be made with lines against trapped charge of 1.2 p.u. (Based on 1 pu = 653kV) of opposite polarity.

iii) OUT OF PHASE CLOSING

One closing operation under phase opposition that is with twice the voltage across the terminals.

iv) No allowance shall be made for heat dissipation of resistor during time interval between successive closing operations. The resistors and resistor supports shall perform all these duties without deterioration. Calculations and test reports of resistors proving thermal rating for duties specified above shall be furnished alongwith the bid. The calculations shall take care of adverse tolerances on resistance values and time settings.

11.4. The circuit breaker shall be capable of:

i) Interrupting the steady and transient magnetizing current corresponding to 400 kV/220 kV class transformers of 500MVA ratings on both 400 kV & 220 kV side.

ii) Interrupting line/cable charging current as per IEC without re-strikes and without use of opening resistors.

iii) Clearing short line fault (Kilometric faults) with source impedance behind the bus equivalent to symmetrical fault current specified.

iv) Breaking 25% the rated fault current at twice the rated voltage under phase opposition condition.

v) The breaker shall satisfactorily withstand the high stresses imposed on them during fault clearing, load rejection and re-energisation of lines with trapped charges.

vi) Withstanding all dielectric stresses imposed on it in open condition at lock out pressure continuously (ie., 2 p.u. across the breaker continuously, for validation of which a power frequency dielectric withstand test conducted for a duration of at least 15 minutes is acceptable).

vii) 400 kV breakers shall be able to switch in and out the 400 kV shunt reactor for any value from 50 MVAR up to 80 MVAR without giving rise to overvoltage more than 2.3 p.u. Laboratory test and or field test reports in support of the same shall be furnished along with the bid.

11.5 Controlled Switching Requirements:

The circuit Breaker shall be equipped with controlled switching with consequent optimization of switching behavior when used in switching of 400kV Bus reactor & switchable Line reactor. The controller shall be provided in Main & Tie circuit breakers of Bus reactors.

The controlling relay shall also record and monitor the switching operations and make adjustments to the switching instants to optimize the switching behavior as necessary. It shall provide self diagnostic facilities, signaling of alarms and enable downloading of data captured from the switching events.

11.5.1 Technical Requirement for controlled switching device:

1. The controller shall be designed to operate at the correctly and satisfactorily with the excursion of auxiliary A/C & DC voltages and frequency as specified in section – GTR.

2. The controller shall meet the requirements of IEC-60255-4 Appendix 'E' class III regarding HF disturbance test and fast transient test shall be as per IEC-61000-4 level III and insulation test as per 60255-5.

3. The controller shall have functions for switching ON & OFF the circuit breakers.

4. The controller shall get command to operate the breakers manually or through auto reclose relay at random. The controller shall be able to analyze the current and voltage waves available through the signals from secondaries of CTs & CVTs for the purpose of calculation of optimum moment of the switching the circuit breaker and issue command to circuit breaker to operate.

5. The controller shall also have an adaptive control feature to consider the next operating time of the breaker in calculation of optimum time of issuing the switching command. In calculation of next operating time of the breaker the controller must consider all factors that may affect the operating time of the breaker such as, but not limited to, ambient temperature, hydraulic/pneumatic pressure of the operating mechanism, control voltage variation, SF6 gas density variations etc. Schematic drawing for this purpose shall be provided by the contractor. The accuracy of the operating time estimation by the controller shall be better than + 0.5ms.

6. The controller should have display facility at the front for the settings and measured values.

7. The controller should be PC compatible for the setting of various parameters and down loading of the settings and measured values date time of witching etc. Window based software for this purpose shall be supplied by the contractor to be used on the owner's PC.

8. The controller shall have self-monitoring facility.

9. The controller shall be suitable for current input of 1 amp from the secondary of the CTs and 110V (ph to ph) from the CVTs. The controller shall also take care of transient and dynamic state values of the current from the secondary of the CTs and CVTs.

10. The controller shall have time setting resolution of 0.1ms or better

11. The controller shall have sufficient number of output/input potential free contacts for connecting the monitoring equipment and annunciation system available in the control room. Necessary details shall be worked out during engineering the scheme.

11.6 Total Break Time

The total break time shall not be exceeded under any of the following duties :

i) Test duties T10,T30,T60,T100 (with TRV as per IEC- 62271-100)

ii) Short line fault L90, L75 (with TRV as per IEC-62271-100)

iii) The Bidder may please note that total break time of the breaker shall not be exceeded under any duty conditions specified such as with the combined variation of the trip coil voltage (70-110%), pneumatic/hydraulic pressure and SF6 gas pressure etc. While furnishing the proof for the total break time of complete circuit breaker, the bidder may specifically bring out the effect of non simultaneity between poles and show how it is covered in the total break time. The values guaranteed shall be supported with the type test reports.

11.7. CONSTRUCTIONAL FEATURES

The features and constructional details of breakers shall be in accordance with requirements stated hereunder:

11.7.1. Contacts

All making and breaking contacts' shall be sealed and free from atmospheric effects. Contacts shall be designed to have adequate thermal and current carrying capacity for the duty specified and to have a life expectancy so that frequent replacement due to excessive burning will not be necessary. Provision shall be made for rapid dissipation of heat generated by the arc on opening.

11.7.2. Any device provided for voltage grading to damp oscillations or, to prevent re-strike prior to the complete interruption of the circuit or to limit over voltage on closing, shall have a life expectancy comparable of that of the breaker as a whole.

11.7.3. Breakers shall be so designed that when operated within their specified rating, the temperature of each part will be limited to values consistent with a long life for the material used. The temperature rise shall not exceed that indicated in IEC-62271-100 under specified ambient conditions.

11.7.4. The gap between the open contacts shall be such that it can withstand atleast the rated phase to ground voltage for eight hours at zero pressure above atmospheric level of SF6 gas due to its leakage. The breaker should be able to withstand all dielectric stresses imposed on it in open condition at lockout pressure continuously (i.e. 2 pu. power frequency voltage across the breaker continuously)

11.7.5. In the interrupter assembly there shall be an adsorbing product box to minimize the effect of SF6 decomposition products and moisture. The material used in the construction of the circuit breakers shall be such as to be fully compatible with SF6 gas decomposition products.

11.7.6. Provisions shall be made for attaching an operational analyzer to record travel, speed and making measurement of operating timings etc. after installation at site.

11.8. OPERATING MECHANISM

11.8.1. General Requirements:

a) Circuit breaker shall be operated by spring charged mechanism or electro hydraulic mechanism or a combination of these. The mechanism shall be housed in a dust proof cabinet and shall have IP : 42

degree of protection.

b) The operating mechanism shall be strong, rigid, not subject to rebound or to critical adjustments at site and shall be readily accessible for maintenance.

c) The operating mechanism shall be suitable for high speed reclosing and other duties specified. During reclosing the breaker contacts shall close fully and then open. The mechanism shall be antipumping and trip free (as per IEC definition) under every method of closing.

d) The mechanism shall be such that the failure of any auxiliary spring will not prevent tripping and will not cause trip or closing operation of the power operating devices.

e) A mechanical indicator shall be provided to show open and close position of the breaker. It shall be located in a position where it will be visible to a man standing on the ground level with the mechanism housing closed. An operation counter shall also be provided in the central control cabinet/operating Mechanism.

f) Working parts of the mechanism shall be of corrosion resisting material, bearings which require grease shall be equipped with pressure type grease fittings. Bearing pin, bolts, nuts and other parts shall be adequately pinned or locked to prevent loosening or changing adjustment with repeated operation of the breaker.

g) The bidder shall furnish detailed operation and maintenance manual of the mechanism alongwith the operation manual for the circuit breaker.

11.8.2. Control

a) The close and trip circuits shall be designed to permit use of momentary-contact switches and push buttons.

b) Each breaker pole shall be provided with two (2) independent tripping circuits, valves, pressure switches, and coils each connected to a different set of protective relays.

c) The breaker shall normally be operated by remote electrical control. Electrical tripping shall be performed by shunt trip coils. However, provisions shall be made for local electrical control. For this purpose a local/remote selector switch and close and trip control switch/push buttons shall be provided in the breaker central control cabinet.

d) The trip coil shall be suitable for trip circuit supervision during both open and close position of breaker.

e) Closing coil and associated circuits shall operate correctly at all values of voltage between 85% and 110% of the rated voltage. Shunt trip and associated circuits shall operate correctly under all operating conditions of the circuit breaker upto the rated breaking capacity of the circuit breaker and at all values of supply voltage between 70% and 110% of rated voltage. If additional elements are introduced in the trip coil circuit their successful operation and reliability for similar applications on circuit breakers shall be clearly brought out in the additional information schedules. In the absence of adequate details the offer is likely to be rejected.

f) Densimeter contacts and pressure switch contacts shall be suitable for direct use as permissives in closing and tripping circuits. Separate contacts have to be used for each of tripping and closing circuits. If contacts are not suitably rated and multiplying relays are used then fail safe logic/schemes are to be employed. DC supplies for all auxiliary circuit shall be monitored and for remote annunciations and operation lockout in case of dc failures.

g) The auxiliary switch of the breaker shall be positively driven by the breaker operating rod.

11.8.3. Spring operated Mechanism

a) Spring operated mechanism shall be complete with motor in accordance with Section GTR. Opening spring and closing spring with limit switch for automatic charging and other necessary accessories to make the mechanism a complete operating unit shall also be provided.

b) As long as power is available to the motor, a continuous sequence of the closing and opening operations shall be possible. The motor shall have adequate thermal rating for this duty.

c) After failure of power supply to the motor one close open operation shall be possible with the energy contained in the operating mechanism.

d) Breaker operation shall be independent of the motor which shall be used solely for compressing the closing spring. Facility for manual charging of the closing spring shall also be provided. The motor rating shall be such that it required preferably not more than 60 seconds for full charging of the closing spring.

e) Closing action of circuit breaker shall compress the opening spring ready for tripping.

f) When closing springs are discharged after closing a breaker, closing springs shall automatically be charged for the next operation and an indication of this shall be provided in the local and remote control cabinet.

g) Provisions shall be made to prevent a closing operation of the breaker when the spring is in the partial charged condition.

h) Mechanical interlocks shall be provided in the operating mechanism to prevent discharging of closing springs when the breaker is in the closed position.

i) The spring operating mechanism shall have adequate energy stored in the operating spring to close and latch the circuit breaker against the rated making current and also to provide the required energy for the tripping mechanism in case the tripping energy is derived from the operating mechanism.

11.8.4. Hydraulically Operated Mechanism :

a) Hydraulically operated mechanism shall comprise of operating unit with power cylinder, control valves, high and low pressure reservoir, motor etc.

b) The hydraulic oil used shall be fully compatible for the temperature range to be encountered during operation.

c) The oil pressure switch controlling the oil pump and pressure in the high pressure reservoir shall have adequate no. of spare contacts, for continuous monitoring of low pressure, high pressure etc. at

switchyard control room.

d) The mechanism shall be suitable for at-least two close open operations after failure of AC supply to the motor starting at pressure equal to the lowest pressure of auto reclose duty plus pressure drop for one close open operation.

e) The mechanism shall be capable of operating the circuit breaker correctly and performing the duty cycle specified under all conditions with the pressure of hydraulic operated fluid in the operating mechanism at the lowest permissible pressure before make up.

f) Trip lockout shall be provided to prevent operations of the circuit breaker below the minimum specified hydraulic pressure. Alarm contacts for lost of Nitrogen shall also be provided.

g) All hydraulic joints shall have no oil leakage under the site conditions and joints shall be tested at factory against oil leakage.

11.9. ADDITIONAL DATA TO BE FURNISHED ALONGWITH THE OFFER:

a) Drawing showing contacts in close, arc initiation, full arcing, arc extinction and open position.

b) Data on capabilities of circuit breakers in terms of time and number of operations at duties ranging from 100 fault currents to load currents of the lowest possible value without requiring any maintenance or checks.

c) Curves supported by test data indicating the opening time under close open operation with combined variation of trip coil voltage and hydraulic pressure.

11.10. TESTS

11.10.1. In accordance with the requirements stipulated under Section GTR the circuit breaker alongwith its operating mechanism shall conform to the type tests as per IEC-62271-100.

11.10.2. Routine Tests

Routine tests as per IEC : 62271-100 shall be performed on all circuit breakers. In addition to the mechanical and electrical tests specified by IEC, the following shall also be performed. Speed curves for each breaker shall be obtained with the help of a suitable operation analyzer to determine the breaker contact movement during opening, closing, auto-reclosing and trip free operation under normal as well as limiting operating conditions (control voltage, pneumatic pressure etc.). The tests shall show the speed of contacts directly at various stages of operation, travel of contacts, opening time, closing time, shortest time between separation and meeting of contacts at break make operation etc. This test shall also be performed at site for which the necessary operation analyzer alongwith necessary transducers, cables, console etc. shall be furnished as mandatory maintenance equipment.

11.10.3 TECHNICAL PARAMETERS:

400 kV CIRCUIT BREAKER:

a)	Rated voltage kV (rms)	420
b)	Rated frequency (Hz)	50

c)	No. of poles	3
d)	Type of circuit breaker	SF6 insulated.
e)	Rated continuous current (A) at an ambient temperature of 50^0C	3150/4000 A (for line, transformer & Reactor, bus coupler bay breaker)
f)	Rated short circuit capacity	63kA/50kA with percentage of DC component as per IEC-62271-100 corresponding to minimum opening conditions as specified
g)	Symmetrical interrupting capability kA (rms)	63kA/50kA
h)	Rated short circuit making current kAp	157.5kA/125kA
i)	Short time current carrying capability for Three second kA (rms)	63kA/50kA
j)	Rated line charging interrupting current at 90 degree leading power factor angle (A rms)	As per IEC
	(The breaker shall be able to interrupt the rated line charging current with test voltage immediately before opening equal to the product of U/√3 and 1.4 as per IEC-62271-100	
k)	First pole to clear factor	1.3
l)	Rated break time as IEC (ms)	40
m)	Total break time (ms)	45
n)	Total closing time (ms)	Not more than 150
o)	Rated operating duty cycle	O-0.3s –CO-3 min-CO
p)	Reclosing	Single phase & Three phase auto reclosing.
q)	Pre-insertion resistor requirement (If required) 1). Rating (ohms) 2). Minimum pre-insertion Times (ms) 3). Opening of PIR contacts	 400 8 a) PIR contacts should open immediately after closing of main contacts. b) Atleast 5 ms before opening of main contacts at rated air/gas pressure, where the PIR contact remain closed.
r)	Rated insulation levels Full wave impulse withstand (1.2x50micro sec.)	
	Between lines terminals and ground:	±1425 kVp
	Between terminals with circuit breaker open:	±1425 kVp impulse on one terminal & 240kVp of opposite polarity on the other terminal.
s)	Rated switching impulse withstand voltage (250/2500 micro-sec) Dry & wet. Between terminals with circuit breaker open:	1050kVp ±900 kVp impulse on one terminal & 345kVp of opposite polarity on the other terminal.
t)	One minute power frequency withstand voltage. • Between line	 650kV rms.

	• terminals and ground • Between terminals with circuit breaker open.	815kV rms.
u)	Max. radio interference voltage for frequency between 0.5 MHz and 2 MHz at 266kV(Micro volts)	1000
v)	Max. difference in the instants of closing/opening of contacts (ms) between poles.	As per IEC
w)	Trip coil and closing coil voltage	220V DC with variation as specified in Sec GTR
x)	Auxiliary contacts Auxiliary switch shall also comply with requirements as given. Independent single pole reversible contacts (from NO to NC & vice versa.	Each circuit breaker pole shall be provided with an auxiliary switch with 20% of spare – NO & 20% spare NC contacts for use in future.
y)	Rating of auxiliary contacts Breaking capacity of auxiliary contacts less than 20 ms. System neutral earthing	10A at 220V DC 2A DC with the circuit time constant of not less than 20ms. Effectively earthed.
z)	Mechanical & Electrical endurance class	M2-C2

245 kV CIRCUIT BREAKER:

a)	Rated voltage kV (rms)	245
b)	Rated frequency (Hz)	50
c)	No. of poles	3
d)	Type of circuit breaker	SF6 insulated.
e)	Rated continuous current (A) at an ambient temperature of 40^0C	1600/3000 A (3000 for bus coupler breaker)
f)	Rated short circuit capacity	50/40kA (As applicable) with percentage of DC component as per IEC-62271-100 corresponding to minimum opening conditions as specified
g)	Symmetrical interrupting capability kA (rms)	50/40 kA(As applicable)
h)	Rated short circuit making current kAp	125/100kA(As applicable)
i)	Short time current carrying capability for Three second kA (rms)	50/40 kA(As applicable)
j)	Rated line charging interrupting current at 90 degree leading power factor angle (A rms)	As per IEC
	(The breaker shall be able to interrupt the rated line charging current with test voltage immediately before opening equal to the product of U/√3 and 1.4 as per IEC-62271-	

	100	
k)	First pole to clear factor	1.3
l)	Rated break time as IEC (ms)	60
m)	Total break time (ms)	65
n)	Total closing time (ms)	Not more than 200
o)	Rated operating duty cycle	O-0.3s –CO-3 min-CO
p)	Reclosing auto reclosing	Single phase / Three phase auto reclosing.
q)	Rated insulation levels	
	i)Full wave impulse withstand voltage (1.2x50micro sec.)	
	• Between lines terminals and ground:	±1050 kVp
	• Between terminals with circuit breaker open:	±1050 kVp
	ii)One minute power frequency withstand voltage.	
	• Between line terminals and ground	460kV rms.
	• Between terminals with circuit breaker open.	530kV rms.
r)	Max. radio interference voltage for frequency between 0.5 MHz and 2 MHz at 156kV(Micro volts)	1000
s)	Max. difference in the instants of closing/opening of contacts (ms) between poles.	As per IEC
t)	Trip coil and closing coil voltage	220V DC with variation as specified in Sec GTR
u)	Auxiliary contacts Auxiliary switch shall also comply with requirements as given. Independent single pole reversible contacts (from NO to NC & vice versa.	Each circuit breaker pole shall be provided with an auxiliary switch with 20% of spare – NO & 20% spare NC contacts for use in future.
	Rating of auxiliary contacts	10A at 220V DC
	Breaking capacity of auxiliary contacts less than 20 ms.	2A DC with the circuit time constant of not less than 20ms.
v)	System neutral earthing	Effectively earthed.
w)	Mechanical & Electrical endurance class	M2-C2

12. DISCONNECTORS (ISOLATORS)

12.1. General

Disconnectors shall be of the single-pole, group operated type, installed in the switchgear to provide electrical isolation of the circuit breakers, the transformers, shunt reactor, double bus and transmission lines. The disconnectors shall conform to IEC- 62271-102 and shall have the following ratings as specified.

Technical Parameter

Sl. No.	Particulars	400kV	220kV

Sl. No.	Particulars	400kV	220kV
a)	Rated voltage (rms) Un	420kV	245kV
b)	Rated frequency	50Hz	5-Hz
c)	System earthing	Effectively earthed	Effectively earthed
d)	Type	SF6 insulated	SF6 insulated
e)	Rated continuous current (A) at an ambient temperature of 40^0C	3150/4000A (for line, Transformer & reactor / bus coupler / bay)	1600/3000 A (for line / bus coupler)
f)	Rated short time withstand current of isolator and earth switch	50/40kA for 1 sec. (As applicable)	50/40kA for 1 sec. (As applicable)
g)	Rated dynamic short circuit withstand current of isolator & earth switch	125/100kAp (as applicable)	125/100kAp (as applicable)
h)	Rated insulation level: One minute power frequency withstand voltage		
	To earth:	650kV rms	460kV rms
	Across isolating distance	815kV rms	530kV rms
	Rated insulation level: 1.2/50micro sec. lighting impulse withstand voltage (+ve or –ve polarity)		
	To earth:	1425kVp	1050kVp
	Across isolating distance	±1425 ±240kVp	±1200kVp
	Rated switching impulse withstand voltage (250/2500 micro. Sec.) dry & wet		
	Between line terminals & ground	±1050kVp	NA
	Between terminals with isolator open	±900kVp impulse on one terminal & 345kVp of opposite polarity on the other terminal	NA
i)	Rated mechanical terminal load	As per IEC	As per IEC
j)	No. of spare auxiliary contacts on each isolator	4 NO & 4NC	4 NO & 4NC
k)	No. of spare auxiliary contacts on each earthing switch	4 NO & 4NC	4 NO & 4NC
l)	A. Mechanical endurance class of disconnector. B. Electrical endurance class of earthing switches. i. High speed earthing switch with short circuit making capability. ii. Maintenance earthing switch	M2 (10,000) E1/E2 E0	M2 (10,000) E1/E2 E0

Sl. No.	Particulars	400kV	220kV

12.2. Construction & Design.

12.2.1. The single pole group operated disconnectors shall be operated by electric motor suitable for use on 220 v DC system and shall be equipped with a manual operating mechanism for emergency use. The motor shall be protected against over current and short circuit.

12.2.2. Disconnectors shall be suitable to switch the bus charging currents during their opening and closing and shall confirm to all test duties as per Annexure –F of IEC: 62271-102. They shall also be able to make and break rated bus transfer current at rated bus transfer voltage which appears during transfer between busbars in accordance with Annexure-B of IEC: 62271-102. The contact shielding shall also be designed to prevent restrikes and high local stresses caused by transient recovery voltages when these currents are interrupted.

12.2.3. The disconnecting switches shall be arranged in such a way that all the three phases operate simultaneously. All the parts of the operating mechanism shall be able to withstand starting torque of the motor mechanism without damage until the motor overload protection operates.

12.2.4. It shall be possible to operate the disconnecting switches manually by cranks or handwheels. The contacts shall be both mechanically and electrically disconnected during the manual operation.

12.2.5. The operating mechanisms shall be complete with all necessary linkages, clamps, couplings, operating rods, support brackets and grounding devices. All the bearings shall be permanently lubricated or shall be of such a type that no lubrication or maintenance is required.

12.2.6. The opening and closing of the disconnectors shall be achieved by either local or remote control. The local operation shall be by means of a two-position control switch located in the bay module control cabinet.

12.2.7. Remote control of the disconnectors from the control room shall be made by means of remote/ local transfer switch.

12.2.8. The disconnector operations shall be inter-locked electrically with the associated circuit breakers in such a way that the disconnector control is inoperative if the circuit breaker is closed.

12.2.9. Each disconnector shall be supplied with auxiliary switch having four normally open and four normally closed contacts for future use over and above those required for switchgear interlocking and automation purposes. The auxiliary switch contacts are to be continuously adjustable such that, when required, they can be adjusted to make contact before the main switch contacts.

12.2.10. The signaling of the closed position of the disconnector shall not take place unless it is certain that the movable contacts will reach a position in which the rated normal current, peak withstand current and short-time withstand current can be carried safely.

12.2.11. The signaling of the open position of the disconnector shall not take place unless the movable contacts have reached such a position that the clearance between the contacts is at least 80 percent of the rated isolating distance.

12.2.12. All auxiliary switches and auxiliary circuits shall be capable of carrying a current of at least 10 A DC continuously.

12.2.13. The auxiliary switches shall be capable of breaking at least 2 A in a 220 V DC circuit with a time

constant of not less than 20 milliseconds.

12.2.14. The disconnectors and safety grounding switches shall have a mechanical key (pad locking key) and electrical inter-locks to prevent closing of the grounding switches when isolator switches are in the closed position and to prevent closing of the disconnectors when the grounding switch is in the closed position.

12.2.15. The local control of the Isolator and high-speed grounding switches from the bay module control panel should be achieved from the individual control switches with the remote/local transfer switch set to local.

12.2.16. All electrical sequence interlocks will apply in both remote and local control modes.

12.2.17. Each disconnector shall have a clearly identifiable local, positively driven mechanical position indicator, together with position indicator on the bay module control cabinet and provisions for taking the signals to the control room. The details of the inscriptions and colouring for the indicator are given as under :

	SIGN	**COLOUR**
Open position	Open	Green
Closed position	Closed	Red

12.2.18. All the disconnecting switches shall have arrangement allowing easy visual inspection of the travel of the switch contacts in both open and close positions, from the outside of the enclosure.

12.2.19. The disconnecting switches shall be provided with rating plates and shall be accessible for inspection.

12.2.20. The disconnecting switches shall be capable of being padlocked in both the open and closed positions with the operating motor automatically disengaged. The padlocking device shall be suitable for a standard size lock with a 10 mm shank. The padlock must be visible and directly lock the final output shaft of the operating mechanism. Integrally mounted lock when provided shall be equipped with a unique key for such three phase group. Master key is not permitted.

12.2.21. Tests: The disconnectors & earth switch shall confirm to type tests and shall be subjected to routine test in accordance with IEC – 62271-100/102

13. SAFETY GROUNDING SWITCHES

13.1. Three-pole, group operated, safety grounding switches shall be operated by electric motor for use on 220 V DC ungrounded system and shall be equipped with a manual operating mechanism for emergency use. The motor shall be protected against over-current and short circuit.

13.2. Each safety grounding switch shall be electrically interlocked with its associated disconnector and circuit breaker such that it can only be closed if both the current breaker and disconnector are in open position. Safety grounding switch shall also be mechanically key interlocked with its associated disconnector.

13.3. Each safety grounding switch shall have clearly identifiable local positive driven mechanical indicator together with position indicator on the bay module control cabinet and provision for taking the signal to Control room.

13.4. The details of the inscription and colouring for the indicator are given as under :

	SIGN	COLOUR
Open position	**Open**	**Green**
Closed position	**Closed**	**Red**

13.5. Interlocks shall be provided so that manual operation of the switches or insertion of the manual operating device will disable the electrical control circuits.

13.6. Each ground switch shall be fitted with auxiliary switches having four normally open and four normally closed contacts for use by others over and above those required for local interlocking and position indication purposes.

13.7. Provision shall be made for padlocking the ground switches in either the open or closed position.

13.8. All portions of the grounding switch and operating mechanism required for grounding shall be connected together utilizing flexible copper conductors having a minimum cross-sectional area of 100 sq. mm.

13.9. The main grounding connections on each grounding switch shall be rated to carry the full short circuit rating of the switch for 1 sec. and shall be equipped with a silver- plated terminal connector suitable for steel strap of adequate rating for connection to the grounding grid.

13.10. The safety grounding switches shall conform to the requirements of IEC- 62271- 102

13.11. Mechanical position indication shall be provided locally at each switch and remotely at each bay module control cabinet/ substation automation system.

14. HIGH SPEED MAKE PROOF GROUNDING SWITCHES:

Grounding switches located at the beginning of the line feeder bay modules shall be of the high speed, make proof type and will be used to discharge the respective charging currents, in addition to their safety grounding function. These grounding switches shall be capable of interrupting the inductive currents and to withstand the associated TRV.

Single phase switches shall be provided with operating mechanism suitable for operation from a 220V DC.

The switches shall be fitted with a stored energy closing system to provide fault making capacity.

The short circuit making current rating of each ground switch shall be at least equal to its peak withstand current rating of 125/100 kA (As applicable). The switches shall have inductive/ capacitive current switching capacity as per IEC-62271-102.

Each high speed make proof grounding switch shall have clearly identifiable local positive driven mechanical indicator together with position indicator on the bay module control cabinet and provision for taking the signal Control Room.

The details of the inscription and colouring for the indicator shall be as under:-

	SIGN	**COLOUR**
OPEN POSITION	Open	Green
CLOSED POSITION	Closed	Red

High speed ground switch operation should be possible locally from the bay module control cabinet, or remotely from the control room in conjunction with opening of the associated disconnector.

These high speed grounding switches shall be electrically interlocked with their associated circuit breakers and disconnectors so that the grounding switches can not be closed if the circuit breakers and disconnectors are closed.

Interlocks shall be provided so that the insertion of the manual operating devices will disable the electrical control circuits.

Each high speed ground switch shall be fitted with auxiliary switches having four NO & four NC auxiliary contacts for use by others, over and above these required for local interlocking and position indication. All contacts shall be wired to terminal blocks in the local bay control cabinet. Provision shall be made for padlocking the ground switches in their open or closed position.

All portion of the grounding switches and operating mechanism required for connection to ground shall be connected together utilizing copper conductor having minimum cross-sectional area of 100 sq. mm.

The main grounding connection on each grounding switch shall be rated to carry the peak withstand current rating of the switch for 1 sec. and shall be equipped with a silver plated terminal connector suitable for steel strap of adequate design for connection to the grounding grid.

The high speed make proof grounding switches shall confirm to the requirements of IEC-62271-102.

15. INSTRUMENT TRANSFORMERS

15.1. Instrument Transformers

15.1.1. Current Transformers

A) General :

i) The current transformers and accessories shall conform to IEC : 61869-2/1 and other relevant standards except to the extent explicitly modified in the specification.

ii) The particulars of the various cores may change within reasonable limits as per the requirements of protection relay supplier. The manufacturer is required to have these values confirmed from the purchaser before proceeding with design of the cores. The other characteristics of CTs shall be as given in TECHNICAL PARAMETER of Current Transformer.

B) Ratios and Characteristics

The number, rating, ratios, accuracy class, etc. for the individual current transformers secondary cores shall be in accordance with Table-IA & 1B Where multi-ratio current transformers are required the various ratios shall be obtained by changing the effective number of turns on the secondary winding.

C) Rating and Diagram Plates

Rating and diagram plates shall be as specified in the IEC specification incorporating the year of manufacture. The rated extended current rating voltage and rated thermal current shall also be

marked on the name plate.

The diagram plates shall show the terminal markings and the relative physical arrangement of the current transformer cores with respect to the primary terminals (P1 & P2).

The position of each primary terminal in the current transformer SF6 gas section shall be clearly marked by two plates fixed to the enclosure at each end of the current transformer.

D) Constructional Details:

a) The current transformers incorporated into the GIS will be used for protective relaying and metering and shall be of metal- enclosed type. All the current transformers shall have effective electromagnetic shields to protect against high frequency transients.

b) Each current transformer shall be equipped with a marshalling box with terminals for the secondary circuits, which are connected to the local control cubicle. The star/ delta configuration and the inter connection to the line protection panels will be done at the CT terminal block located in the local control cubicle.

c) Current transformers guaranteed burdens and accuracy class are to be intended as simultaneous for all cores.

d) The rated extended primary current shall be 150% at highest ratio and 200% at ratios other than highest ratios.

e) The instrument security factor at all ratios shall be less than five (5) for metering core. If any auxiliary CTs/reactor are used in the current transformers then all parameters specified shall have to be met treating auxiliary CTs as an integral part of the current transformer. The auxiliary CTs/reactor shall preferably built in construction of the CTs.

f) The wiring diagram, for the interconnections of the three single phase CTs shall be provided inside the marshalling box.

g) The current transformers shall be suitable for high speed auto-reclosing.

i) Provisions shall be made for primary injection testing either within CT or outside.

ii) Electromagnetic shields to be provided against high frequency transients typically 1-30 Hz.

15.1.2. VOLTAGE TRANSFORMERS

A) General

The voltage transformers shall conform to IEC- 61869-3/1 and other relevant standards except to the extent explicitly modified in the specification. Voltage transformers shall be of the electromagnetic type with SF6 gas insulation. The earth end of the high voltage winding and the ends of the secondary winding shall be brought out in the terminal box. However, for 400 kV on the lines outdoor type Capacitive Voltage Transformers suitable for carrier coupling shall be

provided.

B) Ratios and Characteristics

The rating, ratio, accuracy class, connection etc. for the voltage transformers shall be in accordance with Table II-A and Table II-B.

C) Rating and diagram plates

Rating and diagram plate shall be provided complying with the requirements of the IEC specification incorporating the year of manufacture and including turns ratio, voltage ratio, burden, connection diagram etc.

D) Secondary Terminals, Earthing and Fuses

The beginning and end of each secondary winding shall be wired to suitable terminals accommodated in a terminal box mounted directly on the voltage transformer section of the SF6 switchgear. All terminals shall be stamped or otherwise marked to correspond wit the marking on the diagram plate. Provision shall be made for earthing of the secondary windings inside the terminal box.

E) The transformer shall be able to sustain full line to line voltage without saturation of transformer.

The accuracy class will be at maximum tap.

F) Constructional Details of Voltage Transformers :

a) The voltage transformers shall be located in a separate bay module on the bus and will be connected phase- to ground and shall be used for protection, metering and synchronization.

b) The voltage transformers shall be of inductive type, nonresistant and shall be contained in their own-SF6 compartment, separated from other parts of installation. The voltage transformers shall be effectively shielded against high frequency electromagnetic transients. The voltage transformers shall have three secondary windings

c) Voltage transformers secondaries shall be protected by HRC cartridge type fuses/MCB for all the windings. In addition fuses shall be provided for the protection and metering windings for fuse monitoring scheme. The secondary terminals of the VT's shall be terminated to the stud type non-disconnecting terminal blocks in the secondary boxes via the fuse/MCB.

d) The voltage transformer should be thermally and dielectrically safe when the secondary terminals are loaded with the guaranteed thermal burdens.

e) The accuracy of 0.2 on secondary III should be maintained through out the entire burden range upto 100 VA on all the three windings without any adjustments during operation.

f) The diagram for the interconnection of the VTs shall be provided inside the marshalling box.

15.1.3. TESTS:

Current and voltage transformers shall conform to type tests and shall be subjected to routine test in accordance with IEC.

15.1.4 TECHNICAL PARAMETERS

15.1.4.1 Current Transformers

Sl. No.	Particulars	400kV	220kV
a	Rated Voltage Un	420 kV (rms)	245 kV (rms)
b	Rated frequency	50hZ	50hZ
c	System neutral earthing	Effectively earthed	Effectively earthed
d	Rated short time thermal current	50kAp. for 1 second.	50/40 kAp. (as applicable) for 1 second.
e	Rated dynamic current	125 kAp. for 1 second	125/100 kAp. (As applicable) for 1 second
f	Rated insulation levels 1) 1.2/50 micro second impulse voltage 2) 1 minute power frequency withstand voltage 3) 250/2500micro second switching impulse voltage (Dry & wet)	 ± 1425 kVp 650 kV (ram) 1050kVp	 ± 1050 kVp 460kv (rms)
g	Maximum temperature rise over an ambient temperature of 40^0C	As per IEC 61869-2/1	As per IEC 61869-2/1
h	Radio interference voltage at 1.1Un/√3 and frequency range 0.5 to 2 MHz	1000 microvolts	1000 microvolts
i	One minute power frequency withstand voltage between secondary terminal and earth	3kV (rms)	3kV (rms)
j	Partial discharge level	10 pico coulombs	10 pico coulombs

15.1.4.2 Voltage Transformers

Sl. No.	Particulars	400kV	220kV
a	Rated System Voltage Un	420 kV (rms)	245 kV (rms)
b	Rated frequency	50hZ	50hZ
c	System neutral earthing	Effectively earthed	Effectively earthed
d	System fault level	50 kAp. for 1 second.	50/40 kAp. (as applicable) for 1 second.
e	Rated insulation levels 1) 1.2/50 micro second impulse voltage	± 1425 kVp	± 1050 kVp

	2) 1 minute power frequency withstand voltage 3) 250/2500micro second switching impulse voltage (Dry & wet)	650 kV (ram) 1050kVp for 400kV system	460kv (rms)
f	One minute power frequency withstand voltage for secondary winding	3KV(rms)	3kV (rms)
g	Radio interference voltage at 1.1Un/√3 and frequency range 0.5 to 2 MHz	1000 microvolts	1000 microvolts
h	Rated total thermal burden	400VA	400VA
i	Partial discharge level	10 pico couloms	10 pico couloms

16 OUTDOOR BUSHINGS :

A) General

Outdoor bushings, for the connection of conventional external conductors to the SF6 metal enclosed switchgear, shall be provided where specified and shall conform to the requirements given in GTR. The dimensional and clearance requirements for the metal enclosure will be the responsibility of the manufacturer and their dimensions must be coordinated with the switchgear. Bushings shall generally be in accordance with the requirements of IEC publication 60137 as applicable.

B) Insulation levels and creepage distances

All bushings shall have an impulse and power frequency withstand level that is greater than or equal to the levels specified for GIS. The creepage distance over the external surface of outdoor bushings shall not be less than 25 mm/kV.

C) Bushing types and fitting

Condenser type bushings will be preferred but alternative types can also be considered. Liquid filled bushings shall be provided with liquid level gauges clearly visible from ground level, preferably of the direct reading prismatic type or the magnetic type. Other types of liquid level gauges will only be accepted if specifically approved.

D) Mechanical forces on bushing terminals

Outdoor bushings must be capable of withstanding cantilever forces due to weight of busduct and short circuit forces. Design calculations in support of the cantilever strength chosen shall be submitted for owners review and approval.

E) The major parameters of the bushings shall be as follows:-

i	Rated Voltage (kv)	420 kV	245 kV
ii	Rated current (Amp)	3150/2000 (as applicable)	1600

iii	Lightning impulse withstand voltage (kVp)	1425	1050
iv	Switching impulse withstand voltage (kVp)	1050	-
v	One minute power frequency withstand voltage kV (rms)	650	460
vi	Minimum total creepage distances (mm)	10500	6125

17 Surge Arrestors

The surge arrestors shall confirm in general to latest IEC –60099-4.

17.1 INSULATION CO-ORDINATION AND SELECTION OF SURGE ARRESTOR

The contractor shall be fully responsible for complete insulation co-ordination of switchyard including GIS. Contractor shall carry out detailed studies and design calculations to evolve the required parameters locations, energy capability etc. of surge arrestors such that adequate protective margin is available between peak impulse, surge and power frequency discharge voltages and BIL of the protected requirement. The locations of surge arrestors shown in single line diagram is indicative only. If the bidders feels that at some more locations the surge arrestors are required to be provided the same should also be included in the offer.

The contractor shall perform all necessary studies. The report shall detail the limits of all equipment parameters which could affect the insulation co-ordination .The report shall also detail the characteristics of the surge arrestor and shall demonstrate that the selected arrestor's protective and withstand levels, discharge and coordinating currents, and arrestor ratings and comply with the requirement of this specification.

The contractor shall also consider in the studies the open circuit breaker condition, fast transients generated by slow operation of disconnecting switches. The study report and design calculations shall be submitted for Owner's approval.

17.2 Duty requirements

a) The surge arrester shall be of heavy duty station class and gapless (Metal oxide) type without any series or shunt gaps.

b) The surge arresters shall be capable of discharging over-voltages occurring during switching of unloaded transformers, reactors and long lines.

c) 420 kV class Surge arresters shall be capable of discharging of severe re-energisation switching surges on a 400 kV, 450 Km long line with surge impedance of 300 ohms and capacitance of 12 nF/Km and over voltage factor of 2.3 p.u

d) 420 kV class arrester shall be capable of discharging energy equivalent to class 4 of IEC for a 420 kV system on two successive operation followed immediately by 50 HZ energisation with a sequential voltage profile as specified below:

705 kVp for 3 peaks

580 kVp for 0.1 Sec.

565 kVp for 1 Sec.

550 kVp for 10 Secs.

e) 245 kV class arrester shall be capable of discharging energy equivalent to class 3 of IEC for 245 kV system on two successive operations.

f) The reference current of the arresters shall be high enough to eliminate the influence of grading and stray capacitance on the measured reference voltage.

g) The surge arresters are being provided to protect the followings whose insulation levels are indicated in the table given below:-

Equipment to be protected	**Lightning impulse (kVp) for 420kV system**	**Switching serge (kVp) for 420kV system**	**Lightning impulse (kVp) for 245kV system**
Power transformer	± 1300	± 1050	± 950
Instrument transformer	± 1425	± 1050	± 1050
Reactor	± 1300	± 1050	-
CB/Isolator phase to ground	± 1425	± 1050	± 1050
Across open contacts	± 1425 (±240)	± 900 (± 345)	± 1200

17.3 Constructional Features

The nonlinear blocks shall be of infered metal oxide material. These shall be provided in such a way as to obtain robust construction, with excellent mechanical and electrical properties even after repeated operations. The arrestor enclosure shall be vertically or horizontally mounted to suit the layout of the switchgear as suggested by the manufacturer and shall be fitted with a discharge counter located in an easily accessible position. The main grounding connection from the surge arrestor to the earth shall be provided by the bidder. The size of the connecting conductor shall be such that all the energy is dissipated to the ground without getting overheated.

17.4 Tests

In accordance with the requirements stipulated the surge arrestors shall conform to type tests and shall be subjected to routine and acceptance tests in accordance with IEC document. Each metaloxide block shall be tested for the guaranteed specific energy capability in addition to the routine/acceptance test as per IEC-60099.

17.5 Test on Surge Monitors :

The Surge monitors shall also be connected in series with the test specimens during residual voltage and current impulse withstand tests to verify efficacy of the same. Additional routine/functional tests with one 100A and 10 kA current impulse, (8/20 micro sec.) shall also be performed on the surge monitor.

17.6 Parameters

Following are the parameters for 400kV and 220 kV system generally adopted by Owner for their installations. These parameters are indicative and not binding. The actual parameters required for the installation shall be evolved by contractor.

420KV & 220KV CLASS SURGE ARRESTOR

Sl. No.	Particulars	400kV	220kV
a)	Rated System Voltage	420 kV	245 kV
b)	System neutral earthing	Effectively earthed	Effectively earthed
c)	Rated arrester voltage	390kV	216kV
d)	Nominal discharge current	10kA of 8/20 micro second wave	10kA of 8/20 micro second wave
e)	Rated frequency	50Hz	50Hz
f)	Minimum discharge capability voltage corresponding to minimum discharge characteristics	8 KJ/kV or corresponding to Cl. 3.4.1 (d) to rated arrestor voltage and at minimum discharge characteristics whichever is higher.	5KJ/kV (referred to rated arrestor)
g)	Continuous operating voltage at 50^0C	303kV	168kV
h)	Min. switching serge residual voltage (1kA) Max. switching serge residual voltage (1kA)	730kVp 780kVp	- 500kVp
i)	Max. residual voltage at (i). 5kA (ii). 10kA nominal discharge current iii). 20kA nominal discharge current	 - 900kVp 975kVp	 560kVp 600kVp -
j)	Long duration discharge class	4	3
k)	High current short duration test value (4/10 micro sec. wave)	100kAp	100kAp
l)	Current for pressure relief test	40kA rms	40kA rms
m)	Prospective symmetrical fault current	40kA rms for 0.2 Sec.	40kA rms for 0.2 Sec.
n)	Pressure relief class	A	A
o)	RIV at 1.1Un/√3 kV rms (micro volts)	Less than 500	Less than 500
p)	Partial discharge at 1.05 COV	Not more than 50	Not more than 50
q)	Reference ambient temp.	50^0C	50^0C

18. 400 kV & 220 kV GIS BUILDING (If applicable):

a) The buildings shall house 400 KV and 220 KV Gas Insulated Switchgear (GIS) separately and other associated equipments inside in each of the GIS building.
b) The bidder shall submit the design & construction proposal of the building along with necessary information, data, and drawings in the techno- commercial bid according to the complete requirements.
c) The dimensions for 400 KV & 220 KV GIS building is indicated in the enclosed layout plan. The dimension given is for reference only and may vary according to requirement of the equipment to be installed inside. The bidder shall finalize the dimensions according to the equipment offered by them providing enough space & access for erection, operation and maintenance. The dimensions indicated in the tender drawing is only indicative and minimum required. (Refer Annexure V of projects).

19. Seismic Design Criteria:

The equipment shall be designed for operation in seismic zone for earthquake resistance. The seismic loads are due to the horizontal and vertical acceleration which may be assumed to act non concurrently. Seismic level Zone- II as per new IS- 1893, latest edition has to be considered for the design of equipment. The seismic loads shall be equal to static loads corresponding to the weight of the parts multiplied by the acceleration. The equipments along with its parts shall be strong enough and sufficiently well connected to resist total operating stresses resulting from the forces in normal operation but in case of abnormal condition shall also resist with forces superimposed due to earthquakes. The copies of type test reports for similar rated equipment, if tested earlier, should be furnished along with the tender. If the equipment has not been type tested earlier, design calculations of simulated parameters should be furnished along with the offer.

To prevent the movement of GIS sub assemblies i.e. various bay modules during the earthquake, suitable devices shall be provided for fixing the sub assemblies to the foundation. The contractor shall supply necessary bolts for embedding in the concrete foundation. The fixing of GIS sub assemblies to the foundation shall be designed to with-stand the seismic events. It will also be ensured that the special devices as well as bolts shall not be over stressed. The details of the devices used and the calculations for establishing the adequacy shall be furnished by the supplier and shall be subject to the purchase's approval.

20. PARTIAL DISCHARGE MONITORING SYSTEM & DEW POINT METER

Online P.D meter, Online SF6 & O2 monitoring & alarm system and Dew point meter shall be offered as per relevant schedule of BPS and shall be considered for evaluation of bid. The specifications are enclosed at Annex-A1. Contractor shall provide adequate number of UHF sensors in the offered GIS for connection to the Online PD meter & the number & location of these sensors shall be subject to approval of the purchaser.

21. QUALITY OF SF6 GAS

a) The SF6 gas insulated metal-clad switchgear shall be designed for use with SF6 gas complying with the recommendations of IEC 60376, 60376A & 60376B, at the time of the first charging with gas. All SF6 gas supplied as part of the contract shall comply with the requirements of IEC as above as a minimum &

should be suitable in all respects for use in the switchgear under all operating conditions.

b) The high pressure cylinders in which SF6 gas is supplied & stored at site shall comply with the requirements of following standards & regulations :

IS : 4379 Identification of the contents of industrial gas cylinders.

IS : 7311 Seamless high carbon steel cylinders for permanent & high pressure liquefiable gases. The cylinders shall also meet Indian Boilers Regulations. (Mandatory)

c) Test

SF6 gas shall be tested for purity, dew point, air, hydrolysable fluorides and water contents as per IEC:60376, 60376A & 60376B and test certificates shall be furnished to the owner indicating all test results as per IEC standards for each lot of SF6 gas. Further site tests for moisture, air con-tent, flash point and dielectric strength to be done during commissioning of GIS. Gas bottles should be tested for leakage during receipt at site.

d) The bidder shall indicate diagnostic test methods for checking the quality of gas in the various sections during service. The method proposed shall, as a minimum check the moisture content & the percentage of purity of the gas on annual basis.

e) The bidder shall also indicate clearly the precise procedure to be adopted by maintenance personnel for handling equipment that are exposed to the products of arcing in SF6 Gas so as to ensure that they are not affected by possible irritants of the skin and respiratory system. Recommendations shall be submitted for suitable protective clothing, method of disposal of cleaning utensils and other relevant matters.

f) The bidder shall also indicate the details and type of filters used in various gas sections, and should also submit the operating experience with such filters.

22. SF6 GAS MONITORING DEVICES AND ALARM CIRCUITS:-

22.1 Dial type temperature compensated gas density or density monitoring devices with associated pressure gauge will be provided. The devices shall provide continuous & automatic monitoring of the state of the gas & a separate device shall be provided for each gas compartment so that each compartment can be monitored simultaneously as follows:-

1) Compartments except circuit breaker

a) Gas Refill level

This will be used to annunciate the need for the gas refilling. The contractor shall provide a contact for remote indication.

b) 'Zone Trip' level

This is the minimum level at which the manufacturer will guarantee the insulation rating of the assembly. Contacts shall be in accordance with requirement.

2) Circuit Breaker

a) 'Gas Refill' level

This will be used to annunciate the need for gas refilling. The contractor shall provide contact for remote indication.

b) 'Breaker Block' level

This is the minimum gas density at which the manufacturer will guarantee the rated fault interrupting capability of the breaker. At this level the breaker block contact shall operate & the trip-ping & closing circuit shall be blocked.

c) 'Zone Trip' level

This is the minimum level at which the manufacturer will guarantee the insulation rating of the assembly. Contacts shall be in accordance with requirement. The bidder should furnish temperature v/s pressure curves for each setting of density monitor along with details of the monitoring device. It shall be possible to test all gas monitoring relays/devices without de-energizing the primary equipment & without reducing pressure in the main section. Plugs & sockets shall be used for test purposes. It shall also damp the pressure pulsation while filling the gas in service, so that flickering of the pressure switch contacts does not take place.

3)

a. The gas density and pressure sensitive devices, together with all relays supplied by the manufacturer for use in protection, shall be approved by the PURCHASER. It shall be possible to test all gas monitoring relays without de-energizing the primary equipment and without reducing pressure in the main section. Disconnecting type plugs and sockets shall be used for test purposes; the pressure/density device shall be suitable for connecting to the male portion of the plug.

b. Two potential free electrical contacts shall be provided with each and every alarm condition. These are to be grouped together and wired to the cable termination blocks in the local control panels to give remote alarm indications/annunciation's the remote panels. The BIDDER will be advised of the grouping required after the contract has been placed. Provision shall be made for display of gas pressure of all individual gas compartment in the remote panel/HMI. The density monitor shall be provided with necessary signal Transmitter (mA) for display of actual gas pressure in the remote HMI.

c. BIDDER shall advise if the breakers are suitable for breaking the load current even if SF-6 gas pressure has reduced to atmospheric pressure.

22.2 a) Gas Leakage

The maximum gas leakage shall not exceed 0.5% (half percent) per year for the whole equipment and for any individual gas compartment separately.

b) Gas Supply

The contractor shall include the supply of all SF6 gas necessary for filing & putting into operation the complete switchgear installation being supplied. In addition 20% of total gas requirement shall be supplied in separate cylinders as spare requirement, over & above the requirement of gas for successful commissioning. Pl. refer list of mandatory spares in this connection.

23. GAS FILLING AND EVACUATING PLANT

All the plant necessary for filling and evacuating the SF6 gas in the switchgear shall be supplied with the contract to enable any maintenance work to be carried out. This shall include all the necessary gas cylinders for temporarily storing the evacuated SF6 gas. The capacity of the temporary storage facilities shall at least be sufficient for storing the maximum quantity of gas that could be removed when carrying out maintenance or repair work on the switchgear and associate equipment of at least one complete bay. Where any item of the filling and evacuating plant is of such a weight that it cannot easily be carried by maintenance personnel, it shall be provided with lifting hooks for lifting and moving with the overhead cranes. The capacity of evacuation plant will be as under :

Vacuum Pump: 40 M^3/Hour(Nominal suction pressure)

Compressor: 15 M^3/Hour(Delivery)

The evacuation equipment shall be provided with all the necessary pipes, couplings, flexible tubes and valves for coupling up to the switchgear for filling or evacuating all the gases. The gas compartments shall preferably be fitted with permanent non-return valves through which the gas is pumped into or evacuated form the compartments. Details of the filling and evacuating plant that will be supplied, as well as the description of the filling and evacuating procedures shall be provided along with the bid.

24. SF6 GIS to XLPE Cable Termination (If Applicable):

The 220 kV underground cables are to be connected to 220 kV GIS by the interfacing of XLPE cable sealing end to GIS Cable termination enclosure for making connection 1C x 1000 sq mm (As applicable) XLPE cable. Cable termination kit shall be supplied by cable supplier. The ducts and the casing shall be suitable for the requirements for which it is designed. This interface section shall be designed in a manner which will allow ease of operation and maintenance.

The SF6 GIS to XLPE cable termination shall conform to IEC-62271-209(latest edition).

The provision shall be made for a removable link. The gap created when the link is removed should have sufficient electric strength to withstand the switchgear high voltage site tests. The bidder may suggest alternative arrangements to meet these requirements. The corona rings/stress shields for the control of electrical field in the vicinity of the isolation gap shall be provided by the GIS manufacturer.

All supporting structures for the SF6 bus-duct connections between the XLPE cable sealing ends and the GIS shall be supplied by the supplier. The supplier may specify alternative connecting &

supporting arrangements for approval of the purchaser.

The opening for access shall be provided in each phase terminal enclosures as necessary to permit removal of connectors to isolate the XLPE cables to allow carrying out the insulation tests. The typical arrangement drawing of interconnecting bus-duct from GIS bay module to XLPE cable termination end shall be submitted along with offer.

25. Electric Overhead Crane (If applicable):

One EOT Crane each for 400kV & 220kV GIS hall of suitable capacity shall be provided for erection & maintenance of largest GIS component/assembly. The crane shall consist of all special requirements for erection & maintenance of GIS equipments.

The crane shall be possible to be operated through the cable & through the pendant control or through remote control device, which shall be easily accessible from the floor of GIS building.

26. The crane for 400kV GIS hall shall have capacity of minimum 6T safe working load & minimum height of crane shall be 9.0 meters or as per actual requirement whichever is higher.

The crane for 220kV GIS hall shall have capacity of minimum 5T sage working load & minimum height of crane shall be 8.0 meters or as per actual requirement whichever is higher.

EOT Crane shall be provided with Double Girder type.

27. TRANSFORMER / REACTOR TERMINATION MODULE (If applicable):-

The transformer/reactor termination module enables a direct transition from the SF6 gas insulation to the bushing of an oil-insulated transformer/reactor. For this purpose, the transformer/reactor bushing must be oil-tight, gas-tight and pressure resistant. Any temperature related movement and irregular setting of the switchgear's or transformer's/reactor's foundations are absorbed by the expansion fittings.

OR

The oil filled transformers and reactors are as shown in the sub-station SLD. The oil to air bushings of the 400/220/33kV autotransformers and 400kV reactors shall be supplied by the respective supplier's and the same shall be connected to the SF6 ducts through air to SF6 bushings to be provided under present scope.

28. PAINTING OF ENCLOSURE:-

All enclosures shall be painted externally as per manufacturer's painting procedure. The painting procedures as followed shall be enclosed with the bid.

29. HEATERS

Wherever required, heaters shall be provided to prevent moisture condensation. Heaters are not allowed in side the main circuit.

30. IDENTIFICATION & RATING PLATE

i) Each bay shall have a nameplate showing

a) A listing of the basic equipment from air entrance bushing to air entrance bushing such as a breaker, disconnectors grounding switches, current transformers, voltage transformers, and bushings).

b) A schematic diagram indicating their relative locations.

c) KPTCL Contract Number.

ii) Each module will have its own Identification & rating plate.

The rating plate marking for each individual equipments like circuit breaker, disconnectors grounding switches, current transformer, voltage transformers, surge arrester etc shall be as per their relevant IEC.

31. TRANSPORTATION OF EQUIPMENT TO SITE.

The contractor shall be responsible for the loading, transport, handling and offloading of all equipment and materials from the place of manufacture or supply to site. The contractor shall be responsible to select and verify the route, mode of transportation and make all necessary arrangement with the appropriate authorities as well as determining any transport restrictions and regulations imposed by the government and other local authorities .All transport packages containing critical units viz Circuit breakers, disconnectors, earth switches, surge arrestors and bus sections exceeding 3 metres length shall be provided with sufficient number of electronic impact recorders (on returnable basis) during transportation to measure the magnitude and duration of the impact in all three directions. The acceptance criteria and limits of impact in all three directions which can be withstood by the equipment during transportation and handling shall be submitted by the contractor during detailed engineering. The recording shall commence in the factory and must continue till the units reach site. The data of electronic impact recorders shall be downloaded at site and a soft copy of it shall be handed over to Engineer – in –charge. Further, within three weeks the contractor shall communicate the interpretation of the data.

32. PACKING, STORAGE AND UNPACKING.

All the equipment shall be carefully packed for transport by sea, rail and road in such a manner that it is protected against the climatic conditions and the variations in such conditions that will be encountered enroute from the manufacturer's works to the site.

The SF6 metalclad equipment shall be shipped in the largest factory assembled units that the transport and loading limitations and handling facilities on site will allow to reduce the erection and installation work on site to a minimum. Where possible all items of equipment or factory assembled units shall be boxed in substantial crates or containers to facilitate handling in a safe and secure manner. Should the units be considered too large for packing in crates, they shall be suitably lagged and protected to prevent damage to any part, particularly small projections, during transport and handling. Special lugs or protective supports shall be provided for lifting to prevent slings and other lifting equipment from causing damage. Each crate, container or shipping unit shall be marked clearly on the outside to show

where the weight is bearing and the correct position for the slings.

Each individual piece to be shipped, whether crate, container or large unit, shall be marked with a notation of the part or parts contained therein.

Special precautions shall be taken to protect any parts containing electrical insulation against the ingress of moisture. This applies particularly to the metalclad equipment of which each gas section shall be sealed and pressurized prior to shipping. Either dry nitrogen/air or dry SF6 gas shall be used and the pressure shall be such as to ensure that, allowing for reasonable leakage, it will always be greater than the atmospheric pressure for all variations in ambient temperature and the atmospheric pressure encountered during shipment to site and calculating the pressure to which the sections shall be filled to ensure positive pressure at all times during shipment. The type of gas, the maximum pressure to which sections will be filled prior to shipment and the minimum allowable pressure during shipment shall be advised prior to dispatch.

All banking plates, caps, seals, etc., necessary for sealing the gas sections during shipment to site shall be provided as part of the contract and shall remain the property of KPTCL. If considered necessary, blanking plates or other sealing devices shall be provided with facilities for measuring the gas pressure and recharging at any time during the transport period. Any seals, gaskets, 'O' rings, etc. that may be used as part of the arrangement for sealing off gas sections for shipment of site, shall not be used in the final installation of the equipment at site. Identification serial numbers shall be stamped into the blanking plates, etc., and on the switchgear equipment to which they are fitted so that they can easily be identified and refitted should it ever be necessary to ship sections of the switchgear back to the manufacturer's works for repair.

Valves and other gas couplings associated with the switchgear gas systems shall be adequately protected against damage from any bumps or physical blows. They shall also be capped to prevent ingress of dirt or moisture or damage to any coupling, pipes, threads or special fittings. Any explosion vents and other pressure relief devices, shall be suitably sealed and protected to prevent accidental exposure of the sealed sections during shipment to site.

For bus ducts involving male and female joints of the current carrying conductor, the same shall be transported in disassembled condition to avoid any damage during transit. All bright parts liable to rust shall receive a coat of anti rusting composition and shall be suitably protected.

The contractor will be able to use the available storage areas at site.

The contractor shall ensure that during the period between arrival at site and erection, all materials and parts of the contract works are suitably stored in such approved manner as to prevent damage by weather, corrosion, insects, vermin or fungoral growth. The scope of providing the necessary protection, storing off the ground, as required etc. is included in the works to be performed by the contractor.

The equipment shall only be unpacked or removed from the containers immediately prior to being installed. They shall not be left lying unnecessarily in open crates or containers. Special precautions shall be taken when gas sections which have been sealed and pressurized for shipping are opened up to reduce the ingress of dirt and atmospheric moisture to a minimum. Whenever possible this shall only be done immediately prior to installation and if any section is to be left outside for any length of time

after being opened, it shall be resealed and pressurized with either dry nitrogen/air or SF6 gas until required.

TABLE-IA-I
Requirements for 420kV Current Transformer
(For Line and Bus coupler feeder)

No. of cores	Core no.	Application	Current ratio	Output Burden(VA)	Accuracy class	Min. knee point voltage Vk	Max. CT sec. wdg. Resistance(ohm)	Max. excitation current at Vk(in mA)	Remarks
5	1	BUS DIFF	3000-2000-1000/1	-	PS	3000/2000/1000	15/10/5	20 on 3000/1 tap 30 on 2000/1 tap 60 on 1000/1 tap	
	2	BUS DIFF	3000-2000-1000/1	-	PS	2000/2000/1000	15/10/5	20 on 3000/1 tap 30 on 2000/1 tap 60 on 1000/1 tap	
	3	METERING	3000-2000-1000/1	20 20 20	0.2S 0.2S 0.2S	-	-	-	
	4	BACKUP/LINE PRTN	3000-2000-1000/1	-	PS	3000 2000 1000	15/10/5	20 on 3000/1 tap 30 on 2000/1 tap 60 on 1000/1 tap	
	5	LINE PRTN	3000-2000-1000/1	-	PS	3000 2000 1000	15/10/5	20 on 3000/1 tap 30 on 2000/1 tap 60 on 1000/1 tap	

All relaying CTs shall be of accuracy class PS as per IS: 2705/IEC-61869-2/1

TABLE-IA-II
Requirements for 420kV Current Transformer
(For Transformer and Reactor feeder)

No. of cores	Core no.	Application	Current ratio	Output Burden(VA)	Accuracy class	Min. knee point voltage Vk	Max. CT sec. wdg. Resistance(ohm)	Max. excitation current at Vk(in mA)	Remarks
5	1	BUS DIFF	2000-1000/1	-	-	2000/1000	10/5	30 on 2000/1 tap 60 on 1000/1 tap	
	2	BUS DIFF	2000-1000/1	-	-	2000/1000	10/5	30 on 2000/1 tap 60 on 1000/1 tap	
	3	METERING	2000-1000-500/-	20 20 20	0.2S 0.2S 0.2S	-	-	-	
	4	TRANS/Reactor BACKUP	2000-1000-500/1	-	-	2000 1000 500	10/5/2.5	30 on 2000/1 tap 60 on 1000/1 tap 120 on 500/1 tap	
	5	TRANS/Reactor DIFF	2000-1000-500/1	-	-	2000 1000 500	10/5/2.5	30 on 2000/1 tap 60 on 1000/1 tap 120 on 500/1 tap	

All relaying CTs shall be of accuracy class PS as per IS: 2705/IEC 61869-2/1

TABLE-IB
Requirements for 245kV Current Transformer

No. of core	Core no.	Application	Current ratio	Output Burden(VA)	Accuracy class	Min. knee point	Max. CT sec. wdg. Resistance(oh	Max. excitation	Remarks

s						voltage Vk	m)	current at Vk(in mA)	
5	1.	BUS DIFF CHECK	1600-800/1	-	-	1600/800	8/4	25 on 1600/1 tap 50 on 800/1 tap	
	2.	BUS DIFF MAIN	1600-800/1	-	-	1600/800	8/4	25 on 1600/1 tap 50 on 800/1 tap	
	3	METERING	1600-800/1	20	0.2S	-	-	-	
	4.	TRANS BACKUP/LINE PRTN	1600-800/1	-	-	1600/800	8/4	25 on 1600/1 tap 50 on 800/1 tap	
	5.	TRANS DIFF /LINE PRTN	1600-800/1	-	-	1600/800	8/4	25 on 1600/1 tap 50 on 800/1 tap	

All relaying CTs shall be of accuracy class PS as per IS: 2705/IEC 61869-2/1

TABLE-IIA

Requirements of Voltage Transformer

Sl. No.	Particulars	400kV			220kV		
1	Rated primary voltage	420/√3 kV			245/√3 kV		
2	Type	Electro magnetic, or single phase capacitor VT			Electro magnetic		
3	No. of secondaries	3			3		
4	Rated voltage factor	1.2 continuous 1.5 – 30 seconds			1.2 continuous 1.5 – 30 seconds		
5	Phase angle error	± 20 minutes			± 20 minutes		
		Sec I	**Sec II**	**Sec III**	**Sec I**	**Sec II**	**Sec III**
6	Rated voltage (V)	110/√3	110/√3	110/√3	110/√3	110/√3	110/√3
7	Application	Protection	Protection	Metering	Protection	Protection	Metering

8	Accuracy	3P	3P	0.2	3P	3P	0.2
9	Output burden (VA) (Minimum)	50	50	50	50	50	50

Annexure-A1

TESTING & MAINTENACE EQUIPMENT

Testing & Maintenance equipment shall be offered, as per relevant schedule of BPS.

1. SF6 Gas leakage detector.

The detector shall be portable, battery operated, hand held type and having a minimum SF6 gas leakage sensitivity of 5gm/year. The sensor shall be connected through a flexible wand for easy accessibility to joints, seals and couplings in GIS equipment and provided with a protection filter. The equipment shall have on/off switch & suitable indicating lamps/LEDs, variable pitch audible signal for leakage indication. The equipment shall have automatic zeroing of background signals suitable for detecting SF6 gas leakage in charged switchyard. The test kit shall be compatible for EMI/EMC environment as per IEC 1000.

2. Gas filling and evacuating plant: (Gas Processing unit)

a. (The plant necessary for filling and evacuating the SF6 gas in the switchgear shall be supplied to enable any maintenance work to be carried out. This shall include all the necessary gas cylinders for temporarily storing the evacuated SF6 gas. The capacity of the temporary storage facilities shall at least be sufficient for storing the maximum quantity of gas that could be removed from at least one phase of one complete bay (switchgear and associated equipment).

b. Where any item of the filling and evacuating plant is of such a weight that it cannot easily be carried by maintenance personnel, it shall be provided with lifting hooks for lifting and moving with the overhead cranes.

c.The minimum capacity parameters of evacuation plant will be as under:

Oil Free Suction (Recovery) Pump: 30 M3/Hour

Compressor (Two Stages): 15 M3/Hour

Oil Free Vacuum Pump: 100 M3/Hour

d. The evacuation equipment shall be provided with all the necessary pipes, couplings, flexible tubes and valves for coupling up to the switchgear for filling or evacuating all the gases. Details of the filling and evacuating plant that will be supplied, as well as the description of the filling and evacuating procedures shall be furnished.

Online Partial Discharge Monitoring System (Applicable for 400kV GIS substation –Both on 400kV side & 220kV side)

GIS equipment shall be designed so as to minimize partial discharge or other electrical discharge. A state-of-the art Partial Discharge Monitoring system shall be provided to monitor the entire GIS

installation.

An on-line continuous Partial Discharge Monitoring (PDM) system shall be designed to provide an automatic facility for the simultaneous collection of PD data at multiple points on the GIS & its associated GIB ducts and Voltage Transformers adopting UHF technique. The data stored shall provide a historical record of the progress of PD sources and shall identify the areas of maximum activity.

On-line continuous Partial Discharge Monitoring (PDM) system shall be capable for measuring PD in charged GIS environment as EHV which shall have bandwidth in order of 100 MHz–2GHz with possibility to select a wide range of intermediate bandwidths for best measurement results. The principle of operation shall be based on UHF principle of detection.

The scope shall cover Engineering, supply, installation, testing and commissioning of partial discharge continuous monitoring system, with all necessary auxiliaries and accessories to make a complete system as per technical specification, including site demonstration of successful operation. Any items/accessories necessary to make the system fully functional for the trouble free online PD monitoring of complete GIS installation shall be considered as included in the scope.

The PDM system shall be provided with all its hardware and software, with readily interfacing to the UHF PD couplers installed in the GIS of present bays and future bays as shown in SLD plus 20% additional as extra. Details of this shall be submitted during engineering stage for approval.

The integration of UHF PD coupler in future GIS bays shall be done in respective package. The number of UHF PD coupler for future bays shall be decided based on GIS layout finalized under present scope (considering present GIS equipment with future provision).

The PD Monitoring PC Work Station shall be housed in a lockable cabinet with duplicate keys and shall be located in the control room of the GIS substation. Workstation PCs shall be pre-loaded with all necessary Hardware & Software. The PCs shall have each Combo drive & Retrievable disk drive (1 TB), Ethernet port 100Mbps, printer. The workstation PC shall be powered by suitable dedicated UPS and same is included in the present scope.

Design of on-line PDM System

1. The technical proposal for PDM system along with detailed design documentation

   shall be submitted for EMPLOYER'S approval during engineering stage.

2. To guarantee that sufficient coverage is available for complete GIS installation to monitor PD activity all design details shall be submitted as part of the above for review.

3. The sensitivity of the offered system shall be in accordance with CIGRE Document No. 654 that will be verified as part of site sensitivity tests.

4. UHF attenuation data of GIS shall be submitted for the switching devices, spacers, bends etc.

5. The signal attenuation level of co-axial cable per meter length and justification for the length of cable connection between the couplers and detector units shall be furnished.

6. The overall sensitivity of PD detection system shall take into account the spacing between couplers and the associated cabling, filters, amplifiers, etc.

7. The Sub-station GIS layout as a separate drawing indicating position of spacers, spread over of PD sensors with distance, sensor identification, the detector unit identification etc. shall be submitted during engineering stage for approval.

8. The PD sensors shall be identified / coordinated with the corresponding detector unit etc. with proper identification labeling and indicated in the substation PDM SLD.

9. Internal arrangement/wiring diagram is to be submitted for detector units/control cabinet etc. All internal items are to be identified / labeled to facilitate troubleshooting.

10. Supply requirement (AC & DC) to be specified for the complete monitoring system.

11. Power supply to PDM PC shall have protection against surges, overload and short circuit. A dedicated on-line UPS system shall also be provided as a backup during supply interruption, to ensure trouble-free & reliable running of the PDM System for a minimum of 15 minutes duration. Ratings of UPS shall be proposed for the approval of EMPLOYER'S. The UPS shall have enough capacity to initiate a 'safe' shut down of the PDM PC and the peripherals after this 15-minute period if normal supply fails to resume. The PDM PCs shall restart automatically on resumption of normal supply. The UPS shall not generate spikes during changeover of supply. UPS shall automatically give indication / alarm when it requires battery replacement.

    Potential Free Contacts shall be generated to signal these events. These contacts shall be wired out to Annunciation / Monitoring systems. Alternately, inverter of suitable capacity is also acceptable. Critical Process and Status alarms of the PDM system shall be displayed.

12. PDM System shall be provided with a user security for accessing the system with a log-on and password entry procedure. The user levels shall be defined as a Master User and other users for the modification of system, update, and entry of parameters or manual operation. System shall be able to generate 3D point on wave pattern whenever any PD activity detected by the system. System shall be able to give online 3D point on wave pattern, online PRPD (phase resolved PD) and online short time trend etc. System shall be able to generate the all the logs related to system fault, system access, PD event, and any changes in system setting etc.

13. Method of electrical isolation/protection provided between PD sensor and detector circuitry in case of flashover/high potential stress inside GIS should be furnished.

14. The selected mode of propagation of PD signal (electromagnetic wave) inside GIS for the design of sensors shall be furnished.

15. The protection available for electronics against transient over voltages caused by switching operations shall be furnished.

16. The capacity of each detector unit to be specified to accommodate as many numbers of PD sensors signal.

17. The applicable standards to meet IEC & IEEE requirements for electromagnetic compatibility

shall be specified. The offered system should have been tested for the same for working in a 400kV & above substation environment. The necessary documentation has to be submitted in this regard.

18. Guaranteed technical particulars & data sheet for various components used in the system shall be submitted.

Calibration: The UHF Couplers have to be first calibrated as per CIGRE procedure TF 15/330305 as part of factory acceptance tests to guarantee detection sensitivity of 5pC or better. The GIS of same design shall be used as test specimen during the coupler calibration. The pulse injection level determined through above factory calibration tests shall only be used as reference for site sensitivity checks during commissioning of PDM system. The data sheet/frequency response characteristics shall be submitted for reference.

Every Day Use & Maintenance: The system shall be designed suitable for an unmanned s/s and operate automatically. The system shall generate alarms if suspected partial discharge activity is noticed or the system itself is in failure, thereby eliminating the necessity of periodic system access by the user and one such alarm shall be connected to Substation automation system (SAS). The alarms shall be configured coupler wise.

Computers and Peripherals: The PC operating system shall be the latest version of MS Windows. It should be suitable for continuous process application and should have been tested for the same. The hardware configuration of PC should be the latest available in the market of industrial type subject to EMPLOYER'S / Engineer approval. For storing the historical PD database, sufficient storage facility in the form of hard disc and retrievable hard disk drive of 1TB as specified shall be available in the substation. The PC monitor shall be 21" LCD type of reputed make.

Filtering Facility: The filtering facility has to be provided in order to distinguish real PD from internal/external noise such as switching operations, self-test signal, radio, communication signal etc. The PDM system itself shall be able to discriminate the noise

from real PD. The exposed gas barriers of the GIS shall be shielded effectively against noise interference & tested. The gas barrier shields/belts shall be suitable for outdoor use also & able to withstand high ambient temperature. Site measurements have to be performed after installation of the PDM system in order to identify the various sources of external noise to incorporate the same in the filtering facility. This filtering will preferably be through software by band pass, which can be manually activated (as an option) to filter out noise signals in the trend plot display. If hardware filtering is employed then adequate measures have to be taken to avoid masking of other signals, which may lie in the same frequency range. The method adopted for the above shall be specified taking into account the sensitivity requirement of PDM system as per CIGRE document. The noise filters shall be selectable individually coupler-wise.

Self-Test (Diagnostic) Facility: Built-in self-checking facility shall be incorporated in the control system which will continuously verify the correct operation of the whole monitoring system with the simulated PD signal viz. checking of the sensitivity of individual detector units, response of PD sensors in addition to the checking of the system functioning. The periodicity of such self-check operation shall be specified. In case of system failure this shall trigger an alarm for communication to SAS. External check facility: Propose the arrangement/device available for externally checking the

healthiness of PD sensors by pulse injection in addition to built-in monitoring facility.

Detector Units: The sensitivity of each detector unit shall be furnished. The sensitivity level of individual detector units shall be selectable depending on the site background noise level.

Trend Plot: The trend plot facility shall be available with the update period of hourly/daily/weekly/monthly/yearly. It shall be possible to view the historical trends for the complete archived data accumulated over several years.

PD Monitoring modes: There shall be two different modes of system operation viz. a dedicated Continuous PD Monitoring mode for the normal day today operation of the system & a dedicated HV commissioning test mode which is exclusively for PD monitoring during HV commissioning test. The HV commissioning mode shall also operate as an independent feature.

In the HV Commissioning mode the real time display shall be possible for a minimum of two complete bays with associated bus bars and at with one second update period. The HV test software shall automatically record the HV voltage information along with PD so as to check PD inception & extinction voltages precisely. The complete HV & PD data recorded during HV test shall be possible to be reviewed in replay mode after the HV test.

Alarm Facility: The PDM system shall generate alarm when action is required; viz. a) PD alarm (abnormal PD activity indicating a risk of failure) & b) PD system fail alarm to be connected to SAS.

Real Time Display: The PDM system should have the facility of Real Time display, which will give an instant indication of PD activity coupler wise, with one-second-update period. The PDM system shall be able to capture the PD data triggered by associated switching operations of CBs & isolators.

Schematics: The PDM system should have GIS schemes bay-wise incorporating PD sensor identification and location along with spacer location. The sectional view of typical bay arrangement of GIS showing active parts shall also be included as part of the PDM software.

Print Option/Facility: PDM system should have the option/facility of printing all trend plots/reports/POW patterns/displays, etc. Laser Colour printer shall be provided for this purpose at substation.

Data Archives: This is to provide access to historical data and file storage with date and time stamp. Sufficient storage facility shall be available to review historical data updated for the lifetime of switchgear. The substation & headquarters PCs shall have a backup device in the form of a retrievable disk drive of 1TB capacity for this purpose.

PD Fault Identification & Location/Pattern Recognition/Predictive Maintenance

Diagnostic Software: In order to interpret various types of PD defects, intelligent diagnostics software (expert system) shall be built- in as part of the PDM software capability. This is mainly to reduce the dependence on PD specialist. The bidder shall also make available typical point-on-wave patters as library pictures to train the user.

Software Updates: It shall be possible to upgrade / update the system software throughout the lifetime of the system with the ongoing development / refinement in PD technology.

Fault investigation : In case of any indication of suspected PD activity by the on line system, further investigation has to be carried out by the contractor for the PD defect identification and location during the warranty period

Special Tools / equipment, Spare Parts, software packages

Special Tools: Special tools for cutting and crimping of coaxial cable with 'N Connectors' shall be supplied.

Spare parts: The contractor has to supply critical spares with replacement procedure for the trouble free operation of the system during its expected lifetime as part of the contract. A detailed list shall be included in the tender and also submitted for EMPLOYER'S approval during the detailed engineering stage.

Software Packages: The complete software package shall be supplied as part of a back-up facility in the form of DVD/CDs viz. Windows operating system with end user license, PDM Software including HV Test, Drivers for modems etc., software for remote access, printer etc. The list shall be submitted for reference.

Pulse generator for UHF sensor sensitivity test shall also be supplied as a standard accessory.

Operation & Maintenance Manual :A complete O&M manual covering all aspects of trouble shooting of PDM system in six sets in original shall be provided & also in CD's. For diagram references colour pictures shall be provided. A step-by-step procedure for spare parts replacement shall also be included.

Factory / Site Test Formats: The factory & site tests format to be submitted for approval. The format shall cover all possible tests to confirm healthiness of the system and to record the test values.

List of References: The bidder shall provide a reference list of PD monitoring system,

TECHNICAL SPECIFICATIONS FOR ONLINE SF6 and O2 MONITORING & ALARM SYSTEM

1.0 General

The online SF6 & O2 gas monitoring and alarm system shall be used for detecting hazardous SF6 gas built-up in enclosed areas such as GIS switchgear rooms, cable trenches and other rooms used to store SF6.

The gas build up in enclosed spaces can be as a result of slow gas leakage from switchgear caused by damage or corrosion of switchgear seals or pressure housings, in service, or during maintenance, leakage of gas filling valves or due to emergency venting of gas due to internal pressure rise in the equipment during a fault.

It shall be suitable for indoor EHV switchgear rooms.

Pure SF6 gas is colourless, odourless, non-flammable, inert gas. At room temperature the density is more than five times that of air.

In switchgear, SF6 acts as both insulation and an arcing media. During arcing and partial discharge events, under the influence of high temperature and other factors, SF6 gas will be decomposed. Decomposition can produce highly toxic products, such as SF4, S2F2, SOF2, HF, SO2, etc. if these are inhaled, they can cause pulmonary oedema and dizziness, coma and even death.

In the relatively closed interior of a switch room, due to poor air circulation, SF6 decomposition and deposition in the room can reach harmful level during emergency conditions.

When leaking SF6 gas accumulates at lower levels in a switch room or adjoining cable trenches (due to its density) caused by a major accident, it can displaced enough O2 to result in local hypoxia, asphyxiation.

The principle of operation shall be based on infrared laser absorption spectroscopy detector principle.

The system components are as follows:

(1). Host computer: Real time display of various parameter and integrated analyzer for calculation of all monitored parameters and alarms thresholds.

SCADA alarm and data transmission and control of forced ventilation fans, local alarms, lights etc.

(2). SF6 gas laser detector: Four Gas Laser Detector Unit containing the laser absorption spectroscopy module that analyses the sampled gas for analysis from up to four (4) Collector Units. The obtained data is uploaded to the host through an RS 485 connection.

(3).Collector: Collector for sampling and associated gas particle filtration pre-treatment.

These are to be installed at the LOWEST place in the monitored area. (SF6 gas sinks to low spot).

(4). Infrared proximity switch: Entry of persons into the GIS area automatically starts the fan and voice prompts.

(5). The Box (Cabinet) is located in the control or relay room to control the fan start and stop and provide power to each device.

(6). Sound and light alarm devices: If SF6 or O2 set value is exceeded, an alarm sounds to alert staff.

System Installation:

Site survey

1. If possible a site survey must be carried out and any special considerations identified and marked up on user-supplied drawings. Based on this, it should be possible to select the installation locations for sensors and the other parts.

2. The collector must be placed in sets of four (4) units so that they can connect to their allocated Four Gas Laser Detector Unit.

3. The Host Controller should be placed in an area where there is access to input power, output telecommunication lines, fan control and alarm lines.

System features:

1. Real-time display functions of various parameters.

2. Environmental SF6 gas content detection.

3. Environmental O2 content detection.

4. Environmental temperature and humidity detection.

5. Alarm when SF6 gas content exceeded allowable threshold.

6. Hypoxia alarm (i.e. Low O2 level).

7. Temperature exceeded alarm and start conditioning function.

8. Excessive humidity alarm and control of the dehumidifier function.

9. Excessive levels of hypoxial or SF6,

10.Control of exhaust air ventilation function.

11. Log query capabilities.

12. Voice prompts.

13. Sound and light alarm.

14. Last exhaust display.

15. Intelligent screen saver function.

16. Remote data transmission capabilities.

Technical Parameters:

- SF6 gas concentration alarm: 0~2000 X 10-6(v/v)

- SF6 gas detection sensitivity: ± 2% (laser type)

- ± 5% set value (electrochemical transmitters)

- Detect oxygen concentration: 0~25U% (with digital display)

- Oxygen concentration alarm threshold: Adjustable

- Oxygen measurement accuracy: <0.5%(0.4%, O2 when 21%)

- Temperature display range : -25~99° C

- Temperature measurement accuracy : <0.5%

- Temparature alarm thresholds: Adustable

- Humidity display range : 0~99% RH

- Humidity measurement accuracy: <3%

- Input Voltage 176 ~ 265V AC

- Alarm output points: 5A

- Fan output points: 5A

- Fan output contacts Power : 380V AC 40A

- Fan ventilation time setting : 15Min / second (adjustable)

- Data recording time : 2 years, the PC mass storage

- Communication: RS-485 standard protocol

Environmental operational requirements:

- Temperature: Operating temperature – 25° C -+85° C

- Humidity: less than 95% RH

TECHNICAL SPECIFICATIONS FOR SUPPLY, LAYING, TESTING &COMMISSIONING OF 1200 Sq.mm., 220 KV XLPE INSULATED UNDERGROUND CABLE

1.00.0 SCOPE:

1.01.0 This specification provides for the establishment of an underground cable transmission scheme on total turnkey basis which includes the design, manufacture, inspection and testing before despatch, packing and delivery F.O.R. (destination) of 220 KV, 1200 Sq.mm, Single Core XLPE Insulated lead sheathed cable and accessories under the supply portion and laying, including obtaining permission for road cutting from Bruhath Bengaluru Mahanagara Palike (BBMP), Local Administrative Authorities and other agencies for execution of work, handling and installation of materials required in laying, site testing and commissioning under the erection portion.

1.01.1 SITE:

The site is located in Bengaluru, Karnataka State, India.

Route: Please refer the enclosed drawing for the tentative route plan of the cable.

1.02.0 SCOPE OF WORKS

The scope of work includes:

1.02.1 Surveying of the proposed cable route including digging and closing of trial pits, preparation of requisite drawings and finalizing the cable route in consultation withthe owner's representative.

NOTE: In the expected cable route, ground structure may change from one point to another, and in some places like Railway Crossing , Major Road Crossing, the local environment is especially bad which may lead to unexpected accelerated ageing of insulation and would limit the life expectancy of the cable itself. The successful bidder has to execute works by taking all the necessary precautions so as to get 95**0 Amps** of current flow in the cable per circuit (Refer clause No. 4.00 (B)(i)(10)(i) & (ii)).

Even after considering all the derating factors for laying cable in those locations, the minimum continuous current shall be 95**0 Amps** per circuit.

1.02.2 Testing and evaluation of the soil resistivity, soil thermal resistivity, pH value, of the soil along the cable route, and based on the data, recommend the final system design.

a) Perform a through route soil thermal resistivity survey by in-situ testing along the entire cable route.
b) Conduct a detailed analysis of soils / strata encountered along the route for the thermal performance under specified cable loading.
c) Specify a suitable thermal backfill so that the soil thermal resistivity does not exceed 120^0C cm/watt, to encapsulate the cables to prevent thermal run away of cable.
d) Design of optimum cable trench including RCC ducts and optimum backfill dimension.
e) Formulation of thermal backfill, quality control and supervision during backfill.
f) Obtaining Road cutting permission from Bruhath Bangalore MahanagaraPalike (BBMP), Local Administrative Authorities and any other permissions from other utilities.

1.02.3 Design the method of installation of U.G. Cables, cable laying, excavation and back- filling of cable trench, supply and installation of associated materials like sand, bricks, warning tape, protective slabs, pipes, ducts, civil works etc.

1.02.4 Design, manufacture, testing at works / test house, supply, storage, installation, testing and commissioning of 220 kV cables with all associated materials and accessories.

1.02.5 Design, supply erection, testing and commissioning of

a) Surge Voltage limiters
b) Grounding Switches.
c) Link boxes with Links and with/without SVL

1.02.6 Design for the installation, supply of materials and construction of cable ducts, supports for cable crossings of storm water/sewerage drains wherever required. Design, supply of materials and laying of pipes/construction of cable ducts for railway crossing and road crossing wherever required.

1.02.7 Supply, installation, testing and commissioning of

a) Normal straight through joints for Normal bonding/ Cross bonding of cables.
b) Outdoor cable terminations.

1.02.8 Design, supply and erection of structures for mounting / supporting cable with terminations.

1.02.9 Supply of recommended essential spare parts.

1.02.10 Supply of tools and tackles.

1.02.11 Furnishing all relevant drawings, data and instruction manuals.

1.02.12 Supply of all consumable items, like cable end sealing caps for cable during transport and jointing and all others associated sundry materials.

1.03.0 SCOPE OF SERVICES:

1.03.1 The Scope of the services includes supply, installation, laying erection and commissioning of the cable system on total turnkey basis. The scope shall include but not limited to the following.

1.03.2 Complete checking, monitoring, storing of the materials at the site, and co- ordination of work.

1.03.3 Finalize procedure of installation and erection in consultation with owner.

1.03.4 Regular supervision and following up of erection / installation work

1.03.5 Testing and commissioning the system / equipments for successful commercial operation.

1.04.0 The cables and its accessories shall conform in all respects to high standards of engineering, design, workmanship and latest revisions of relevant standards at the time of offer / erection and the owner shall have the power to reject any work or material, which in owner's judgement is not in full accordance therewith.

1.05.0 All the volumes of this bid documents along with amendments thereof be read and interpreted together. However, in case of a contradiction between the "Technical Specification (Vol. II)" (i.e., this volume) and any other volume, the provisions of thisvolume will prevail.

1.06.0 It is not intent to specify completely all the details of Design and construction of cable and accessories. However, the cable and accessories shall conform in all respects to the high standard of engineering design and workmanship and shall be capable of performing continuous commercial operation up to the suppliers guarantee period in a

manner acceptable to the Owner who will interpret the meanings of drawings and specifications and shall have power to reject any work or material, which in Owner judgment, is not in accordance therewith. The cable offered shall be complete with all the components necessary for its effective and trouble free operation. Such components shall be deemed to be within the scope of the bidder irrespective of whether they are specifically brought out in this specification and/or in the commercial document or not.

NOTE:

1. The scope shall cover supply of all required equipments, accessories, spares and jointing kits and tools and plant, competent supervision and consumables. All other matching materials required (whether specifically mentioned or not) for complete installation, testing and commissioning of the system shall also be covered.

2. After completion of laying and back filling the road shall be restored as per specification of BBMP and applicable local Authorities. Specification of the same is enclosed.

1.07.0 QUANTITIES:

The quantities, length of cable, number of accessories and other materials indicated in the bid proposals are solely for the purpose of bid evaluation. The successful bidder after detailed route survey shall estimate the actual quantities and take up manufacture and procurement action for materials after approval of the Owner.

2.00.0 STANDARDS:

2.01.0 The construction of the cable shall generally conform to IS 7098 (Part-3) and IEC 62067 with exception to the specific requirements of these specifications and tests as per **IEC-62067**. Except to the extent mentioned in the specification, the cables and the accessories shall conform to the latest editions and amendments of the standards listed hereunder wherever applicable.

IEC-60050	Electro Technical vocabulary.
IEC-60060	High Voltage Test Techniques.
IEC-60093	Recommended tests for volume and resistivity of electrical insulating materials.
IEEE-48	Test procedures and requirement for AC cable terminations 2.5 to 765kV
IEC-60122	Recommended method for determining the comparative tracking index of solid insulating materials under moist condition.
IEC-60183	Guide to selection of high voltage cables.
IEC-60216	Guide for the determination of thermal endurance properties of electrical insulating

materials.

IEC-60228	Conductors of insulated cables.
IEC-60228-A	(First supplement) Guide to the dimensional limits of circular conductors.
IEC-60229	Test on cable over sheaths which have a special protective function and are applied by extrusion.
IEC-60230	Impulse test on cables and their accessories.
IEC-60243	Recommended method of tests for electrical strength of solid insulating materials.
IEC-60250	Recommended method for determination of permittivity, dielectric dissipation factor of electrical insulation materials at power, audio frequencies.
IEC-60270	Partial Discharge measurements
IEC-60287	Calculation of continuous current rating of cables, 100% loadfactor.
IEC-60540	Test methods for insulation and sheaths of electric cables and cores.
IEC-60811	Common test methods for insulating and sheathing materials of electric cables. (Applicable parts / sections ofdifferent editions)
IEC-60840	***Applicable clauses only*** Power cable with extruded insulation for voltages above 30kV (U_m=36kV) up to 150 (U_m=170Kv). Test methods & requirements.
IEC-60853	Calculation of cyclic & emergency current rating of thecable.
IEC-60885-2	Electrical test methods for electric cables, part-2: Partial discharge tests.
IEC-60885-3	Electrical test methods for electric cables part-3 Test methods for partial discharge measurement on lengths of extruded power cables.
IEC-62067	Power cable with extruded insulation and their accessories for rated voltage above 150 kV – Test

	Methods & requirements.
IEC-60949	Calculation of thermally permissible short circuit currents, taking into account non-adiabatic heating effects.
IS-3043	Code of practice for earthing
IS-1255	Code of practice for laying of power cables.
IS-1885	Electro Technical vocabulary applicable parts.
IS-5216	Guide for safety procedures and practices in electrical works
IS-5831	PVC insulation and sheath of electric cables.
IS 7098 (Part 3)-93	Cross-linked polyethylene insulated, thermoplastic sheathed cables 66kV to 220kV.
IS-8130	Conductors for insulated cables and flexible cords.
IS-10810	Method of test for cables: Applicable parts.
IEC-62271-209	Cable Connection for gas insulated metal enclosed switch gear for rated voltage above 52kV.
Indian Electricity Act	- 2003

Indian Electricity Rules, 1956 (Or its Latest Amendments).

NOTE: i) For the purpose of this specification all technical terms used hereinafter shallhave the meaning as per relevant IEC/IS specification.

2.02.0 The Standards mentioned above are available from:

Standard	Name & Address
IS	Bureau of Indian Standards, ManakBhavan, 9, BahadurshahZafarMarg, New Delhi – 110 001, INDIA.
IEC	International Electro-Technical Commission, Bureau Central De 1a commission, Electro Technique

Internationale, 3, Rue De Verembe,P.O. Box 131
CH - 1211 Geneva 20 – Switzerland.

2.03.0 Cables/Cable accessories satisfying the quality requirements of other National/International standards, which ensure equal or better quality than the standards mentioned above shall also be acceptable. Where the equipment offered by the bidder conforms to other standards, salient points of difference between the standards preferred and the specified standards shall be clearly brought out in the offer. Four (4) copies of the reference standards in English language shall be furnished along with the offer.

3.00.0 SYSTEM DATA:

a) Rated voltage:

The cable defined in this specification have the following rated voltage:

U_o/U (U_m) = 127/220 (245) kV

"U_o" is the r.m.s. rated voltage at power frequency, between the conductor andthe earth or the metallic sheath:

U_o = 127 kV

U is the r.m.s. rated voltage at power frequency, between two phase conductors:
U = 220 kV

"U_m" is the maximum r.m.s. voltage at power frequency, between twoconductors for which the cable and its accessories are to be designed:

U_m = 245 kV

b) Operating Conditions:

1. Nominal rated voltage (KV rms)	–	220 KV
2. Highest system voltage (kV rms)	–	245 KV
3. Number of phases	–	3
4. System frequency (Hz)	–	50 $\pm$ 3%
5. Impulse withstand voltage 1.2/50 micro secondswave of positive/negative polarity		

	(kVp)	–	1050
6.	Power frequency withstand voltage (kV rms)	–	460
7.	System earthing	–	Effectively Earthed (Solidly grounded)
8.	Maximum fault level & its duration	–	50KA for 1 Sec
9.	Dynamic withstand capability	–	125 KA
10.	Total Relay & Breaker operating time (Milli seconds)	–	90-120

4.00.0 A. CLIMATIC CONDITIONS:

1.	Ambient air temperature	–	Min 5^0C
		–	Max 50^0C
2.	Average daily ambient air temperature	–	30^0C
3.	Relative humidity	–	10–100%
4.	Ground temperature at a depth of 1500 mm	–	30^0C
5.	Altitude above Mean Sea Level (M)	–	1000
6.	Average Rainfall (mm)/annum	–	1000
7.	Ceraunic level (days/year)	–	40–50
8.	Seismic level (horizontal acceleration)	–	0.3 g

B. OPERATING CONDITIONS:

i. CABLES:

1. Method of installation – Directly buried in ground/RCC cable duct

2.	No. of Circuit	–	Single
3.	Depth of laying (average)	–	1500 mm from the center of cable arrangement
4.	Soil Condition	–	Dry Heterogeneous garden Soil
5.	Thermal Resistivity of soil (assumed) Deg. C-cm/watt	–	120 to 150

Bidder shall furnish the current rating of 1200 Sq.mm cable at Thermal resistivity of soil at 120^0C-Cm/watt and 150^0C-Cm/watt. However thesuccessful bidder has to measure the soil thermal resistivity along the cable route and the cable has to be designed suitably.

6.	Formation	–	Trefoil Touching
7.	Spacing between two circuits (if applicable)	–	800 mm (for 2 Circuits)
8.	Sheath Bonding	–	Cross bonding.

Bidder shall recommend the type of bonding to be adopted with detailed calculation of sheath voltage, sheath current and current rating.

9. No. of cores – Single
10. Conductor size – 1200 Sq.mm
11. Rated continuous current (minimum)
    i. In Air – 1150 Amps.
    ii. In ground – 950 Amps. (after considering all derating factors)
12. Conductor material – Annealed Copper

ii. TERMINATIONS:

1) Installation – Outdoor type/GIS module Plugin Type in conformity with IEC 62271-209.
2) Atmosphere – Polluted.
3) Switchgear - SF6 Circuit breaker (AIS/GIS)
4) Clearance (air) ph-ph – 3650 mm
   at 220kV (phase voltage) ph-earth – 3350 mm

5.00.0 TECHNICAL PARAMETERS OF CABLE:

TYPE OF CABLE:
127/220 kV single core, stranded, annealed, copper conductor, segmental compacted, circular (Miliken), XLPE insulated, lead sheath, copper wire screen, High Density Polyethylene outer sheathed cable (please see details under construction of cable).

The tests shall be as per IEC-62067 with latest amendments.

Voltage grade	–	127/220 (kV rms)
Max. operating conductor temperature	–	90^0C
Max. conductor temperature under short Circuit for 1 sec.	–	250^0C

5.01.0 CONSTRUCTION OF THE CABLE:

Construction : 127/220 kV (Earthed), single core 1200 Sq.mm stranded, annealed, copper conductor, segmental, compacted, circular (Milliken), conductor screen, cross linked polyethyline (XLPE) insulation, core

screen, semi-conducting water swellable layer, lead alloy 'E' sheathed, semi-conducting bedding tapes, helically applied plain round copper wire screen, plain copper tape in open helix, water swellable tape with overall extruded High Density Polythylene sheath coated with graphite.

Conductor : Plain, annealed, high conductivity copper wires stranded, segmental conductor (Milliken).

Conductor screen : Extruded semi-conducting layer.

Insulation : Dry cured cross linked polyethyline.

Nominal thickness 24.00 mm (min)
In any particular point, the thickness may differ from the nominal thickness, however, the measured thickness shall stay within the following limits.
Minimum thickness: $t_{(min)} \geq 0.9\ t_{(nom)}$
And

$$\frac{t_{max} - t_{min}}{t_{max}} \leq 0.10$$

Where t_{max}, t_{min} and t_{nom} are respectively the minimum, maximum & nominal thickness.

The thickness of insulation mentioned is indicative only. However, the thickness of insulation shall be such that the maximum value of electric stress at the insulation screen shall be 4kV/mm, as indicated elsewhere in the specification.

Core/insulation Screen Extruded semi-conducting layer

Longitudinal Water barrier Semi-conducting water swellable tape/s.

Radial Moisture Barrier Extruded lead alloy 'E'.
(Nominal thickness not less than 3.0 mm)

	The minimum thickness of the metallic sheath shall not fall below the nominal thickness by more than 0.1 mm + 5.0% of the nominal thickness. $t_{min} \geq 0.95 t_{nom} - 0.1$
Bedding	Semi-conducting tape/s.
Armour/Screen	Helically applied non-magnetic plain copper wires.
Contact tape	Annealed plain copper tape in open helix.
Water swellable tape	Non-conducting water swellable tape.
Outer sheath	Extruded High Density Polyethylene type ST 7 (black), antitermite treated. Extruded outer conducting layer coated with graphite. Nominal thickness 3.5 mm

6.00.0 GENERAL TECHNICAL REQUIREMENTS OF THE CABLE:

The size of the conductors of the cable shall be sufficient to carry continuously 950 **Amps** continuously without exceeding a maximum temperature of **90^0C** under site conditions followed by a 20% overload for three hours without exceeding a maximum temperature of 130^0**C for emergency overload** under site conditions. The OWNER estimates that a cross section of 1200 sq.mm Compacted Segmental Circular Milliken conductor would be adequate to carry the stipulated load current.

The conductor size shall be based on loading of the circuit under the conditions indicated in Clause-3.00.00 & 4.00.00 above.

6.01.0 INSULATION CURING:

Dry curing process should be adopted in cross-linking the insulation.

6.02.0 TRIPLE EXTRUSION:

The conductor, screen, insulation and insulation screen shall be extruded in single process. The extrusion process shall be by **VCV method**. The same shall be confirmed in the GTP.

The Cross linked polyethylene insulated (XLPE) cable (Dry cured) shall be manufactured in accordance with the internationally accepted standard and also conform to the requirements of IEC: 62067 for rated voltages from 150KV to 500KV.

6.03.0 DESIGN STRESS AND INSULATION THICKNESS:

The recommended typical design stress values for insulation thickness are:

Design stress a.c. : **10 kV/mm**
Design stress impulse : **40 kV/mm**

The higher of the two values of the insulation thickness will be adopted but not less than the nominal value of 24.00 mm.

6.04.0 DIELECTRIC STRESSES:

The 220 kV cables shall be designed for continuous operation at a maximum line to earth system voltage of 127 kV. The maximum dielectric stress at the conductor screen and insulation screen shall not exceed the following:

For 1200 Sq.mm

a) At conductor screen **8 KV/mm**
b) At the insulation screen **4 kV/mm**

The dielectric stress at 127 kV shall be furnished by the bidder with calculation sheet.

6.05.0 The cable shall be designed to have a minimum useful life of not less than fifty years. The cable manufacturer should submit a graph showing the breakdown voltage withrespect to time for the XLPE insulation compound used. In addition the type of XLPE semi-conducting compound used should be indicated i.e., whether supersmooth and purity level.

6.06.0 Each cable length shall be provided with a pulling socket, pulling eye, which shall befitted to pulling end to withstand the maximum pulling force.

6.07.0 Copper wire screening shall be preferably before the lead sheath to ensure specific water tightness of cable both transversely and longitudinally. However other types of placement of the copper wire screening is also acceptable if it meets the overall technical requirements. The same shall be established by way of Type Test Reports conducted on such cables.
The bidder shall indicate any specific construction features, which will be provided to ensure specific water tightness of cable both transversely and longitudinally.

6.08.0 CURRENT RATING:

The bidder shall furnish the continuous current ratings in ground, in air, in pipes and in

ducts at the maximum conductor temperature of 90^0C with reference to the ambient site conditions on the guidelines of IEC 60287. Any additional data, other than furnished under climatic conditions and operating conditions may be suitably assumed. However, the same shall be furnished in GTP for reference. The ratings shall be for Trefoil touching formation when the sheaths are single point bonded and both ends bonded or cross bonded (without exceeding the stipulated sheath voltage of **65 volts** or undue highcirculating currents).
The current ratings shall be for single circuit/double circuit in operation.The bidder

shall also furnish technical information on:

i) Derating factors for various types of installation conditions in trefoil and flat(viz., depth of laying, varying ground temperatures, cables in ducts / pipes,cable spacings, circuit spacings, varying soil thermal resistivities etc.) shall be furnished by the bidder for the following conditions:

(a) Proximity to other 220 kV cables.
- Variation of number of cables (max. 12 in number).
- Variation in spacing.
- Variation in loading of the cables (80% to 100%).

(b) Variation in depth of water table.
(c) Depth of laying cables in trenches and cable ducts.
(d) Depth of **Stabilised Thermal Backfill (STB)** below and above laid cables.
(e) Width of trench on either side of the cables in which **STB** will be put.
(f) Variation in STB effective thermal resistivity.
(g) Variation in soil thermal resistivity.
(h) Laying of cables in long lengths of HDPE pipe, 19 mm thick – Variation due to size and thickness of pipe and open space available in pipe – BIDDER shall suggest methods to improve the ratings.

ii) Short Time Current Loading:

The current loading permissible for a defined period of short time operation,over the cyclic load as under.

Cyclic loading over a 24 hour period.

2100	to	0600 Hours	(9 Hours)	**50%**
0600	to	0900 Hours	(3 Hours)	120%
0900	to	1800 Hours	(9 Hours)	**100%**
1800	to	2100 Hours	(3 Hours)	120%

Furnish short time loading for the following conditions.
i) Only one circuit is live.
ii) When both circuits are live.

When cables are laid in trefoil touching formation.

i) Single point bonded.
ii) Both end bonded.
iii) Cross bonded.

The bidders should furnish GA drawing/other details with supporting calculations on charging current, capacitance, inductance, losses, sheath voltages, sheath currents, surge impedance, sequence impedance and screen factors, detailed drawings etc., along with the bidding documents.

6.08.1 MECHANICAL CHARACTERISTICS OF CABLE:

The cable shall withstand the electromechanical forces due to peak short circuit currents of **125KA** and shall withstand the stresses of thermal expansion in the insulation due to faults. The cable shall withstand the mechanical stresses during installation.

6.09.0 TEMPERATURE RISE:

The maximum conductor temperature shall not exceed 90^0C during continuous operation at full rated current at 220 kV followed by 20% overload for three hours, maximum temperature not exceeding 130^0C. The temperature after a short circuit for one second shall not exceed 250^0C, with initial conductor temperature of 90^0C.

6.10.0 EMERGENCY LOADING:

The BIDDER shall indicate the maximum percentage overload current that the cable can carry and its duration when operating initially at a conductor temperature of 90^0C and the permissible final conductor temperature after overload. The totalperiod during the lifetime of the cable when it shall be subjected to emergency loading without affecting the expected life of the cable shall also be indicated.

6.11.0 CYCLIC RATING:

The BIDDER shall also indicate the percentage overload current that the cable can carry and its duration, without the conductor temperature exceeding 90^0C due to the time lag in conductor temperature change on account of the change in thermal characteristics of the mass of the soil surrounding the cable.

6.12.0 CABLE MATERIAL:

a)Conductor:

Plain annealed high conductivity copper wires, stranded, segmental conductor while conforming to IEC-60228. The Copper used for the conductor shall be of highest

purity. The minimum number of wires and conductors and DC resistance of conductor shall be as per IEC-60228.

b) Conductor Screen:

The conductor screen shall be provided over the conductor by extrusion of semi- conducting compound or by a combination of semi-conducting tape/s and extruded semi-conducting compound. The minimum thickness, excluding tape/s shall be 1.5 mm.

c) Insulation:

Cross-linked polyethylene insulation by dry curing process shall be provided over the conductor screen. The nominal thickness of 24.00 mm and subject to tolerance as per IEC-62067, Clause 10.6.2.

The insulation shall be of high quality, and shall be as far as possible free from contaminants, moisture and voids. The size of voids and contaminants shall be within limits of recognized National/IEC Standards.

The insulation shall be suitable for operation in wet or dry locations at conductor temperature not exceeding 90^0C for normal operation, 130^0C for emergency over load of short duration, and 250^0C for short circuit conditions.

d) Insulation Screen:

Shall be by extruded semi conducting compound and of minimum thickness 1.0 mm. The semi conducting screens shall be suitable for the operating temperatures of the cable and compatible with the insulation.

e) Moisture Barrier (Longitudinal):

This shall be semi-conducting synthetic non-woven tape with suitable swellable absorbent for longitudinal water sealing covering the whole surface area of the non- metallic part of insulation screening. This barrier shall restrict longitudinal water penetration under the metallic sheath. The nominal thickness of water blocking tape shall not be less than 0.3 mm.

f) Metal Sheath/Moisture Barrier (Radial):

Shall be extruded lead alloy 'E' sheath.

The nominal thickness of lead alloy sheath shall be 3.0 mm and shall meet the Electrical and Mechanical properties as per standards. The minimum thickness shall be as per IEC-62067 (Clause 10.7.1).

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g) Bedding Tapes:

Suitable semiconducting bedding tapes shall be used under metallic screen of approximate thickness 0.3 mm.

h) Metallic Screen (Armour):

The metallic screen shall be of non-magnetic plain copper round wires, helically applied over the semiconducting bedding tape/s.

A binder tape of suitable material/annealed plain copper shall be applied in the form of an open helix, over the metallic screen.

Note: Requirement of Metallic Sheath/Screen:

The metallic screen can be before or after the lead sheath. However, it shall be as per the manufacturer's type tested design.

The cross section of the metallic sheath that is lead sheath in combination with plain copper round wire screen shall be designed to meet the following requirements:

i) Sustaining the system short circuit rating of **50 KA** for 1 Sec.

   The temperature of metallic sheath at the time of short circuit (cable operating at maximum conductor temperature) shall be indicated in the short circuit calculations of the design of metallic screen/lead sheath.

ii) Ensuring mechanical protection of the cable.

iii) Ensuring radial water tightness of the cable.

Note: Test report ensuring the above compliance has to be submitted by thebidder along with the bid.

i) Outer Sheath:

The outer sheath shall be extruded Black colour High Density Polyethylene, type ST 7 conforming to requirement of IEC. The High Density Polyethylene compound usedshall be brand new from a reputed manufacturer and in no case shall recycled material be used.
The outer sheath shall be designed for protection against termite and rodent attacks by adding suitable additives to HDPE compound and such additives shall be harmless to operating personnel. The minimum thickness of outer sheath shall be 3.5mm.

j) Coating:
A hard baked on layer of graphite shall be applied over the sheath as outer electrode for testing the sheath.

6.13.0 IDENTIFICATION:

The following information shall be embossed on the outer sheath of the cable continuously repeated throughout the length of the cable.

i) Brand Name of Manufacturer:
ii) Year of Manufacture:
iii) Voltage rating / conductor cross section: 220,000V/1200 Sq.mm

iv) K.P.T.C.L.
v) XLPE

7.00.0 CABLE ACCESSORIES:

7.01.0 GENERAL:

Following are the accessories required.

(a) Straight through normal as well as cross bonded joints suitable for directly buriedin ground conditions/RCC Cable Ducts.

(b) Outdoor type cable end terminations/GIS module plugin type.

The above accessories shall be suitable for the 127/220 kV, single core 1200 Sq.mm copper conductor lead sheathed cable. The detailed cable construction is given in these specifications under clause 5.01.00

7.02.0 TECHNICAL REQUIREMENTS:

The accessories should be compatible with the size of the conductor, the insulation and the voltage class of the cable. The components of the accessory shall not be affected by contact with the component materials of cable, and shall not corrode anymetal, which they come in contact. The accessory, in the assembled condition, shall be capable of operating under the normal and fault temperature conditions of the cable.

The cable accessories should be procured only from reputed manufactures & type test reports shall be submitted along with the bid.

7.02.1 CABLE JOINT:

The Cable joints shall be suitable for 220 kV Single Core, 1200 Sq.mm copper conductor, lead sheathed XLPE cable and conforming to relevant IEC specification.

The joints shall be suitable for size of the conductor, the insulation, voltage and current ratings of the cable. The required service conditions are horizontal installation, directly buried in earth, laid in RCC cable duct and intermittently or continuously submerged in water.

The BIDDER shall quote for the required quantity of prefabricated type Cable joints which shall comprise of a Factory Tested One Piece Pre Moulded Silicone Rubber joint body moulded from a special Silicone Rubber formulation to provide perfect compression force for optimized electrical performance and afford very simple, reliable, consistent installation. Conductor Jointing should be either with mechanical connectors or a proven crimping technique. Outer mechanical protection with integrated moisture protection must be provided and the manufacturer must provide a detailed description of this. Solderless Jointing technique for the lead sheath and copper wire screen must be provided. Further, the straight through joint shall be able to

(i) Provide a seal against the entrance of moisture or external environment.

(ii) The assembled joint should be resistant to corrosive agents present in the soil, should be mechanically strong to withstand pressure, bending, pulling fatigue. The joint should withstand temperature variations under normal load and fault conditions.

7.02.2 OUTDOOR CABLE END TERMINATION:

The cable end terminations shall be outdoor type suitable for 220 kV SC, 1200 Sq.mm copper conductor, lead sheathed XLPE cable and shall be designed to perform under severe environmental conditions and also conform to the relevant IEC Specifications.

The outdoor termination should have a pre moulded silicone rubber stress cone to provide the electrical stress control function at the end of screen/shield and should be easily applied without tools It should avoid partial discharges and surface corona under severe service conditions. The cone should be placed on the cable terminated within a pressure tight composite housing made of glass fibre reinforced resin tube with silicone rubber sheds moulded to the tube. The interface between the stress cone, cable insulation and inner housing must be filled with a silicone oil poured from the top. No heating of the silicone oil prior to pouring should be required. It should seal any ingress of atmospheric elements. A flexible double sealing system which is installer friendly must be provided to provide protection against environmental influences. An oil resistant barrier must be provided over the conductor to prevent any oil migration the total creepage distance shall not be less than 6125 mm.

The outdoor termination shall be suitable for the insulation, voltage, conductor size and current rating of the cable.

The sealing ends shall conform to the latest International Standards and shall be of thoroughly proven design. The outdoor type sealing ends shall be suitable for installation in polluted atmosphere referred to in clause 4.00.00 and shall be completely weather proof. Each outdoor type-sealing end shall be supplied complete with four mounting plate insulators to insulate the sealing end from the supporting structures and to control the sheath current. All metallic fittings must be made of corrosion resistant aluminium alloy. Terminal connectors and bimetallic clamps shallalso be supplied. Each sealing end shall be provided with consumable materials such as wipes and solvent for cleaning. A Cable Gland for the shield connection and lead sheath connection must be provided and this should be sealed from the external environment with a heat shrinkable sleeve. The power cable leading to sealing end shall be provided with proper sunshield cover.

The material for the housing of the termination should be resistant to tracking, ultra violet radiation (U.V. Exposure) weathering and should have stable hydrophobic properties.

The bidder shall provide necessary arrangement to limit flow of current in the structure supporting the sealing end.

The sealing ends shall withstand the power frequency, impulse and cable testing voltage after installation as specified.

The cable and accessories shall withstand all thermal and mechanical stresses under steady state and transient operating conditions.

7.03.0 TECHNICAL ASSISTANCE/TRAINING:

The successful bidder shall arrange with the suppliers of cable joints and / or terminations, the technical assistance in jointing / terminating the cable during installation at the site. The successful bidder shall arrange to train the owner's personnel in jointing and terminating techniques during the installation.

7.04.0 LINK BOXES:

7.04.1 Link Boxes along the run of the 220 kV Cable:

a) Link boxes for grounding of the sheaths of single core cables along the run of the cables shall be made of cast iron/aluminium alloy/stainless steel, suitable for direct burial in the same ground conditions as the cable with anti-rust protection suitable for completely underground installation and for operation when immersed in water. The link box shall conform to IP-66 degree of protection for which the test reports shall be furnished.
The bidder shall furnish a copy of type tests certificates for the link box offered as per the specification from any of the laboratories indicated in Cl.No. 10.02.10 or any other NABL Accredited Laboratories.
The design of the box must include a top Lid, which can be lifted vertically. BIDDER to submit the detailed drawing of these boxes along with the Bid. These Link Boxes shall be easily accessible from road surface in case of installation in joint pit. The box shall ensure complete water tightness.

b) These Link Boxes shall be suitable for terminating the cable sheaths on either sideof joint bays based on cable route for cross bonding at the box as well as for earthing at recommended locations.

c) All accessories such as copper terminals, cable lugs, connecting links, disconnecting links, washers, gaskets, mounting arrangements, etc., shall be provided to make the system complete.

d) The cross bonding link box shall be designed to be completely water proof and capable of immersion in water.

e) The cable leads from sheath to link box, capable of withstanding 10 kV DC and cable leads from link box to earth shall also be in BIDDER's scope of supply. The BIDDER shall quote for the type of cable leads for the cross bonding system as per the following design:

Concentric bonding leads of suitable size corresponding to three-(3) nos. co-axial cable entries to the cross bonding box.
Non–linear resistor type surge divertors of metal oxide type, wherever required, shall be provided in the link box by the BIDDER.

f) The BIDDER may quote for link boxes of suitable design in which the surge voltage

limiters (SVLs) do not need to be disconnected when a routine 10 kV DC test on the cable outersheath is performed.

7.04.2 Link boxes at the circuit end:

The lead sheath shall be grounded through suitable disconnecting links at the base of sealing ends. The BIDDER shall clearly indicate whether the links are to be grounded directly or through SVLs (non-linear resistors). The links shall be housed in a weather proof, outdoor, galvanised sheet steel box or cast iron or aluminium alloy box with mounting brackets and provided with 'O' Ring gasketted door. The cable leads from the sheath to the link box, capable of withstanding 10 kV DC & cable leads from link box to earth shall form a part of the scope of supply of the BIDDER. The Bidder shall quote for the same.

7.04.3 Cross Bonding of cable sheath:

The BIDDER shall give his recommendations regarding cross bonding of cable sheaths for the flat formation of single core cables. The BIDDER shall clearly indicate the numberof joints to be directly earthed and those to be earthed through zinc oxide (Z_nO), non- linear resistors (sheath voltage limiters). The offer may indicate a suitable design whereby Z_nO resistors need not be disconnected while conducting routine DC test on the over sheath.

The sheath standing voltage to earth for rated cable current shall not be in excess of 65 V RMS.

The sheath voltage, during an external three phase, symmetrical through fault as specified, should not be in excess of 3.3 KV for 3 sec.

The BIDDER shall indicate the arrangement considered by him in his proposal to meet the above requirements with suitable non-linear resistors, if required, to limit the sheath voltage.

Detailed calculations for sheath voltages as per recommended bonding methods shall be furnished along with the bid.

The BIDDER shall indicate permissible variation in the lengths of the 3 minor sections of a major section, which will not affect the efficacy of the cross bonding.

The BIDDER shall confirm that the cable can be continued in service in the event of asheath fault and shall indicate the de-rating of the cable in case of an earth on the sheath at the link box earthed through SVLs.

Transposition of cables:

The BIDDER shall indicate and provide arrangement for transposition of cables if necessary along with cross bonding. The Details of the same shall be furnished alongwith the bids.

7.04.4 VOID

7.04.5 VOID

7.04.6 Partial Discharge (PD) Measurement System: VOID

7.05.0 DTS (Distributed Temperature Sensor) with RTTR: void

7.06.0 SHEATH BONDING CABLE AND EARTHING CABLE:

The sheath bonding cable shall be co-axial cable 6.6 kV and above grade with 400/400 Sq.mm (conductor/concentric conductor) stranded Copper conductor PVC insulated wire armoured and PVC sheathed. The earthing cable shall be 3.3kV & above grade with 400Sq.mm stranded copper conductor PVC insulated & PVC sheathed. However the rating and the size of sheath bonding cable and earthing cable mentioned are indicative and minimum values. The bidder may quote the actual rating and size of cable offered, to meet the requirement.

7.07.0 PIPE EARTH STATIONS:

The earthing shall be as per provisions of IS:3043, Code of practice for earthing and as per IE rules:1956 Or its Latest Amendments.

8.00.0 ELECTROLYSIS AND CORROSION:

The cable serving shall be designed such that the cable sheath and armouring are protected from electrolysis caused by stray currents, from galvanic action and from corrosion and microbiological attack. The design of accessories shall be such that the outer metallic coverings of cable joints, sealing ends and control points can be insulated from earth along the entire route so that cathodic protection, if needed can be applied and also periodic testing of the insulating resistance of the serving can be done. A set of links shall be provided at each end of cables to connect the cable sheath and armour to the respective station grounds. The sealing ends shall be suitably insulated from their supporting structures, to permit insulation test on the cable over sheath.

9.00.0 GROUNDING SYSTEM:

The BIDDER shall indicate his recommendations regarding the type of grounding systems for the lead sheath/armour. The scope of supply shall include ground rod or ground conductor as recommended. The grounding material shall be copper.

10.00.1 TESTS ON CABLES AND ACCESSORIES:

10.01.0 APPLICABLE STANDARDS:

The testing procedures and requirements shall conform to the latest edition of the following national and international standards, but not limited to:

a) IEC publication 60540
b) IEC publication 60228
c) IEC publication 60229
d) British Standard Specification 6622

e) IEC publication 60840 ***(only applicable Sections of the Standard)***
f) IEC publication 60230
g) IEC publication 60287
h) IEC publication 60811
i) IEC publication 60885
j) IEC publication 62067

The IEC Standards shall prevail whenever the same tests are specified in other standards.

10.02.0 TESTS:

10.02.1 The Owner is keen to procure cables of highest integrity. To provide adequate confidence to the owner for the long term reliability of the cables, the manufacturerhas to carry out the prequalification tests on cables and their accessories in accordance with IEC-62067:2011.
The prequalification tests should have been conducted on complete cable system asper clause 13 of IEC-62067.
Prequalification test report shall be furnished along with the bid documents, whichis mandatory.

The prequalification tests are to determine long term reliability of a cables system. Hence it is necessary to carry out a long term accelerated ageing test. This test isto be performed as per clause no. 13.2 of IEC-62067 on the complete systemcomprising cables (specified in Tender) joints and termination in order to demonstrate the performance of the system.

The bidder shall enclose a detailed report of prequalification test as per clause No.13.2 of IEC-62067 along with the bid.

After qualification of these tests, regular routine, acceptance and type tests are to be conducted in any one of the approved labs as indicated in the clause 10.02.10 onthe samples and cables manufactured for the Owner.

10.02.2 The bidder shall include the field test report of similar size and voltage class cables installed in actual service. The report shall include voltage class, size, actual voltage, actual load current data, sheath voltage, sheath/conductor temperature data and all events after installation during service of such cable till date etc.

10.02.3 Type tests shall mean those tests, which are to be carried out to prove the process of manufacture and general conformity of the material to this specification. These tests shall be carried out on samples prior to commencement of commercial

production against the order. The Bidder shall indicate his schedule for carrying out these tests in the activity schedule.

10.02.4 Acceptance tests shall mean those tests, which are to be carried out on samples taken from each lot offered for pre-dispatch inspection, for the purposes of acceptance of the lot.

10.02.5 Routine Tests shall mean those tests, which are to be carried out on each strand/spool/length of the cable to check requirements, which are likely to vary during production and to demonstrate the integrity of the cables to be delivered tothe customers for use.

10.02.6 Tests during manufacture shall mean those tests, which are to be carried out during the process of manufacture and end inspection by the Bidder to ensure the desired quality of the end product to be supplied by him.

10.02.7 The Standards and norms to which these tests will be carried out are mentioned elsewhere in these specifications. Where a particular test is a specific requirement of this specification, the norms and procedures of the test shall be mutually agreedto between the Bidder and the Owner in the Quality Assurance Programme.

10.02.8 For all type and acceptance tests, the acceptance values shall be the values guaranteed by the Supplier in the proforma for "Guaranteed Technical Particulars", furnished in this Specification or acceptance value specified in this specification, whichever is more stringent for that particular test.

10.02.9 All tests – routine, acceptance and type tests shall be as per IEC-62067 and its Latest Amendments.

10.02.10 The adequacy of Partial Discharge detector used for Partial Discharge tests required for drum lengths of cables under routine tests must be demonstrated by performing tests as per IEC-60885 (3) – 1988.

The bidder shall furnish a copy of type tests certificates for the cable and accessories offered as per the specification from any of the following laboratory on similar cable and accessories as offered for this tender in compliance with IEC:62067, CL.No.12.2: Range of Type approval. The test should have been conducted within the last 10 years as on the last date of submission of bid. No charge is payable by the owner for the type tests.

a) For cables & accessories manufactured in India:

i. Type tests on indigenous equipment for which testing facility is available in India, should have been conducted in any independent laboratories

approved by Government or accredited by National accreditation body of the country like Central Power Research Institute (CPRI), Electrical Research and Development Association (ERDA), etc.

ii. Type tests on indigenous equipment, for which testing facility is not available in India, should have been conducted in a laboratory of foreign country accredited by National accreditation body of that country.

iii. The type tests conducted in-house by manufacturers shall also be acceptable where the specific test facilities are not available in independent NABL accredited laboratories provided the lab (manufacturer's) is accredited by National accreditation body of the country and the tests have been witnessed by a representative of NABL accredited Independent laboratory/Power utility.

b) For cables & accessories manufactured Abroad:

i. Type tests on imported equipment should have been conducted in an Indian laboratory or foreign laboratory accredited by National accreditation body of respective country.

ii. Type tests conducted in-house by manufacturers shall also be acceptable provided the laboratory is accredited by National accreditation body of the country and the tests have been witnessed by a representative of accreditation body/Power utility.

Following are the type test reports which are to be enclosed/uploaded in the bid.

1) Prequalification test – (Cl. 10.02.1 of specification)
2) Electrical Type tests as per – (Cl. 10.03 (1)(a) to (j) of specification).
3) Non-Electrical Type tests as per – (Cl. No. 10.03 (2) (a) to(o) of specification).
4) Special test as per- (Cl. 10.06 (a) (i) & (ii) of specification)
5) Type test for Link box- (Cl. No. 7.04.1 of specification)

10.02.12 Tests to be conducted during the supplies/after completion of supplies for acceptance of cable and accessories will be at the discretion of the Owner.

1) <u>CABLE:</u>

The owner will select at random a test sample of cable from the lot and subject it to **<u>either a particular type test or</u>** full range of type tests as per IEC-62067: 2011.

The bidder shall prepare the sample for tests and organize testing.The type test/s will be conducted at Owner's cost.

However, the bidder shall make arrangements for transportation of testsamples from manufacturing unit to the Test Laboratory indicated by owner at

his cost.

The applicable type test charges for only to such tests to be conducted as per owner's instructions will be payable by the Owner.(Refer Note (e) given below).If the cable fails in any of the type tests, the entire lot of cable will be rejected.

2) JOINTS & TERMINATION:

Two Terminations and one joint will be selected at random out of the supplies and subjected to **either a particular Type test or** full range of type and other tests at any reputed testing house/laboratory to IEC 62067: 2011 and tests shall be carried out accordingly.

The bidder shall prepare the sample for tests and organise testing. The type test/s will be conducted at Owner's cost.

However, the bidder shall make arrangements for transportation of test samples from manufacturing unit to the Test Laboratory indicated by owner at his cost.

The applicable type test charges for only to such tests to be conducted as per owner's instructions will be payable by the Owner.(Refer Note (e) given below).

If the sample under test i.e., cable / joint / termination fails, the entire lot of cable / joint / termination will be rejected.

3) The tests mentioned in (1) & (2) above are independent of the type test reports already furnished by the supplier.

NOTE: (a) The waival of any type tests shall be at the sole discretion of the owner.

(b) The successful bidder/vendor shall provide the associated cable and testingmaterial for tests at his own cost.

(c) The cost towards **each** type test shall be clearly indicated **seperately** in thebid and the same will be included for bid evaluation.

(d) The owner may modify tests by including additional tests or delete certaintests at his discretion.

(e) The test charges would be paid by the owner only for such tests that are, conducted successfully in a third party lab other than manufacturer lab. If the tests are conducted at Manufacturer lab no charges would be paid for such tests. However, the bidder has to quote for such tests. And in case of failure of the test material, the entire lot of cable/joint/termination will be rejected.

10.03.0 TYPE TESTS ON CABLE SYSTEM (CABLES & CABLE ACCESSORIES):

The following type tests comprising the electrical tests on the completed cable and the appropriate tests on the cable components shall be conducted in any of the laboratory to be approved by a in the presence of the owner's representative.

The owner may at his discretion, waive the type tests, modify the tests, request foradditional tests.

1) The type tests and sequence of electrical test (as per following clauses of IEC 62067) on complete cable system shall be:

   a) Bending Test on the cable (Cl.12.4.3) followed by installation of accessoriesand a partial discharge test at ambient temperature (Cl. 12.4.4)
   b) Tan Delta measurement (Cl:12.4.5)
   c) Heating cycle voltage test (Cl:12.4.7)
   d) Partial discharge test (Cl:12.4.4)
      - at ambient temperature, and
      - at high temperature.
      The tests shall be carried out after the final cycle of item (c) above oralternatively, after the lightning impulse voltage test in item (f) below.
   e) Switching impulse voltage test (required for Um ≥300kV Cl.12.4.7.1)
   f) Lightning impulse voltage test followed by a power frequency voltage test (Cl.12.4.7.2)
   g) Partial discharge tests, if not previously carried out in item (d) above
   h) Examination of the cable system with cable and accessories on completionof the above tests (Cl. 12.4.8)
   i) The resistivity of the cable semi-conducting screens (Cl. 12.4.9) shall be measured on a separate sample.

2) The Non Electrical type tests (as per the following clauses of IEC 62067) on cable components & on completed cable shall be:

   a) Check the cable construction (Cl. 12.5.1)
   b) Tests for determining the mechanical properties of insulation before and afterageing (Cl. 12.5.2)
   c) Tests for determining the mechanical properties of oversheaths before andafter ageing (Cl. 12.5.3)
   d) Ageing tests on pieces of complete cable to check compatibility of materials(Cl. 12.5.4)
   e) Pressure test at high temperature on oversheaths (Cl. 12.5.6)
   f) Hot set test for EPR and XLPE insulations (Cl. 12.5.10)

g) Measurement of density of HDPE insulation (Cl. 12.5.11)

h) Measurement of carbon black content of black PE oversheaths (ST_3 and ST_7)(Cl. 12.5.12)

i) Test under fire conditions (Cl. 12.5.13)

j) Water penetration test (Cl. 12.5.14)

k) Tests on components of cables with a longitudinally applied metal type or foil,bonded to the oversheath (Cl. 12.5.15)

Note: All the applicable tests as per IEC-62067 shall be conducted for the cablerequirement of this specification.

10.04.0 ROUTINE TESTS ON CABLE AND ON THE MAIN INSULATION OF PREFABRICATED ACCESSORIES:

The following tests (as per following clauses of IEC-62067) shall be carried out oneach manufactured length of cable:

a) Partial discharge test (Clause 9.2).
b) Voltage test (Clause 9.3).
c) Electrical test on over sheath of the cable (Clause 9.4).
d) Conductor resistance test (Clause 10.5).

10.05.0 ACCEPTANCE TEST / SAMPLE TESTS ON CABLES:

The following tests (as per following clauses of IEC-62067) shall be carried out onsamples.

a) Conductor examination (Clause 10.4).
b) Measurement of electrical resistance of conductor and of metal screen/sheath(Clause 10.5).
c) Measurement of thickness of insulation and oversheath (Clause 10.6).
d) Measurement of thickness of metallic sheath (Clause 10.7).
e) Measurement of diameters, if required (Clause 10.8)
f) Hot set test for XLPE and EPR insulation (Clause 10.9).
g) Measurement of capacitance (Clause 10.10).
h) Lightning impulse voltage test (Clause 10.12).
i) Water penetration test, if applicable (Clause 10.13)

Note: All the applicable acceptance tests/sample tests as per IEC-62067 shall beconducted for the cable requirement of this specification.

Frequency of Acceptance Tests:

The acceptance tests shall be conducted on one drum length from each manufacturing series of the same type and size of cables, but shall be limited to notmore than 10% of the number of drum lengths, rounded to upper unity. However,

water penetration test & lightning impulse test shall be on one length for the orderupto 20Kms and two lengths for more than 20kMs order.

10.06.0 (a) SPECIAL TESTS ON CABLES:

The following are the additional special tests:

i) Short circuit test on metallic wire screen and lead sheath, in combinationat 50kA for 1 Sec with conductor temperature during the test at 90^0C.

ii) Test for ovality of the core.

iii) (a) The waival of type tests shall be at the sole discretion of the owner.

(b) The successful bidder/vendor shall provide the associated cable andtesting material for tests at his own cost.

(c) The cost towards type tests shall be clearly indicated in the bid andwill be included for bid evaluation.

(d) The owner may modify tests by including additional tests or deletecertain tests at his discretion.

e) The test charges would be paid by the owner only for such tests that are, conducted successfully in a third party lab other than manufacturer lab. If the tests are conducted at Manufacturer lab no charges would be paid for such tests. However, the bidder has to quote for such tests. And in case of failure of the test material, the entire lot of cable/joint/termination will be rejected

10.07.0 SPECIAL TEST ON ACCESSORIES:

10.07.1 JOINTS

Cyclic ageing test under water.

The Test shall be conducted as per IEC 62067 Annexure – G

10.07.2 OUTDOOR TERMINATION:

The outdoor termination should meet the following additional test requirements

(i) Power frequency voltage wet withstand test as per latest version of IEC-62067 standard.

(ii) Salt fog test as per IEC.

(iii) Material test (if applicable)
   a) Tracking and erosion resistance
   b) Thermal ageing
   c) Weather resistance

10.08.0 ADDITIONAL TESTS:

Following tests shall be carried out as per IEC-62067: 2011, Cl. No. 16.0 on the complete installation after completion of cable laying, jointing and providing all necessary accessories.

a) Insulation resistance test.
b) DC voltage test of over sheath & AC voltage test of the insulation in accordancewith IEC-62067: 2011 (Cl. No. 16.2 & 16.3).
c) Site tests on non-metallic sheaths in accordance with latest version of IEC-60229.

The supplier shall also indicate any additional special test at site recommended by them to ensure satisfactory operation.

10.08.1 The Bidder shall furnish all the testing details in a compact disc (CD).

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11.00.0 IDENTIFICATION:

The Cable should be identified by embossed letters in English as per Clause 6.13 oftechnical specification.

The accessories shall be marked with voltage class, size of cable conductor, manufacturers name or trademark, date of manufacture and relevant technical information.

12.00.0 QUALITY ASSURANCE PLAN:

a) The bidder shall invariably furnish the following information along with his offer failing which the offer shall be liable for rejection. Information shall be separately given for individual type of equipment offered.

   i. Structure of the organization.

ii. The duties and responsibilities assigned to staff for ensuring quality of work.

iii. The system of purchasing, taking delivery and verification of materials.

iv. The system for ensuring quality of workmanship.

v. The quality assurance arrangements shall conform to the relevant requirement of ISO-9001 or ISO-9002 as applicable.

vi. Statement giving list of important raw materials, names of sub-suppliers forthe raw materials, list of standards according to which the raw materials are tested, list of tests normally carried out on raw materials in the presence of suppliers representative, copies of test certificates.

vii. List of manufacturing facilities available.

viii. Manufacturing process shall be fully automatic with dust proof/Air conditioned working atmosphere.

ix. List of areas in manufacturing process, where stage inspections are normally carried out for quality control and details of such tests and inspections.

x. List of testing equipment available with the bidder for final testing of equipment specified and test plant limitation, if any vis-à-vis the type. Special acceptance and routine tests specified in the relevant standards. These limitations shall be very clearly brought out in the "Schedule of Deviations" from the specified test requirements.

xi. Level of automation achieved & test of areas where manual processing exists.

b) The Successful bidder shall within 30 days of placement of order, submit the following information to the Owner.

i. List of raw material as well as bought out accessories and the names of sub-suppliers selected from those furnished along with the offer.

ii. Type test certificates of the bought out accessories if required by the Owner.

iii. Quality Assurance Plan (QAP) with holds points for owner inspection. QAP and owners hold points shall be discussed between the owner and successful bidder before the QAP is finalized.

iv. The successful bidder shall submit the routine test certificates of bought out accessories and central excise passes for raw material at the time of routine testing if required by the owner and ensure that the quality assurance

requirements of specifications are followed by the sub-contractor.

c) The Quality Assurance Programme shall give a description of the Quality Systemand Quality Plans with the following details:

i. Quality System

- The Structure of the organization.
- The duties and responsibilities assigned to staff for ensuring quality ofwork.
- The system of purchasing, taking delivery and verification of materials.
- The system of ensuring quality workmanship.
- The system of control of documentation.
- The system of retention of records.
- The arrangement of successful bidder internal auditing.
- A list of administrative and work procedures required to achieve successful bidder quality requirements. These procedures shall be made readily available to the Owner for inspection on request.

ii. Quality Plans:

- An outline of the proposed work and programme sequence.
- The structure of contractor's organizations for the contract.
- The duties and responsibilities ensuring quality of work.
- Hold and notification points.
- Submission of engineering documents required by this specification.
- The Inspection of the materials and components on request.
- Reference to successful bidder work procedures appropriate to each activity.
- Inspection during fabrication/construction.
- Final inspection and test.

The Owner reserves the right to seek documentary proof of the source of material

(insulation, outer sheath, and other cable components) and to cross check with the supplier.

13.00.0 INSPECTION:

Inspection may be carried out by the owner at any stage of manufacture. The successful bidder shall grant free access to the owner's representative at a reasonable time when the work is in progress. Inspection and acceptance of any equipment under this specification by the owner shall not relieve the bidder of his obligation of furnishing equipment in accordance with the specification and shall not prevent subsequent rejection if the equipment is found to be defective. The supplier shall keep the owner informed in advance about the manufacturing programme so that arrangement can be made for inspection.

13.02.0 The owner reserves the right to insist for witnessing the acceptance/ routine testing of the bought out items.

13.03.0 No material shall be dispatched from its point of manufacture unless the material has been satisfactorily inspected and tested in presence of the owner's representative and cleared for despatch.

14.00.0 PACKING AND MARKING:

14.01.0 DELIVERY LENGTH OF CABLE:

It is important to note that the correct delivery length on each drum and the total number of drums to be delivered shall be ascertained by the successful bidder before manufacture, by cable route survey and approval of the owner.
The inner diameter of the drum shall not be less than 20 D and the minimum delivery length of the cable on each drum shall be approximately 500 Mtrs (Five Hundred) subject to approval of the owner.

14.02.0 The cable shall be wound on non-returnable strong steel drums. The dimensional drawings of steel drums shall be furnished with the bid. The drum shall be provided

with circumferential lagging of strong wooden planks. The ends of the cable shall be sealed with good quality heat shrink sealing caps. The required additional sealing caps of sufficient quantity shall be supplied for use for testing during laying and jointing at site and to seal spare lengths of cable.

The packing should be able to withstand the rigors of transport.

The following information in bold letters in English shall be painted on theflanges.

(i) Name and address of the Manufacturer, Trade name/Trade Mark/Brand.

(ii) Size of cable (cross section) rated voltage, standard, insulation, cable code,drum number, year of manufacture.

(iii) Length of cables (metres).

(iv) Direction of Rolling.

(v) Net weight (in Kg).

(vi) Gross weight (in Kg).

(vii) Purchase order reference.

Note: a. Economic drum length shall be got approved from the owner during the survey ofroute by the successful bidder and inner drum diameter shall not be less than 20D.

b. Each cable end shall be hermetically sealed by means of metal cups using wiping lead so as to protect the cable from moisture penetration during transit, storage and laying. Pulling tension shall be furnished by the successful bidder.

c. The vendor shall be responsible for any damage to the cables during transit due to cable or reels not having been properly fastened, packed and secured.

d. Two Nos. of swivels of suitable capacity shall be supplied along with the firstbatch of cables free of cost.

e) The maximum weight of cable along with drum to be furnished by thesuccessful bidder before execution of works.

Handling and Storage:

All accessories and spares shall have a minimum shelf life of 10 years, detailed instructions for storing accessories and all equipments which are supplied by the vendor shall be indicated.

15.00.0 DESPATCHES:

No dispatches shall be made without approval from the Owner to the test certificates. All dispatches shall be made to the consignees intimated by the owner.

16.00.0 CABLE LENGTHS:

The correct total quantity, the number of drums, the length of cable on each drum shall be ascertained by the successful bidder from the owner, at the time of manufacture. This is in view of any change in the already finalized route plan, profile which may arise due to any unforeseen circumstances between the period of placing the order and commencement of manufacture.

17.00.0 DELIVERY AT STORES/SITE STORES:

The stores / site is located at Bangalore. All regulations governing the transport of goods by various modes of transport shall be observed by the contractor.

It will be the sole responsibility of the successful bidder to deliver the goods safely at the owner's stores / site stores, including handling and unloading etc.,

18.00.0 INSTALLATION:

18.01.0 SURVEY – ROUTE PLAN:

18.01.1 The bidders are requested to fully inform and acquaint themselves on the local site conditions, which have a direct bearing on the cost estimates and execution of the work.

The tentative cable route plan is furnished to the bidder, indicating roads, position of road crossings, railway crossings, drainage crossings etc., in the drawing enclosed with the bidding document. In case of Variations during actual survey or any deviations in quantity, payment would be made as per quantities executed as per actuals.

The successful bidder shall make a detailed survey of the cable route, by excavating the trial pits as warranted by the local conditions and prepare necessary drawings. All relevant data, required shall be properly recorded and preserved forfuture use and to decide on requirements of:

- Cable delivery length per drum
- Proposed cable sections
- Location of joint bay positions

- Type and quantity of joints required
- Final cable route plans
- Design of cable ducts/trench for road crossings drainage crossings, railway crossings etc.
- Identify locations for bonding.
- Trench with brick masonry side wall and pre-cast reinforced concrete slabs.

The survey data on the cable route should also include recording of theinformation required for cable design, such as

- Type of soil along the cable route, soil resistivity
- Soil thermal resistivity, PH Value
- Sub soil water locations and other relevant information in designing the ductsand pipes for cable.

NOTE: The quantities executed will be paid at actuals.

18.01.2 LOCATION OF JOINT BAYS:

The location of the joint bays should be carefully decided to avoid, traffic hazards, collection of subsoil water and any possibility of flooding due to storm waters. Thejoint bays located should be easily accessible for inspection and tests.

18.01.3 CABLE LENGTH, SECTIONS:

The maximum and minimum delivery lengths of cable that can be supplied shall be furnished by the bidder in the tender.

The successful bidder shall carryout a final route survey, fix joint bay locations andfinalize the sections and delivery lengths.

A tolerance of ±1% may be assumed while finalizing the actual cable length.

The work on installation and laying of cables will be taken up by the successful bidder only on approval of the route plans by the owner.

18.01.4 CABLE INSTALLATION RECORDS:

The route plan records / drawings, and the final route map drawings after installation and commissioning, should be furnished to the owner. Three transparencies and nine zerox copies each of route plan and 2) Final route map after installation shall be furnished. Soft copy of the same shall be furnished in CDs.

18.01.5 For preparation of cable route plans and cable records, relevant sections of Indian standards publication IS:1255, “Code of Practice for installation and maintenance

of power cable", or any other appropriate international standard may be referred for guidance.

18.01.6 SOIL THERMAL RESISTIVITY / SOIL RESISTIVITY:

The successful bidder shall investigate the soil characteristics along the cable route, at the required laying depths to evaluate the parameters governing the cable design.
The thermal resistivity tests should be carried out at every 200M interval along the cable route and also at specified locations at the direction of the owner. At each location the thermal resistivity tests are to be taken at three different depths and two soil samples are to be taken for further laboratory analysis.

The laboratory analysis of the soil samples collected from the site should be conducted in detail, including soil identification, moisture content, density, organic content, critical moisture content of each soil type encountered along the route to arrive at the thermal resistivity values of the native soil.

The generally assumed value of the soil thermal resistivity may be taken as 150^0C Cm/w.

The OWNER anticipates the presence of soil strata at a few locations along cable routes with a soil thermal resistivity of more than 150^oC Cm/w.

However, the successful BIDDER shall be responsible to ensure that no derating ofthe cable will take place on account of variation in soil thermal characteristics. In consultation with the OWNER, the BIDDER shall analyse and indicate the appropriate backfill (STB – Soil Thermal Backfill) recommended. Bidder will have to design the trench optimally to take care of local site conditions. The maximum permissible soil thermal resistivity shall be limit to 120^oC Cm/w in fully dried condition out of the locally available materials to achieve maximum current capacity for the cable section used. BIDDER shall ensure that no derating of the cable takes place on account of soil/backfill thermal characteristics and that properbackfill is used.

In conformity with the above requirement, the BIDDER shall determine and advise on the following:

- Optimum design of trench to take care of local hot spots and methods to reduceeffective Thermal resistivity value.

- The type of graded sand to be utilized by sieve analysis as one of the components of the STB backfill to obtain tight fit soil.

- The optimum Kaolinitic clay content in the soil to make it less porous and of high specific surface area for optimum moisture retentivity suitable for areas prone to moisture migration on account of low water table.

- The material and composition of thermal backfill will be finalized during detailed Engineering. Bidder shall be responsible for ensuring the best "effective" thermal resistivity.

Subsequent to completion of backfilling, in-situ measurements of soil thermal resistivity, dry cured density, void ratio, moisture and clay contents of the soil shall be carried out by the BIDDER along the cable routes at regular intervals mutually agreeable to the BIDDER and PURCHAER, using his own instruments as a quality check on the backfill employed and method of back-filling and detailed report shallbe submitted by BIDDER.

However, the successful bidder shall carry out the required investigation and tests to evaluate and determine the soil resistivity and soil thermal resistivity along the cable route, at cable laying depth, to the satisfaction of the owner.

18.01.7 THERMAL BACKFILLS:

The successful bidder shall design, specify supply formulate, test and lay a suitable backfill, only if the owner desires and with the prior approval of the owner, if found necessary after the receipt of the route survey report for thermal characteristics of the soil.

18.02.0 Laying and installation of Cables:

18.02.1 General

The successful bidder shall carry out all activities connected with the laying and installation of the power cables, and completion of the work for which the project is intended and to the full satisfaction of the owner.

Notwithstanding subsequent changes/alterations in route/design, the bidders shall quote in their bid proposals for carrying out the cable installation work as per the specifications of the owner, which will be considered for bid evaluation.

However, alternate route/installation arrangements offered from the bidders, with clear justification for these alternatives, will be considered by the owner, if they

prove to be of a better and economical design and also the quoted bid value is the lowest.

18.02.2 Scope

This scope covers the proposed method of cable laying, in ground i.e., directly buried in ground with laying in ducts, pipes and in air. The excavation and construction of R.C.C., stone masonry, brick masonry ducts, laying of pipes for installing cable and also for the construction of jointing bays as per requirement of the field conditions.

The scope also includes supply of all requisite materials, labour, tools and plant like sand, brick, stones, steel, cement aggregate for reinforcement, pipes, joint and route markers and all other consumables required for the completion of this work.

The bidder shall insure for materials. The bidder shall handle, load, transport, unload and store all materials at site and arrange for security, till commissioning and handing over to the owner.

18.02.3 Drawings

The bidder shall prepare the drawings for the applicable field conditions of cable installation, like cables directly buried, in ducts, in road crossings, on drainage crossings, railway crossings, cable jointing bays, manholes if any, and furnish 6 copies of each to the owner for approval.

All works are to be executed only after due approval of the competent authority and under the supervision of the engineer in-charge.

18.02.4 Specifications

These specifications are intended for general description of quality, of materials and workmanship of finished work.

They are not intended to cover the minute details. The work shall be executed in accordance with the best modern practices, Indian standards (I.S.) and other relevant codes.

The specifications, referred to above are I.S. Standards relevant to Civil Engineering works and cable laying works.

The specifications shall be read in conjunction with the other parts of the bid documents.

The owner's decision shall be final on any issue in respect of installation.

18.02.5 Installation of U.G.Cables

Installation: The cables shall be laid generally in "directly buried in ground/in RCCcable duct in Trefoil touching formation to form 220 KV 3 single core, single circuitsystem. However, as per requirement of the field, the cables may also have to be laid;

- in ducts/trenches.
- in HDPE pipes in trefoil/horizontal formation (pipes to be filled with sand/suitable material after cabling).
- in Air at terminations.
- At varying depths due to obstructions.
- As per approved drawings.
- In HDPE pipes for railway crossing

18.02.6 Inspection, Storage and Handling

The successful bidder should take all necessary precautions for inspection of cableson receipt, and for the proper handling and storage. The successful bidder shall have his own arrangement for transporting the cables, materials, equipment to siteand back to store.

The cables shall be stored on hard packed surfaces and protected from harmful weather conditions.

The cable drums shall be mounted and transported on only approved type cable drum conveyors. The cable should not be bent beyond permissible limits of the bending radius while laying and jointing.

18.02.7 Statutory Clearances

The installation of cables shall be as per established code of practice and fulfill the requirements of statutes. Obtaining all statutory clearances from other utility services, like telephones, water supply, power supply, Railways, National highways, Bengaluru Mahanagara Palike and other Local Administrative Authorities for road cutting etc., for laying the cable will be responsibility of the successful bidder.

All necessary approvals of the concerned authorities to be obtained before execution of the works by the successful bidder and necessary assistance will be rendered by the owner.

Charges to the civic/national highways/traffic/defence authorities/Railway/ Telephones/Water supply/Power supply/MahanagaraPalike and other Local Administrative authorities etc., as per their standard schedule of rates for grant of permission/approvals for trenching/laying pipes/laying cables etc., are to be paidby the successful bidder. These charges are reimbursable by the owner as per actuals, on production of valid vouchers.

18.02.8 Trench/RCC Cable duct

The cable trench/RCC cable duct work involves earth excavation for cable trench/Excavation and Construction of RCC cable duct, back filling and removal of excess earth from site. The work site shall be left as clean as possible after completion of the work.

The earth for construction of trench/RCC cable duct shall be excavated using manual and mechanical modes as per field conditions. Most of the roads are of asphalt surface and some are with cement concrete surface.

An air compressor with pneumatic drill or equivalent mechanical tool will be essential for the road crossings and railway crossings involve horizontal drilling i.e., Trench-less cutting wherever necessary.

Where paved footpaths are encountered, the pavement slabs shall be properly stored and reinstated. Identification markers of other services shall be properly restored.

The sides of the excavated trenches/RCC cable duct shall wherever required, be well shored up with timber and sheeting.

Suitable wooden barriers should be erected between the cable trench and pedestrian / motor way/railway to prevent accidents. The barriers could be made

out of Jungle Wood / Deal Wood Planks. These could be portable types of size 1.5M (long) by 1.2M (Height). These barriers should be painted with yellow and black or red and White coloured cross stripes. Warning and caution boards should be conspicuously displayed. Red lights as warning signal should be placed along the trench during the nights and any other requirements as per the traffic authorities directions.

The excavated material shall be properly restored immediately after laying the cable by mechanical compactness to avoid obstruction to public and traffic movement.
The cable shall be laid immediately after formation of trenches. The bottom of the excavated trench should be levelled flat and free from any object, which would damage the cables. Any gradient encountered in trench/cable duct shall be gradual.

18.02.9 Cable Handling

The inspection of cable on receipt, handling of cables, paving out, flaking, cushioning with sand or sieved compacted native soil, back-filling, reinstatement of road surfaces, providing and fixing joint markers, route indicators, preparation of all chambers, sump holes and all necessary precautions that are required shall be carefully planned and in general conform to latest edition IS 1255 - 1983 or its equivalent.

18.02.10 Damage to Property

The successful bidder shall take all precautions during excavation of trench/RCC cable duct trial pits etc., to protect the public and private properties and to avoid accidental damage. Any damage so caused shall be immediately repaired and brought to the notice of the concerned and to the owner.

The successful bidder shall bear all responsibilities and liabilities and shall bear allcosts of the damages so caused by him or by his workman or agents.

18.02.11 Cable over bridges:

Wherever the cable route crosses the bridges, the cables shall be laid in ducts.

18.02.12 Cable crossing open drains with long span

1) Wherever the cable route has to cross an open drain, with a long span, the cable shall be laid in suitable size ducts, or pipes, suitably jointed with collars. The entire duct system shall be designed as per civil engineering practice and shall be got approved by the concerned authorities and owner.

2) At places where the cables cross private roads, gates of residential houses or

buildings, the cables shall be laid in HDPE pipes.

18.02.13 **Cable route markers / cable joint markers.**

Permanent means of indicating the position of joints and cable route shall befabricated supplied and erected as per drawings approved by owner.

Markers provided shall be as per the field requirement. If the route passes throughopen fields, markers should be conspicuously visible and above ground surface.

The marker should incorporate the relevant information: The name of the owner,voltage, circuit and distance of cable from the marker.

18.02.14 **Laying of Power Cables**

The 220 KV, single-phase cables shall be laid in Trefoil formation, forming one circuit laid in the trench/duct complying with all applicable standards as per drawings approved by the owner.

The cables shall be laid wherever required in HDPE pipes of ISI approved quality.When cables are laid in RCC hume pipes, the following points shall be taken careof.

If one cable (single phase) is laid through the Cement Concrete pipe, the CC pipeshould not have reinforcement of steel rods.

The cable should occupy only 30-40 % of the area of the cross section of pipe.The CC

pipes shall be backfilled by sand after installing the cable.

The cables shall be protected by covering with a pre-cast RCC slab of approveddesign and marking throughout the length of the route.

18.02.15 Paving out the cable

The excavated cable trench/RCC cable duct shall be drained of all water and the bed surface shall be smooth, uniform and fairly hard before paving out the cable. The cable shall be rolled in the trench/RCC cable duct on cable rollers, spaced out at uniform intervals. The paving out process must be smooth and steady without subjecting the cable to abnormal tension. For this power winch, power roller – both straight and angle roller, may be used. The cable on being paved out shall be smoothly and evenly transferred to the ground after providing the cushion. The cables shall never be dropped. All snake bends shall be straightened. Suitable size cable stocking pulling eye shall be used for pulling the cable. While pulling the cable by winches or machines, the tension loading shall be by tension indicator and shall not exceed the permissible value for the cable. The cable laying shall be performed continuously at a speed not exceeding 600 to 1000 mtrs per hour.

The cable end seals shall be checked after laying and if found damaged shall immediately be resealed. Sufficient number of heat shrinkable cable end sealing caps shall be stocked at site stores, for testing and jointing work. The integrity of the outer sheath shall be checked after the cable is laid in position Bell mouth shall be used whenever the cables are drawn inside HDPE pipe, duct.

18.02.16 Flaking:

The cables shall be flaked and left with slight extra lengths at jointing bays for expansion and flexibility.

18.02.17 Sand Cushion:

The sieved sand cushion for the cables shall be provided as per the drawings. Sand covering shall be done by hand and in such a manner as to provide complete envelope for the cables and a good bedding for protection covers

18.02.18 Thermal Backfill:

Based on the evaluation of soil thermal resistivity along the cable route and after approval from the owner the successful bidder shall design, specify, supply, lay & monitor the installation of thermal backfill surrounding the cables.

18.02.19 Immediate Envelope To Cable

The option on the use of the material, which immediately envelops the cable viz.,

thermal backfill or sand or sieved native soil rests with the owner. The successful bidder shall seek prior approval on the use of the envelope material from the owner before execution of the works.

18.02.20 Prevention of damage due to sharp edges

After the cables have been laid in the trench/RCC cable duct and untill the cables are covered with protective covering, no sharp metal tool shall be used in the trench/RCC cable duct or placed in such a position that may fall into the trench/RCC cable duct.

Straight and curved (angle) rollers used shall have no sharp projecting parts liableto damage the cable.

While pulling through pipes and ducts, the cable shall be protected to avoid damage due to sharp edges. Bell mouth shall be used whenever the cables are drawn inside HDPE pipe, duct..

The cables shall never be bent, beyond the specified bending radius.

18.02.21 Road Crossings:

The road cutting work for cable trench/RCC cable duct whether cement concrete, asphalt or macadam road surface shall be taken after obtaining approval for cutting from the civic authorities, traffic police, telephone authorities and work should be planned to be completed in the shortest possible time. Whereever necessary the work shall be planned during night time or light traffic periods.

In the excavated trench across the road, the cables shall be laid in HDPE pipes, pipes are embedded in RMC (Ready mixed cement concrete) 1:2:4 proportions, excavation backfilled, compacted and the surface shall be redone in the shortest possible time as per the requirements of the civic authorities.

18.02.22 Footpath Cutting:

The slabs, kerbstones, on the roads shall be removed and reinstated withoutdamage.

18.02.23 Reinstatement:

After the cables and pipes have been laid and before the trench is backfilled all joints and cable positions should be carefully plotted and preserved till such timethe cable is energised and taken over by the owner. The protective covers shall then be provided, the excavated soil riddled, sieved and replaced. It is advisable

to leave a crown of earth not less than 50 mm and not more than 100 mm in the centre and tapering towards the sides of the trench.

The temporary reinstatement of roadways should be inspected at regular intervals, more frequently in rainy season and immediately after overnight rain for checking settlement and if required, then temporary reinstatement should be done.

After the subsidence has ceased the trench may be permanently reinstated and the surface restored to the best possible condition.

In case of the road surface being cement concrete, asphalt or tarred macadam, resurfacing shall be done as per the requirements of the civic authorities.

18.02.24 **Jointing Bays:**

The successful bidder shall identify the location of the joint bays after carrying out detailed survey of the cable route and excavation of the trial pits. The delivery lengths of the cables shall match the location.

The joint bays shall be of sufficient size to accommodate jointing of cables and constructed with RCC M20 Grade and Fe 415 Steel. It shall consist of RCC raft laid over PCC 1:4:8, RCC Retaining walls/Side walls and RCC cover slab with aninspection chamber. All exposed faces of raft, slab and side walls shall be plastered with 12mm thick Cement Mortar 1:4. At the bottom in a corner, a sumppit shall be made for bailing out water.
After completion of all the works, viz., construction of Jointing Bay, laying of cables, testing of cables/jointing etc., the jointing bay shall be backfilled with riddled sand.

The successful bidder shall submit an economical design and drawing of joint bay for approval of the owner.
All works shall be carried out in presence and supervision of the owner's engineer.

18.02.25 **Railway Crossing:**

The earth shall be excavated using an air compressor with pneumatic drill or equivalent mechanical tool for laying pipes for crossing of railway track after obtaining prior approval of railway authority. The work shall be planned to be completed within shortest possible time. The work shall be carried out as per the standard practice suggested by railway authorities.

18.02.26 **Tools and Plant**

The successful bidder shall have all necessary tools, plant and equipment to carry

out the survey and cable installation work.
The bidders are instructed to give all the details of equipment at their disposal, tocarry out the work successfully and speedily.

18.03.0 JOINTING AND TERMINATING:

18.03.1 Jointing Of Cables

General: The cable jointing personnel and his crew shall have good experience in the type of joints and terminations that are used. The jointing work shall commence as soon as two or three lengths of cables have been laid. All care should be taken to protect the factory-plumbed caps/seals on the cable ends, and the cable end shall be sealed whenever the end is exposed for tests.

Jointing of cables in carriageways, driveways under costly pavings, under concrete or asphalt surfaces and in proximity to telephone cables, and water mains should be avoided wherever possible.

Sufficient over lap of cables, shall be allowed for making the joints.

The joint bay should be of sufficient dimensions to allow the jointers to work withas much freedom of movement and comfort as possible. Sufficient space should be kept below the cable to be jointed.
The joints of different phases shall be staggered in the jointing bay.

The cable jointing work should be necessarily got done only through welltrained professional jointers.

Jointing work details

l) Uncoiling, cleaning, straightening and trimming of 220KV cable as requiredfor jointing.
ii) Checking the cable inside the joint bay before cutting the cable, for anyaccidental damages due to re-excavation.
iii) Providing the joint tent, tools etc., at the site by the vendor.
iv) Erection of joint tent, (joint tents should be of metallic housing.
v) Electrification of the joint bay, arranging and fixing of air conditioners and maintaining them for the entire period of jointing (temperature inside the joint tents should be maintained below 25 deg C.)
vi) Transporting the required quantity of jointing kits from stores to site (Including link boxes)
vii) Dismantling the wiring, air conditioner etc.
viii) Dismantling the joint tent.

ix) Devolution of cable cut bits to departmental stores including transportation.
x) Providing security guards for joint bay.
xi) Cost of power for the entire period of jointing.
xii) Providing 2 Nos. 2 HP Diesel Dewatering pumps.

18.03.2 Sumpholes:

While jointing cables in water logged ground or under unforeseen rainy conditions, a sumphole should be made at one end of the joint bay, in such a position so that the accumulated water can be pumped or bailed out by buckets, without causing interference to the jointing operation.

18.03.3 Tents/Covers

Erection of Joint tent (Joint tent shall be of metallic housing) Electrification of Joint bay, arranging and Fixing of Air conditioners and maintaining them for entire period of jointing (Temperature of Joint tent should be maintained below 25 deg. C)

Providing sheath protection for earthing wherever necessary. All accessories and spares required shall be of satisfactory operation for 10 years and furnish the details of maintenance.

18.03.4 Precautions before making a joint:

The cable end seals should not be opened until all necessary precautions have been taken to prevent circumstances arising out of rainy/inclement weather conditions, which might become uncontrollable.

If the cable end seals or cable ends are found to have suffered damage the cables should not be jointed, without tests and rectification.

18.03.04A PERT CHART

Indicating time schedule for supply of cable and accessories and supervision of cable laying, testing and commissioning shall be furnished by successful vendor in consultation with the purchaser and should be got approved along with drum length approval. The schedule should be kept up by the vendor. Any delay in completing the work will attract penalty.

18.03.5 Measurement of Insulation Resistance:

Before jointing, the insulation resistance of both sections of cables shall be checked.

Before laying cable in the ground, the insulation resistance of each section shall be

measured.

18.03.6 Identification:

The identification of each phase shall be clearly and properly noted. The cables shall be jointed as per the approved design. Each cable shall have identification forphase at joint bays.

18.03.7 Making a Joint

Comprehensive jointing instructions should be obtained from the manufacturer of jointing kits and meticulously followed.

The materials used in the joints like ferrules, screen/sheath continuity bonds, lugs,etc., shall be of good quality and conform to standards.

The jointing tools shall be appropriate and as per the requirement of jointing EHV XLPE cables.

18.03.8 Cable Terminations

The cable terminations used are outdoor type/GIS plugin type.
The preparation of the cable end for installing the terminations and the precautionsto be taken before fixing the terminations shall be followed as in the case of the cable jointing procedures.

The instructions furnished by the termination manufacturer shall be strictly followed.

At cable terminating end, the following provisions for supply and erections are to be included.

i) A sufficient length of spare cable shall be left in the ground, for future needs

ii) The rise of the cable, immediately from the ground shall be enclosed in minimum dia of 250 mm HDPE pipe to protect against direct exposure to the sun.

iii) The cable shall be properly fastened using nonmetallic clamps.

iv) Appropriate labels shall be fixed identifying the phase, circuit, Voltage and date of commissioning etc., on the cable supporting structure.

v) The sealing ends shall be mounted on pedestal insulators to isolate them from their supporting steel work.

vi) Protection from contact with the exposed metal work at the termination shall

be provided by resin bonded glass fibre shroud.

vii) Providing earth stations with all required materials like leads, connectors,earthing rods/pipes etc.

ACCESSORIES

Dust and humidity free enclosures complete with air conditioners and material handling equipment shall be used by the vendor.

All special tools including a set of jointers hand tools that are necessary to complete the joint/termination works shall be arranged by the vendor. Necessary power supply for jointing and termination works shall be arranged by the vendor.

The cost of consumables which are essential for satisfactory erection and commissioning shall be included.

Adequate quantity of consumable shall be supplied for completing the entire cable laying and jointing works.

Termination Work details:

1) Erection of termination structure.
2) Removal of cable from the trench, rerouting, cleaning straightening and trimming if necessary, checking the exposed cable before cutting the cable for any accidental damages due to re-excavation.
3) Providing of scaffolding pipes, clamps, wooden planks and tools for erection of termination.
4) Erection of scaffolding pipes/ providing crane for lifting 220KV cable and termination.
5) Lifting the cable up the terminal structure and positioning.
6) Transporting the termination kit from departmental stores (including linkboxes)
7) Dismantling scaffolding work.
8) Transporting the above item back.
9) Devolution of cable cut bit to departmental stores including transportation.
10) Provision of security guard for the cable end/ termination.
11) Providing fire retardant paint for exposed portion of the cable and otherrelated works.
12) Cost of power for the entire period of work.

18.03.9 Bonding of screen/sheath

The type of bonding i.e., single end bonding/both end bonding/cross bonding asrecommended by the successful bidder, shall be adopted.

For one/both end bonding:

The screens at one/both ends, shall be brought out and solidly bonded/ orthrough SVL to the earth station through disconnecting type link boxes.

The link boxes, single-phase outdoor type with SVL at receiving end (with bye-passarrangement for SVL) and without SVL at sending end shall be provided.

All accessories and consumables used in the termination should be of good qualityand compatible with the cable.

For cross bonding:

Shall be executed as recommended in Clause No.7.04.03.

18.03.10 Connection of Radial Water Barrier and Cable Screen

If the metallic radial water barrier is insulated from the metallic wire screen aconnection suitable to carry the currents occurring during operation must be

installed between metallic radial water barrier of the cable and metallic wire screenin joints and sealing ends.

18.03.11 Erection of Cable Terminating Structure.

The terminating structure should be designed as per the requirement of the cable end sealing, offered by the bidder.

The mounting structure shall have good cement concrete foundation as per civil engineering norms/Approved drawings.

After fixing the end termination, the cable shall be fixed to the support, with nonmagnetic material clamps to the required height securely. The drawings of station structure and equipment for connection of cable will be furnished by the owner.

18.03.12 Surplus Cable

The wastage of cable beyond practically required permissible limits should be avoided.

For any valid reason if there is a surplus cable, it shall be returned to the owner's store.

Approved good quality sealing caps, heat shrinkable type of the correct size, shall be supplied for spare cut lengths of cable exceeding 100 M length, to enable them to be properly stored for future maintenance purposes. The successful bidder shall be responsible for the immediate sealing of such cut lengths and the cost of the sealing end etc., thereof shall be deemed to have been included in the contract price.

The successful bidder shall clean the completed cable route and shall remove all surplus and waste materials, empty cable reels etc., preferably the same day but not later than the next day after the particular work is completed.

18.04.0 CIVIL AND STRUCTURAL WORKS:

General : This specification deals in brief with the civil and structural works for cable laying.

a) The scope of civil works include earth excavation for cable trench & RCC cable duct and cable laying, removal of excavated earth, design, supply and provide plain & reinforced cement concrete for foundations of equipment, support

structures, back filling, dewatering of trenches. Design, supply and providing cable jointing bays. The design of RCC cable duct for laying the cable along the route and cable duct/pipe ducts for crossing drains, roads, railway lines etc., shall be suitably done and rates quoted, making provision for complete supplies and erection as per relevant schedules. It includes all connected civil works.

b) Design, fabrication and supply of galvanised steel structures for cable end terminations, mounting of earthing link boxes.

c) Supply of all consumables and sundry materials not included in the specifications in detail but are necessary to meet the intent of the project.

18.04.1 Codes And Standards

Unless otherwise stated, latest Editions of the following standards are applicable.

IS:1255	:	Installation and Maintenance of Power Cable.
IS:5820	:	Specification for pre-cast concrete cable cover.
IS:209	:	Quality of Zinc for galvanising.
IS:226	:	Structural Steel.
IS:456	:	Plain and Reinforced Cement Concrete.
IS:800	:	Use of structural steel in general building construction.
IS:2016	:	Plain washers.
IS:2633	:	Zinc coating on Galvanised Steel.
IS:3063	:	Spring washers.
IS:5358	:	Hot Dip Galvanised coating on fasteners.

IS:6639 : Hexagonal Bolts for steel structures.
Any other equivalent International/National Standard.

18.04.2 **Excavation**

The specification covers excavation for cable trenches, ducts, structural foundations, jointing bays.

The successful bidder shall control the grading in the vicinity of all excavations so that the surface of the ground will be properly sloped or diked to prevent surface water from running into the excavated area during construction.

The excavation shall include the removal of all materials required to execute the work properly and shall be made with sufficient clearance to permit the placing,

inspection and setting of forms and completion of all works for which the excavation is done.

The sides and bottoms of excavation shall be cut sharp and true. Under cutting shall not be permitted. Earth sides of excavation shall not be used in lieu of form work for placement of concrete unless authorised by the Engineers of the owner where the limitations of space for large excavation necessitates such decision.

18.04.3 Quantities

The bidder shall indicate the ceiling volumes/quantities for excavation and RCCworks and Steel structure works, wherever specifically indicated.

18.04.4 The bidder shall quote unit rates for the items of works. He shall also quote the total price for each of the works.

18.04.5 The quoted price shall also include supply of all material, transportation charges, taxes, duties, octroi and toll, labour, construction plant and equipment and fixtures, fittings and all temporary and permanent works necessary for satisfactorycompletion in all respects.

18.04.6 The measurements of various civil works shall be jointly recorded; by the successful bidder and the Engineer-in-charge of the owner and duly certified.

18.04.7 When machines are used for excavation the last 300mm. before reaching the required level shall be excavated by hand or by such equipment that will leave
the soil at required final level in its natural condition.

18.04.8 The bottom of the excavation shall be trimmed to the required level and when carried below such level by error, shall be brought to level, by filling with lean concrete of 1:4:8 mix, at successful bidder cost.

18.04.9 If the successful bidder is directed by the Engineer-in-charge of the owner to excavate to a lower level than that indicated on the drawing, such additional excavation shall bepaid for at the applicable unit rates provided in the tender.
The rates shall be firm irrespective of increase in quantities to any extent. The bidder is bound to carryout any Non-tendered items of work required for completion of the task. For such items of work the applicable KPWD /MWSR schedule of rates, Data rates or derived rates whichever found appropriate will be allowed.

18.04.10 The successful bidder shall be responsible for his estimates, assumptions and conclusions regarding the nature of the materials to be excavated and difficulty of making and maintaining of required excavations and performing the work

required as shown on the drawing and in accordance with these specifications. Cofferdams, sheeting, shoring, bracing, draining, dewatering etc., shall be furnished and installed as required and the cost thereof shall be included in unit rate quoted for the item of excavation. The successful bidder shall be held responsible for any damage to any part of the work and property caused by collapse of sides of excavation. The materials can be salvaged if it can be done withsafety for the work and structure and as approved by the Engineering-in-charge.

However, no extra claim shall be entertained for material not salvaged or any otherdamage to successful bidder property as the results of the collapse. He shall not beentitled to any claim for redoing the excavation as a result of the same.

18.04.11 All excavation for installation of underground facilities shall be open cuts.

18.04.12 The excavation for foundation where specified shall be carried out atleast 75mm. or as specified in relevant drawing below the bottom of the structure concrete and then be brought to the required level by placing lean concrete of 1:4:8 Mix or as specified with aggregate of 40mm. nominal size.

18.04.13 When the excavation requires bracing, sheeting, shoring, or strutting etc., the successful bidder shall submit to the Engineer-in-charge drawings showing arrangement and details of proposed installation and shall obtain the approval from the Engineer-in-charge before proceeding with the work.

18.04.14 The successful bidder shall have to constantly pump out the water collected in the pits, trenches, due to rain, sub-soil, springs etc., and maintain dry working conditions at no extra cost to the owner.

18.04.15 Measurement Of Excavation:

The measurement, for the payment of earth excavation will be based on volume calculations of pit/trench. The unit of measurement shall be cubic meters. Nothingextra would be payable for slopes, shoring, strutting, etc., irrespective of whatever is provided. If directed by the Engineer-in-charge, the excavation shall be done on the slopes from slope stability point of view at no extra cost to the owner.

18.04.16 Carriage of excavated soil beyond a lead of 50 mts per lift of 1.5 mts.

18.04.17 By manual labour:

The excavated earth for disposal purpose beyond 50 mts and upto 300 mts shall becarried by manual labour. If directed by the Engineer-in-charge, this earth shall be used for back filling purpose. The rate for disposal of earth by manual labor upto 300 Mtrs shall be included in the excavation item and no extra rate for the same is admissible.

18.04.18 **By Mechanical Transport:** The successful bidder shall arrange to transport the surplus earth and soft/hard rock, left over after back filling the trench up to therequired level (with watering and compaction) and disposal of earth by manual labor, by Mechanical means, to the disposal point of the local bodies with all leads and lifts and as directed by the Engineer-in-charge. It shall however be ensured that no soil is stacked in excavated area. Location where the soil is to be stacked/disposed shall be as directed by the Engineer-in-charge. However the successful bidder shall take all precautions at the site of excavation, for keeping thefree flow of vehicular and human traffic and to avoid inconvenience in general.

The soil transported for disposal, shall be stacked and leveled neatly and dressed.

The rate for this item shall include loading, carriage, unloading, stacking and dressing etc., complete.

18.04.19 In no case the excavated soil shall be stacked upto to the distance of 1.5 mts from theedge of excavation or one third the depth of excavation whichever is more.

18.04.20 **Lead And Lift:**

The rates quoted for all items of work shall include all lifts and leads whenever applicable unless otherwise specified.

18.04.21 **Excavation and measurement in Hard Rock:**

Blasting in hard rock shall be done as per IS: 4081 (latest Edition). The hard rock excavated shall be stacked, measured and reduced by 40% for voids. Premeasurement of rock is to be recorded when measured on section. The quantitywhichever is less shall be paid.

At locations where, open blasting can not be taken up due to site conditions, controlledblasting or removal of rock by chiseling & wedging shall be resorted to. The rate for excavation of hard rock shall include its removal by all the types referred to, appropriate to the site conditions.

18.04.22 **Backfilling Materials:**

The backfilling of excavated trenches/RCC cable duct & around foundation shall consist of one of the following materials as the Engineer-in-charge may direct in each location.

i) Selected sieved earth from excavated soil.
ii) Selected sieved earth brought from borrowed area.
iii) Sand filling (sieved).

NOTE: Sieved sand shall be strictly used for all the works.

Filling shall be done after the concrete or masonry work has fully set and its curingcompleted. The successful bidder shall fill in and around any work untill it has been properly reinstated and approved by the Engineer-in-charge.

18.04.23 **Backfilling for cable trench**:

Backfilling shall be done in horizontal layers of thickness not exceeding 300mm thickness, free from pockets with careful watering where necessary for compaction. The backfill shall be riddled earth free from materials likely to cause damage to thecables.

The thermal backfill surrounding the cable shall be as per the design approved, bythe owner.

18.04.24 **Measurements**:

Payments for back filling shall be based on the volume of consolidated fill. This

volume shall be derived from the difference between the volume of excavation andthat of the structure (Concrete work, sand filling), or trench as the case may be.

18.04.25 **Specification For Cement Concrete**:

For the cement concrete, plain or reinforced for general use, requirement of concrete for nominal mix, strength and quality, pouring at all levels, form works, protection covering, finishing, add mixtures, inserts, curing etc., the provisions of the latest revision of IS:456 shall be complied with, unless permitted otherwise by any other Indian Standard Codes, shall form the part of the specification to the extent applicable within specification. The cement used shall comply with IS:269. The metal (Jelly) used in PCC/RCC shall be properly graded and machine mixed.

18.04.26 Curing And Protection Of Concrete:

All fresh concrete shall be covered with the layer of an absorbent material and keptconstantly wet for a period of seven days or more from the date of placing concrete. The immature concrete shall be protected from the damages and contamination, that would impair the strength of the concrete.

18.04.27 Precast RCC Items:

The concrete mix for the various types of precast units shall conform to IS:456. Theaggregate shall be mixed by weight and water cement ratio shall be controlled to obtain the dense concrete and the strength required. The reinforcement shall be as per the design approved. The curing shall be carried out for the period of seven days from the date of casting, and the precast element shall be cured by flooding with water of minimum 25mm. depth over the element for the period mentioned above.

All the precast element shall be marked, appropriately as specified.

18.04.28 Masonry Work:

Stone masonry and Brick (Table mould) masonry work wherever required shall becarried out by the contractor. The associated materials for masonry work like stones, bricks, sand etc., shall be of approved quality. The construction shall comply with accepted norms and standards.

18.04.29 Plaster: Plastering shall be done with cement and sand mortar, 1:4 by volume withclean sand. All plaster work shall comply with IS:1661.

Materials for plaster such as cement, sand, water shall conform to standards.

18.04.30 Mounting Structures:

The mounting structure include the supports for cable end boxes, link boxes and any other structure required for the intent of the contract.

All steel sections used shall be free from all imperfections, mill scales, slag intrusions, laminations, fillings, rust etc., that may impair their strength, durability and appearance. All materials shall be of tested quality only unless otherwise permitted by the owner. The structures shall be fabricated by the contractor.

18.04.31 Foundation:

Foundations for mounting structures in cement concrete shall be provided as per approved drawings by the Engineer-in-charge.

18.04.32 Bolts Nuts and Washers:

Standard bolts, nuts and washers shall be used in all works. These should be galvanised in accordance with IS:5358.

18.04.33 Painting:

Outdoor Kiosk for link boxes etc., shall be painted with anticorrosive paint and red oxide as primer and two coats of enamel paint. the boxes should be appropriately labelled as per installation at site regarding the Sl. No. location, type caution board/Danger Board. etc.

18.04.34 Materials Used In Cable Laying:

Specification in brief on the materials used in installation of the 220 kV underground cables, like RCC precast cable protection covers, precluded cement concrete blocks for cable route/joint indication, cable and mounting structures, joint bays, earthing and other miscellaneous materials are given below. All materials shall conform to relevant standards, and shall be approved by the Engineer.

18.04.35 RCC Precast Cable Protection Covers:

These should be pre casted as per the approved design and drawing. The reinforced cement concrete should be M20 grade (1:1.5:3 proportion) with 20 mm. and down size coarse aggregate and steel reinforcement (Fe 415 grade) shall be used and cured as per civil Engineering Standards. Cable Route Markers/Joint Markers:

Permanent and durable type, cable route markers/ joint indicating blocks should be provided as per the design supplied by the owner.

The cement concrete block should be made by the wet process and the concrete shall consists of one part cement two parts sand four parts aggregate of size 20mm.and down.

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18.04.36 Pipes:

HDPE pipes of ISI Mark, 250mm dia and above, 20 mm thickness approximate, of good quality shall be used for formation of cable ducts. All sundry materials like coupling, collars, caps to cover the pipe ends before cable is pulled in shall be provided.

Hume pipes and accessories conforming to IS shall be used if required. Reinforcedhume pipe shall not be used for laying single core power cable, in one cable per pipe arrangement.

Stoneware pipes, salt glazed of good and approved quality shall be used.

Hume pipes without steel reinforcement, stoneware pipes, HDPE pipes can also beused where the cable passes through the passage or drive ways of public and private buildings.

In case of pipe – the size of the pipe shall be at least 30 to 40% more than size of cable. The pipe joint shall be done by using proper sleeves so as to get tight fitting. Suitable steel rope will be drawn in pipe to pull the cable. Before drawing the cable, wire brush to be drawn through pipe to clean the burrs and steel ball (sphere) shall be pushed through pipe to know whether pipe is smooth for drawing the cable.

18.04.37 Supporting Structure For Cable And Cable End Terminations:

The bidder shall quote for unit prices for support structure for each single core cable to suit the end termination supplied by him. The bidder shall design and furnish the details and drawings.

These support structures shall be fabricated out of galvanised steel pipe to IS:1239 or they shall be fabricated out of galvanised mild steel sections, such as channels, I-beams etc., conforming to IS:226, pipes if used for fabrication of the structure shall not have any joints.

The height of the structure shall be such that the terminal connection to receive the owner's ACSR Double Drake/Moose conductor/63 mm. Diameter, IPS aluminiumpipe is approximately at a height of 4.5 meters. The successful bidder shall be furnished with relevant drawings by the owner.

18.04.38 The supporting structure shall be suitable to withstand, the wind pressure, seismic forces and the short circuit forces, etc., and the design shall be with an adequate factor of safety as specified in I.E. rules 1956.

18.04.39 The bidder shall furnish the design and fabrication drawings, foundations, foundation anchor bolts, design calculations etc., of these structures.

18.04.40 Terminal Connectors:

The terminal connector/clamps shall be suitable for connection to 63-mm diameter IPS aluminium pipe or double Drake/Moose ACSR conductor. The terminal connector shall be of bimetallic type to connect the terminal of the cable end to the aluminium bus pipe or ACSR conductor.

The type and size of the connector will be confirmed to the successful bidder. The

connector/clamp shall be designed to overcome:

i) Galvanic Corrosion.
ii) Thermal Cycling.

The current carrying capacity of the connector/clamps shall be greater than the maximum capacity of the power cable.
The terminal clamp shall be free from burrs, voids and blowholes.

The terminal clamps shall have passed tests for short circuit current capability andtemperature rise.

18.04.41 Sand:

Sand supplied for backfill shall be river sand, free from flakes, dust, earth, organic matter and large pebbles and stones and should be free from any chemical contaminants likely to have corrosive action on the cable coverings.
The sand should be sieved through a mesh to remove all large stones and pebbles. The sand shall be properly graded and shall conform to IS:383 for concreting work. The owner will decide on the requirement of the use of sand depending on the availability of the excavated earth to be used for backfill.

The sand should be used with the approval of the owner as a backfill.

18.04.42 **Earthing:**

The earthing system required is for the

i) Earthing of all non-current carrying metal parts and
ii) Earthing system for cable screens/sheath bonding at terminations and atall others places wherever required.

The latest editions of the following standards and codes are applicable.

i)	IS:3043	:	Code of practice for earthing.
ii)	IS:2309	:	Code of practice for the protection of building and allied structures against lightning.
iii)	Indian Electricity Rules 1956	:	Provision of Rules on EHV systems.
iv)	IEEE-80	:	Guide for safety in sub-station grounding.

All equipment, supporting and mounting structures of the installation shall be bonded together and connected by separate and distinct conductor to earth electrode.

18.04.43 **Earth conductor:**
The earth conductor shall be of GI flat, of size 50 x 6 mm. size and shall be protected against mechanical damage and corrosion. The connection of the earth continuity conductors to earth bus and earth electrodes shall be strong, secure andsound and shall be easily accessible.

18.04.44 **Pipe Earth Stations**:
The pipe earth electrodes shall be of cast iron in conformity with IS:3043, buried vertically and the pit filled with alternate layers of charcoal, salt and earth. The earth lead shall be properly fastened with brass bolts nuts and connection shall be enclosed in a masonry chamber. The chamber shall be provided with a RCC inspection cover.

18.04.45 The connection between the earthing terminal of equipment and earth electrode shallbe made by short and direct earthing lead, free from kinks and splices.

18.04.46 The distance between any two electrodes shall not be less than, twice the length ofthe electrode.

18.04.47 All joints shall be covered with suitable compound to protect against corrosion.

18.04.48 Earthing connections with equipment earthing terminals shall be of bolted type. The contact surfaces shall be free from scale, paint, enamels, grease, rust or dirt. Two bolts shall be provided for making each connection. The bolted connections after being checked and tested shall be painted with anticorrosive paint or compound.

18.04.49 Welds and brazed joints shall be treated with red lead and afterwards coated with bitumen compound to prevent corrosion.

18.04.50 Steel to copper connection shall be brazed type and shall be treated to prevent moisture ingress.

18.04.51 The resistance of the welded joint shall not be more than the resistance of equivalent length of the conductor.

18.04.52 All welded joints shall be made by electric arc welding. All welded joints shall be allowed to cool down gradually to atmospheric temperature.

18.04.53 Arc welding with large diameter conductor shall be done with low hydrogen content electrodes.

18.04.54 Bonding Of Cable Screens/Sheath:

Each single phase cable shall have a separate earth for the screen earthing.

The system short circuit level is 50 kA for 1 Sec. The earthing lead at solid earth positions shall be single core, 400 sq.mm copper conductor, PVC insulated 6.6 KV voltage grade Cable.

18.04.55 **Earth Tests**:
Tests on earths shall be carried out by the successful bidder for testing the effectiveness of earth resistance of electrodes and the results furnished to the owner.

19.00.0 TESTING COMMISSIONING, TYPE/ROUTINE TESTS ON CABLES as Per Applicable IEC.

SPECIFIC TECHNICAL REQUIREMENTS FOR COMMUNICATION

The communication requirement shall be in accordance to CEA (Technical Standards for Communication System in Power System Operations) Regulations, 2020, CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022, CERC (Communication System for Inter-State transmission of electricity) Regulations, 2017, CEA (Cyber Security in Power Sector) Guidelines, 2021, and CERC Guidelines on "Interface Requirements" 2024, all above documents as amended from time to time.

The complete InSTS communication system commissioned by TSP under the RFP shall be the asset of InSTS and shall be available for usage of InSTS requirements as suggested by STU from time to time.

The communication services viz. SCADA, VoIP, PMU, AGC & AMR (wherever applicable) have been identified as critical services and therefore shall be provisioned with 2+2 redundancy i.e. 2 channels for Main Control Centre (SLDC) and 2 channels for Backup Control Centre (SLDC). In order to meet this requirement, suitable redundancy at port and card level need to be ensured by the TSP to avoid any single point of failure which may lead to interruption in real-time grid operation.

PMU to PDC communication (wherever required) shall be through 2 channels to the PDC (main) as there is no backup PDC at present.

Accordingly, all the hardware for communication services of station as stated above shall support dual redundancy for data transmission of station to respective main and backup SLDC.

In order to meet the requirement for grid management and operation of substations, Transmission Service Provider (TSP) shall provide the following**:**

C.1.0 400kV DC Quad moose line from proposed 400kV Ryapte Substation to proposed 400kV Doddathagalli Substation (Quad ACSR/ AAAC/ AL59 Moose equivalent).

On 400kV D/C line from 400kV Ryapte to 400kV Doddathagalli, TSP shall supply, install & commission One (1) No. OPGW cable containing 48 Fibres (48F) on one E/W peak and conventional earth wire on other E/W peak.

The TSP shall install this OPGW from gantry of Ryapte up to the gantry of Doddathaggalli (Near Hoskote) with all associated hardware including Vibration Dampers, mid-way & gantry Joint Boxes (called OPGW Hardware hereafter) and

finally terminate in Joint Boxes at end Substations. The transmission line length is 135kms (approx.).

Maintenance of OPGW Cable, OPGW Hardware & shall be the responsibility of TSP.

C.2.0 2Nos. of 400 kV line bays line bays at 400/220kV Ryapte for termination of 400kV Doddattaggalli DC lines.

I. TSP shall supply, install & commission one or more no. FODP (336F or higher) along with panel and required Approach Cables (48F/24F) with all associated hardware fittings from gantry tower to Bay Kiosk and from the Bay Kiosk to Control room.

II. TSP shall supply, install & commission One or more STM-16 (FOTE) equipment along with panel/s supporting minimum **Nine (9)** directions with Multiplex Section Protection – 1+1 (MSP)with necessary interfaces to meet the voice and data communication requirement among proposed 400kV Doddataggalli S/s. These directions shall exclude protected (1+1) local patching among equipment (if any). The suitable DC Power Supply and backup to be provided for communication equipment. The 8command Digital Tele Protection Coupler (DTPC) with 220V DC source on E1 for each 400kV line at both ends to be provided.

III. FOTE/FODP panel shall be installed in the new Bay Kiosk/ Switchyard Panel Room (SPR). The FOTE under present scope shall be integrated by TSP with the existing FOTE at remote end Sub-stations ie., 400kV Doddataggalli which shall be communicating with respective control center. TSP to provide necessary FODP sub rack / Splice trays/ Patch cords etc. and optical interfaces/equipment in the existing FOTE/FODP panels for integration with the existing FOTE for onwards data transmission.

In case spare optical direction is not available in the existing FOTE the TSP shall coordinate with station owner to reconfigure the directions in existing FOTE at control room. Alternatively, The TSP may integrate the FOTE under the present scope with existing FOTE in the nearby Kiosk connected to the control room FOTE (if available with spare direction). For this purpose, TSP shall provide necessary FODP sub rack / Splice trays/ Patch cords etc. and suitable optical interfaces/ equipment in the existing FOTE/FODP panels in another Kiosk (SPR).

IV. FOTE & FODP can be accommodated in same panel to optimize space.

V. The new communication equipment under the present scope shall be compatible for integration with existing KPTCL NMS of OPGW. The local configuration of

the new communication equipment shall be the responsibility of TSP. The configuration work in the existing centralized NMS for integration of new Communication equipment shall be done by KPTCL Team, however all the necessary support in this regard shall be ensured by TSP.

The maintenance of all the communication equipment and software thereof including FOTE, PMU, FODP, approach cable, DCPS along with Battery Bank shall be the responsibility of TSP.

Further necessary optical interfaces shall also be provided by the TSP in the FOTE of 400kV Doddataggalli S/s as per link budget requirement.

C.3.0 400kV DC Quad moose line from proposed 400kV Doddathaggalli Substation to existing 400kVKolar substation (Quad ACSR/ AAAC/ AL59 Moose equivalent).

On 400 kV D/C line from 400kV Doddatahagalli to 400kV Kolar, TSP shall supply, install & commission One (1) No. OPGW cable containing 48 Fibres (48F) on one E/W peak and conventional earth wire on other E/W peak.

The TSP shall install this OPGW from gantry of Doddathaggalli up to the gantry of Kolar with all associated hardware including Vibration Dampers, mid-way & gantry Joint Boxes (called OPGW Hardware hereafter) and finally terminate in Joint Boxes at end Substations. The transmission line length is 140kms (approx.).

Maintenance of OPGW Cable, OPGW Hardware & accessories shall be the responsibility of TSP.

C.4.0 4Nos. of 400 kV line bays line bays at 400/220kV Doddataggalli for termination of 400kV Kolar and 400 kV Ryapte DC lines.

I. TSP shall supply, install & commission one or more no. FODP (336F or higher) along with panel and required Approach Cables (48F/24F) with all associated hardware fittings from gantry tower to Bay Kiosk and from the Bay Kiosk to Control room.

II. TSP shall supply, install & commission One or more STM-16 (FOTE) equipment along with panel/s supporting minimum **Nine (9)** directions with Multiplex Section Protection – 1+1 (MSP)with necessary interfaces to meet the voice and data communication requirement among proposed 400kV Ryapte and existing 400kV Kolar S/s. These directions shall exclude protected (1+1) local patching among equipment (if any). The suitable DC Power Supply and backup to be

provided for communication equipment. The 8command Digital Tele Protection Coupler (DTPC) with 220V DC source on E1 for each 400kV line at both ends to be provided.

III. FOTE/FODP panel shall be installed in the new Bay Kiosk/ Switchyard Panel Room (SPR). The FOTE under present scope shall be integrated by TSP with the existing FOTE at remote end Sub-stations ie., 400kV Kolar and 400kV Ryapte which shall be communicating with respective control center. TSP to provide necessary FODP sub rack / Splice trays/ Patch cords etc. and optical interfaces/equipment in the existing FOTE/FODP panels for integration with the existing FOTE for onwards data transmission.

In case spare optical direction is not available in the existing FOTE the TSP shall coordinate with station owner to reconfigure the directions in existing FOTE at control room. Alternatively, The TSP may integrate the FOTE under the present scope with existing FOTE in the nearby Kiosk connected to the control room FOTE (if available with spare direction). For this purpose, TSP shall provide necessary FODP sub rack / Splice trays/ Patch cords etc. and suitable optical interfaces/ equipment in the existing FOTE/FODP panels in another Kiosk (SPR).

IV. FOTE & FODP can be accommodated in same panel to optimize space.

V. The new communication equipment under the present scope shall be compatible for integration with existing KPTCL NMS of OPGW. The local configuration of the new communication equipment shall be the responsibility of TSP. The configuration work in the existing centralized NMS for integration of new Communication equipment shall be done by KPTCL Team, however all the necessary support in this regard shall be ensured by TSP.

The maintenance of all the communication equipment and software thereof including FOTE, PMU, FODP, approach cable, DCPS along with Battery Bank shall be the responsibility of TSP.

Further necessary optical interfaces shall also be provided by the TSP in the FOTE of 400kV Kolar and 400kV Ryapte S/s as per link budget requirement.

C.5.0 220kV line bays at 400/220kV Doddathaggalli for termination of proposed 220 kV Sarjapura lines along with 2Nos of 220kV TB's at Sarjapura.

On 220kV line from proposed 400/220kV Doddatahaggalli to 220kV Sarjapura Sub-station, TSP shall supply, install and commission OPGW as per Tower Configurations:

(I) DC line on Single Towers: One (1) no. OPGW cable containing 48Fibres (48F) to be installed and commissioned by the TSP.

(II) Along with UG cable,48F UGOFC with accessories has to be laid in HDPE pipe.

The TSP shall install OPGW cables from Sarjapura S/s up to gantry of 400kV Doddathaggalli with all associated hardware including Vibration Dampers, mid-way and gantry Joint Boxes (called OPGW Hardware hereafter) and finally terminate in Joint Boxes at 400kV Doddathaggalli sub-station and 220kV Sarjapura sub-stations.

Further TSP shall comply to the requirements mentioned as per **Appendix-F.1-VOID**

Maintenance of OPGW Cable and OPGW Hardware shall be responsibility of TSP.

C.6.0 220kV line bays at 400/220kV Doddathaggalli for termination of proposed 220 kV Ekrajapura lines along with 2Nos of 220kV TB's at Ekrajapura SS.

On 220kV line from proposed 400/220kV Doddatahaggalli to 220kV Ekrajapura Sub-station, TSP shall supply, install and commission OPGW as per Tower Configurations:

(I) DC line on Single Towers: One (1) no. OPGW cable containing 48Fibres (48F) to be installed and commissioned by the TSP.
(II) Along with UG cable,48F UGOFC with accessories has to be laid in HDPE pipe.

The TSP shall install OPGW cables from gantry of IPP sub-station up to gantry of 400kV Doddathaggalli with all associated hardware including Vibration Dampers, mid-way and gantry Joint Boxes (called OPGW Hardware hereafter) and finally terminate in Joint Boxes at 400kV Doddathaggalli sub-station and 220kV Erajapura sub-stations.

Further TSP shall comply to the requirements mentioned as per **Appendix-F.1-VOID**

Maintenance of OPGW Cable and OPGW Hardware shall be responsibility of TSP.

C.7.0 220kV line bays at 400/220kV Doddathaggalli for termination of proposed 220 kV Hoskote_New lines along with 2Nos of 220kV TB's at Hoskote_New SS.

On 220kV line from proposed 400/220kV Doddatahaggalli to 220kV Hoskote Sub-station, TSP shall supply, install and commission OPGW as per Tower Configurations:

(I) DC line on Single Towers: One (1) no. OPGW cable containing 48Fibres (48F) to be installed and commissioned by the TSP.
(II) Along with UG cable,48F UGOFC with accessories has to be laid in HDPE pipe.

The TSP shall install OPGW cables from gantry of Hoskote_new S/S up to gantry of 400kV Doddathaggalli with all associated hardware including Vibration Dampers, mid-way and gantry Joint Boxes (called OPGW Hardware hereafter) and finally terminate in Joint Boxes at 400kV Doddathaggalli sub-station and 220kV Hoskote_New sub-stations.

Further TSP shall comply to the requirements mentioned as per **Appendix-F.1-VOID**

Maintenance of OPGW Cable and OPGW Hardware shall be responsibility of TSP.

C.8.0 8Nos. of 220kV line bays at 400/220kV Doddathaggalli for termination of proposed 220 kV DC lines.

I. TSP shall supply, install & commission one or more no. FODP (432F or higher) along with panel and required Approach Cables (48F/24F) with all associated hardware fittings from gantry tower to Bay Kiosk and from the Bay Kiosk to Control room.

II. TSP shall supply, install & commission One or more STM-16 (FOTE) equipment along with panel/s supporting minimum **Nine (9)** directions with Multiplex Section Protection – 1+1 (MSP)with necessary interfaces to meet the voice and data communication requirement among 220kV Sarjapura, 220kV Malur, 220kV Ekarajapura, 220kV Hosakote_New S/s. These directions shall exclude protected (1+1) local patching among equipment (if any). The suitable DC Power Supply and backup to be provided for communication equipment. The 8command Digital Tele Protection Coupler (DTPC) with 220V DC source on E1 for each 220kV lines at both ends to be provided.

III. FOTE/FODP panel shall be installed in the new Bay Kiosk/ Switchyard Panel Room (SPR). The FOTE under present scope shall be integrated by TSP with the existing FOTE at remote end Sub-stations ie., 220kV Sarjapura, 220kV Malur,

220kV Ekarajapura, 220kV Hosakote_New S/s which shall be communicating with respective control center. TSP to provide necessary FODP sub rack / Splice trays/ Patch cords etc. and optical interfaces/equipment in the existing FOTE/FODP panels for integration with the existing FOTE for onwards data transmission.

In case spare optical direction is not available in the existing FOTE the TSP shall coordinate with station owner to reconfigure the directions in existing FOTE at control room. Alternatively, The TSP may integrate the FOTE under the present scope with existing FOTE in the nearby Kiosk connected to the control room FOTE (if available with spare direction). For this purpose, TSP shall provide necessary FODP sub rack / Splice trays/ Patch cords etc. and suitable optical interfaces/ equipment in the existing FOTE/FODP panels in another Kiosk (SPR).

IV. FOTE & FODP can be accommodated in same panel to optimize space.

V. The new communication equipment under the present scope shall be compatible for integration with existing KPTCL NMS of OPGW. The local configuration of the new communication equipment shall be the responsibility of TSP. The configuration work in the existing centralized NMS for integration of new Communication equipment shall be done by KPTCL Team, however all the necessary support in this regard shall be ensured by TSP.

The maintenance of all the communication equipment and software thereof including FOTE, PMU, FODP, approach cable, DCPS along with Battery Bank shall be the responsibility of TSP.

C.9.0Specific Requirement for Phasor Measurement Units (PMUs)

TSP shall supply, install & commission required No. of Phasor Measurement Units (PMUs) PMUs at all the locations under the scope of TSP under this RFP as per CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022 (along with all amendments if any), and all the applicable Regulations, Standards, Guidelines issued time to time. The signal list shall be as per the Annexure-I Part-B of CERC Guidelines on “Interface Requirements” 2024. These PMUs shall be provided with GPS clock and LAN switch and shall connect with LAN switch of control room of respective substations/ generating stations with Fibre Optic cable. These PMUs shall be connected with the FOTE at Substation/ generating stations for onwards data transmission to the PDC (Phasor Data Concentrator) located at respective SLDC&RLDC. Configuration work in existing PDC at SLDC/RLDC for new PMU integration shall be done by respective TSP in co-ordination

withSLDC/RLDC.The maintenance of all the PMUs and associated equipment shall be the responsibility of TSP.

Note: Existing Station owner/s to provide necessary support to integrate different equipment & applications of new extended bays with the existing substation e.g. Communication (through FOTE), Voice etc. for smooth operation and monitoring of new added grid elements.

Appendix-F.1

Repeater Requirements -VOID

- If the repeater location is finalized in the Control Room of a nearby substation, TSP shall provide 1 No. OPGW (96F/48F)as per OPGW in main line to accommodate all OPGW fibers of main line ,on a single Earthwire peak with OPGW Hardware & mid-way Joint Boxes etc. of the line crossing the main line and 1 no. Approach Cable (96F/48F)as per OPGW laid to accommodate all OPGW fibers of main line ,with all associated hardware fittings, to establish connectivity between crossing point of main transmission line up to the repeater equipment in substation control room.
  TSP shall co-ordinate for Space and DC power supply sharing for repeater equipment. TSP shall provide required FODP, FOTE (with STM-16 capacity) with suitable interfaces require for link budget of respective link.

  OR

- If the repeater location is finalized in the nearby substation premises, the TSP shall identify the Space for repeater shelter in consultation with station owner. Further TSP shall provide 1 No. OPGW (96F/48F) as per OPGW in main line to accommodate all OPGW fibers of main line, on a single Earthwire peak with OPGW Hardware & mid-way Joint Boxes etc. of the line crossing the main line and 1 No. Approach Cable (96F/48F)as per OPGW laid to accommodate all OPGW fibers of main line, with all associated hardware fittings, to establish connectivity between crossing point of main transmission line up to the substation where the repeater shelter is to be housed.
  TSP shall provide repeater shelter along with FODP, FOTE (with STM-16 capacity) with suitable interfaces require for link budget of respective link, reliable power supply provisioning for AC and DC supply, battery bank, Air Conditioner and other associated systems.

  OR

- If the repeater location is finalized on land near the transmission tower. TSP shall make the provisions for Land at nearby tower for repeater shelter. Further TSP shall provide required. Approach Cable (96F/48F)as per OPGW laidin main line to accommodate all OPGW fibers of main line,with all associated hardware fittings to establish connectivity up to the location of repeater shelter.
  TSP shall provide repeater shelter along with FODP, FOTE (with STM-16 capacity) with suitable interfaces require for link budget of respective link, reliable power supply provisioning for AC and DC supply, battery bank, Air Conditioner and other associated systems

Maintenance of OPGW Cable and **OPGW Hardware**, repeater equipment & items associated with repeater shelter shall be responsibility of TSP.

Annexure-F.1

Next Generation Firewall (NGFW)

TSP shall provide 2 NGFW one in Main & another in Standby mode having electrical ethernet interfaces/ports and placed between FOTE & SAS gateway/s at the substation. All ethernet based applications shall be terminated in the firewall ports directly (e.g. PMU, AMR, VOIP, SAS/SCADA etc.). Each port of firewall shall work as a separate zone. Firewall shall be hardware based with features of Block/Allow/drop and IPSec VPN (network encryption).

The number of ports/interfaces in each firewall (i.e. Main & Standby) shall be minimum 16 nos. TSP shall provide either single firewall or multiple firewalls to meet this interfaces requirement, each for main as well as standby firewall. Minimum throughput of firewall shall be 300 Mbps.

The Firewall shall be managed/ configured as standalone at present and shall also have compatibility to manage/configure through Centralized Management Console (CMC) remotely in future.

Firewall shall be tested and certified for ISO15408 Common Criteria for least EAL4+. Further, the OEM must certify that it conforms to Secure Product Development Life Cycle requirements as per IEC62443-4-1. The firewall shall generate reports for NERC-CIP Compliance.

The specifications for the firewalls are given at **Annexure-F.2** and schematic diagram showing firewall placement given at **Figure F.2**.

Annexure F.2

Specifications of Next Generation Firewall (NGFW)

1. NGFW shall have following features including but not limited to:

   Encryption through IPSec VPN (Virtual Private Network), Deep Packet Inspection (DPI), Denial of service (DoS) and Distributed Denial of Service (DDoS) prevention, Port Block/ Allow, rules/ policies for block/allow, IP (Internet Protocol) & Media Access Control (MAC) spoofing protection, threat detection, Intrusion Prevention System (IPS), Anti-Virus, Anti-Spyware, Man InThe Middle (MITM) attack prevention.

2. The proposed firewall shall be able to handle (alert, block or allow) unknown /unidentified applications e.g. unknown TCP & UDP packets. It shall have the provision to define application control list based on application group and/or list.

3. Firewall shall have feature and also have capability to update the definition/ Signatures of Anti-Virus online as well as offline. Firewall shall also be compatible to update the definitions/signatures through CMC. There shall be a defined process for security patching and firmware up-gradation. There shall be a feature to field validate firmware checksum. The same shall also be validated before using the OEM provided file/binary in the process of firmware up-gradation and security patching

4. Firewall shall have Management Console port to configure remotely.

5. Firewall shall be EMI/EMC compliant in Substation environment as per IEC 61850-3.

6. Firewall shall be rack mounted in existing standard equipment cabinets.

7. Firewall shall have support of SCADA applications (IEC-60870-5-104), ICCP, PMU (IEEE C37.118), Sub-Station Automation System (IEC 61850), Ethernet and other substation environment protocols.

8. Client based Encryption/ VPN must support different Operating System platforms e.g. Windows, Linux & Mac.

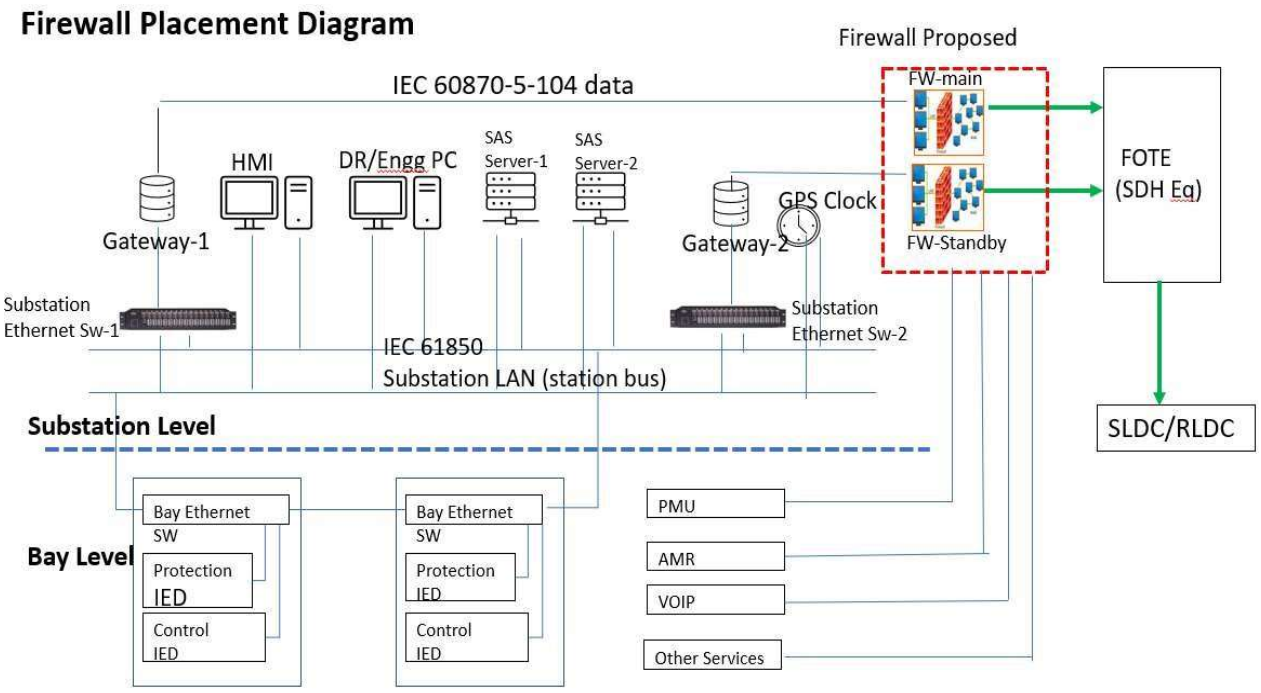
9. The solution must have content and comprehensive file detection policies, blocking the files as function of their types, protocols and directions.

10. Firewall shall have logging facility as per standard logs/events format. Firewall shall have features to export the generated/stored logs/events in csv (Comma Separated Value) and also any other standard formats for offline usage, analysis and compliance. Firewall shall have suitable memory architecture and solution to store and be enable to export all logs/events for a period of last 90 days at any given time.

11. Firewall shall have features and be compatible with local as well as central authentication system (RADIUS, LDAP, or TACACS+) for user account and access right management. It shall also have Role Based User management feature.

12. Firewall shall have the capability to configure sufficient number of VLANs.
13. Firewall shall have the capability to support sufficient number of sessions.
14. Firewall shall have provision to configure multiple IP Sec VPNs, at least 100 nos., (one-to-many or many-to-one). Shall support redundant operation with a similar router after creation of all the IP Sec VPN. IPSec VPN shall support encryption protocols as AES128, AES256 and hashing algorithms as MD5 and SHA1. IPSec VPN throughput shall support at least 300 Mbps
15. Firewall shall be capable of SNMP v3 for monitoring from Network Management system. It shall also have SNMPv3 encrypted authentication and access security
16. Firewall shall support in Active/Passive or Active-Active mode with High Availability features like load balancing, failover for firewall and IPsec VPN without losing the session connectivity.
17. Firewall should have integrated traffic shaping (bandwidth, allocation, prioritisation, etc.) functionality
18. Shall support simultaneous operation with both IPv4 and IPv6 traffic
19. Firewall shall be compatible with SNTP/NTP or any other standards for clock synchronization
20. Firewall shall have the features of port as well as MAC based security
21. Firewall shall support exporting of logs to a centralized log management system (e.g. syslog) for security event and information management.
22. Firewall time shall be kept synchronised to official Indian Timekeeping agency, time.nplindia.org.
23. Firewall product shall be provided with all applicable updates at least until 36 months since the applicable date of product shipping to the concerned utility.

Figure F.2


Firewall Placement Diagram
Firewall Proposed
IEC 60870-5-104 data
FW-main
FW-Standby
FOTE
(SDH Eq)
SLDC/RLDC
HMI
DR/Engg PC
SAS
Server-1
SAS
Server-2
GPS Clock
Gateway-1
Gateway-2
Substation
Ethernet Sw-1
Substation
Ethernet Sw-2
IEC 61850
Substation LAN (station bus)
Substation Level
Bay Level
Bay Ethernet
SW
Protection
IED
Control
IED
Bay Ethernet
SW
Protection
IED
Control
IED
PMU
AMR
VOIP
Other Services

PLCC and PABX:

Power line carrier communication (PLCC) equipment complete for speech, tele-protection commands and data channels shall be provided on each transmission line. The PLCC equipment shall in brief include the following: -

- Coupling device, Coupling filters line traps, carrier terminals, protection couplers, HF cables, PABX (if applicable) and maintenance and testing instruments.
- At new substation, a telephone exchange (PABX) of 24 lines shall be provided at as means of effective communication among various buildings of the substation, remote end substations and with control centres (RLDC/ SLDC) etc.
- Coupling devices shall be suitable for 400kV and 220kV voltage class. The pass band of coupling devices shall have sufficient margin for adding communication channel in future if required. Necessary protection devices for safety of personnel and low voltage part against power frequency voltages and transient over voltage shall also be provided.
- The line traps shall be broad band tuned suitable for blocking the complete range of carrier frequencies. Line Trap shall have necessary protective devices such as lightning arresters for the protection of tuning device.
- The carrier terminals shall be of single side-band (SSB) amplitude modulation (AM) type and shall have 4 kHz band width. PLCC Carrier terminals and Protection couplers shall be considered for both ends of the line.
- **PLCC equipment for all the transmission lines covered under the scheme shall be provided by TSP. PLCC to be provided for following lines are under present scope:**

Sl. No	Line name	PLCC configuration
1	400kV Ryapte-Doddataggalli-1	Phase-Phase Coupling
2	400kV Ryapte-Doddataggalli-2	Phase-Phase Coupling
3	400kV Doddataggalli-Kolar-1	Phase-Phase Coupling
4	400kV Doddataggalli-Kolar-2	Phase-Phase Coupling

Note: Only DTPC for 220kV Doddataggali-Sarjapura-1&2, Ekarajapura 1&2 and Hoskote_New 1&2 lines as line is combination of Over head and Under Ground cable.

- Further, CVT and Wave trap for all 400 kV and 220 kV line bays under present scope shall be provided by TSP.
- All other associated equipment like cabling, coupling device and HF cable shall also be provided by the TSP.
- The PLCC Equipment to be provided at both ends of Sub-station for 400kV and 220kV lines.
- The PLCC Equipment to be provided only at 400kV Ryapte, 400kV Doddatagalli, 220kV Malur.
- Two (2) sets of 48 V battery banks for PLCC and communication equipment shall be provided

at each new Substation with at least 10-hour battery backup and extended backup, if required.

C.12.0*: *Communication through VSAT:

KPTCL is having captive VSAT communication network for all Sub-stations. The VSAT equipment will be provided by KPTCL and the estimated cost of equipment will be intimated.

In addition, License fee, Annual bandwidth charges, AMC cost and other statutory charges pertaining to VSAT on quarterly basis needs to be paid. The demand note will be issued from KPTCL to pay the charges. An undertaking agreement on a stamp paper towards payment of VSAT charges has to be submitted to KPTCL (as a back-up communication)

SPECIFIC TECHNICAL REQUIREMENTS FOR INTEGRATION OF COMMUNICATION EQUIPMENT WITH STATE LEVEL NMS & REGIONAL UNMS:

The new communication equipment/ system for all the substations under the present scope shall be compatible for integration with existing regional level NMS system/ Centralized Supervision and Monitoring System (CSMS) i.e. Regional UNMS. The local configuration of the new communication equipment at the station end shall be the responsibility of TSP as per **Annexure E.1**. The configuration work in the existing centralized NMS/ CSMS at Control center end, for integration of new Communication equipment/ system shall be done by Regional ULDC Team/ NMT, however all the necessary support in this regard shall be ensured by TSP.

Requirement for integration of Communication Equipment with Regional UNMS:

1. TSP shall ensure that NMS/EMS/NE supplied by them is NBI compliant and all FCAPS functionality is supported in the NBI such as NE Inventory, Hardware Inventory – Shelf/Slot/Card/SFP/Port, Topology, Protections, Alarms, Performance- real time and periodic, Performance KPI parameters (E-1, STM, Ethernet) , Remote Configuration, Cross Connects, Trails and Circuits, Services Provisioning (NE), E-1 , STM, Ethernet , TX and RS Trace, loop back and details are published in the NBI guide for the configuration parameters.

2. TSP shall be obliged to provide/share all necessary documentations such as NBI Guide/MIB/IDL/WSDL/API files/ etc. for onward integration of their NMS/EMS/NE with regional UNMS.

3. The following support shall be provided by TSP for integration of their supplied equipment with regional UNMS:

   - Enabling and activating NBI license in their EMS/NMS and providing NBI login access along with User credentials
   - Assist in verifying NBI Connectivity with UNMS vendor for the successful communication and retrieval of data.
   - Assist in troubleshooting (if required) for NBI connectivity along with UNMS vendor for the communication and retrieval of data.

4. For standalone NE which is not integrated with any EMS/NMS, TSP shall provide modality of complete FCAPS data acquisition as above through industry standard programmatic methods and provide the CLI command manual.

BOQ of PLCC for 400kV lines at 400kV Ryapte Sub-station

400kV lines: 1) DC line from Ryapte to proposed Doddathagalli(135km)

Sl. No	Name of materials (Supply & Erection)	Unit	At 400kV Ryapte	At 400kV Doddathagalli	Total Quantity required
01	Wave Trap 1mH, 3150A, 63kA dual band, 50 to 100kHz and 100 to 500kHz Pedestal Mounting along with mounting structure PI and Hardware (Ph-Ph Coupling)	No	4	4	8
02	(LMU+LMDU) Coupling Device	Set.	2	2	4
03	HF Coaxial Cable 75 Ohms	Km	0.5	0.5	1
04	PLCC Terminal(Carrier Cabinet) Single Channel	No	3	3	6
05	Protection Coupler -4 Command version	No	2	2	4
06	DTPC- 8 command with provision for interface with SDH on E1 on E1 (220kV DC Source)	No	1	1	2
07	48 Volts 400Ah Battery Set	Set	02	-	02
08	48V Battery Charger with 100Amps current rating suitable for 400Ah battery.	No	02	-	02
09	DCDB with independent change over b/w DC Source1 & DC Source 2, with 20 Feeders.	No	01	-	01
10	EPAX 16/8/8	No	01	-	01
11	Telephones	No	10	-	10

The BOQ of FOTE at 400kV Ryapte Sub-station

Sl No	Description	Unit	At 400kv Ryapte
	MAIN EQUIPMENTS		
1	SDH EQUIPMENT (STM-16 MADM UPTO 5MSP PROTECTED DIRECTIONS)-BASE EQUIPMENT (COMMON CARDS, CROSS CONNECT/CONTROL CARDS, OPTICAL BASECARDS, POWER SUPPLY CARDS, POWER CABLING, OTHER HARDWARE ANDACCESSORIES INCLUDING SUB RACKS, PATCH CORD, DDF ETC FULLY EQUIPEDEXCLUDING OPTICAL INTERFACE & TRIBUTARY CARDS	No	1
	Optical Interface		
2	Trans receiver		
A	Optical Line Interface Card (150-175km)		2
	Tributary Interface		
3	E1 Interface card (Min. 16 interfaces per card) - 5MSP	No	2
4	Ethernet interface 10/100 Mbps with Layer-2 switching (Min,2x1Gbps+ 4x100/10 Mbps ports) without SFP - 5MSP.	No	2
5	1x1000 base LX SFP (GIGABIT ETHERNET INTERFACES 10/100 MBPS WITH LAYER-2 SWITCHING)	Set	2
6	Cabinet Equipment to house SDH Equipment + Optical cards + Tributary Cards, Drop/Insert MUX Equipments and DACS Equipment	Set	4
7	220V DC to 48V DC CONVERTER for SDH Equipment	No	1
8	Fail over switch/Router	No	1
9	VOIP Phone	No	2

The BOQ of PLCC for 400kV lines at 400kV Doddataggalli Sub-station

400kV lines: DC line to 400kV Kolar line

Sl. No	Name of materials (Supply & Erection)	Unit	At 400kV Doddathagalli	At 400kV Kolar	Total Quantity required
01	Wave Trap 1mH, 3150A, 63kA dual band, 50 to 100kHz and 100 to 500kHz Pedestal Mounting along with mounting structure PI and Hardware (Ph-Ph Coupling)	No	4	4	8
02	(LMU+LMDU) Coupling Device	Set.	2	2	4
03	HF Coaxial Cable 75 Ohms	Km	0.5	0.5	1
04	PLCC Terminal(Carrier Cabinet) Single Channel	No	3	3	6
05	Protection Coupler -4 Command version	No	2	2	4
06	DTPC- 8 command with provision for interface with SDH on E1 (220kV DC Source)	No	1	1	2
07	48 Volts 400Ah Battery Set	Set	02	-	02
08	48V Battery Charger with 100Amps current rating suitable for 400Ah battery.	No	02	-	02
09	DCDB with independent change over b/w DC Source1 & DC Source 2, with 20 Feeders.	No	01	-	01
10	EPAX 16/8/8	No	01	-	01
11	Telephones	No	10	-	10

The BOQ of FOTE at 400kV Doddataggalli Sub-station

Sl No	Description	Unit	At 400kv Doddataggalli SS
	MAIN EQUIPMENTS		
1	SDH EQUIPMENT (STM-16 MADM UPTO 5MSP PROTECTED DIRECTIONS)-BASE EQUIPMENT (COMMON CARDS, CROSS CONNECT/CONTROL CARDS, OPTICAL BASECARDS, POWER SUPPLY CARDS, POWER CABLING, OTHER HARDWARE ANDACCESSORIES INCLUDING SUB RACKS, PATCH CORD, DDF ETC FULLY EQUIPEDEXCLUDING OPTICAL INTERFACE & TRIBUTARY CARDS	No	1
	Optical Interface		
2	Trans receiver		
A	S16.1 SFP -(30km)	No	6
B	L16.1 SFP -(30-50 km) -	No	2
	Tributary Interface		
3	E1 Interface card (Min. 16 interfaces per card) - 5MSP	No	2
4	Ethernet interface 10/100 Mbps with Layer-2 switching (Min,2x1Gbps+ 4x100/10 Mbps ports) without SFP - 5MSP.	No	2
5	1x1000 base LX SFP (GIGABIT ETHERNET INTERFACES 10/100 MBPS WITH LAYER-2 SWITCHING)	Set	2

6	Cabinet Equipment to house SDH Equipment + Optical cards + Tributary Cards, Drop/Insert MUX Equipments and DACS Equipment	Set	4
7	220V DC to 48V DC CONVERTER for SDH Equipment	No	1
8	Fail over switch/Router	No	1
9	VOIP Phone	No	2

Note- The Communication requirement for kolar S/s shall be as per PGCIL.

The Optical Trans receiver for Doddataggalli direction should be compatible to existing SDH(STM-16) FOTE system at Kolar-PGCIL Sub-station.

Frequently Asked Queries:

Transmission Line:

1.1 Please clarify that whether shutdowns for crossing of existing transmission lines of POWERGRID/STUs/ Power Evacuation Lines from Generation Plants/ Any other Transmission Licensee will be given to TSP on chargeable basis or free of cost.

Reply: Shutdowns for crossing of existing transmission lines of POWERGRID/ STUs/ Power Evacuation Lines from Generation Plants/ Any other Transmission Licensee will be given to TSP by the concerned owner of the lines as per their own terms and conditions. As far as shutdown of ISTS lines are concerned the same can be availed by approaching respective Regional Power Committee.

1.2 We understand that the suggested swing angle criteria are applicable for Suspension Insulator in Suspension Tower. Further, you are requested to provide similar swing angle and clearance criteria for Pilot Insulator with Jumper and Jumper.

Reply: It is clarified that the swing angle criteria (as mentioned in RFP) for transmission lines is applicable for Suspension Insulator in Suspension Tower. Further, as per Clause 2.2 of Specific Technical Requirements for transmission lines, Transmission service Provider (TSP) shall adopt any additional loading/design criteria for ensuring reliability of the line, if so desired and /or deemed necessary.

1.3 We request you to kindly allow that use of diamond configuration at Power line crossings and the existing owner of the lines may be directed to allow the same for the successful bidders.

Reply: Power line crossing including Diamond configuration is the responsibility of the TSP. TSP shall formally submit the profile of the crossing section to the owner of the existing line suggesting proposed crossing alternatives. The crossing will have to be carried out as per approval of owner of the existing line.

1.4 It is requested you to kindly provide present status of Forest Clearances if any transmission line corridor area falling in wildlife forest / reserve forest/ mangroves.

Reply: Based on the preliminary route survey, the process of initiation of forest clearance for the forest stretches, if any, enroute the proposed line alignment will be initiated by way of writing letters to the concerned authority (ies). However, it may be noted that it will be the responsibility of TSP for obtaining forest clearance for the forest stretches as provided in the survey report and also for any forest area encountered during detailed survey.

1.5 For transmission line, no special requirement is specified for type of Insulator and creepage in RFP document. Hence it is understood that bidder can decide the type of insulator along with creepage requirement based on general CEA regulations and relevant standards. Kindly confirm.

Reply: The minimum specific creepage distances shall be decided for the pollution condition in the

area of installation. It shall be as per CEA regulations and relevant standards.

Substation

2.1 We understand that space for storage of O&M spare shall be provided by the existing owner within the station boundary without any cost. Kindly confirm.

Reply: Space for storage of O&M spares shall be arranged by TSP on its own.

2.2 With reference to subject scheme of existing sub-station, we assumed following scope of work:

(a) We assumed internal road is available and need not to be consider in the present scope of work.

(b) Drainage is available and need not to consider in the present scope of work.

(c) Cable trench extension adjacent to Main cable trench only under present scope of work.

(d) Levelled area being provided by developer for bay extension.

Reply: Regarding requirement of internal road, drainage, cable trench, leveling of the bay extension area, bidder is advised to visit site and acquaint themselves with the provisions/facilities available at substation.

2.3 Kindly provide the soil investigation report of soil parameters of existing substation.

Reply: Bidder is advised to visit the substation site and ascertain the requisite parameters.

2.4 Kindly confirm, energy accounting of aux. power consumption. Whether it will be on chargeable basis or part of transmission loss.

Reply: It will be on a chargeable basis.

2.5 We understand that VMS requirement is for unmanned stations only. For Manned stations VMS is not compulsory.

Reply: VMS shall be provided in line with requirements of RfP document.

2.6 It is understood that Construction water and power shall be provided free of cost to TSP by the respective substation owner for construction of new bays.

Reply: Arrangement of construction power and water is in the scope of TSP.

2.7 It is understood that the existing fire hydrant system shall be extended by the TSP for bay extension.

Reply: Existing fire hydrant system shall be extended from existing system (if required)

2.8 We understood that no any dedicated metering CT and CVT is required for Line/feeders. Further, we understood that requisite Energy meters for various 765 kV, 400 kV and 220 kV Feeders shall be provided and installed by CTU free of cost to TSP.

Reply: Dedicated metering CT and CVT are not required for line/feeders. Metering core of existing CT/CVT can be used provided accuracy class matches with metering requirement. Requisite Special Energy Meters shall be provided and installed by CTU at the cost of TSP in C&P panel subject to space availability, else, in separate metering panel (to be provided by TSP at its cost).

2.9 Please clarify whether the spare 765 kV single phase Reactor unit for Bus reactor shall be provided with 1ph 765 kV CB.

Reply: As per RfP, the spare 1-Ph reactor unit shall be utilized for all the bus and switchable line reactor banks (including for future reactor banks). Hence, 1ph 765 kV CB shall also be provided with spare 1-Ph reactor for utilizing with bus reactor as well as switchable line reactor.

2.10 It is understood that existing busbar protection has provision for future bays and also PUs are available for future bays. BPC to confirm availability of CU and PU for bays under present scope of work at existing substations. BPC may kindly confirm availability of communication ports for integrating new PUs with the existing CUs at existing substations.

Reply: Bus Bar Protection with Central Unit (CU) is required for the new bus section as specified in RfP. Peripheral Units (PUs) shall be provided by the respective bay owner. Further, augmentation/replacement of existing CU, if required, to meet the system requirement shall also be provided for proper functioning of bus bar protection.

2.11 For SCADA, it is understood that necessary process I/O shall be available for future bays and accordingly license for same. BPC to confirm.

Reply: Necessary process I/O along with license shall be in the scope of the successful bidder.

2.12 No separate FF system is envisaged under the present scope of work for existing substation. BPC to confirm.

Reply: Existing fire-fighting systems shall be extended to meet the additional requirements under present scope.

2.13 PLCC for 220 kV Lines are not under the scope of TSP. BPC to Confirm.It is requested to provide Type of Coupling for 220 kV Transmission Lines under present scope.

Reply: PLCC for 220 kV line is in the scope of developer of the line.

Phase to phase coupling for 220 kV D/C and phase to phase coupling for 220 kV S/C shall be applicable for PLCC.

2.14 BPC is requested to confirm the availability of space in the existing control rooms at existing substation for execution of extension work under current project.

Reply: Switchyard Panel Rooms are generally required for AIS type substation and relay room are required for GIS type substation. Further, if needed, the control room shall be augmented as per requirement.

Communication

3.1 What are the usage of OPGW, FOTE, PMU etc. under communication requirement of RFP?

Reply: User shall be responsible for providing compatible equipment along with appropriate interface for uninterrupted communication with the concerned control center and shall be responsible for successful integration with the communication system provided by STU.

Communication systems e.g. OPGW, FOTE etc. and PMU are required for grid operation through RLDC/SLDC, speech communication, tele-protection and tele-metering.

3.2 Is space for installation of communication panels are provided to TSP in existing Substations incase new bays are in the scope of TSP?

Reply: The space related issues are deliberated in the RFP itself. TSP to install FOTE/FODP panels in the new Bay Kiosk (Switchyard Panel Room (SPR)) / Bay Kisok/ Relay Panel Room (in case of GIS S/s). Further, TSP to connect and integrate the proposed FOTE with the existing FOTE in the control room to complete the communication path upto RLDC.

In Case 132 kV Substation TSP shall accommodate the said panels either by extension of existing control room or other arrangements.

3.3 How are PMUs integrated for new bays at existing Substations?

Reply: PMU data of new bays to be provided in the ethernet port of switch at control room and thereafter to be connected with existing FOTE of existing substation to send data to PDC of RLDC by TSP. These PMUs shall be provided with GPS clock and LAN switch and shall connect with LAN switch of control room of respective substations with Fibre Optic cable.

3.4 Is Spare direction available in existing FOTE for integration with new bay kiosk FOTE

Reply: The FOTE under present scope shall be integrated by TSP with the existing FOTE at control room of substation for onwards data transmission.

In case spare optical direction is not available in the existing FOTE at the control room, the TSP shall coordinate with station owner to reconfigure the directions in existing FOTE at control room.

3.5 What is the distance from LILO point to proposed substation for feasibility of repeater station?

Reply: Tentative Location of LILO point shall be as per survey report of BPC however exact

location to be ascertained after detailed survey by TSP.

3.6 What is the make and model of existing OPGW in case LILO of main line at new substation?

Reply: All OPGW (alongwith optical fibers) meet Central Electricity Authority (Technical Standards for Communication System in Power System Operations) Regulations, 2020 and bidder shall install OPGW accordingly.

3.7 In case of LILO of existing line at new substation who shall provide PMUs at existing substation bays?

Reply: TSP to provide PMUs for all bays under their scope of RFP.

REC POWER DEVELOPMENT AND CONSULTANCY LIMITED

(A wholly owned subsidiary of REC Ltd.)

GLOBAL INVITATION (Through e-bidding Only)

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REC Power Development and Consultancy Limited, New Delhi, India (a wholly owned subsidiary of REC Limited, a Maharatna Central Public Sector Undertaking) invites proposal for setting up of the below mentioned transmission project through TBCB process on Build, Own, Operate and Transfer (BOOT) basis following single stage two envelope process of "Request for Proposal (RFP)". Interested bidders may refer to the Request for Proposal (RFP) notifications and RFP documents available on our websites www.recpdcl.in & www.recindia.nic.in w.e.f. 07.03.2026.

The bidders may obtain the RFP documents on all working days between 1030 hours (IST) to 1600 hours (IST) from 07.03.2026 to one day prior to bid submission date on payment of non-refundable fee of Rs. 5,00,000/-(Rupees Five Lakh Only) or US$ 7000 (US Dollars Seven Thousand Only) + 18% GST as per details provided in the RFP document available on the websites www.recpdcl.in & www.recindia.nic.in.

The Request for Proposal (RFP) documents can also be downloaded from our websites www.recpdcl.in & www.recindia.nic.in, however, in such cases interested parties can submit Response to RFP only on submission of non-refundable fee of Rs. 5,00,000/- (Rupees Five Lakh Only) or US$ 7000 (US Dollars Seven Thousand Only) + 18% GST as per details provided in the RFP document. The survey report & clarifications to RFP documents shall be issued to those bidders, who have obtained/purchased RFP documents by paying requisite fee. The important timelines in this regard are as follows:

Sr. No.	Name of Project	Last Date for submission of Response to RFP	Details of Opening of Response to RFP
1.	Evacuation Scheme for 2000MW solar park at Ryapte village, Tumkur District	06.04.2026 up to 1500 Hrs (IST)	06.04.2026 at 1530 Hrs (IST)

All corrigenda, addenda, amendments, time extensions, etc. to the RFP will be hosted on our websites www.recpdcl.in & www.recindia.nic.in. Bidders should regularly visit our websites to keep themselves updated.

Note: RECPDCL reserves the right to cancel or modify the process without assigning any reason and without any liability. This is not an offer.

Chief Executive Officer
REC Power Development and Consultancy Ltd.
Core-4, SCOPE Complex, 7, Lodhi Road, New Delhi-110003, India

Bid Process Coordinator

REC Power Development

REC Power Development and Consultancy Limited

An Initiative of

Government of Karnataka

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KPTCL

Karnataka Power Transmission Corporation Ltd. (STU)

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M'rashtra budget has waiver for farm loans till ₹2 lakh

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feedback@livemint.com

MUMBAI

The Maharashtra government on Friday announced a farm loan waiver of up to ₹2 lakh in the 2026-27 budget, which also focuses on river-linking projects, women empowerment, youth development, health, start-ups and strengthening social welfare schemes.

Chief minister Devendra Fadnavis, who holds the finance portfolio, presented a ₹7.69 trillion budget in the assembly, and said Ladki Bahin Yojana, launched ahead of assembly polls in 2024, will continue with adequate allocation for the scheme targeted at poorer women, who get ₹1,500 a month.

Fadnavis, who said Maharashtra will be a $5 trillion economy by 2047, became the first chief minister of the state to present a budget.

The highlight was the announcement of a loan waiver scheme for farmers, wherein crop credits of up to ₹2 lakh pending till 30 September 2025 will be written off. The Punyashlok Ahilyadevi Holkar Shetkari Karjmafi Yojna also includes incentives of up to ₹ 50,000 for farmers who have regularly repaid their loans.

Presenting his first budget, Fadnavis said revenue receipt in the next fiscal is estimated at ₹6.16 trillion and revenue expenditure at ₹6.56 trillion.

Thus, revenue deficit is projected at ₹40,552 crore in 2026-27, he said. The fiscal deficit is estimated at ₹1.5 trillion, the CM said, adding the government has been successful in keeping the fiscal deficit below 3% of gross state domestic product.

जयपुर जिला दुग्ध उत्पादक सहकारी संघ लि.
गांधी नगर रेल्वे स्टेशन के पास, जयपुर-302015, Tel: 0141-2713666-69
Ext. (PABX), Website: Jaipurdairy.com, E-Mail ID: jaipurdairy@jaipurdairy.com

जजिदुउससंलि / यातायात / 35127–31 दिनांक 04 / 03 / 2026

ई–निविदा सूचना

जयपुर जिला दुग्ध उत्पादक सहकारी संघ लि. को संघ स्वामित्व के दुग्ध टैंकरों द्वारा दुग्ध परिवहन हेतु 9000 से 10000 कि.ग्रा. क्षमताओं के 50 दुग्ध टैंकरो को एक वर्ष तक की अवधि हेतु प्रति कि.मी. की दर से रख–रखाव एवं संचालन किये जाने हेतु ई–निविदा आमंत्रित की जाती है। इच्छुक परिवहनकर्ता / व्यक्ति / फर्म निविदा प्रपत्र वेबसाइट www.eproc.rajasthan.gov.in से दिये गये निर्देशानुसार अपलोड कर सकते है। विस्तृत निविदा संघ की वेबसाइट https://sppp.rajasthan.gov.in एवं www.jaipurdairy.com देखी जा सकती है ।

प्रबंधक संचालक

NIB Code CDF2526A1340

जीवन में भरे रस, हमारा प्यारा

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Bid Process Coordinator: REC Power Development — **REC Power Development and Consultancy Limited**

An Initiative of: **Government of Karnataka**

Initiative Partner: **Karnataka Power Transmission Corporation Ltd. (STU)**

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DD - 7/3

निर्यात आधारित क्षेत्रों का उत्पादन और
टने से नौकरियों पर संकट आ सकता है।
म वेतन वृद्धि : इसके अलावा कंपनियां लागत
रने के लिए वेतन वृद्धि सीमित कर सकती हैं।
स्त पर असर : यदि महंगाई बढ़ती है तो
आई ब्याज दरें बढ़ा सकता है। इससे होम लोन,
ोन और पर्सनल लोन की किस्त बढ़ सकती है।

6. छोटे निवेशक

■ बाजार में गिरावट : मध्य-पूर्व में बढ़ते तनाव के चलते वैश्विक बाजारों में बड़ी गिरावट का दौर बना हुआ है। छोटे निवेशकों को नुकसान हो सकता है।
ने-चांदी : युद्ध के चलते सोने-चांदी के कीमतों तार तेजी आ रही है। इससे छोटे निवेशकों के सा लगाना मुश्किल हो सकता है।

अगर युद्ध लंबा चलता है तो विकास की गति धीमी होगी। जरूरी वस्तुओं म बढ़ेंगे और रोजगार सृजन भी प्रभावित । विदेशी ा में भी गिरावट आएगी।
डॉ. अरुण कुमार, सेवानिवृत्त प्रोफेसर, जेएनयू

ी ऊर्जा की प्रमुख भूमिका है। कंपनियां
है। घाटे से बचने के लिए रोजाना इस्तेमाल
के होने वाली वस्तुओं के दाम बढ़ा
में सकती हैं।

दद करेंगे

ना करना पड़ रहा

लिए जहाजों के रद्द या स्थगित होने और
स्याओं का सामना करना पड़ रहा है। बीते
में करीब 20 प्रतिशत की वृद्धि हुई है।
प्रीमियम भी काफी बढ़ गए हैं, जिससे माल
रों की छूट, भारतीय निर्यात क्रेडिट गारंटी
पूंजी की अतिरिक्त सीमा और कोविड

निर्यातकों की अन्य मांगें

■ जह होने या माल ढुलाई दरें अचानक बढ़ने की स्थिति में पोर्ट शुल्क माफ किया जाए
■ स्टोरेज और डेमरेज शुल्क माफ किए जाए
■ ट्रांजिट में फंसे माल को वापस लाने, दूसरे गंतव्य पर भेजने या मार्ग बदलने के लिए कस्टम विभाग और रिजर्व बैंक से सहायता दी जाए

वस्था
है असर

वित्त मंत्रालय की मासिक आर्थिक समीक्षा में टिप्पणी

किलोग्राम पर आ गई।

अखिल भारतीय सर्राफा संघ के अनुसार, 99.9 प्रतिशत शुद्धता वाले सोने की कीमत 1,100 रुपये या लगभग एक प्रतिशत घटकर 1,64,100 रुपये प्रति 10 ग्राम (सभी करों सहित) रह गई।

विदेशी मुद्रा भंडार सबसे उच्चस्तर पर

मुंबई, एजेंसी। देश का विदेशी मुद्रा भंडार 27 फरवरी को समाप्त सप्ताह में 4.88 अरब डॉलर बढ़कर 728.49 अरब डॉलर के सर्वकालिक उच्चस्तर पर पहुंच गया है। इससे पिछले सप्ताह में कुल विदेशी मुद्रा भंडार 2.11 अरब डॉलर घटकर 723.60 अरब डॉलर रहा था।

समीक्षाधीन सप्ताह के दौरान स्वर्ण भंडार का मूल्य 4.14 अरब डॉलर बढ़कर 131.63 अरब डॉलर हो गया। इससे पूर्व इस वर्ष 13 फरवरी को समाप्त सप्ताह में विदेशी मुद्रा भंडार 725.72 अरब डॉलर के उच्चतम स्तर पर पहुंचा था।

तीन कंपनियों को आईपीओ मंजूर

नईदिल्ली। बाजार नियामक सेबी ने ऊर्जा क्षेत्र की ईस्टमैन ऑटो एंड पावर, कलपुर्जा विनिर्माता माइलस्टोन गियर्स और एआई क्षेत्र की कंपनी बॉनब्लॉक टेक्नोलॉजीज को आरंभिक सार्वजनिक निर्गम (आईपीओ) के माध्यम से कुल 3,300 करोड़ रुपये जुटाने की मंजूरी दे दी है। इन कंपनियों ने अक्टूबर और दिसंबर के बीच सेबी के पास अपने शुरुआती दस्तावेज जमा कराए थे।

जानकारी के लिए इंजीनियर भवन में सौर ऊर्जा संयंत्र का प्रावधान।

बिड सिक्योरिटी (रु. में) : 116300.00	कार्य समाप्त करने की समयावधि : 06 माह
निविदा सूचना संख्या : ELG-153-2526	काम की लागत (रु में) : 17873026.12
कार्य का नाम : प्रयागराज मंडल के स्टेशनों पर स्टेशन नाम बोर्ड का प्रावधान।	
बिड सिक्योरिटी (रु. में) : 239400.00	कार्य समाप्त करने की समयावधि : 06 माह
निविदा सूचना संख्या : ELG-154-2526	काम की लागत (रु में) : 22382791.00
कार्य का नाम : प्रयागराज डिवीजन के टाइप II और III स्टाफ क्वार्टर में पावर पॉइंट वायरिंग की व्यवस्था। (फेज-I)।	
बिड सिक्योरिटी (रु. में) : 261900.00	कार्य समाप्त करने की समयावधि : 06 माह
निविदा खुलने की तिथि : 30.03.2026, समय : 15:00 बजे	

नोट : 1. उपरोक्त ई-टेंडर के साथ पूरी जानकारी (निविदा दस्तावेज़ के साथ) वेबसाइट www.ireps.gov.in पर 15:00 बजे निविदा खोलने की तिथि तक उपलब्ध है। 511/26 (C)

North central railways www.ncr.indianrailways.gov.in @CPRONCR

आरईसी पावर डेवलपमेंट एंड कंसल्टेंसी लिमिटेड
(आरईसी लिमिटेड के पूर्ण स्वामित्व की सहायक कंपनी)

वैश्विक आमंत्रण (इलेक्ट्रॉनिक बोली के माध्यम से)

टैरिफ के जरिए प्रतियोगिता बोली (टीबीसीबी) प्रक्रिया के माध्यम से 01 (एक) अंत: राज्यीय पारेषण परियोजना के निर्माण, स्वामित्व, प्रचालन और हस्तांतरण (बीओओटी) आधारित पारेषण सेवा प्रदाता के चयन के लिए

आरईसी पावर डेवलपमेंट एंड कंसल्टेंसी लिमिटेड, नई दिल्ली, भारत (आरईसी लिमिटेड के पूर्ण स्वामित्व की सहायक कंपनी - एक महारत्न केंद्रीय सार्वजनिक उपक्रम) नीचे उल्लिखित पारेषण परियोजना की स्थापना हेतु टी. बी. सी. बी. के अंतर्गत निर्माण, स्वामित्व, प्रचालन और स्थानांतरण (बूट) के आधार पर प्रस्ताव हेतु अनुरोध (आरएफपी) एक चरण दो लिफाफे वाली प्रक्रिया के तहत प्रस्ताव आमंत्रित करता है। इच्छुक बोलीदाता कृपया हमारी वेबसाइट्स www.recindia.nic.in तथा www.recpdcl.in पर 07.03.2026 से उपलब्ध "प्रस्ताव हेतु अनुरोध" (आरएफपी) अधिसूचना तथा आरएफपी दस्तावेज का अवलोकन करें।

बोलीदाता, आरएफपी दस्तावेज सभी कार्य दिवसों में 1030 बजे (भा.मा.स) से 1600 बजे (भा.मा.स) के बीच (07.03.2026 से प्रस्ताव जमा करने की तिथि से एक दिन पहले तक) हमारी वेबसाइट्स www.recindia.nic.in और www.recpdcl.in पर उपलब्ध परियोजना के आरएफपी दस्तावेज में दिए गए विवरण के अनुसार अप्रतिदेय गैर-वापसी योग्य शुल्क (₹5,00,000/- (पांच लाख रुपए केवल) या $7000 (यूएस डालर सात हजार केवल) + 18% जीएसटी) के भुगतान पर प्राप्त कर सकते हैं।

आरएफपी दस्तावेज हमारी वेबसाइट्स www.recindia.nic.in तथा www.recpdcl.in से भी डाउनलोड किया जा सकता है। तथापि, ऐसे मामले में इच्छुक पार्टी आरएफपी दस्तावेज में दिए गए विवरण के अनुसार अप्रतिदेय गैर-वापसी योग्य शुल्क (₹5,00,000/- (पांच लाख रुपए केवल) या $7000 (यूएस डालर सात हजार केवल) + 18% जीएसटी) का अलग से भुगतान करने पर ही आरएफपी के उत्तर में प्रस्ताव जमा कर सकते हैं। सर्वे रिपोर्ट एवं आरएफपी दस्तावेजों के स्पष्टीकरण उन्हीं बोलीदाताओं को जारी किया जाएगा, जिन्होंने अपेक्षित शुल्क का भुगतान करके आरएफपी दस्तावेज प्राप्त किया या खरीदा है। इस सन्दर्भ में महत्वपूर्ण समय-सीमा इस प्रकार है:

क्रम. सं.	परियोजना का नाम	आरएफपी के उत्तर में प्रस्ताव जमा की अंतिम तिथि	आरएफपी प्रस्ताव खोलने का विवरण
1.	तुमकुर जिले के रयाप्ते गांव में 2000 मेगावाट सोलर पार्क के लिए निकासी योजना	06.04.2026, 1500 बजे तक (भा.मा.स)	06.04.2026 को 1530 बजे (भा.मा.स)

बोली में सभी शुद्धिपत्र, अनुशेष, संशोधन, समय बढ़ाना आदि हमारी वेबसाइट्स www.recindia.nic.in तथा www.recpdcl.in पर होस्ट किए जाएंगे। नवीनतम जानकारी के लिए हमारी वेबसाइट का नियमित रूप से अवलोकन करते रहें।

नोट: आरईसीपीडीसीएल के पास बिना कोई कारण बताए तथा बिना किसी बाध्यता के बोली प्रक्रिया को रद्द या संशोधित करने का अधिकार सुरक्षित है। यह कोई पेशकश नहीं है।

मुख्य कार्यपालक अधिकारी
आरईसी पावर डेवलपमेंट एंड कंसल्टेंसी लिमिटेड
कोर - 4, स्कोप कॉम्प्लेक्स, लोधी रोड, नई दिल्ली - 110003, भारत

बोली प्रक्रिया समन्वयक: आरईसी पावर डेवलपमेंट एंड कंसल्टेंसी लिमिटेड
पहलकर्ता: कर्नाटक सरकार
पहलकर्ता भागीदार: कर्नाटक पावर ट्रांसमिशन कॉर्पोरेशन लिमिटेड (एसटीपी)

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RECRUITMENT NOTICE

Applications are invited in offline mode for the post of Medical Physicist (Radiotherapy & Radiodiagnosis) in the Institute through direct recruitment.

Name of post & Specialty	No. of Post	Category	Level & Pay Matrix	Qualification & other eligibility criteria	Upper age limit
Medical Physicist (Radio-therapy & Radio-diagnosis)	01	UR-01	Level-10 (₹56100-177500) as per 7th CPC	(i) A post graduate degree in Physics from a recognized university; (ii) A Post M.Sc. diploma in radiological/medical physics from a recognized university' and (iii) An internship of minimum 12 months in a recognized well-equipped radiation therapy department. OR (i) A basic degree in science from a recognized university, with physics as one of main subjects; (ii) A post graduate degree in radiological/	40 Years

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stems Kotak Essel FMP bets.

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nded version of livemint.com.

M'rashtra budget has waiver for farm loans till ₹2 lakh

PTI
feedback@livemint.com
MUMBAI

The Maharashtra government on Friday announced a farm loan waiver of up to ₹2 lakh in the 2026-27 budget, which also focuses on river-linking projects, women empowerment, youth development, health, start-ups and strengthening social welfare schemes.

Chief minister Devendra Fadnavis, who holds the finance portfolio, presented a ₹7.69 trillion budget in the assembly, and said Ladki Bahin Yojana, launched ahead of assembly polls in 2024, will continue with adequate allocation for the scheme targeted at poorer women, who get ₹1,500 a month.

Fadnavis, who said Maharashtra will be a $5 trillion economy by 2047, became the first chief minister of the state to present a budget.

The highlight was the announcement of a loan waiver scheme for farmers, wherein crop credits of up to ₹2 lakh pending till 30 September 2025 will be written off. The Punyashlok Ahilyadevi Holkar Shetkari Karjmafi Yojna also includes incentives of up to ₹50,000 for farmers who have regularly repaid their loans.

Presenting his first budget, Fadnavis said revenue receipt in the next fiscal is estimated at ₹6.16 trillion and revenue expenditure at ₹6.56 trillion.

Thus, revenue deficit is projected at ₹40,552 crore in 2026-27, he said. The fiscal deficit is estimated at ₹1.5 trillion, the CM said, adding the government has been successful in keeping the fiscal deficit below 3% of gross state domestic product.

जयपुर जिला दुग्ध उत्पादक सहकारी संघ लि.
गांधी नगर रेल्वे स्टेशन के पास, जयपुर-302015, Tel: 0141-2713666-69
Ext. (PABX), Website: Jaipurdairy.com, E-Mail ID: jaipurdairy@jaipurdairy.com

जजिदुउससंलि/यातायात/35127–31 दिनांक 04/03/2026

ई–निविदा सूचना

जयपुर जिला दुग्ध उत्पादक सहकारी संघ लि. को संघ स्वामित्व के दुग्ध टैंकरों द्वारा दुग्ध परिवहन हेतु 9000 से 10000 कि.ग्रा. क्षमताओं के 50 दुग्ध टैंकरो को एक वर्ष तक की अवधि हेतु प्रति कि.मी. की दर से रख–रखाव एवं संचालन किये जाने हेतु ई–निविदा आमंत्रित की जाती है। इच्छुक परिवहनकर्ता / व्यक्ति / फर्म निविदा प्रपत्र वेबसाइट www.eproc.rajasthan.gov.in से दिये गये निर्देशानुसार अपलोड कर सकते है। विस्तृत निविदा संघ की वेबसाइट https://sppp.rajasthan.gov.in एवं www.jaipurdairy.com देखी जा सकती है।

NIB Code CDF2526A1340 प्रबंधक संचालक

जीवन में भरे रस, हमारा प्यारा

REC POWER DEVELOPMENT AND CONSULTANCY LIMITED
(A wholly owned subsidiary of REC Ltd.)

GLOBAL INVITATION (Through e-bidding Only)
FOR SELECTION OF TRANSMISSION SERVICE PROVIDER THROUGH TARIFF BASED COMPETITIVE BIDDING (TBCB) PROCESS ON BUILD, OWN, OPERATE AND TRANSFER (BOOT) BASIS FOR 01 (ONE) INTRA – STATE TRANSMISSION PROJECT

REC Power Development and Consultancy Limited, New Delhi, India (a wholly owned subsidiary of REC Limited, a Maharatna Central Public Sector Undertaking) invites proposal for setting up of the below mentioned transmission project through TBCB process on Build, Own, Operate and Transfer (BOOT) basis following single stage two envelope process of "Request for Proposal (RFP)". Interested bidders may refer to the Request for Proposal (RFP) notifications and RFP documents available on our websites www.recpdcl.in & www.recindia.nic.in w.e.f. 07.03.2026.

The bidders may obtain the RFP documents on all working days between 1030 hours (IST) to 1600 hours (IST) from 07.03.2026 to one day prior to bid submission date on payment of non-refundable fee of Rs. 5,00,000/-(Rupees Five Lakh Only) or US$ 7000 (US Dollars Seven Thousand Only) + 18% GST as per details provided in the RFP document available on the websites www.recpdcl.in & www.recindia.nic.in.

The Request for Proposal (RFP) documents can also be downloaded from our websites www.recpdcl.in & www.recindia.nic.in, however, in such cases interested parties can submit Response to RFP only on submission of non-refundable fee of Rs. 5,00,000/- (Rupees Five Lakh Only) or US$ 7000 (US Dollars Seven Thousand Only) + 18% GST as per details provided in the RFP document. The survey report & clarifications to RFP documents shall be issued to those bidders, who have obtained/purchased RFP documents by paying requisite fee. The important timelines in this regard are as follows:

Sr. No.	Name of Project	Last Date for submission of Response to RFP	Details of Opening of Response to RFP
1.	Evacuation Scheme for 2000MW solar park at Ryapte village, Tumkur District	06.04.2026 up to 1500 Hrs (IST)	06.04.2026 at 1530 Hrs (IST)

All corrigenda, addenda, amendments, time extensions, etc. to the RFP will be hosted on our websites www.recpdcl.in & www.recindia.nic.in. Bidders should regularly visit our websites to keep themselves updated.

Note: RECPDCL reserves the right to cancel or modify the process without assigning any reason and without any liability. This is not an offer.

Chief Executive Officer
REC Power Development and Consultancy Ltd.
Core-4, SCOPE Complex, 7, Lodhi Road, New Delhi-110003, India

Bid Process Coordinator: REC Power Development and Consultancy Limited
An Initiative of: Government of Karnataka
Initiative Partner: Karnataka Power Transmission Corporation Ltd. (STU)

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ायल आरोपी को ले जाते पुलिसकर्मी।

- बस्ती में छात्रा से दुष्कर्म का था आरोपी, पैर में लगी गोली
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ाश में कलवारी थाने की पुलिस के थ ही एसओजी और स्वाट की युक्त टीम लगा दी थी। टीम ने लवारी थाना क्षेत्र स्थित माझा इलाके उसकी घेराबंदी कर दी। पुलिस से रा देखकर उसने फायरिंग शुरू कर । पुलिस की जवाबी फायरिंग में एक ली मनदीप के पैर में लगी और घायल कर गिर गया। पुलिस ने उसे जिला स्पताल में भर्ती कराया गया है।

शुक्रवार को हवा का प्रेशर एडजस्ट करते समय टंकी ब्लास्ट कर गई। इससे सेंटर मालिक के बेटे के चिथड़े उड़ गए। ब्लास्ट की आवाज सुन पास से गुजर रही पडरौना कोतवाली मौके पर पहुंची और जानकारी ली।

विवेक उर्फ विकास (फाइल फोटो)

कोतवाली क्षेत्र के ठोरी मोड़ पर बेतिया निवासी विनोद ने कुछ दिन पहले बेटे जयराम के लिए धुलाई सेंटर खोला है। जयराम का छोटा भाई विवेक उर्फ विकास पडरौना में मैकेनिक था। शुक्रवार को वह धुलाई सेंटर पर मौजूद था। बड़ा भाई किसी गाड़ी की धुलाई कर रहा था। छोटा भाई विवेक हवा की टंकी का प्रेशर एडजस्ट करने लगा। तभी टंकी ब्लास्ट कर गई। विवेक उर्फ विकास चौधरी की चीथड़े उड़ गए।

ूर्व प्रधानाध्यापक को जेल जिवा चुकी है पुलिस

शिक्षक खुदकुशी प्रकरण

रखपुर, वरिष्ठ संवाददाता। क्षक कृष्ण मोहन सिंह खुदकुशी ड में पुलिस पूर्व प्रधानाध्यापक नेरुद्ध सिंह को गिरफ्तार कर जेल वा चुकी है। जांच में सामने आया क अनिरुद्ध ने ही तीनों शिक्षकों की सए कार्यालय के लिपिक से ंग कराई थी। शिक्षकों से पहले 20 ख रुपये की मांग की गई थी, जिसे ाचीत के बाद अनिरुद्ध ने 16 लाख ये में तय कराया गया। शिक्षक ने ाइड नोट में इसका जिक्र किया वहीं अनिरुद्ध ने इनकी नियुक्ति मिका निभाई थी। बिना स्वीकृत के नियु ी गई थी, जो बाद में ध घोषित हो गया था।

जांच की आहट मिलते ही पत्रावली सहेजने लगे बाबू

देवरिया। बीएसए शालिनी श्रीवास्तव के निलंबन के बाद जल्द ही जांच की प्रक्रिया शुरू हो सकती है। बीएसए कार्यालय के लिपिकों को इसकी आहट मिलने लगी है। होली की छुट्टी समाप्त होने के बाद अब कार्यालय के बाबू पत्रावलियों को सहेजने में जुटे हुए हैं। शुक्रवार को मामले की जांच के लिए संयुक्त शिक्षा निदेशक के बीएसए कार्यालय पहुंचने की चर्चा रही, लेकिन देर शाम तक वे कार्यालय नहीं पहुंचे थे। बीएसए के निलंबन के बाद अनुशासनिक जांच के लिए संयुक्त शिक्षा निदेशक गोरखपुर मण्डल, गोरखपुर को जांच अधिकारी नामित किया गया है।

निम्नलिखित सोसाइटी अस्पतालों/स्वायत्त संस्थानों में **निदेशक/निदेशक-प्रधानाचार्य** के पद हेतु योग्य अधिकारियों से आवेदन आमंत्रित किए जाते हैं:-

(i) राजीव गांधी सुपर स्पेशियलिटी हॉस्पिटल (RGSSH), ताहिरपुर, दिल्ली-110093
(ii) जनकपुरी सुपर स्पेशियलिटी हॉस्पिटल (JSSH), जनकपुरी, नई दिल्ली-110058
(iii) चाचा नेहरू बाल चिकित्सालय (CNBC), गीता कॉलोनी, दिल्ली-110031
(iv) इंस्टिट्यूट ऑफ ह्यूमन बिहेवियर एण्ड एलाइड साइंसेस (IHBAS), दिलशाद गार्डन, दिल्ली-110095
(v) दिल्ली स्टेट कैंसर इंस्टीट्यूट (DSCI), दिलशाद गार्डन, दिल्ली-110095
(vi) मौलाना आज़ाद इंस्टिट्यूट ऑफ डेंटल साइंसेस (MAIDS), बहादुर शाह ज़फर मार्ग, नई दिल्ली-110002

विस्तृत विज्ञापन आवश्यक योग्यता, वेतनमान, आयु की जानकारी हेतु स्वास्थ्य एवं परिवार कल्याण विभाग, दिल्ली सरकार की वेबसाइट **http://health.delhigovt.nic.in** देखें।

आवेदन प्राप्ति की अंतिम तिथि: 10.04.2026, 05.00 मध्याह्न

(उप - सचिव)
स्वास्थ्य एवं परिवार कल्याण विभाग, दिल्ली सरकार
DIP/Shabdarth/Classified/0458/25-26

आरईसी पावर डेवलपमेंट एंड कंसल्टेंसी लिमिटेड

(आरईसी लिमिटेड के पूर्ण स्वामित्व की सहायक कंपनी)

वैश्विक आमंत्रण (इलेक्ट्रॉनिक बोली के माध्यम से)

टैरिफ के जरिए प्रतियोगिता बोली (टीबीसीबी) प्रक्रिया के माध्यम से 01 (एक) अंत: राज्यीय पारेषण परियोजना के निर्माण, स्वामित्व, प्रचालन और हस्तांतरण (बीओओटी) आधारित पारेषण सेवा प्रदाता के चयन के लिए

आरईसी पावर डेवलपमेंट एंड कंसल्टेंसी लिमिटेड, नई दिल्ली, भारत (आरईसी लिमिटेड के पूर्ण स्वामित्व की सहायक कंपनी - एक महारत्न केंद्रीय सार्वजनिक उपक्रम) नीचे उल्लिखित पारेषण परियोजना की स्थापना हेतु टी. बी. सी. बी. के अंतर्गत निर्माण, स्वामित्व, प्रचालन और स्थानांतरण (बूट) के आधार पर प्रस्ताव हेतु अनुरोध (आरएफपी) एक चरण दो लिफाफे वाली प्रक्रिया के तहत प्रस्ताव आमंत्रित करता है। इच्छुक बोलीदाता कृपया हमारी वेबसाइट्स www.recindia.nic.in तथा www.recpdcl.in पर 07.03.2026 से उपलब्ध "प्रस्ताव हेतु अनुरोध" (आरएफपी) अधिसूचना तथा आरएफपी दस्तावेज का अवलोकन करें।

बोलीदाता, आरएफपी दस्तावेज सभी कार्य दिवसों में 1030 बजे (भा.मा.स) से 1600 बजे (भा.मा.स) के बीच (07.03.2026 से प्रस्ताव जमा करने की तिथि से एक दिन पहले तक) हमारी वेबसाइट्स www.recindia.nic.in और www.recpdcl.in पर उपलब्ध परियोजना के आरएफपी दस्तावेज में दिए गए विवरण के अनुसार अप्रतिदेय गैर-वापसी योग्य शुल्क (₹5,00,000/- (पांच लाख रुपए केवल) या $7000 (यूएस डालर सात हजार केवल) + 18% जीएसटी) के भुगतान पर प्राप्त कर सकते है।

आरएफपी दस्तावेज हमारी वेबसाइट्स www.recindia.nic.in तथा www.recpdcl.in से भी डाउनलोड किया जा सकता है, तथापि, ऐसे मामले में इच्छुक पार्टी आरएफपी दस्तावेज में दिए गए विवरण के अनुसार अप्रतिदेय गैर-वापसी योग्य शुल्क (₹5,00,000/- (पांच लाख रुपए केवल) या $7000 (यूएस डालर सात हजार केवल) + 18% जीएसटी) का अलग से भुगतान करने पर ही आरएफपी के उत्तर में प्रस्ताव जमा कर सकते हैं। सर्वे रिपोर्ट एवं आरएफपी दस्तावेजों के स्पष्टीकरण उन्हीं बोलीदाताओं को जारी किया जाएगा, जिन्होंने अपेक्षित शुल्क का भुगतान करके आरएफपी दस्तावेज प्राप्त किया या खरीदा है। इस सन्दर्भ में महत्वपूर्ण समय-सीमा इस प्रकार है:

क्रम. सं.	परियोजना का नाम	आरएफपी के उत्तर में प्रस्ताव जमा की अंतिम तिथि	आरएफपी प्रस्ताव खोलने का विवरण
1.	तुमकुर जिले के रयाप्ले गांव में 2000 मेगावाट सोलर पार्क के लिए निकासी योजना	06.04.2026, 1500 बजे तक (भा.मा.स)	06.04.2026 को 1530 बजे (भा.मा.स)

बोली में सभी शुद्धिपत्र, अनुशेष, संशोधन, समय बढ़ाना आदि हमारी वेबसाइट्स www.recindia.nic.in तथा www.recpdcl.in पर होस्ट किए जाएंगे। नवीनतम जानकारी के लिए हमारी वेबसाइट का नियमित रूप से अवलोकन करते रहें।

नोट: आरईसीपीडीसीएल के पास बिना कोई कारण बताए तथा बिना किसी बाध्यता के बोली प्रक्रिया को रद्द या संशोधित करने का अधिकार सुरक्षित है। यह कोई पेशकश नहीं है।

मुख्य कार्यपालक अधिकारी
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कोर - 4, स्कोप कॉम्प्लेक्स, लोधी रोड, नई दिल्ली - 110003, भारत

बोली प्रक्रिया समन्वयक: REC Power Development — आरईसी पावर डेवलपमेंट एंड कंसल्टेंसी लिमिटेड
पहलकर्ता: कर्नाटक सरकार
पहलकर्ता भागीदार: कर्नाटक पावर ट्रांसमिशन कॉर्पोरेशन लिमिटेड (एसटीयू)

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डीआरएनबी फाइनल परीक्षा – अप्रैल 2026

सूचना

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ऑनलाइन आवेदन एनबीईएमएस वेबसाइट https://natboard.edu.in/viewnbeexam?exam=dnb पर **06.03.2026** ((शाम 05:00 बजे से आगे)) **to 23.03.2026** (रात 11:55 बजे तक) आमंत्रित किए जा रहे हैं।

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ई–निविदा सूचना

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GLOBAL INVITATION (Through e-bidding Only)
FOR SELECTION OF TRANSMISSION SERVICE PROVIDER THROUGH TARIFF BASED COMPETITIVE BIDDING (TBCB) PROCESS ON BUILD, OWN, OPERATE AND TRANSFER (BOOT) BASIS FOR 01 (ONE) INTRA – STATE TRANSMISSION PROJECT

REC Power Development and Consultancy Limited, New Delhi, India (a wholly owned subsidiary of REC Limited, a Maharatna Central Public Sector Undertaking) invites proposal for setting up of the below mentioned transmission project through TBCB process on Build, Own, Operate and Transfer (BOOT) basis following single stage two envelope process of "Request for Proposal (RFP)". Interested bidders may refer to the Request for Proposal (RFP) notifications and RFP documents available on our websites www.recpdcl.in & www.recindia.nic.in w.e.f. 07.03.2026.

The bidders may obtain the RFP documents on all working days between 1030 hours (IST) to 1600 hours (IST) from 07.03.2026 to one day prior to bid submission date on payment of non-refundable fee of Rs. 5,00,000/-(Rupees Five Lakh Only) or US$ 7000 (US Dollars Seven Thousand Only) + 18% GST as per details provided in the RFP document available on the websites www.recpdcl.in & www.recindia.nic.in.

The Request for Proposal (RFP) documents can also be downloaded from our websites www.recpdcl.in & www.recindia.nic.in, however, in such cases interested parties can submit Response to RFP only on submission of non-refundable fee of Rs. 5,00,000/- (Rupees Five Lakh Only) or US$ 7000 (US Dollars Seven Thousand Only) + 18% GST as per details provided in the RFP document. The survey report & clarifications to RFP documents shall be issued to those bidders, who have obtained/purchased RFP documents by paying requisite fee. The important timelines in this regard are as follows:

Sr. No.	Name of Project	Last Date for submission of Response to RFP	Details of Opening of Response to RFP
1.	Evacuation Scheme for 2000MW solar park at Ryapte village, Tumkur District	06.04.2026 up to 1500 Hrs (IST)	06.04.2026 at 1530 Hrs (IST)

All corrigenda, addenda, amendments, time extensions, etc. to the RFP will be hosted on our websites www.recpdcl.in & www.recindia.nic.in. Bidders should regularly visit our websites to keep themselves updated.

Note: RECPDCL reserves the right to cancel or modify the process without assigning any reason and without any liability. This is not an offer.

Chief Executive Officer
REC Power Development and Consultancy Ltd.
Core-4, SCOPE Complex, 7, Lodhi Road, New Delhi-110003, India

Bid Process Coordinator: REC Power Development — REC Power Development and Consultancy Limited
An Initiative of: Government of Karnataka
Initiative Partner: Karnataka Power Transmission Corporation Ltd. (STU)

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होता हूं। हां मैं इतना अवश्य कह सकता हूं कि गोरक्षा, सनातन रक्षा, देवालय की परंपराओं का संरक्षण साधु-संतों का दायित्व है। युद्ध से प्रश्न पर उन्होंने कहा लोकन मिडल इस्ट में 'दावाला' मनाई जा रही है। मेरा मानना है कि शांति ही रास्ता है। युद्ध से कोई परिणाम नहीं निकलने वाला है। प्रेम से विकास होगा।

' देकर सिखाया पखावज

पं. श्रीकांत मिश्र 'टुन महाराज'।

जितना सम्मान करते थे उतना ही उनसे डरते भी थे। कभी-कभी तो आठ-आठ घंटे लगातार अभ्यास कराते थे। सात मार्च [illegible]51 को काशी में जन्मे 'टुन महार[illegible]15 वर्ष की उम्र से पखावज सीखना शुरू किया। एक बार जब उनका मन पखावज में रम गया तो उसके बाद उन्होंने पलट कर देखा नहीं। 21 वर्ष की अवस्था तक पहुंचते-पहुंचते वह उस समय के दिग्गज ध्रुपद गायकों के साथ पखावज संगत करने लगे थे। उसी वय में उन्होंने उस्ताद जियामोइनुद्दीन डागर, उस्ताद नासिर आमिनुद्दीन डागर, पं. रामचतुर मल्लिक और पं. सियाराम तिवारी जैसे दिग्गजों को अपना मुरीद बना लिया था। डागर और दरभंग घराने की शौलियों में सिद्धहस्त 'टुन महाराज' ने जापान, जर्मनी, फ्रांस, स्विट्जरलैंड, हॉलैंड, इंग्लैंड सहित दुनिया के अनेक देशों में अपनी प्रतिभा का प्रदर्शन किया।

के चुनाव को लेकर लम्बे समय से चल रहे विवाद में सर्वोच्च न्यायालय ने डॉ. शशिकांत दीक्षित द्वारा दाखिल स्पेशल लीव पिटीशन (एसएलपी) को तीन फरवरी को मेरिट के आधार पर खारिज कर दिया। साथ ही सहायक रजिस्ट्रार फर्म्स, सोसाइटीज एंड चिट्स, वाराणसी को निर्देश दिया कि वे छह सप्ताह के भीतर निष्पक्ष एवं पारदर्शी तरीके से चुनाव कराएं तथा जिलाधिकारी वाराणसी को चुनाव स्थल पर पर्याप्त सुरक्षा व्यवस्था सुनिश्चित करने का निर्देश दिया गया। उन्होंने संस्था पर अनियमितता सम्बंधी आरोप भी लगाए। प्रेसवार्ता में पद्म भूषण प्रो. देवी प्रसाद द्विवेदी, विनोद शंकर उपाध्याय, प्रो. शैलेन्द्र उपाध्याय, शिव प्रसाद श्रीवास्तव, हरि नारायण पाण्डेय, शलभ शर्मा आदि उपस्थित रहे।

एवं चिट्स का ओर से संस्था का चुनाव होना सुनिश्चित है।

एंग्लो बंगाली कॉलेज पर बकाया 6.40 लाख हुआ

वाराणसी, वरिष्ठ संवाददाता। सीएम एंग्लो बंगाली कॉलेज पर बिजली बिल का बकाया बढ़ता जा रहा है। स्मार्ट प्रीपेड मीटर लगने के बाद चार लाख बकाया राशि 6.40 हजार हो गई है।

लगभग तीन महीने पहले इतना ही बकाया था। चूंकि, कॉलेज पर लगे स्मार्ट प्रीपेड मीटर वर्तमान में पोस्टपेड मोड में है। इसलिए बकाये पर कनेक्शन नहीं कट रहा है। भेलूपुर उपकेंद्र के जेई लोकनाथ कुशवाहा का कहना है कि बकाया भुगतान को कई बार कॉलेज प्रबंधन से संपर्क किया गया, हर बार आश्वासन ही दिया गया। उधर, भेलूपुर डिविजन के अधिकारी बोर्ड परीक्षा की आड़ में जिम्मेदारियों से पल्ला झाड़ रहे हैं।

पेयजल आपूर्ति ठप होने पर ग्रामीणों ने किया प्रदर्शन

रोहनिया। मिसिरपुर में निर्मित पानी टंकी से आसपास के कई गांवों में जलापूर्ति एक सप्ताह से ठप है। इससे आक्रोशित लोगों शुक्रवार को पानी टंकी पर प्रदर्शन किया। बताया कि पंडितपुर, करनादाड़ी, जगतपुर, घमहापुर, देल्हना, रामपुर, निदिऊरा एवं धनपालपुर में सप्लाई नहीं होने से लोग पानी को तरस गए। उधर ऑपरेटर रामजी ने बताया कि बिजली पोल लगाने के दौरान पाइप लाइन में खराबी से 3 मार्च से आपूर्ति बंद है।

गलियों में सफाई व्यवस्था चरमराई

वाराणसी। होली के त्योहार के बाद से गलियों में सफाई व्यवस्था ध्वस्त हो गई है। कालभैरव वार्ड की कई गलियों में शुक्रवार को दोपहर बाद तब कूड़ा पड़ा रहा। होलिका की राख कोढ़ में खाज जैसी दिखाई दी।

आवश्यकता है

मैसर्स सरलोक सर्विसेस, 2 / 1386, बुद्धि विहार, मुरादाबाद द्वारा उत्तर प्रदेश राज्य सड़क परिवहन निगम के विभिन्न क्षेत्रों हेतु आउटसोर्स / संविदा के आधार पर परिचालक (कंडक्टर) पद पर कार्य करने के लिए 457 कार्मिकों की आवश्यकता है।

शैक्षिक योग्यता - इंटरमीडिएट उत्तीर्ण + CCC प्रमाण पत्र अनिवार्य

अधिमानी अर्हता- एन.सी.सी. "बी" प्रमाण पत्र या भारत स्काउट एवं गाइड के राज्य / राष्ट्रपति पुरस्कार प्रमाण पत्र प्राप्त अभ्यर्थियों को 5% का वेटेज मिलेगा

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सभी पोर्टफोलियो के लिए पूरी तरह से सही

"निवेशक आईसीआईसीआई प्रूडेंशियल फ्लेक्सीकैप फंड के बारे में सोच सकते हैं। मार्केट कैप में स्कीम का प्रभावशाली एलोकेशन अप्रोच इसे अलग-अलग मार्केट कंडीशन में चलने लायक बनाता है।

-आशुतोष रंजन सिन्हा, म्यूचुअल फंड डिस्ट्रीब्यूटर, वाराणसी

इन्वेस्टर्स के लिए, यह मार्केट को लगातार "टाइम" करने की जरूरत को भी कम कर सकता है। यह चिंता आशुतोष रंजन सिन्हा करने के बजाय कि मार्ज-कैप या स्मॉल-कैप में इन्वेस्ट करने का सही समय है, फ्लेक्सीकैप अप्रोच ज्यादा मिला-जुला एक्सपोजर देता है।

फ्लेक्सिबिलिटी रिटर्न की गारंटी नहीं देती है और मार्केट अनिश्चिता से भरे रहते हैं। हालांकि, जो निवेशक लंबे समय में पैसा बनाना चाहते हैं, उनके लिए फ्लेक्सीकैप इन्वेस्टिंग एक प्रैक्टिकल तरीका हो सकता है जिससे वे अपनी सारी उम्मीदें एक ही सेगमेंट में लगाए बिना मार्केट साइकिल में निवेशित रह सकते हैं।

फ्लेक्सीकैप इन्वेस्टिंग का सबसे अच्छा तरीका म्यूचुअल फंड के जरिए है, जहाँ प्रोफेशनल मैनेजर मार्केट कैप में एलोकेशन को प्रभावशाली रूप से एडजस्ट करते हैं, जिससे डाइवर्सिफिकेशन और डिसिप्लिन्ड मैनेजमेंट मिलता है।

(वित्तीय निवेश से पूर्व स्वयं समीक्षा अवश्य करें)

आरईसी पावर डेवलपमेंट एंड कंसल्टेंसी लिमिटेड

(आरईसी लिमिटेड के पूर्ण स्वामित्व की सहायक कंपनी)

वैश्विक आमंत्रण (इलेक्ट्रॉनिक बोली के माध्यम से)

टैरिफ के जरिए प्रतियोगिता बोली (टीबीसीबी) प्रक्रिया के माध्यम से 01 (एक) अंतः राज्यीय पारेषण परियोजना के निर्माण, स्वामित्व, प्रचालन और हस्तांतरण (बीओओटी) अधारित पारेषण सेवा प्रदाता के चयन के लिए

आरईसी पावर डेवलपमेंट एंड कंसल्टेंसी लिमिटेड, नई दिल्ली, भारत (आरईसी लिमिटेड के पूर्ण स्वामित्व की सहायक कंपनी - एक महारत्न केंद्रीय सार्वजनिक उपक्रम) नीचे उल्लिखित पारेषण परियोजना की स्थापना हेतु टी. बी. सी. बी. के अंतर्गत निर्माण, स्वामित्व, प्रचालन और स्थानांतरण (बूट) के आधार पर प्रस्ताव हेतु अनुरोध (आरएफपी) एक चरण दो लिफाफे वाली प्रक्रिया के तहत प्रस्ताव आमंत्रित करता है। इच्छुक बोलीदाता कृपया हमारी वेबसाइट्स www.recindia.nic.in तथा www.recpdcl.in पर 07.03.2026 से उपलब्ध "प्रस्ताव हेतु अनुरोध" (आरएफपी) अधिसूचना तथा आरएफपी दस्तावेज का अवलोकन करें।

बोलीदाता, आरएफपी दस्तावेज सभी कार्य दिवसों में 1030 बजे (भा.मा.स) से 1600 बजे (भा.मा.स) के बीच (07.03.2026 से प्रस्ताव जमा करने की तिथि से एक दिन पहले तक) हमारी वेबसाइट्स www.recindia.nic.in और www.recpdcl.in पर उपलब्ध परियोजना के आरएफपी दस्तावेज में दिए गए विवरण के अनुसार अप्रतिदेय गैर-वापसी योग्य शुल्क (₹5,00,000/- (पांच लाख रुपए केवल) या $7000 (यूएस डालर सात हजार केवल) + 18% जीएसटी) के भुगतान पर प्राप्त कर सकते है।

आरएफपी दस्तावेज हमारी वेबसाइट्स www.recindia.nic.in तथा www.recpdcl.in से भी डाउनलोड किया जा सकता है। तथापि, ऐसे मामले में इच्छुक पार्टी आरएफपी दस्तावेज में दिए गए विवरण के अनुसार अप्रतिदेय गैर-वापसी योग्य शुल्क (₹5,00,000/- (पांच लाख रुपए केवल) या $7000 (यूएस डालर सात हजार केवल) + 18% जीएसटी) का अलग से भुगतान करने पर ही आरएफपी के उत्तर में प्रस्ताव जमा कर सकते हैं। सर्वे रिपोर्ट एवं आरएफपी दस्तावेजों के स्पष्टीकरण उन्हीं बोलीदाताओं को जारी किया जाएगा, जिन्होंने अपेक्षित शुल्क का भुगतान करके आरएफपी दस्तावेज प्राप्त किया या खरीदा है। इस सन्दर्भ में महत्वपूर्ण समय-सीमा इस प्रकार है:

क्रम. सं.	परियोजना का नाम	आरएफपी के उत्तर में प्रस्ताव जमा की अंतिम तिथि	आरएफपी प्रस्ताव खोलने का विवरण
1.	तुमकुर जिले के रयाने गांव में 2000 मेगावाट सोलर पार्क के लिए निकासी योजना	06.04.2026, 1500 बजे तक (भा.मा.स)	06.04.2026 को 1530 बजे (भा.मा.स)

बोली में सभी शुद्धिपत्र, अनुशेष, संशोधन, समय बढ़ाना आदि हमारी वेबसाइट्स www.recindia.nic.in तथा www.recpdcl.in पर होस्ट किए जाएंगे। नवीनतम जानकारी के लिए हमारी वेबसाइट का नियमित रूप से अवलोकन करते रहें।

नोट: आरईसीपीडीसीएल के पास बिना कोई कारण बताए तथा बिना किसी बाध्यता के बोली प्रक्रिया को रद्द या संशोधित करने का अधिकार सुरक्षित है। यह कोई पेशकश नहीं है।

मुख्य कार्यपालक अधिकारी
आरईसी पावर डेवलपमेंट एंड कंसल्टेंसी लिमिटेड
कोर - 4, स्कोप कॉम्प्लेक्स, लोधी रोड, नई दिल्ली - 110003, भारत

बोली प्रक्रिया समन्वयक: REC Power Development — आरईसी पावर डेवलपमेंट एंड कंसल्टेंसी लिमिटेड

पहलकर्ता: कर्नाटक सरकार

पहलकर्ता भागीदार: कर्नाटक पावर ट्रांसमिशन कॉर्पोरेशन लिमिटेड (एसटीयू)

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area grew at nearly twice the rate of exports to the rest of the world, commerce ministry data showed.

The war has brought nearly all traffic through the Strait of Hormuz to a halt, forcing shipping companies to suspend most sailings to ports in the Gulf.

Maersk said it suspended bookings for most cargo to and from many Middle Eastern ports "due to the highly volatile situation in the region".

The group has also added hefty emergency fees to its existing bookings and cargo in transit from the area to cover the cost of alternative routes

countries.

One of the people familiar with the talks said that the shipping companies had no choice but to raise prices because disruptions in the region had added to their costs. The person noted that shipping charges similarly surged during the Covid-19 pandemic, when Beijing also hauled in shipping companies to try and protect China's legions of importers and exporters.

Maersk, MSC and the transport ministry did not respond to requests for comment.

Ryan McMorrow and Cheng Leng in Beijing

discount to their net asset value.

Since then, Ackman has diversified his business, taking control of listed real estate development company Howard Hughes last year and striking a $2.1bn deal for Bermuda-based insurer Vantage Risk, replicating a key element of Berkshire Hathaway's structure.

Closed-end funds often trade at a discount to their holdings because it is not easy to redeem shares for value, as with a regular exchange traded fund. Ackman's offer of shares in the management company may ease fears by giving backers in the vehicle a way to share in the economics of his hedge fund.

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In addition, homebuilders have faced delays from safety reforms introduced after the Grenfell Tower fire in 2017. The Building Safety Regulator for tall buildings was slow to approve new plans after starting work in 2023. Perrins says it added two years to the time to finish developments than was proposed under the Building Safety Act.

The government and the Greater London Authority have acknowledged the need for action. They announced "emergency measures to significantly ramp up housebuilding" in October, including a cut in the affordable housing requirement from 35 to 20 per cent for London schemes breaking ground by March 2028. The industry is pressing for this to be made permanent.

Berkeley has done better than larger competitors financially, despite its London bias. Its share price has fallen 20 per cent in five years, compared with nearly 60 per cent for Barrett, Redrow and Vistry. The average selling price of its flats last year fell to £570,000 from £600,000 in the same period two years ago, but its operating margin is more than 20 per cent.

As long as it is cheaper for storage and logistics companies than homebuilders to buy and develop land, London's housing shortage will carry on getting worse. But the capital still has potential, even if the financial calculation is less attractive than in the 1990s, when Berkeley's co-founder Tony Pidgley saw a huge opportunity.

At Regent's View, Berkeley has taken industrial history and converted it into homes that are valuable for many and profitable for itself. Until the barriers lift, there will be fewer like it.

john.gapper@ft.com

Contracts & Tenders

REC POWER DEVELOPMENT AND CONSULTANCY LIMITED
(A wholly owned subsidiary of REC Ltd.)

GLOBAL INVITATION (Through e-bidding Only)
FOR SELECTION OF TRANSMISSION SERVICE PROVIDER THROUGH TARIFF BASED COMPETITIVE BIDDING (TBCB) PROCESS ON BUILD, OWN, OPERATE AND TRANSFER (BOOT) BASIS FOR 01 (ONE) INTRA – STATE TRANSMISSION PROJECT

REC Power Development and Consultancy Limited, New Delhi, India (a wholly owned subsidiary of REC Limited, a Maharatna Central Public Sector Undertaking) invites proposal for setting up of the below mentioned transmission project through TBCB process on Build, Own, Operate and Transfer (BOOT) basis following single stage two envelope process of "Request for Proposal (RFP)". Interested bidders may refer to the Request for Proposal (RFP) notifications and RFP documents available on our websites www.recpdcl.in & www.recindia.nic.in w.e.f. 07.03.2026.

The bidders may obtain the RFP documents on all working days between 1030 hours (IST) to 1600 hours (IST) from 07.03.2026 to one day prior to bid submission date on payment of non-refundable fee of Rs. 5,00,000/-(Rupees Five Lakh Only) or US$ 7000 (US Dollars Seven Thousand Only) + 18% GST as per details provided in the RFP document available on the websites www.recpdcl.in & www.recindia.nic.in.

The Request for Proposal (RFP) documents can also be downloaded from our websites www.recpdcl.in & www.recindia.nic.in, however, in such cases interested parties can submit Response to RFP only on submission of non-refundable fee of Rs. 5,00,000/- (Rupees Five Lakh Only) or US$ 7000 (US Dollars Seven Thousand Only) + 18% GST as per details provided in the RFP document. The survey report & clarifications to RFP documents shall be issued to those bidders, who have obtained/purchased RFP documents by paying requisite fee. The important timelines in this regard are as follows:

Sr. No.	Name of Project	Last Date for submission of Response to RFP	Details of Opening of Response to RFP
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All corrigenda, addenda, amendments, time extensions, etc. to the RFP will be hosted on our websites www.recpdcl.in & www.recindia.nic.in. Bidders should regularly visit our websites to keep themselves updated.

Note: RECPDCL reserves the right to cancel or modify the process without assigning any reason and without any liability. This is not an offer.

Chief Executive Officer
REC Power Development and Consultancy Ltd.
Core-4, SCOPE Complex, 7, Lodhi Road, New Delhi-110003, India

Bid Process Coordinator
REC Power Development
REC Power Development and Consultancy Limited

An Initiative of
Government of Karnataka

Initiative Partner
Karnataka Power Transmission Corporation Ltd. (STU)

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Discount Bonds Due 2028

Notice is hereby given that the Rate of Interest has been fixed at 5.125000% and that the interest payable on the relevant Interest Payment Date 12 March 2026 against Coupon No. 43 in respect of US$1,000 nominal of the Bonds will be US$25.77

Citibank Agency & Trust
11 March 2026

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Chief Executive Officer
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Core-4, SCOPE Complex, 7, Lodhi Road, New Delhi-110003, India

Bid Process Coordinator
REC Power Development
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Citibank Agency & Trust
11 March 2026

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Annexure P-11(Colly)

(A wholly owned subsidiary of REC Limited, a 'Maharatna CPSE' under Ministry of Power, Govt. of India)
REC Power Development

संदर्भ सं:आरईसीपीडीसीएल/इंट्रा-स्टेट/टीबीसीबी/केपीटीसीएल/रयाप्ते/2025-26/555 Date: 11.03.2026

The Secretary
Karnataka Electricity Regulatory Commission
No. 16, C-1, Millers Tank Bund Rd, Bed Area,
Vasanth Nagar, Bengaluru,
Karnataka 560052

Subject: Global Invitation for selection of Transmission Service Provider (TSP) to establish Intra-State Transmission Project namely "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District"- through Tariff Based Competitive Bidding process. - **Copy of RFP Notification.**

महोदय,

As you may kindly be aware that Government of Karnataka vide its Gazette Notification dated 04.03.2025 has appointed REC Power Development and Consultancy Limited as Bid Process Coordinator (BPC) for selection of Transmission Service Provider to establish subject transmission project through TBCB. Subsequent to annulment of earlier bidding process, RECPDCL had initiated rebidding process and issued Global Invitation in National/International newspapers i.e. Hindustan Times Package & Financial Times on 07.03.2026 for selection of Transmission Service Provider for intra-state Transmission Project namely namely "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District".

The important timelines in this regard are as below. :-

Sr. No.	Name of the Project	Last date of RFP Purchase	Last date for submission of response to RFP
1.	Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District	02.04.2026	06.04.2026 up to 1500 Hrs (IST)

The RfP notification and RfP document for the above project has also been uploaded on our websites www.recindia.nic.in and www.recpdcl.in.

In this regard, copy of Request for Proposal (RfP), Transmission Service Agreement (TSA) and Share Purchase Agreement (SPA) along with copies of newspaper notification of the subject project are enclosed herewith for your kind information and reference please.

धन्यवाद,

भवदीय,

(विजय कुलकर्णी)
वरिष्ठ महाप्रबंधक (इंजी.) एवं विभागाध्यक्ष (टी & डी)

संलग्न :जैसा कि ऊपर बताया गया है

REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited, a 'Maharatna CPSE'
under Ministry of Power, Govt. of India)

584

REC Power Development

संदर्भ सं:आरईसीपीडीसीएल/इंट्रा-स्टेट/टीबीसीबी/केपीटीसीएल/रयाप्ते/2025-26/5650

Date: 11.03.2026

The Under Secretary to Government of Karnataka
Energy Department
Room No. 240, 2nd Floor,
Vikasa Soudha, Dr. B.R Ambedkar Street,
Bangalore - 560 001

Kind attention: Sri Vinod Kumar D.M

Subject: Global Invitation for selection of Transmission Service Provider (TSP) to establish Intra-State Transmission Project namely "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District"- through Tariff Based Competitive Bidding process. - **Copy of RFP Notification.**

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वरिष्ठ महाप्रबंधक (इंजी.) एवं विभागाध्यक्ष (टी & डी)

संलग्न :जैसा कि ऊपर बताया गया है

REC Power Development and Consultancy Limited
(Formerly known as REC Power Distribution Company Limited)
A wholly owned subsidiary of REC Limited, a Maharatna CPSE
under Ministry of Power, Govt. of India)

REC Power Development

संदर्भ संख्या: RECPDCL/TBCB/Ryapte/25-26/5847

दिनांक: 23.03.2026

M/s Tata Power Company Limited
B-12/13, 2nd Floor, Shatabdi Bhawan,
Sector-04, Noida, UP - 201301

सादर ध्यानाकर्षण: श्री रजत उप्रेती

विषय: Selection of Bidder as Transmission service Provider to establish "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District"- **Issuance of Tentative Acquisition Price regarding**

महोदय,

This has reference to the RFP dated 07.03.2026 for selection of Transmission service Provider to establish "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process.

As per the requirement of Clause 1.5 of RFP, we would like to intimate you that the Tentative Acquisition Price payable by the Selected Bidder to the BPC for the acquisition of one hundred percent (100%) of the equity shareholding of "RYAPTE POWER TRANSMISSION LIMITED" along with all its related assets and liabilities is **Rs. 1074.48 Lakhs (Rupees Ten Crore Seventy-Four Lakhs Forty-Eight Thousand Only)**. This Acquisition Price shall be subject to adjustment based on the audited accounts of "RYAPTE POWER TRANSMISSION LIMITED" as on the date of execution of the Share Purchase Agreement.

It may please be noted that as on date, there are no contractual obligations undertaken by BPC on behalf of "RYAPTE POWER TRANSMISSION LIMITED" which are to be fulfilled by the TSP.

All other terms and conditions of the RFP remain the same.

धन्यवाद,

भवदीय,

23/3

(विजय कुलकर्णी)

वरिष्ठ महाप्रबंधक एवं विभागाध्यक्ष (टी & डी)

Annexure P-13

Additional clarifications dated 01.04.2026 on the RFP Documents for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process

Sl. No	Name of the Document	Clause No. and Existing provision	Clarification required	Suggested text for the amendment	Rationale for the Clarification or Amendment	RECPDCL Reply
1	RfP Documents	**Scope of Transmission System:** 1. ..... 5. 220kV DC line with Single Zebra and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions) from proposed 400/220 kV Doddathagalli sub-station to 220kV Ekarajapura sub-station with 2 No.s of AIS TB at Ekarajapura S/s with rearrangement/Shifting of existing Bus PT bay Note: The Tower design shall be suitable for TWIN Zebra. 6. 220kV DC line with partial AAAC Moose and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions) from proposed 400/220 kV Doddathagalli sub-station to proposed 220kV Hosakote New sub-station. 7. 220kV DC line with Single Zebra and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions) from proposed 400/220kV Doddathagalli to Sarjapura AIS S/s with 2 No.s of outdoor GIS TB at Sarjapura S/s by extending existing AIS bus bar along with AIS isolator Note: The Tower design shall be suitable for TWIN Zebra.	a) As per RfP Documents, for partial 2 runs of 1200 Sq.mm. UG Cable, we understand that 1 run of 1-Ph, 1200 Sq. mm. underground cable in each phase of each circuit is envisaged. b) Further, we also understand that spare cable is not required to be considered. Kindly confirm our understanding.		Bidder needs information for proper estimation.	a) Bidder's understanding is correct. b) Yes, spare cable is not required.

Annexure P-14

Ref: T&D/BD/DOM/FY27/RECPDCL/Ryapte/03 **Date: April 06 , 2026**

To,
Chief Executive Officer,
REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited)
REC Corporate Head Quarter,
D Block, Plot No. I – 4, Sec – 29 Gurugram – 122 001

Subject: Details of Bidding Company for Selection of Bidder as Transmission Service Provider to establish Intra-State Transmission System for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District through tariff based competitive bidding process" through tariff based competitive bidding process.

Dear Sir,

As per the requirements of the technical bid submission process for the subject opportunity, we are hereby providing the details of the bidding company for usage specific to the subject bidding process. The particulars requested on the portal are detailed below:

1. **Name of the Bidding Company:** The Tata Power Company Limited
2. **Address of the Bidding Company:** Bombay House, 24, Homi Mody Street, Mumbai 400 001,India
3. **Name of the contact person (authorized signatory):** Mr. Piyush Kumar
4. **Telephone number for correspondence:** 0120 610 2309
5. **Mobile Number for correspondence:** +91-9971152926
6. **Email address for correspondence:** piyushkumar@tatapower.com
7. Enclosed herewith is the copy of the PAN card of the bidding company.

Thanking you and assuring our best services always

Yours sincerely,

For & on behalf of The Tata Power Company Limited

Piyush Kumar
Authorized Signatory

The Tata Power Company Ltd. TATA

स्थाई लेखा संख्या /PERMANENT ACCOUNT NUMBER

AAACT0054A

नाम /NAME

THE TATA POWER CO LTD

निगमन/बनने की तिथि /DATE OF INCORPORATION/FORMATION

18-09-1919

आयकर निदेशक (पद्धति)

DIRECTOR OF INCOME TAX (SYSTEMS)

The Tata Power Company Ltd. TATA

TATA

TATA POWER

Technical Bid For Selection of Bidder as Transmission Service Provider Through Tariff Based Competitive Bidding Process

To Establish:

Intra State Transmission System for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District"

Submitted By

The Tata Power Company Limited

The Tata Power Company Ltd. TATA

PROPOSAL SHEET

Project :-	Selection of TSP through TBCB to Establish Intra-State Transmission System for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process
BPC	REC Power Development and Consultancy Limited
Submission Date	06 April 2026
Submitted By	The Tata Power Company Limited
Primary Contact Name & details	Mr. Piyush Kumar Head - BD (Transmission) piyushkumar@tatapower.com +91-9971152926
Bid Valid Till	06 October 2026

Version Control: *All information given under this version over rides all and any kind of offers, assumptions, deliverables and contracts, given under any previous version. All previous versions of the subject Proposal stand null and void.*

The Tata Power Company Ltd. TATA

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6. Annexure-7C Relationship & Details of Equity Shareholding
7. Annexure-7D Additional Information including financial statements
8. Annexure-8 Undertaking and Details of Equity Investment
9. Annexure-9 Authorization from Affiliate
10. Annexure-12 Illustration of Affiliate
11. Annexure-13 Disclosure
12. Annexure-14 Bid Bond
13. Annexure-16 Checklist for Technical Bid Submission Requirements
14. Proof of Payment of RFP fee
15. Board Resolution
16. Affidavit
17. MOA amendment

The Tata Power Company Ltd. TATA

1. Annexure-1
Covering Letter

The Tata Power Company Ltd. TATA

TATA

COVERING LETTER

Date: 06 April 2026

From: The Tata Power Company Limited
Bombay House
24, Homi Mody Street
Mumbai - 400 001, INDIA
Tel. No.: 022 6665 8282, +91 9971152926, 0120 610 2309
Fax No.: 022 6665 8801
E-mail address: piyushkumar@tatapower.com, tatapower@tatapower.com

To,
Chief Executive Officer,
REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited)
REC Corporate Head Quarter,
D Block, Plot No. I – 4, Sec – 29 Gurugram – 122 001

Dear Sir,

Sub: Bid for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District through tariff based competitive bidding process".

1. Being duly authorized to present and act on behalf of M/s The Tata Power Company Limited (hereinafter called the **"Bidder"**) and having read and examined in detail the Request for Proposal (RFP) document, the undersigned hereby submit our Technical Bid with duly signed formats and Financial Bid (Initial Offer) as stipulated in RFP document for your consideration.

2. It is confirmed that our Bid is consistent with all the requirements of submission as stated in the RFP document and subsequent clarifications/amendments as per Clause 2.3 and 2.4 of RFP.

3. The information submitted in our Bid is complete, is strictly as per the requirements stipulated in the RFP document and is correct to the best of our knowledge and understanding. We would be solely responsible for any errors or omissions in our Bid.

4. We hereby agree and undertake to procure the products associated with the Transmission System as per provisions of Public Procurement (Preference to Make in India) orders issued by Ministry of Power vide orders No. 11/5/2018 - Coord. dated 28.07.2020 for transmission sector, as amended vide order No. A-1/2021-FSC- Part(5) dated 16.11.2021 and No.: P45021/2/2017-PP (BE-II)-Part-4 Vol.II dated 19.07.2024 issued by Ministry of Power for transmission sector, as may be further amended from time to time read with Department for Promotion of Industry and Internal Trade (DPIIT) orders in this regard.

The Tata Power Company Ltd. TATA

We hereby also agree and undertake to comply with Department of Expenditure, Ministry of Finance revised OM dated 23.02.2023 issued in suppression of Order (Public Procurement No 1) bearing File No. 6/18/2019-PPD dated 23.07.2020, Order (Public Procurement No 2) bearing File No. 6/18/2019-PPD dated 23.07.2020 and Order (Public Procurement No. 3) bearing File No. 6/18/2019-PPD, dated 24.07.2020, Office Memorandum (OM) No. F.18/37/2020-PPD dated 08.02.2021, OM No. F.12/1/2021- PPD(Pt.) dated 02.03.2021, OM No. F.7/10/2021-PPD dated 08.06.2021 and Order (Public Procurement No 4) bearing File No. F.7/10/2021-PPD dated 23.02.2023, as amended from time to time, regarding public procurement from a bidder of a country, which shares land border with India.

5. We hereby agree to comply with Ministry of Power order no. 25-11/6/2018 – PG dated 02.07.2020 as amended from time to time.

6. We are herewith submitting legally binding board resolution for the total equity requirement of the Project.

7. Not Applicable as per Clause 2.5.2 para 10 of the RFP, since the Bidding Company (The Tata Power Company Limited) holds more than 26% equity in the Technically Evaluated Entity (Tata Power Renewable Energy Limited).

8. We confirm that there are no litigations or disputes against us, which materially affect our ability to fulfill our obligations with regard to the Project.

9. We hereby confirm that we shall continue to maintain compliance with Qualification Requirements till the execution of the Transmission Service Agreement. Further, in case we emerge as Selected Bidder for the Project, we shall continue to maintain compliance with Qualification Requirements till the COD of the Project.

10. We confirm that we have studied the provisions of relevant Indian laws and regulations required to enable us to build, own, operate and transfer the said Project and to prepare this Bid.

11. We hereby confirm that we shall abide unreservedly with BPC's decision in the qualification process for selection of Qualified Bidder and further warrant that under no circumstances we shall challenge either the BPC's decision or its right to make such decision at any time in the future.

12. We confirm that the Bid shall remain valid for a period of one eighty (180) days from the Bid Deadline.

13. The details of contact person are furnished as under:

Name:	Piyush Kumar
Designation:	Authorized Signatory
Name of the Company:	The Tata Power Company Limited
Address of the Bidder:	Bombay House, 24, Homi Mody Street, Mumbai, 400 001, India
Phone Nos.:	022 6665 8282, 0120 6102309, +91-9971152926

Fax Nos.:	022 6665 8801
E-mail address:	piyushkumar@tatapower.com

14. Bid Bond

We have enclosed a Bid Bond of Rupees Rs. 20.93 Crore (Rupees Twenty Crore and Ninety-three Lakh) only or NA, in the form of bank guarantee no 0393NDLG00004327 dated 04-04-2026 as per your proforma (Annexure-14) from ICICI Bank Limited and valid up to 06-04-2027 in terms of Clause 2.11 of the RFP.

15. Acceptance

We hereby unconditionally and irrevocably agree and accept that the decision made by the BPC on any matter regarding or arising out of the RFP shall be binding on us. We hereby expressly waive any and all claims in respect of Bid process.

16. Familiarity with Relevant Indian Laws & Regulations

We confirm that we have studied the provisions of relevant Indian laws and regulations as required to enable us to submit this Bid and execute the RFP Project Documents (other than TSA), in the event of our selection as the TSP. We further undertake and agree that all such factors as mentioned in Clause 2.5.7 of RFP have been fully examined and considered while submitting the Bid.

It is confirmed that our Bid is consistent with all the requirements of submission as stated in the RFP and subsequent communications from BPC.

The information submitted in our Bid is complete, strictly as per the requirements stipulated in the RFP and is correct to the best of our knowledge and understanding. We would be solely responsible for any errors or omissions in our Bid.

We confirm that we have not taken any deviation so as to be deemed non-responsive with respect to the provisions stipulated at Clause 2.5.1, of this RFP.

Thanking you,

Yours sincerely,

Name: Piyush Kumar
Designation: Authorized Signatory
Address: The Tata Power Company Limited
B12/13 Shatabdi Bhavan, Amaltash Marg,
Sector 4, Noida, Uttar Pradesh 201301, India
Date: 6 April 2026
Place: Noida

2. Annexure-3

Power of Attorney

The Tata Power Company Ltd.
TATA

महाराष्ट्र MAHARASHTRA ◑ 2026 ◑ EV 204662

प्रधान मुद्रांक कार्यालय, मुंबई
प.मु.वि.क्र.८०००० ९०
- 1 APR 2026
सक्षम अधिकारी

श्रीमती. सायली कोळी

This stamp paper forms an integral part of the Specific Power of Attorney dated 2nd April, 2026 granted to Mr. Piyush Kumar.

जोडपत्र - २ Annexure - II

दस्ताचा प्रकार	POWER OF ATTORNEY
दस्त नोंदणी करणार आहेत का ?	YES/NO
भिन्नकलीचे वर्णन -	---
मुद्रांक विकत घेणाऱ्याचे नाव	
दुसऱ्या पक्षकाराचे नाव	Piyush Kumar
हस्ते असल्यास त्याचे नाव व पत्ता	
मुद्रांक शुल्क रक्कम	
मुद्रांक शिक्के बोर्ड वही अनु. क्रमांक/दिनांक	6731
मुद्रांक विकत घेणाऱ्याची सही	
मुद्रांक विक्रेत्याची सही	

परवाना क्रमांक : ८०००९०

मुद्रांक विक्रिचे नाव/पत्ता : श्री। कल्लेश प्रेमजी गाला

शॉप नं.४, भाग्योदय बिल्डिंग, ७९ [illegible] 400 001

ज्या कारणासाठी ज्यांनी मुद्रांक खरेदी केला त्यांनी त्याच कारणासाठी

मुद्रांक खरेदी केल्या पासून ६ महिन्यात वापरणे बंधनकारक आहे

2 APR 2026

The Tata Power Co. Ltd.
Bombay House,
24, Homi Mody Street,
Mumbai - 400 001.

2 APR 2026

The Tata Power Company Ltd.
TATA

SPECIFIC POWER OF ATTORNEY

Know all men by these presents, We, **The Tata Power Company Limited,** having registered office at **Bombay House, 24, Homi Mody Street, Mumbai 400 001** do hereby constitute, appoint and authorize **Mr. Piyush Kumar,** who is presently employed with us and holding the position of **Authorized signatory** as our attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to our Bid for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission System for **"Evacuation Scheme For 2000 MW Solar Park at Ryapte Village, Tumkur District"** through tariff based competitive bidding process in the country of India, including signing and submission of all documents related to the Bid, including signing and submission of all documents related to the Bid, including, undertakings, letters, certificates, acceptances, clarifications, guarantees, etc., making representations to the BPC, and providing information / responses to the BPC, representing us in all matters before the BPC, and generally dealing with the BPC in all matters in connection with our Bid for the said Project till the completion of the bidding process in accordance with the RfP and signing of the Share Purchase Agreement by all the parties thereto.

We hereby agree to ratify all acts, deeds and things lawfully done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney shall always be deemed to have been done by us.

All the terms used herein but not defined shall have the meaning ascribed to such terms under the RfP.

For The Tata Power Company Limited

.....
(Signature)

Name: Dr. Praveer Sinha
Designation: CEO & Managing Director

Accepted

.....
(Signature of the Attorney)

Name: Piyush Kumar
Designation: Authorized Signatory
Address: The Tata Power Company Limited
"Shatabdi Bhawan", B-12&13, Sector-4 Noida, 201 301 (U.P), India

Attested

.....
(Signature of the Executant)

Name: Dr. Praveer Sinha
Designation: CEO & Managing Director

The Tata Power Company Ltd. TATA

The COMMON SEAL of THE TATA POWER COMPANY LIMITED was hereunto affixed pursuant to Resolution passed by its Committee of Directors on the 21st day of November 2025 in our presence

.....
Dr. Praveer Sinha
CEO & Managing Director

.....
Vispi S. Patel
Company Secretary

BEFORE ME
S. M. H. ZAIDI
NOTARY
Government of India
Mumbai & Thane Dist

NOTARY S.M.H.ZAIDI Mumbai & Thane Dist. R. J. No. 3640 My Commission Expires 25 Sept. 2026 GOVT. OF INDIA

.....
(Signature of Notary Public)
Place:
Date:

NOTED & REGISTERED
Sr. No. 1478 Page No. 95
Book No. 1 Date

- 2 APR 2026

- 2 APR 2026

Certified True Copy of Resolution passed at the Board meeting held on 23rd March 2018

A. "RESOLVED that Mr. Praveer Sinha be and is hereby appointed an Additional Director of the Company with effect from 1st May 2018 under Section 161 of the Companies Act, 2013."

B. "RESOLVED that subject to the approval of the shareholders of the Company at the next General Meeting under Section 196 of the Companies Act, 2013, Mr. Praveer Sinha be and is hereby appointed as CEO & Managing Director of the Company for a period of 5 years from 1st May 2018 to 30th April 2023.

FURTHER RESOLVED that the Nomination and Remuneration Committee be and is hereby authorised to determine and recommend to the Board for its approval the terms and conditions and remuneration of Mr. Sinha.

FURTHER RESOLVED that an agreement be executed between the Company and Mr. Sinha and that the Common Seal of the Company be affixed thereto in accordance with the provisions of its Articles of Association.

FURTHER RESOLVED that Mr. H. M. Mistry, Company Secretary, be and is hereby authorised to take all necessary steps to give effect to this Resolution."

Certified True Copy
For The Tata Power Company Limited

HM Mistry

Company Secretary

THE TATA POWER COMPANY LTD.

The Tata Power Company Ltd. TATA

MINISTRY OF CORPORATE AFFAIRS
RECEIPT
G.A.R.7

SRN : G87093852 **Service Request Date :** 14/05/2018

Payment made into : ICICI Bank

Received From :

Name : Hanoz Minoo Mistry

Address : Bombay House
24, Homi Mody Street
Mumbai, Maharashtra
India - 400001

Entity on whose behalf money is paid

CIN: L28920MH1919PLC000567

Name : THE TATA POWER COMPANY LIMITED

Address : BOMBAY HOUSE24 HOMI MODY STREET
FORT
MUMBAI, Maharashtra
India - 400001

Full Particulars of Remittance

Service Type: eFiling

	Service Description	Type of Fee	Amount(Rs.)
	Fee For Form DIR-12	Normal	600.00
		Total	600.00

Mode of Payment: Credit Card- ICICI Bank

Received Payment Rupees: Six Hundred Only

Note –The Registrar may examine this eForm any time after the same is processed by the system under Straight Through Process (STP). In case any defects or incompleteness in any respect is noticed by the Registrar , then this eForm shall be treated and labeled as defective and the eForm shall have to be filed afresh with the fee and additional fee, as applicable. (Please refer Rule 10 of the Companies (Registration offices offices and Fees) Rules, 2014)

The Tata Power Company Ltd TATA

FORM NO. DIR-12

[Pursuant to sections 7(1) (c) 168 & 170 (2) of The Companies Act, 2013 and rule 17 of the Companies (Incorporation) Rules 2014 and 8 15 & 18 of the Companies (Appointment and Qualification of Directors) Rules, 2014]

सत्यमेव जयते

Particulars of appointment of directors and the key managerial personnel and the changes among them

Form Language (•) English ( ) Hindi

Refer the instruction kit for filing the form.

1. *This form is for ( ) New company (•) existing company
2. (a) * Corporate Identity Number (CIN) of company: L28920MH1919PLC000567

   (b)Global location number (GLN) of company: [ ] Pre-fill
3. (a) Name of the company: THE TATA POWER COMPANY LIMITED

   (b) Address of the registered office of the company:
   BOMBAY HOUSE24 HOMI MODY STREET
   FORT
   MUMBAI
   Maharashtra
   400001
   India

   (c) E-mail ID of the company: tatapower@tatapower.com
4. Number of Managing director or director(s) for which the form is being filed: 2
5. Details of the Managing Director, directors of the company

The Tata Power Company Ltd. TATA

THE TATA POWER COMPANY LIMITED

1 Details of the Managing Director or Director of the company

i Director Identification Number (DIN) 00006867 Pre-fill

ii Name ANIL KUMAR SARDANA

iii Father's name DEV DUTT SARDANA

iv Present residential address 22 A/B, New Akash Ganga Co-operative Housing Society Ltd.,89, Bhulabhai Desai Road, Mumbai Maharashtra India 400026

v Nationality IN vi Date of birth 16/04/1959 vii Gender Male

viii ○ Appointment ◉ Cessation ○ Change in designation x Date of Appointment or change in designation (DD/MM/YYYY)

ix Designation Managing Director

xi Category

xii Whether Chairman, Executive Director, Non-Executive Director

☐ Chairman ☐ Executive director ☐ Non Executive Director

xiii DIN of such director to whom appointee is alternate Pre-fill

xiv Name of the director to whom such appointee is alternate

xv Name of the company or institution whose nominee the appointee is

xvi E-mail ID of director anil.sardana@tatapower.com

xvii In case of cessation

Hereby confirmed that the above mentioned ○ Director ◉ Managing director xviii is not associated with the company with effect from 30/04/2018 (DD/MM/YYYY) xix due to Resignation u/s 168

xx **Interest in other entities**

xxi Number of such entities

xxii *CIN/LLPIN/FCRN/Registration number Pre-fill

xxiii *Name

xxiv *Address

xxv **Nature of interest**

xxvi *Designation

xxvii Percentage of Shareholding xxviii Amount

xxix Others (specify)

The Tata Power Company Ltd TATA

1 Details of the Managing Director or Director of the company

i Director Identification Number (DIN) 01785164 Pre-fill

ii Name PRAVEER SINHA

iii Father's name AWADH KISHORE PRASAD SINHA

iv Present residential address
N-66 Ist Floor
Panchsheel Park
Delhi
Delhi
India
110017

v Nationality IN vi Date of birth 08/04/1962 vii Gender Male

viii (•) Appointment ( ) Cessation ( ) Change in designation

ix Designation Additional director

x Date of Appointment or change in designation 01/05/2018 (DD/MM/YYYY)

xi Category Professional

xii Whether Chairman, Executive Director, Non-Executive Director

[ ] Chairman [X] Executive director [ ] Non Executive Director

xiii DIN of such director to whom appointee is alternate Pre-fill

xiv Name of the director to whom such appointee is alternate

xv Name of the company or institution whose nominee the appointee is

xvi E-mail ID of director sinhapraveer@tatapower.com

xvii In case of cessation

Hereby confirmed that the above mentioned ( ) Director ( ) Managing director xviii is not associated with the company with effect from (DD/MM/YYYY) xix due to

xx **Interest in other entities**

xxi Number of such entities 0

xxii *CIN/LLPIN/FCRN/Registration number Pre-fill

xxiii *Name

xxiv *Address

xxv **Nature of interest**

xxvi *Designation

xxvii Percentage of Shareholding xxviii Amount

xxix Others (specify)

The Tata Power Company Ltd. TATA

THE TATA POWER COMPANY LIMITED

6. Number of manager(s), secretary(s), Chief Financial Officer or Chief Executive Officer for which the form is being filed

7. Details of manager(s), secretary(s), Chief Financial Officer or Chief Executive Officer of the company

1 i	Director Identification Number (DIN), If any	Pre-fill
ii	Income Tax permanent account number (PAN)	Verify Details
iii	◯ Appointment ◯ Cessation	
iv	Membership number of the secretary	
v	First Name	
vi	Middle Name	
vii	Last Name	
viii	**Father's name**	
ix	First Name	
x	Middle Name	
xi	Last Name	
xii	Present residential address xiii Line I	
	xiv Line II	
xv	City	
xvi	State / xvii Pin Code	
xviii	ISO Country Code	
xix	Country	
xx	Phone / xxi Fax	
xxii	Date of birth (DD/MM/YYYY)	
xxiii	Designation	
xxiv	Date of Appointment or cessation (DD/MM/YYYY)	
xxv	E-mail ID	

THE TATA POWER COMPANY LIMITED

Attachments

The Tata Power Company Ltd TATA

List of attachments

(1) Declaration by first director	Attach	Resignation letter.pdf
(2) Declaration of the appointee director in Form No. DIR-2;	Attach	CTC_DIR 12.pdf DIR-8.pdf
(3) Notice of resignation;	Attach	CTC_Appointment.pdf
(4) Evidence of cessation;	Attach	DIR-2.pdf
(6) Optional attachment(s) - if any	Attach	

Remove attachment

Declaration

I HANOZ MISTRY

☐ A person named in the articles as a _____ of the company

(in case if a new company) or

☒ authorized by the Board of Directors of the Company vide 15

number dated 10/08/2011

to sign this form and declare that all the requirements of Companies Act, 2013 and the rules made thereunder in respect of the subject matter of this form and matters incidental thereto have been complied with. I also declare that all the information given herein above is true, correct and complete including the attachments to this form and nothing material has been suppressed.

To be digitally signed by MISTRY HANOZ

Designation Company Secretary

Director identification number of the director; or DIN or PAN of the manager or CEO or CFO; or Membership number of the secretary 3606

Certificate by practicing professional

I declare that I have been duly engaged for the purpose of certification of this form. It is hereby certified that I have gone through the provisions of the Companies Act, 2013 and Rules thereunder for the subject matter of this form and matters incidental thereto and I have verified the above particulars (including attachment(s)) from the original/certified records maintained by the Company/applicant which is subject matter of this form and found them to be true, correct and complete and no information material to this form has been suppressed. I further certify that:

☒ The said records have been properly prepared, signed by the required officers of the Company and maintained as per the relevant provisions of the Companies Act, 2013 and were found to be in order ;

☒ All the required attachments have been completely and legibly attached to this form;

☒ It is understood that I shall be liable for action under Section 448 of The Companies Act, 2013 for wrong certification, if any found at any stage.

To be digitally signed by P N Parikh

○ Chartered accountant (in whole-time practice) or ○ Cost accountant (in whole-time practice) or

◉ Company secretary (in whole-time practice)

Whether Associate or fellow ○ Associate ◉ Fellow

Membership number 327

Certificate of Practice Number 1228

Modify | Check Form | Prescrutiny | Submit

This eForm has been taken on file maintained by the Registrar of companies through electronic mode and on the basis of statement of correctness given by the filing company

The Tata Power Company Ltd TATA

Certified True Extract of the Resolution passed at the Board Meeting held on 30th March 2023

Re-appointment of Dr. Praveer Sinha as CEO & Managing Director of the Company

"RESOLVED that the re-appointment of Dr. Praveer Sinha (DIN: 01785164) as the CEO & Managing Director of the Company for a period of four years from May 1, 2023 to April 30, 2027, subject to approval of the shareholders, be and is hereby approved."

Certified True Copy
For The Tata Power Company Limited

(Hanoz M. Mistry)
Company Secretary
FCS No.3606
The Tata Power Company Limited
Bombay House
24, Homi Mody Street
Mumbai 400 001

The Tata Power Company Ltd. TATA

3. Annexure-5 Bidder's composition & ownership structure

TATA

BIDDER'S COMPOSITION AND OWNERSHIP STRUCTURE

1. **Corporate Details:**

   a. **Company's Name, Address, and Nationality:**

   Name: The Tata Power Company Limited

   Address: Bombay House

   24, Homi Mody Street,

   Mumbai 400 001, India

   Website Address: www.tatapower.com

   Country of Origin: India

   b. **Year Organized:** 1919

   c. **Company's Business Activities:**

   i. Power through Conventional and Renewable Generation

   ii. Transmission and Distribution of electricity

   iii. Power Trading

   iv. Next Generation Power Solutions – Solar Rooftop, EV Charging infrastructure, Home Automation and Micro grids

   d. **Status as a Bidder**: Bidding Company

   e. **Company's Local Address in India (if applicable):**

   Bombay House, 24, Homi Mody Street

   Mumbai 400 001, India

   f. **Name of the Authorized Signatory:** Piyush Kumar

   g. **Telephone Number:** +91-9971152926

   h. **Email Address:** piyushkumar@tatapower.com

   i. **Telefax Number:** 022 6665 8801

The Tata Power Company Ltd. TATA

TATA POWER
The Tata Power Company Limited
"Shatabdi Bhawan", B-12&13, Sector-4 Noida 201 301 (U.P.)
Tel.: 91 120 610 2000
Registered Office Bombay House 24 Homi Mody Street Mumbai 400 001
Website : www.tatapower.com Email : tatapower@tatapower.com
CIN : L28920MH1919PLC000567

j. The following documents are attached herewith:

i. Copy of the Memorandum and Articles of Association and certificate of incorporation or other equivalent organizational document (as applicable), including their amendments, certified by the Company Secretary as **Attachment 1** for Bidding Company.

ii. Authority letter (as per format for authorization given below) in favour of BPC from the Bidder authorizing BPC to seek reference from their respective bankers & others as **Attachment 2** as per Clause 2.1.6 of the RFP.

2. Details of Ownership Structure:

Equity holding of Bidding Company

Name of the Bidding Company: The Tata Power Company Limited

Status of equity holding as on 27th March 2026

S. No.	Name of the Equity Holder	Type and No. of Equity Shares owned	Extent of Voting Control (%)
1.	Tata Sons Private Limited's Holding (A)	1444513021	45.21
2.	Other Promoter's Holding (B)	52744544	1.65
3.	Total Promoter Holding {C=(A+B)}	1497257565	46.86
4.	Total Public Holding (D)	1698081982	53.14
	Total (C+D)	**3195339547**	**100.00**

For and on behalf of Bidding Company

M/s The Tata Power Company Limited

.....

Name: Piyush Kumar

Designation: Authorized Signatory

.....

(Stamp)

Date: 6th April 2026

Place: Noida

INDIA NON JUDICIAL

Government of Uttar Pradesh

e-Stamp

IN-UP80785629776707X

612

Signature

ACC Name: RAJKUMAR ACC Code: UP14005404
ACC ADD.: NOIDA Mob: 8750758046
License No: 172/20**8, Tehsil & Distric: G.B. Nagar

₹100

Certificate No.	:	**IN-UP80785629776707X**
Certificate Issued Date	:	07-Apr-2025 12:37 PM
Account Reference	:	NEWIMPACC (SV)/ up14005404/ NOIDA/ UP-GBN
Unique Doc. Reference	:	SUBIN-UPUP14005404583399525655 85X
Purchased by	:	THE TATA POWER COMANY LIMITED
Description of Document	:	Article 5 Agreement or Memorandum of an agreement
Property Description	:	Not Applicable
Consideration Price (Rs.)	:	
First Party	:	THE TATA POWER COMANY LIMITED
Second Party	:	Not Applicable
Stamp Duty Paid By	:	THE TATA POWER COMANY LIMITED
Stamp Duty Amount(Rs.)	:	100 (One Hundred only)

NOTARY Kamal Singh Kardam (Advocate) Regd. No. 10752 NOTARIAL GOVT. OF INDIA

IN-UP80785629776707X

Please write or type below this line

FORMAT FOR AUTHORISATION

The undersigned hereby authorize(s) and request(s) all our Bankers, including its subsidiaries and branches, any person, firm, corporation or authority to furnish pertinent information deemed necessary and requested by **REC Power Development and Consultancy Limited** to verify our Bid for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission system for **"Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District"**

NOTARY Kamal Singh Kardam (Advocate) Regd. No. 10752 NOTARIAL GOVT. OF INDIA

The Tata Power Company Ltd. TATA

Statutory Alert:

1. The authenticity of this Stamp certificate should be verified at 'www.shcilestamp.com' or using e-Stamp Mobile App of Stock Holding. Any discrepancy in the details on this Certificate and as available on the website / Mobile App renders it invalid.
2. The onus of checking the legitimacy is on the users of the certificate.
3. In case of any discrepancy please inform the Competent Authority.

07-Apr-2025 12:37 PM 07-Apr-2025 12:37 PM 07-Apr-2025 12:37 PM

Through tariff based competitive bidding process or regarding our project development experience, financial standing and general reputation.

For and on behalf of M/s The Tata Power Company Limited

.....

Name of Authorized Signatory: Piyush Kumar

Place: Noida

Date: 06 April 2026

.....

(Company rubber stamp)

.....

(Signature of Notary Public)

Place: Noida

Date: 06 April 2026

ATTESTED
Karan Singh Kardam
Notary Advocate
Reg. No. 19752
Govt. of India

NOTARY
Karan Singh Kardam
(Advocate)
Reg. No. 19752
GOVT. OF INDIA

4. Annexure-7A Qualification requirement- Net Worth

The Tata Power Company Ltd.
TATA

QUALIFICATION REQUIREMENT

NET WORTH

To,
Chief Executive Officer,
REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited)
REC Corporate Head Quarter,
D Block, Plot No. I – 4, Sec – 29 Gurugram – 122 001

Sub: Bid for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission System for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process

Dear Sir,

We certify that the Financially Evaluated Entity had a Net worth of Rs. 17045.57 Crore as on 31st March 2025, computed as per instructions in this RFP based on unconsolidated audited annual accounts of any of the last three (3) financial years, as provided in Clause 2.2.3, immediately preceding the Bid Deadline.
Also, the Net worth of any of the last three (3) financial years is not negative.

(Net worth stated is based on the unconsolidated audited annual accounts for the Financial Year 2024-25)

Name of Financially Evaluated Entity	Relationship with Bidding Company	Net worth (Rs. Crore)
The Tata Power Company Limited	Bidding Company	17045.57
Total Net worth		17045.57

Yours faithfully

.....

(Signature and stamp)

The Tata Power Company Ltd

Name: Piyush Kumar
Date: 06 April 2026
Place: Noida

TATA POWER

This document is to be read with our report on Net worth of the Tata Power Company Limited as at March 31, 2025, March 31, 2024 and March 31, 2023 attached as Annexure 1.

Poonam Todarwal

(Signature and Stamp of statutory Auditors of Bidding Company)

Name: POONAM TODARWAL

Date: Mumbai

Place:

Date: 6/4/26

SRBC & CO LLP MUMBAI CHARTERED ACCOUNTANTS

The Tata Power Company Ltd. TATA

7A Annexure 1 - Net-worth Certificate issued by the auditor of the bidding company

S R B C & CO LLP
Chartered Accountants

12th Floor, The Ruby
29 Senapati Bapat Marg
Dadar (West)
Mumbai - 400 028, India
Tel : +91 22 6819 8000

Independent Auditor's Report on the Statement of Net worth as at March 31, 2025, March 31, 2024 and March 31, 2023

The Board of Directors
The Tata Power Company Limited
34, Sant Tukaram Road,
Carnac Bunder,
Mumbai - 400 009.

1. This Report is issued in accordance with the terms of our service scope letter dated March 30, 2026 and master engagement agreement dated July 20, 2022, with The Tata Power Company Limited (hereinafter referred as the "Company").

2. At the request of the management, we have examined the accompanying Statement of Net Worth as at March 31, 2025, March 31, 2024 and March 31, 2023 (hereinafter referred as the "Statement") which has been prepared by the Company and signed by us for identification purpose only. The Statement together with our report thereon is required by the Company for submission to REC Power Development and Consultancy Limited (hereinafter referred as the "Bid Process Coordinator") in response to Request For Proposal (RFP) document issued by the Bid Process Coordinator for Selection of Bidder as "Transmission Service Provider through tariff based competitive bidding process to establish Intra-State Transmission System for Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District".

Management's Responsibility

3. The accompanying Statement is the responsibility of the Management of the Company including the preparation and maintenance of all accounting and other relevant supporting records and documents. This responsibility includes the design, implementation and maintenance of internal control relevant to the preparation and presentation of the Statement and applying an appropriate basis of preparation; and making estimates that are reasonable in the circumstances.

4. Management is also responsible for ensuring that the Company complies with the requirements of RFP and provides the relevant information to Bid Process Coordinator.

Auditor's Responsibility

5. Pursuant to the requirements of RFP, it is our responsibility to provide a reasonable assurance in the form of an opinion based on our examination whether:

   (i) the amounts forming part of the Statement have been accurately extracted from the audited standalone financial statements of the Company as at and for the years ended March 31, 2025, March 31, 2024 and March 31, 2023;

   (ii) the computation of Net Worth in the Statement is arithmetically correct.

S R B C & COLLP
Chartered Accountants

6. We audited the standalone financial statements of the Company as at and for the years ended March 31, 2025, March 31, 2024 and March 31, 2023 on which we issued unmodified audit opinions vide our reports dated May 14, 2025, May 8, 2024, and May 4, 2023, respectively. Our audit of these standalone financial statements was conducted in accordance with the Standards on Auditing, as specified under Section 143(10) of the Companies Act, 2013, as amended and other applicable authoritative pronouncements issued by the Institute of Chartered Accountants of India (the "ICAI"). Those Standards require that we plan and perform the audit to obtain reasonable assurance about whether the standalone financial statements are free of material misstatement.

7. We conducted our examination of the Statement in accordance with the Guidance Note on Reports or Certificates for Special Purposes issued by the ICAI. The Guidance Note requires that we comply with the ethical requirements of the Code of Ethics issued by the ICAI.

8. We have complied with the relevant applicable requirements of the Standard on Quality Control (SQC) 1, Quality Control for Firms that Perform Audits and Reviews of Historical Financial Information, and Other Assurance and Related Services Engagements.

9. A reasonable assurance engagement involves performing procedures to obtain sufficient and appropriate evidence on the applicable criteria as mentioned in paragraph 5 above. The procedures selected depend on the auditor's judgement, including the assessment of the risks associated with the applicable criteria. Accordingly, we have performed the following procedures in relation to the Statement:

   a) Traced and agreed the amounts in the attached Statement to the audited standalone financial statements of the Company as at and for the years ended March 31, 2025, March 31, 2024 and March 31, 2023 as referred in paragraph 6 above;

   b) Tested the arithmetical accuracy of the Statement; and

   c) Performed necessary inquiries with the management and obtained necessary representations.

Opinion

10. Based on the procedures performed by us as referred to in paragraph 9 above and according to the information, explanations and management representations received by us, we are of the opinion that:

   (i) the amounts in the Statement that form part of Net Worth computation have been accurately extracted from the audited standalone financial statements of the Company as at and for the years ended March 31, 2025, March 31, 2024 and March 31, 2023;

   (ii) the computation of Net Worth in the Statement is arithmetically accurate.

SRBC & CO LLP MUMBAI CHARTERED ACCOUNTANTS

The Tata Power Company Ltd. TATA

S R B C & CO LLP
Chartered Accountants

Restriction on Use

11. This report is addressed to and provided to the Board of Directors of the Company solely for the purpose given in paragraph 2 above and should not be used by any other person or for any other purpose. Accordingly, we do not accept or assume any liability or any duty of care for any other purpose or to any other person to whom this report is shown or into whose hands it may come. We have no responsibility to update this report for events and circumstances occurring after the date of this report.

For S R B C & CO LLP
Chartered Accountants
ICAI Firm Registration Number: 324982E/E300003

Poonam Todarwal

S R B C & CO LLP MUMBAI CHARTERED ACCOUNTANTS

per Poonam Todarwal
Partner
Membership Number: 136454
UDIN: 26136454ECWLOH2079
Mumbai
April 06, 2026

The Tata Power Company Ltd. TATA

The Tata Power Company Limited (the "Company")
Statement of Net Worth as at March 31, 2025, March 31, 2024 and March 31, 2023

(₹ in crore)

Particulars	As at March 31, 2025	As at March 31, 2024	As at March 31, 2023
Equity Share capital	319.56	319.56	319.56
Reserves	18,045.99	15,468.10	13,380.03
Less : Revaluation reserve (Refer Note 3 and 4)	(1281.74)	(1219.73)	(744.29)
Less : Intangible assets	(38.24)	(19.99)	(22.46)
Net Worth	17,045.57	14,547.94	12,932.84

Notes:

1. The above financial information has been extracted from audited standalone financial statements of the Company as at and for the years ended March 31, 2025 , March 31, 2024 and March 31, 2023.

2. For the purpose of preparation of the aforesaid Statement of Net Worth, 'Net Worth' has been computed as per clause 2.1.3.2 of Request for Proposal Document for selection of Bidder as "Transmission Service Provider through tariff based competitive bidding process to establish Intra-State Transmission System for Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur
District", defined as follows :

Net Worth shall mean (Equity Share Capital + Reserves) less (Revaluation Reserves + Intangible Assets + Miscellaneous expenditure to the extent not written off and carry forward losses)

3. For the purpose of calculation of Net Worth, revaluation reserves includes gain recognised as Other Comprehensive Income towards fair valuation of equity instruments and revaluation of land which was transferred to retained earnings.

4. Revaluation reserve pertaining to the gain on fair valuation of land amouting to ₹ 87.88 crore as at March 31, 2025, March 31, 2024 and March 31, 2023 and gain recognised as other comprehensive income towards fair valuation of equity instruments amounting to ₹ 1,193.86 crore as at March 31, 2025, ₹ 1,131.85 crore as at March 31, 2024, and ₹ 656.41 crore as at March 31, 2023 has been excluded from the computation of Net Worth in accordance with the definition of 'Net Worth' as stated in Request For Proposal (RFP).

5. For the purpose of calculation of Net Worth, right of use assets are not excluded.

For and on behalf of The Tata Power Company Limited

Moizali Manjiyani
Head – Corporate Accounts
Place : Mumbai
Date : April 06, 2026

THE TATA POWER COMPANY LIMITED MUMBAI

SIGNED FOR IDENTIFICATION BY
SRBC & CO LLP
MUMBAI

TATA POWER
The Tata Power Company Limited
Corporate Finance Centre, Peninsula Centre, Dr. S. S. Rao Road, Parel, Mumbai - 400 012
Tel. : 022 - 63109271 / 022 - 63109250
Registered Office Bombay House 24 Homi Mody Street Mumbai 400 001
CIN: L28920MH1919PLC000567 Website: www.tatapower.com Email: tatapower@tatapower.com

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Declaration in Case of Annual Accounts for the financial year immediately preceding the Bid Deadline is Not Audited

The Tata Power Company Limited is in process of filing bid for Request for Proposal Document issued by REC Power Development and Consultancy Limited for selection of Bidder as Transmission Service Provider through tariff based competitive bidding process to establish Intra-State transmission system for "Evacuation Scheme for 2000 MW solar park at Ryapte Village, Tumkur District" ("RFP").

The Bid Deadline for as per RFP Clause 2.7 is 06th April 2026.

In lieu of clause 2.2.3 of RFP we hereby declare that statutory audit is not completed for the financial year beginning from 1st April 2025 and ending on 31st March 2026 preceding the Bid Deadline of 06th April 2026.

For and on behalf of The Tata Power Company Limited

Moizali Manjiyani
Head – Corporate Accounts
Place : Mumbai
Date : April 06, 2026

THE TATA POWER COMPANY LIMITED MUMBAI

SIGNED FOR IDENTIFICATION BY
S R B C & CO LLP
MUMBAI

The Tata Power Company Ltd. TATA

TATA POWER
The Tata Power Company Limited
Corporate Finance Centre, Peninsula Centre, Dr. S. S. Rao Road, Parel, Mumbai - 400 012.
Tel. : 022 - 63109271 / 022 - 63109250
Registered Office Bombay House 24 Homi Mody Street Mumbai 400 001
CIN: L28920MH1919PLC000567 Website: www.tatapower.com Email: tatapower@tatapower.com

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5. Annexure-7B Technical Requirement

TATA

TECHNICAL REQUIREMENT

To,
Chief Executive Officer,
REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited)
REC Corporate Head Quarter,
D Block, Plot No. I – 4, Sec – 29 Gurugram – 122 001

Dear Sir,

Sub: Bid for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission System for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process

We certify that M/s Tata Power Renewable Energy Limited have experience of development of projects in the infrastructure sector in the last five (5) years whose aggregate capital expenditure is **Rs. 1500.35 Crore**. We further certify that the capital expenditure of any single project considered for meeting the technical Qualification Requirement is not less than **Rs. 209.32 Crore**. For this purpose, capital expenditure incurred on projects which have been either wholly completed/ commissioned or partly completed projects put under commercial operation and for which operation has commenced till at least seven (7) days prior to the Bid Deadline has been considered.

The project(s) considered for the purpose of technical experience (as per table given below) have been executed and owned to the extent as indicated in the table below (at-least twenty-six (26%) percent) by our Affiliate on operation of the projects. This technical requirement has been calculated as per the instructions provided in the RFP on the basis of following projects:

Name of Company whose technical capability has been used for Qualification Requirement	Relationship with Bidding Company	Project name	Nature of Project	Relevant Infrastructure sector	Date of Financial Closure of the Project	Date of Completion/ Commissioning / Commercial Operation of partly completed projects	Project cost (Rs. Crore)	Percentage Equity Holding of Company at (1) in Completed project(s)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Tata Power Renewable Energy Limited	Tata Power Renewable Energy Limited is an affiliate of the Bidding Company	Dholera 250 MW project in Gujarat	Solar Photovoltaic Energy generation project - BOO	Power	07/12/2020	27th March 2022	1500.35	100%

TATA POWER

The Tata Power Company Ltd. TATA

We further certify that the Company as indicated in column (1) of the above table, whose technical capability has been used for meeting the qualification requirement, has held shareholding respectively of at least twenty – six percent (26%) from the date of financial closure till the date of commissioning / completion of the above project(s).

Yours faithfully

.....

(Signature and stamp)

The Tata Power Company Ltd. TATA

Name: Piyush Kumar

Date: 06 April 2026

Place: Noida

This document is to be read with our report on Completed Project Cost incurred Dholera 250 MW of Tata Power Renewable Energy Limited, as at March 31, 2025 attached as Annexure 2.

Poonam Todarwal

(Signature and Stamp of statutory Auditors of Bidding Company)

Name: Poonam Todarwal

Date: Mumbai

Place: .....

6/4/26

Date:

SRBC & CO LLP MUMBAI CHARTERED ACCOUNTANTS

7B Annexure 2 - Project Cost Certificate issued by the auditor of the Technically Evaluated Entity

S R B C & CO LLP
Chartered Accountants

12th Floor, The Ruby
29 Senapati Bapat Marg
Dadar (West)
Mumbai - 400 028, India

Tel : +91 22 6819 8000

Independent Auditor's Report on Completed Project Cost incurred for Dholera 250 MW project in Gujarat as at March 31, 2025

Board of Directors
Tata Power Renewable Energy Limited,
C/o The Tata Power Company Limited,
34, Sant Tukaram Road,
Carnac Bunder, Mumbai - 400 009

1. This Report is issued in accordance with the terms of our service scope letter dated March 25, 2026, and master engagement agreement dated October 15, 2022 as amended from time to time, with Tata Power Renewable Energy Limited (hereinafter the "Company").

2. At the request of the management, we have examined the accompanying Statement on Completed Project Cost Incurred for Dholera 250 MW project in Gujarat (the 'Dholera Project') as at March 31, 2025 (the 'Statement'). The Statement is prepared by the Management of the Company, as per the request of and for submission to The Tata Power Company Limited ("the Holding Company") for their onward submissions of a bid to "Establish Intra-State Transmission System for Evacuation Scheme for 200MW Solar Park at Ryapte Village (Dist. Tumkur) pursuant to compliance with the terms and conditions contained in Clause No 2.1.2 of the Request for Proposal dated March 07, 2026 issued by REC Power Development and Consultancy Limited.

Management's Responsibility for the Statement

3. The preparation of the Statement is the responsibility of the Management of the Company including the preparation and maintenance of all accounting and other relevant supporting records and documents. This responsibility includes the design, implementation and maintenance of internal controls relevant to the preparation and presentation of the Statement and applying an appropriate basis of preparation; and making estimates that are reasonable in the circumstances.

4. The Holding Company's Management is responsible for ensuring that the Holding Company complies with the requirements of the Request for Proposal.

Auditor's Responsibility

5. Pursuant to the request by the Company, it is our responsibility to provide a limited assurance in the form of a conclusion based on our examination whether the particulars in the Statement are in agreement with the books of account underlying the audited standalone financial statements of the Company as at and for the year ended March 31, 2025.

6. The audited standalone financial statements referred to in paragraph 5 above, have been audited by us, on which we issued an unmodified audit opinion vide our report dated April 28, 2025. Our audit of these standalone financial statements was conducted in accordance with the Standards on Auditing, as specified under Section 143(10) of the Companies Act, 2013, as amended and other applicable authoritative pronouncements issued by the Institute of Chartered Accountants of India('ICAI'). Those Standards require that we plan and perform the audit to obtain reasonable assurance about whether the standalone financial statements are free of material misstatement.

7. We conducted our examination of the Statement in accordance with the Guidance Note on Reports or Certificates for Special Purposes issued by the ICAI. The Guidance Note requires that we comply with the ethical requirements of the Code of Ethics issued by the ICAI.

8. We have complied with the relevant applicable requirements of the Standard on Quality Control (SQC) 1, Quality Control for Firms that Perform Audits and Reviews of Historical Financial Information, and Other Assurance and Related Services Engagements.

S R B C & CO LLP MUMBAI CHARTERED ACCOUNTANTS

The Tata Power Company Limited TATA

S R B C & CO LLP
Chartered Accountants

9. A limited assurance engagement involves performing procedures to obtain sufficient appropriate evidence on the applicable criteria mentioned in paragraph 5 above. The procedures performed vary in nature and timing from, and are less extent than for, a reasonable assurance. Consequently, the level of assurance obtained is substantially lower than the assurance that would have been obtained had we performed a reasonable assurance engagement. Accordingly, we have performed the following procedures in relation to the Statement:

    a. Obtained the fixed assets register as at March 31, 2025 and its reconciliation with audited standalone financial statements of the Company for the year ended March 31, 2025. We agreed the total cost and net carrying amount as per fixed assets register, after considering the reconciliation items, with the audited standalone financial statements for the year ended March 31, 2025.

    b. Management has represented and confirmed that the profit centres included in the fixed assets register relate to the respective projects. The Company has compiled the project cost based on the profit centres of Dholera Project and made necessary adjustments, if required, and specified the same in the Statement. We have relied on such representation and adjustments and have not performed additional procedures in this regard.

    c. Verified the arithmetical and clerical accuracy of the Statement.

    d. Obtained necessary representations from the management.

Conclusion

10. Based on the procedures performed by us as referred to in paragraph 9 above and according to the information, explanation and management representations received by us, nothing has come to our attention that causes us to believe that the details included in the Statement have not been accurately extracted from the books of account and other records underlying the audited standalone financial statements of the Company as at and for the year ended March 31, 2025.

Restriction on Use

11. This Report is addressed to and provided to the Board of Directors of the Company solely for submission of the accompanying Statement to the Holding Company for the purpose mentioned in paragraph 2 above and should not be used by any other person or for any other purpose. Accordingly, we do not accept or assume any liability or any duty of care for any other purpose or to any other person to whom this Report is shown or into whose hands it may come without our prior consent in writing. We have no responsibility to update this report for events and circumstances occurring after the date of this report.

For S R B C & CO LLP
ICAI Firm registration number: 324982E / E300003
Chartered Accountants

per Suresh Yadav
Partner
Membership No.: 119878

UDIN: 26119878VIZJJ02435

Place: Mumbai
Date: April 02, 2026

TATA

Statement of Completed Project Cost incurred for Dholera 250 MW project in Gujarat as at March 31, 2025

M/S Tata Power Renewable Energy Limited, having registered office at 34, Sant Tukaram Road, Carnac Bundar, Mumbai 400009, Maharashtra certifies the following Project Cost of Dholera 250 MW project in Gujarat:

Name of the Project: Dholera 250 MW
Date of commissioning: 27th March, 2022

S.No.	Description	Amount in Cr. (INR)
1	Building	37.39
2	Transmission Lines and Cable Network	79.77
3	Plant and Machinery	1,383.17
4	Furniture and fixtures*	0.00
5	Office equipments	0.02
	Total Completed Project Cost	1,500.35

* Amount less than Rs. 50,000

Notes:

1. The above information is extracted from the profit centre/project-wise fixed assets register and its reconciliation with the audited books of account maintained by the Company.
2. The above cost has been arrived at after the following adjustments:

a) Borrowing cost capitalised and allocated to the various components of plant and machinery amounting to Rs. 15.20 crores in accordance with requirements of Indian Accounting Standards (Ind AS) as notified under the Companies (Indian Accounting Standards) Rules, 2015 read with section 133 of the Companies Act, 2013 (as amended from time to time).

For Tata Power Renewable Energy Limited

KMali

Authorised Signatory
Name: Kailash Mali
Designation: Financial Controller

Place: Mumbai
Date: 02/04/2026

SIGNED FOR IDENTIFICATION BY
S R B C & CO LLP
MUMBAI

The Tata Power Company Ltd.
TATA

6. Annexure-7C Relationship & Details of Equity Shareholding

The Tata Power Company Ltd.
TATA

TATA

RELATIONSHIP & DETAILS OF EQUITY SHAREHOLDING

To,

Chief Executive Officer,
REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited)
REC Corporate Head Quarter,
D Block, Plot No. I – 4, Sec – 29 Gurugram – 122 001

Dear Sir,

Sub: Bid for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission System for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process.

We certify that M/s. The Tata Power Company Limited have considered the technical and financial capability of its Affiliate, for the purpose of meeting Qualification Requirements as per the instructions provided in the RFP. The name of Affiliate, nature of relationship(s) with such affiliate and details of equity holding are as follows:

Name of Company whose credentials considered	Type of credentials considered (technical and/ or financial)	Relationship with Bidding Company (Parent/ Affiliate)	Details of equity shareholding (refer notes below)
The Tata Power Company Limited	Financial	Bidding Company	Not Applicable
Tata Power Renewable Energy Limited	Technical	Tata Power Renewable Energy Limited is the Affiliate of Bidding Company	88.57%

NOTES:

i. Relationship of Affiliate with Bidding Company at the most seven (7) days prior to the Bid Deadline (as per Clause2.1.4 of RFP)

Yours faithfully

.....

(Signature and stamp)

Name: Piyush Kumar

Date: 06 April 2026

Place: Noida

The Tata Power Company Ltd. TATA

This document is to be read with our report on relationship of Tata Power Renewable Energy Limited with Tata Power Company Limited attached as Annexure 3.

Poonam Todarwal

(Signature and Stamp of statutory Auditors of Bidding Company)

Name: POONAM TODARWAL

Date: Mumbai

Place: .....

6/6/26

Date:

S R B C & CO LLP CHARTERED ACCOUNTANTS MUMBAI

The Tata Power Company Ltd TATA

7C Annexure 3 - Affiliate relationship Certificate issued by the auditor of the bidding company

S R B C & CO LLP
Chartered Accountants

12th Floor, The Ruby
29 Senapati Bapat Marg
Dadar (West)
Mumbai - 400 028, India
Tel : +91 22 6819 8000

Independent Auditor's Report on relationship of Tata Power Renewables Energy Limited with The Tata Power Company Limited

The Board of Directors
The Tata Power Company Limited
34, Sant Tukaram Road
Carnac Bunder
Mumbai 400 009.

1. This Report is issued in accordance with the terms of our service scope letter ("SSL") dated March 30, 2026 and master engagement agreement ("MEA") dated July 20, 2022, with The Tata Power Company Limited (hereinafter referred as "Company" or the "Bidding Company").

2. At the request of the management, we have examined accompanying Annexure mentioning the Company's holding in Tata Power Renewable Energy Limited ("TPREL") and its relationship with TPREL (hereinafter referred to as the "Statement") which has been prepared by the Company and signed by us for identification purpose only. The Statement together with our Report is required by the Company for submission to REC Power Development and Consultancy Limited (hereinafter referred as the "Bid Process Coordinator") in response to Request For Proposal ("RFP") document issued by the Bid Process Coordinator for Selection of Bidder as "Transmission Service Provider through tariff based competitive bidding process to establish Intra-State Transmission System for Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District".

Management's Responsibility

3. The preparation of the Statement is the responsibility of the Management of the Company including the preparation and maintenance of all accounting and other relevant supporting records and documents. This responsibility includes the design, implementation and maintenance of internal control relevant to the preparation and presentation of the Statement and applying an appropriate basis of preparation; and making estimates that are reasonable in the circumstances.

4. Management is also responsible for ensuring that the Company complies with the requirements of RFP and provides the relevant information to Bid Process Coordinator.

Auditor's Responsibility

5. Pursuant to the requirements of RFP, it is our responsibility to provide a limited assurance in the form of a conclusion based on our examination whether the details mentioned in the Statement have been accurately extracted from the books of account and other underlying information of the unaudited standalone financial information of the Company as at March 31, 2026.

6. We conducted our examination in accordance with the Guidance Note on Reports or Certificates for Special Purposes issued by the Institute of Chartered Accountants of India (the "ICAI"). The Guidance Note requires that we comply with the ethical requirements of the Code of Ethics issued by the ICAI.

S R B C & COLLP
Chartered Accountants

7. We have complied with the relevant applicable requirements of the Standard on Quality Control (SQC) 1, Quality Control for Firms that Perform Audits and Reviews of Historical Financial Information, and Other Assurance and Related Services Engagements.

8. We have audited the standalone financial statements of TPREL as at and for the year ended March 31, 2025, on which we issued an unmodified audit opinion dated April 28, 2025, and the standalone financial statements of the Company as at and for the year ended March 31, 2025, on which we issued an unmodified audit opinion dated May 14, 2025.

   Our audit of these financial statements were conducted in accordance with the Standards on Auditing, issued by the Institute of Chartered Accountants of India as specified under Section 143(10) of the Companies Act, 2013 and other applicable authoritative pronouncements issued by the ICAI. Those Standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. Further we have audited the interim condensed standalone financial statements of the Company and have performed limited review of the standalone financial results of TPREL as at, for the quarter and nine-month period ended December 31, 2025 on which we have issued an unmodified audit opinion dated February 4, 2026 and unmodified review report dated January 23, 2026 respectively.

   We have not performed any audit or review of books of accounts of TPREL and the Company subsequent to nine-month period ended December 31, 2025 till the date of this Report.

9. A limited assurance engagement involves performing procedures to obtain sufficient and appropriate evidence on the applicable criteria mentioned in paragraph 5 above. The procedures performed vary in nature and timing from and are less extent than for a reasonable assurance. Consequently, the level of assurance obtained is substantially lower than the assurance that would have been obtained had we performed a reasonable assurance engagement. Accordingly, we have performed the following procedures:

   a) We have obtained the details in relation to total issued, subscribed and paid capital of TPREL as at March 31, 2026 from the Management and traced it with the Statement. We have relied on the details provided by the Management and have not performed any procedures for the same;

   b) Traced and agreed the shareholding of the Company in TPREL as mentioned in the Statement with the relevant books of account and other information underlying the unaudited standalone financial information of the Company as at March 31, 2026;

   c) Tested the arithmetical accuracy of the Statement; and

   d) Performed necessary inquires with the management and obtained necessary representations.

SRBC & CO LLP MUMBAI CHARTERED ACCOUNTANTS

The Tata Power Company Ltd. TATA

S R B C & CO LLP
Chartered Accountants

Conclusion

10. Based on the procedures performed by us as referred to in paragraph 9 above and according to the information, explanation and management representations received by us, nothing has come to our attention that causes us to believe that the details mentioned in the Statement have not been accurately extracted from the books of account and other underlying information of the unaudited standalone financial information of the Company as at March 31, 2026.

Restriction on Use

11. This Report is addressed to and provided to the Board of Directors of the Company solely for the purpose given in paragraph 2 above and should not be used by any other person or for any other purpose. Accordingly, we do not accept or assume any liability or any duty of care for any other purpose or to any other person to whom this Report is shown or into whose hands it may come. We have no responsibility to update this Report for events and circumstances occurring after the date of this Report.

For S R B C & CO LLP
Chartered Accountants
ICAI Firm Registration Number: 324982E/E300003

Poonam Todarwal

S R B C & CO LLP MUMBAI CHARTERED ACCOUNTANTS

per Poonam Todarwal
Partner
Membership Number: 136454
UDIN: 26136454MJUOZL1133
Mumbai
April 06, 2026

The Tata Power Company Ltd. TATA

Statement of shareholding of The Tata Power Company Limited (hereinafter referred as "Company") in Tata Power Renewable Energy Limited ("TPREL") as on March 31, 2026, is given below:

Particulars	Number of shares/ % of holding
Total issued equity shares of Tata Power Renewable Energy Limited	1,46,30,97,628
Total subscribed and paid-up equity shares of Tata Power Renewable Energy Limited	1,46,30,96,528
Shares held by The Tata Power Company Limited*	1,29,58,73,131
% Shareholding of The Tata Power Company Limited in Tata Power Renewable Energy Limited	88.57%

**Out of 1,29,58,73,131 shares, 1,29,58,73,125 shares are directly held by The Tata Power Company Limited and balance 6 shares are held by The Tata Power Company Limited jointly with others.*

By virtue of the aforesaid shareholding, the Company exercises control over TPREL, which is an affiliate in terms of definitions of the request for proposal document which is issued by REC Power Development and Consultancy Limited for Selection of Bidder as "Transmission Service Provider through tariff based competitive bidding process to establish Intra-State Transmission System for Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District".

For **The Tata Power Company Limited**

Vispi S. Patel
Company Secretary
FCS 7021
Date: April 1, 2026

THE TATA POWER COMPANY LIMITED

SIGNED FOR IDENTIFICATION BY
SRBC & CO LLP
MUMBAI

The Tata Power Company Ltd.

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7. Annexure-7D Additional Information including financial statements

The Tata Power Company Ltd.
TATA

TATA

ADDITIONAL INFORMATION FOR VERIFICATION OF FINANCIAL AND TECHNICAL CAPABILITIES OF BIDDERS

- Bidding Company: The Tata Power Company Limited
- Technically Evaluated Entity: Tata Power Renewable Energy Limited

i. Financial capability (Attachment-1):

Audited Financials:

- Unconsolidated annual accounts for The Tata Power Company Limited for FY 2018-19, FY 2019-20, 2020-21, FY 2021-22, FY 2022-23, FY 2023-24 & FY 2024-25
- Unconsolidated annual accounts for Tata Power Renewable Energy Limited for FY 2018-19, FY 2019-20, FY 2020-21, FY 2021-22, FY 2022-23, FY 2023-24 & FY 2024-25

ii. Technical capability (Attachment-2):

a. Details of projects completed/commissioned for which commercial operation has commenced for the purpose of meeting Qualification Requirements.

S. No.	Particulars	2021-22
1.	Name(s) of project(s) from infrastructure sector	250 MW Solar Power Plant at Dholera in Gujrat.
2.	Location(s) including country(s) where project was set up	Dholera, Gujrat, India
3.	Nature of Project	Solar Photovoltaic Energy generation project
4.	Voltage level (if any)	33 kV stepped up to 220 KV
5.	Capital cost of project(s) Rs. In Crore	1500.35
6.	*Status of the project	Operational since 27th March, 2022
7.	% of equity owned in the project(s)	100%

The Tata Power Company Ltd. TATA

Executive Summary

1. 250 MW Solar Power Plant at Dholera in Gujarat.

S.No	Information	Details
1	Project model	Build Own Operate
2	Debt financing and equity raised and provided by Bidder for the project, including names of lenders and investors	Lenders: Kotak Mahindra Bank, Yes bank. BV of Non-Current Borrowings. FY 22 – Rs.1548 crore BV of Current Borrowings. FY 22 – Rs.17 crore
3	Size and type of installation	250 MW, Utility Scale Solar Ground Mount, Solar Park Project
4	Technical data/information on major equipment installed	• Modules: Longi (450, 455 Wp), Trina (450, 455 Wp) • Inverter: Kehua Tech (3125 kW) • Switchgear: Trisquare & Technocraft (ABB channel partner) • Inverter Trafo: Danish, Silchar • SCADA: Adaptive Engg.
5	Description of role performed by the Bidder on the project	The Tata Power Company Limited holds more than 26% equity in the technically evaluated entity (Tata Power Renewable Energy Limited), which had developed the project.
6	Clearances taken by the Bidder including but limited to right-of-way (RoW), forest clearance and other statutory / Govt. clearances	• Right-of-way clearance • Land procurement and possession • Local body clearances • Electrical Inspector Charging approval • PTCC approval
7	Cost data (breakdown of major components)	Total: Rs. 1,500.35 Cr. Breakup- Plant & Machinery - Rs. 1,383.17 Cr., Building & Roads - Rs. 37.39 Cr., Transmission lines and Cable Network - Rs. 79.77 Cr., others – 0.02 Cr.
8	Name of EPC and/or other major contractor	EPC Contractor: Tata Power Solar Systems Ltd.
9	Construction time for the project	~ 12 Months
10	Names, addresses and contact numbers of owners of the projects	A BLOCK, Tata Power, 34 Sant Tukaram Road, Carnac Bunder, Mumbai City, Maharashtra, 400009
11	Operating reliability over the past five (5) years or since date of commercial operation	Plant Availability, Average (%): • FY 23: 99.45 • FY 24: 99.54%
12	Operating environmental compliance history	The Solar Park is developed by GEDA. Hence all the clearances are done by them.
13	Names of supervisory entities or consultant, if any	NA
14	Date of commercial operation	27th March, 2022
15	Total Duration of operation	As on April 6, 2026: 4 years 10 days

iii. **Attachment-3:**

a. For each project listed in Attachment-2 above, certificates of final acceptance and/or certificates of good operating performance duly issued by owners for the project and the same shall be certified as true by authorized signatory of the Bidding Company

For and on behalf of Bidding Company
M/s The Tata Power Company Limited

.....

(Signature of authorized signatory)

Name: Piyush Kumar
Designation: Authorized Signatory
Date: 06 April 2026
Place: Noida

GEDA
ગુજરાત ઊર્જા વિકાસ એજન્સી
GUJARAT ENERGY DEVELOPMENT AGENCY
A Government of Gujarat Organisation

Azadi ka Amrut Mahotsav

BY RPAD

GEDA/SOL-59/2022/03/OW/5757 Date: March 28, 2022

CERTIFICATE OF COMMISSIONING

This is to certify that **M/s. Tata Power Renewable Energy Limited,** C/o. The Tata Power Company Limited, Corporate Centre, A Block, 34- Sant Tukaram Road, Carnac Bunder Dist.-Mumbai has installed and commissioned **250 MW (AC)/ 330.39 MW (DC)** capacity Solar Power Plant at Plot- P1, P2, P3, P8, P9, Dholera Ultra Megha Solar Park, Village-Mahadevpura & Bhangadh, Ta- Dholera, Dist.- Ahmedabad on 27-03-2022 along with the associated equipment as per following details.

GEDA Registration No.	GMSPVINDGEDA23032021-59
Capacity of Solar Power Project	250 MW (AC)/ 330.39 MW (DC)
SPV Modules- Type / Make	Monocrystalline / Longi Solar & Trina Solar
Nos. of Photovoltaic Modules / Rating	45612 / 450 Wp, 99024 / 455 Wp & 506426 / 450 Wp, 81144 / 455 Wp
Inverters- Type / Make	Central / KEHUA TECH
Nos. of Inverter / Rating	80 / 3125 kW
ABT Meter- Make / Serial no.	Secure / GJ 4812 A, GJ 4813 A, GJ 4814 A, GJ 4815 A, GJ 4816 A
Name of Substation	220/33 kV GETCO S/s, Dholera

The commissioning of the Ground Mounted Solar PV System has been carried out; the ABT meter has been installed.

For Gujarat Energy Development Agency

(Hitesh Mehta)
Asst. Project Executive

To,
M/s. Tata Power Renewable Energy Limited
C/o. The Tata Power Company Limited, Corporate Centre,
A Block, 34- Sant Tukaram Road, Carnac Bunder,
Dist.- Mumbai- 400009

Cc to:
(1) Addl. Chief Engineer (R & C),
Gujarat Energy Transmission Corporation Limited (GETCO),
Sardar Patel Vidyut Bhavan, Race Course,Vadodara – 390 007

(2) Chief Engineer, State Load Dispatch Centre (SLDC)
GETCO, 132kV Gotri Sub Station Compound,
Opp. Kalpvrux building, Near T.B. Hospital, Gotri Road, Vadodara - 390 021

(3) Managing Director,
Gujarat Urja Vikas Nigam Ltd.(GUVNL),
Sardar Patel Vidyut Bhavan, Race Course Rd, Vadiwadi, Vadodara-390007

4th Floor, Block No. 11-12, Udhyogbhavan,
Sector-11, Gandhinagar-382017 India.
Ph. : 079-232 57251-53
Fax : +91-79-232-47097, 57255
e-mail : director@geda.org.in
www.geda.gujarat.gov.in

The Tata Power Company Ltd. TATA

8. Annexure-8 Undertaking and Details of Equity Investment

The Tata Power Company Ltd.
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UNDERTAKING AND DETAILS OF EQUITY INVESTMENT

Format 1: **Bidders' Undertakings**

Date: 06 April 2026

To,
Chief Executive Officer,
REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited)
REC Corporate Head Quarter,
D Block, Plot No. I – 4, Sec – 29 Gurugram – 122 001

Dear Sir,

Sub: Bidders' Undertakings in respect of Bid for selection of Bidder as TSP to establish Intra-State Transmission System for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District"

We hereby undertake on our own behalf and on behalf of the TSP, that if selected as the Successful Bidder for the Project:

1. The Project shall comply with all the relevant electricity laws, codes, regulations, standards and Prudent Utility Practices, environment laws and relevant technical, operational and safety standards, and we shall execute any agreements that may be required to be executed as per law in this regard.

2. We confirm that the Project shall also comply with the standards and codes as per Clause 1.6.1.2 of the RFP and the TSP shall also comply with the provisions contained in the KERC (Transmission Open Access) Regulations, 2025 and any other relevant KERC regulation as amended from time to time.

3. We give our unconditional acceptance to the RFP dated **07.03.2026** issued by the BPC and the RFP Project Documents, as amended, and undertake to ensure that the TSP shall execute all the RFP Project Documents, as per the provisions of this RFP.

4. We have submitted the Bid on the terms and conditions contained in the RFP and the RFP Project Documents. Further, the Financial Bid submitted by us is strictly as per the format provided in Annexure 21 of the RFP, without mentioning any deviations, conditions, assumptions or notes in the said Annexure.

5. Our Bid is valid up to the period required under Clause 2.8 of the RFP.

The Tata Power Company Ltd. TATA

6. Our Bid has been duly signed by authorized signatory and stamped in the manner and to the extent indicated in this RFP and the power of attorney / Board resolution in requisite format as per RFP has been enclosed with this undertaking.

7. Not Applicable

8. We confirm that our Bid meets the Scheduled COD of each transmission Element and the Project as specified below:

S. No.	Name of the Transmission Element	Scheduled COD	Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project	Element(s) which are prerequired for declaring the commercial operation (COD) of the respective Element
1	Establishment of 5x500 MVA, 400/220 kV S/s at Ryapte in Tumkur District along with 2x125MVAr 400 kV Bus Reactors • 400/220 kV ICTs: 5 Nos. (5x500 MVA) • 400 kV ICT Bays: 5 Nos. • 400 kV Line bays (along with space provision for switchable line reactors): 2 Nos. • 125 MVAr, 420 kV Bus reactor – 2 Nos. • 400 kV Bus reactor bay: 2 Nos • 220 kV ICT Bays: 5 Nos • 220 KV line Bay - 8 No. • 220 kV TBC bay – 2 No. • 220 kV BC bay – 2 No • 220 kV Sectionalization bay: 1 set • 400 kV Bus PT bay- 2 Nos • 220 kV Bus PT bay- 4 Nos Space For Future Provision: • 400/220 KV ICTs - 5 Nos. • 400 kV ICT bay – 5 Nos. • 400 kV Bus Reactor: 3 Nos • 400 kV Bus Reactor bays: 3 Nos • 220 kV ICT Bays: 5 Nos • 220 kV line bays – 8 Nos • 400 kV Line bays (along with space provision for switchable line reactors): 4 Nos.	30 months from Effective date	100%	All Elements are required to be commissioned Simultaneously as their utilization is dependent on each other.
2	400kV DC line (Quad moose conductor) from Prop. 400/220 kV Ryapte Sub-station to Prop. 400/220 kV			

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	Doddathaggalli S/s.			
3	Establishing 3X500 MVA, 400/220kV GIS sub-station at Doddathaggalli (Near Hosakote) along with 2x125 MVAr, 400 kV Bus Reactors • 400/220 kV ICTs: 3 nos. • 400 kV ICT Bays: 3 nos. • 400 kV Line bays: 4 nos. • 125 MVAr, 420 kV Bus reactor – 2 No • 400 kV Bus reactor bay: 2 Nos • 220 kV ICT Bays: 3 Nos • 220 kV Line bays: 6 Nos. • 220 kV BC bay – 1 No • 400 kV Bus PT bay - 2 Nos • 220 kV Bus PT bay - 2 Nos Future Provision: • 400 kV line bays – 4 Nos. • 400/220 kV ICTs - 2 Nos. • 400 kV ICT bays - 2 Nos • 400 kV Bus Reactor: 2 Nos. • 400 kV Bus Reactor bays: 2 Nos. • 220 kV ICT Bays: 2 Nos • 220 kV Line bays: 4 Nos			
4	400kV DC line (Quad moose conductor) from Kolar S/s to Prop. 400/220 kV Doddathaggalli Sub-station with following works at Kolar S/s:- One circuit of Kolar – Doddathaggalli 400kV (quad) D/c line may be terminated in existing vacant bay no. 415 at Kolar S/s. Other circuit may be terminated in new GIS diameter with 2-CB scheme. This option requires following main elements: • Termination of one circuit in the spare 400kV AIS bay no. 415 by providing required bay equipment to complete the 400kV Dia (413.414 and 415 bays) • Construction of 2 nos. 400kV outdoor GIS bays in 2 CB configuration for termination of other circuit • Extension of 400kV Main Bus-I and II through GIB duct to proposed 400kV outdoor GIS bays with AIS isolators • Dismantling and re-erection of one no. LM, if required Further, any requirement suggested by substation owners shall be followed as per site condition.			
5	220kV DC line with Single Zebra and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions) from proposed 400/220 kV Doddathagalli substation to 220kV Ekarajapura substation with 2 No.s of AIS TB at Ekarajapura S/s with rearrangement/Shifting of existing Bus PT bay			

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	Note: The Tower design shall be suitable for TWIN Zebra.			
6	220kV DC line with partial AAAC Moose and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions), from proposed 400/220 kV Doddathagalli sub-station to proposed 220kV Hosakote New substation			
7	220kV DC line with Single Zebra and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions) from proposed 400/220kV Doddathagalli to Sarjapura AIS S/s with 2 Nos. of outdoor GIS TB at Sarjapura S/s by extending existing AIS bus bar along with AIS isolator Note: The Tower design shall be suitable for TWIN Zebra			

We agree that the payment of Transmission Charges for any Element irrespective of its successful commissioning on or before its Scheduled COD shall only be considered after the successful commissioning of Element(s) which are pre - required for declaring the commercial operation of such Element as mentioned in the above table.

Scheduled COD for the Project: 30 months from Effective date.

1. We confirm that our Financial Bid conforms to all the conditions mentioned in this RFP, and in particular, we confirm that:
   a. Financial Bid in the prescribed format of Annexure 21 has been submitted duly signed by the authorized signatory
   b. Financial Bid is unconditional.
   c. Only one Financial Bid has been submitted.
2. We have neither made any statement nor provided any information in this Bid, which to the best of our knowledge is materially inaccurate or misleading. Further, all the confirmations, declarations and representations made in our Bid are true and accurate. In case this is found to be incorrect after our acquisition of **Ryapte Power Transmission Limited**, pursuant to our selection as Selected Bidder, we agree that the same would be treated as a TSP's Event of Default under Transmission Service Agreement, and relevant provisions of Transmission Service Agreement shall apply.
3. We confirm that there are no litigations or other disputes against us which materially affect our ability to fulfil our obligations with regard to the Project as per the terms of RFP Project Documents.
4. Power of attorney/ Board resolution as per Clause 2.5.2 is enclosed.

Yours faithfully

.....

(Signature and stamp)

Name: Piyush Kumar

Date: 06 April 2026

Place: Noida

Format 2: Details of equity investment in Project

1.1.a Name of the Bidding Company: The Tata Power Company Limited

1.1.b Name of the Lead Member in the case of a Bidding Consortium: Not Applicable

1.2 Investment details of the Bidding Company investing in **Ryapte Power Transmission Limited** as per Clause 2.5.8.2.

S.No.	Name of the Bidding Company	Name of the Company investing in the equity of Ryapte Power Transmission Limited	Relationship with Bidding Company	% of equity participation in Ryapte Power Transmission Limited
(1)	The Tata Power Company Limited	The Tata Power Company Limited	Bidding Company	100%
TOTAL				100%

Name: Piyush Kumar

Designation: Authorized Signatory

Date: 06 April 2026

Company rubber stamp

9. Annexure-9 Authorization from Affiliate

The Tata Power Company Ltd.
TATA

Annexure-9

AUTHORISATION FROM AFFILIATE OF BIDDING COMPANY WHOSE TECHNICAL/ FINANCIAL CAPABILITY HAS BEEN USED BY THE BIDDING COMPANY

Name: Tata Power Renewable Energy Limited
Full Address: Corporate Centre, A Block, 34, Sant Tukaram Road
Carnac Bunder, Mumbai 400 009
Tel: +91 22 6717 1000 Extn: 1626
E-mail address: tprel@tatapower.com

To

Chief Executive Officer,
REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited)
REC Corporate Head Quarter,
D Block, Plot No. I – 4,
Sec – 29 Gurugram – 122 001

Dear Sir,

Sub: Authorization for use of Technical Capability of M/s Tata Power Renewable Energy Limited by M/s The Tata Power Company Limited.

1. We refer to the RFP dated **07.03.2026** ('RFP') issued by you for selection of Bidder as Transmission Service Provider for establishing the Intra-State Transmission System for **"Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District"**.

2. We confirm that M/s The Tata Power Company Limited has been authorized by us to use Tata Power Renewable Energy Limited's technical capability for meeting the Qualification Requirements for **"Evacuation Scheme for 2000 MW solar park at Ryapte Village, Tumkur District"**.

3. **Not Applicable as per Clause 2.5.2 para 10 of the RFP, since the Bidding Company (The Tata Power Company Limited) holds at least 26% equity in the Technically Evaluated Entity (Tata Power Renewable Energy Limited).**

For and on behalf of M/s Tata Power Renewable Energy Limited

.....

Name: Mr. Sanjay Banga
Designation: President – Renewables and CEO & MD, Tata Power Renewable Energy Limited
Date: 06 April 2026
Place: Mumbai

The Tata Power Company Ltd.

Certified True Copy of the Resolution passed at the Meeting of the Board of Directors of the Company held on 21st May 2025

"RESOLVED that a General Power of Attorney be and is hereby issued to Mr. Sanjay Banga, Chief Executive Officer and Managing Director of the Company.

FURTHER RESOLVED that the Common Seal of the Company be affixed to the said Power of Attorney in accordance with the Company's Articles of Association.

FURTHER RESOLVED that the General Power of Attorney dated 8th February 2024 issued to Mr. Deepesh Nanda be and is hereby revoked with effect from 31st May 2025."

Certified True Copy
For Tata Power Renewable Energy Limited

SANTOSH CHANDRASEKHAR RAMANATHAN

Digitally signed by SANTOSH CHANDRASEKHAR RAMANATHAN
Date: 2025.11.14 17:43:17 +05'30'

Santosh C R
Company Secretary
ACS: 20179

Place: Mumbai
Date: 14th November 2025

The Tata Power Company Ltd. TATA

MEMORANDUM AND ARTICLES OF ASSOCIATION

OF

TATA POWER RENEWABLE ENERGY LIMITED

SEAL

111. The Board shall provide a Common Seal for the purposes of the Company, and shall have power from time to time to destroy the same and substitute a new Seal in lieu thereof, and the Board shall provide for the safe custody of the Seal for the time being, and the Seal shall never be used except by the authority of a resolution of the Board or a Committee of the Board previously given and in accordance with these Articles.

112. Every deed or other instrument to which the Seal of the Company is required to be affixed shall be signed by (a) two Directors, or (b) one Director and the Secretary or (c) one Director and such other authorised person, as the Board or a duly constituted Committee thereof may authorized for the purpose.

DIVIDENDS AND RESERVES

113. The Company in general meeting may declare dividends, but no dividend shall exceed the amount recommended by the Board.

114. Subject to the provisions of the Companies Act, the Board may from time to time pay to the members such interim dividends as appear to it to be justified by the profits of the Company.

115. The Board may, before recommending any dividend, set aside out of the profits of the Company such sums as it thinks proper as a reserve(s) which shall, at the discretion of the Board, be applicable for any purpose to which the profits of the Company may be properly applied including provision for meeting contingencies or for equalizing dividends and pending such applications, may, at the Board's discretion, either be employed in the business of the Company or be invested is such investments as the Board may, from time to time, think fit.

116. The Board may also carry forward any profits which it may consider necessary not to divide, without setting them aside as a reserve.

117.

i. Subject to the rights of persons, if any, entitled to shares with special rights as to dividends, all dividends shall be declared and paid according to the amounts paid or credited as paid on the shares in respect whereof the dividend is paid, but if and so long as nothing is paid upon any of the shares in the Company, dividends may be declared and paid according to the amounts of the shares.

ii. No amount paid or credited as paid on a share in advance of calls shall be treated for the purposes of this regulation as paid on the share.

iii. All dividends shall be apportioned and paid proportionately to the amounts paid or credited as paid on the shares during any portion or portions of the period in respect of which the dividend is paid; but if any share is issued on terms providing that it shall rank for dividend as from a particular date such share shall rank for dividend accordingly.

118. The Board may deduct from any dividend payable to any member all sums of money, if any, presently payable by him to the Company on account of calls or otherwise in relation to the shares of the Company.

The Tata Power Company Ltd TATA

प्रधान मुद्रांक कार्यालय, मुंबई
प.मु.वि.क्र. ८०००९०
- 3 JUN 2025
सक्षम आधकारी

This Stamp Paper forms an integral part of the Power of Attorney dated 25th August 2025 issued by Tata Power Renewable Energy Limited in favour of Mr. Sanjay Kumar Banga.

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS that TATA POWER RENEWABLE ENERGY LIMITED, a Company incorporated under the Companies Act, 1956 and having its Registered Office at C/o The Tata Power Company Limited, Corporate Center A Block, 34 Sant Tukaram Road, Carnac Bunder Mumbai - 400009, Maharashtra, India (hereinafter called "the Company") doth hereby nominates, constitutes and appoints

Mr. SANJAY KUMAR BANGA

of Mumbai, an Attorney of the Company in the name and on behalf of the Company to do and perform the following acts and deeds:

1. To sign all bills for the price of goods, materials and electrical energy supplied and receipts for goods and materials purchased for and on behalf of the Company.

2. To sign all bills of lading, policies of insurance, shipping and other documents relating to goods and materials shipped for and on behalf of the Company or forwarded by the Company for sale elsewhere and all documents and papers required by the Customs and Excise authorities including Bonds, Letters of Guarantee, Refund Orders, Customs Duty bills and notices and all documents required by Railway Companies and other carriers and parties in relation to goods and materials imported and exported on behalf of the Company.

3. To sign all acceptance and endorsements on bills of exchange, hundies, railway credit notes and cheques drawn on behalf of or in favour of the Company.

   Note: To be signed jointly with any one of the attorneys similarly authorised to exercise this power, where the amount of any cheque exceeds ₹ 10,000/- (Rupees Ten thousand only)

4. To sign all cheques including cheques in respect of Cash Credit and Overdraft Accounts and other documents, including documents in respect of Safe Custody Accounts drawn by the Company.

   Note: To be signed jointly with any one of the attorneys similarly authorized to exercise this power, where the amount of any cheque exceeds ₹ 10,000/- (Rupees Ten thousand only).

5. To appoint officers and other executive staff as per approved manpower budget and to settle the terms and conditions of their service and remuneration and to terminate or vary the terms of such appointments in accordance with the Company rules.

6. To sign all receipts for loans and deposits of money made to and with the Company and to demand, recover and receive all sums of money, debts, dues, goods, merchandise, chattels, securities for money, effects and property of whatever nature and kind, which are now or which at any time or times during the subsistence of these presents may be or become due, owing and claimable or belonging to the Company on payment and delivery thereof to give and sign valid receipts and discharges for the same and on non-payment and non-delivery thereof to institute suits for and in the name of the Company and to represent the Company in courts, and to carry to appeal and final execution any such suits, and take and use all legal and other lawful proceedings and means or action for recovering and receiving the same.

7. To sign all correspondence and give all notices that may be necessary in the course of business of the Company.

8. To give consent, in terms of sub-section (1) of section 101 of the Companies Act, 2013, in connection with Company's membership in any other Company or Companies for holding such other Companies general meeting at a shorter notice than that prescribed by sub-section (1) of the said section.

9. To commence any action or legal proceedings in any court of law and to defend for and on behalf of the Company all actions, suits, proceedings, applications or appeals, and for such purposes to declare and affirm all plaints, Written Statements, applications, petitions, Execution Applications, Affidavits and other necessary documents in the name of the Company and to retain Advocates, Attorneys, Counsel and other legal practitioners, and appear for and represent the Company before any Judge, Magistrate, Registrar, Sales Tax, Income-tax, Wealth-tax, Excise, Value Added Tax of different States, Service Tax, Municipal Corporation, Police, Revenue, Customs, Improvement Trust, Port Trust or any other quasi-judicial, Government or public / private bodies or authorities as occasion shall require, and thereupon to make any application, affidavit, petition including the signing of any appeal, revision, application or other document that may be

The Tata Power Company Ltd. TATA

required by the abovementioned authorities, or to do, execute and perform such acts, deeds, matters and things as shall be requisite or expedient according to law and in the interest of the Company.

10.	To make, enter into, sign and execute on behalf of the Company contracts, agreements, leases (whether as Lessor or Lessee) and other documents with the Government of India, State Governments, public and private bodies, joint stock Companies and individuals as are normally required in the conduct of the business of the Company.	Note: To be signed jointly with any one of the attorneys similarly authorized to exercise this power.
11.	Whenever so authorized specifically by a Resolution of the Board of Directors of the Company, to sign and execute under the Common Seal of the Company, agreements under Section 41 of the Land Acquisition Act, 1894 which are required to be executed in connection with the acquisition of land by the Company.	To be signed jointly with any one of the attorneys similarly authorised to exercise this power.

12. To appear in all Courts, Civil, Revenue or Criminal whether on the original or appellate side or in registration offices and to represent the Company's interest before any judge, Magistrate, Municipal Corporation, Police, Revenue, Taxation, Port Trust or Customs authorities or any other quasi Government or public bodies or authorities and to appear before income-tax, Wealth tax, Gift-tax or other officer/s, in connection with the affairs of the Company for approval, consent or permission.

13. To accept notices or services or writ of summons or other legal process that may be served upon the Company and to appear and represent the Company in any Court of Justice and before Magistrate or Judicial or Quasi-judicial or other officers whatsoever as the said Attorney shall think proper in connection for approval, consent or permission.

14. To declare and affirm all plaints, Written Statements, applications, petitions, Execution Application, Affidavits and other necessary documents in the name of the Company and to appear before any Judge, Magistrate or other officer empowered by law to hear any suit or proceedings or any other inquiry relating to any of the matters herein mentioned.

15. To discuss, negotiate, finalise and execute Power Purchase Agreement (Rooftop Solar) (in Commercial, Industrial, Institutional and Government segment on behalf of the Company.

16. To provide information/ responses to the Authorised Representative, representing the Company in all matters before the Authorised Representative

17. To authorise any of the officers of the Company on the abovementioned matters.

18. AND GENERALLY to do and execute or cause to be done and executed all documents and assurances, acts, deeds, matters or things ancillary or incidental to the abovementioned matters and all and whatsoever the Attorney shall do or cause to be done in or about the premises by virtue of the aforesaid powers or any of them, the Company doth hereby for itself, its successors and assigns covenant with the said Mr. Sanjay Kumar Banga, his heirs, executors and administrators to allow, ratify and confirm.

19. This Power of Attorney shall continue to be valid until modified or cancelled and until intimation thereof has been given to the Collector of Customs at least one month prior to such cancellation or amendment. If notwithstanding what is stated hereinabove, the Power of Attorney is purported to be modified or cancelled without the requisite one month's prior notice in writing having been given to the Collector of Customs, Mumbai, then any such cancellation or modification shall have no effect whatsoever and in all matters, the Collector of Customs and all officers or staff acting under him shall be entitled to presume that there is no such modification or cancellation.

The Tata Power Company Ltd. TATA

20. This Power of Attorney shall continue to be valid until the attorney is in employment of the Company and the Power of Attorney can also be withdrawal or terminate on coterminous basis.

21. And it is hereby declared that the said Mr. Sanjay Kumar Banga when signing on behalf of the Company shall sign "For and on behalf of Tata Power Renewable Energy Limited" by its Constituted Attorneys or Attorney".

IN WITNESS WHEREOF the Common Seal of Tata Power Renewable Energy Limited was hereunto affixed the 25th day of August 2025.

The COMMON SEAL of TATA POWER RENEWABLE ENERGY LIMITED was hereunto affixed pursuant to resolution passed by its Board of Directors on the 21st day of May 2025 in the presence of Dr. Praveer Sinha, Director and Mr. Jeraz Mahernosh, Company Secretary.

Witnesses:

1. Abhijeet Mazumdar

2. Shikha Sabbarwal

NOTARY
S.M.H. ZAIDI
Mumbai & Thane Dist.
Reg. No. 3640
My Commission
Expires
25 Sept. 2026
GOVT. OF INDIA

BEFORE ME
S.M.H. ZAIDI
NOTARY
Government of India
Mumbai & Thane Dist

25 AUG 2025

NOTED & REGISTERED
Sr. No. 102 Page No. 20
Book No. 1 Date 25 AUG 2025

The Tata Power Company Ltd.
TATA

659

MINISTRY OF CORPORATE AFFAIRS
RECEIPT
G.A.R.7

SRN: AB6282146/ BharatKoshOrderId :1-19509898063 **SRN Date:** 26/08/2025 18:05:08	**Service Request Date:** 26/08/2025

RECEIVED FROM:

Name: SUMANT KUMAR BHARGAVA

Address: FLAT NO 303 FLOOR NO 3, THE ATLANTIS PLOT NO. 77 SECTOR 9 ULWE PANVEL RAIGARH, Panvel, Panvel, Maharashtra, 410206

ENTITY ON WHOSE BEHALF MONEY IS PAID

LLPIN/CIN/DIN: U40108MH2007PLC168314
Name: TATA POWER RENEWABLE ENERGY LIMITED
Address: C/O THE TATA POWER COMPANY LTD.,CORPORA A BLOCK, 34, SANT TUKARAM ROAD, CARNAC B, UNDER, MUMBAI, , Maharashtra, 400009

FULL PARTICULARS OF REMITTANCE

Service Type: eFiling

Service Description	Type of Fee	Amount (Rs.)
Fee for DIR-12	Normal	600
	Additional	2400
	Total	**3000**

Mode of Payment: Online

Received Payment Rupees: Three Thousand Rupees Only.

Note: The defects or incompleteness in any respect in this application as noticed shall be placed on the Ministry's website(www.mca.gov.in). In case the application is marked as RSUB, please resubmit the application within the due date. Please track the status of your transaction at all times till it is finally disposed off. (please refer Rule 10 of the Companies (Registration offices and Fees) Rules, 2014)

Form No. DIR-12

Form language
(●) English ( ) Hindi

Particulars of appointment of directors and the key managerial personnel and the changes among them

[Pursuant to sections 7(1) (c), 168 & 170 (2) of The Companies Act, 2013 and rule 17 of the Companies (Incorporation) Rules 2014 and 8, 15 & 18 of the Companies (Appointment and Qualification of Directors) Rules, 2014]

सत्यमेव जयते

Refer instruction kit for filing the form
*All fields marked in * are mandatory*

Company details

1 (a) *Corporate Identity Number (CIN) of company	U40108MH2007PLC168314
(b) *Name of the company	TATA POWER RENEWABLE ENERGY LIMITED
(c) *Address of the registered office of the company	C/O THE TATA POWER COMPANY LTD.,CORPORA A BLOCK, 34, SANT TUKARAM ROAD, CARNAC B, UNDER, MUMBAI, Maharashtra, India400009
(d) *E-mail ID of the company	**********er.com

Particulars of Director/KMP

2 *Number of Managing director or director(s) for which the form is being filed	1

3 Details of the Managing Director or Director of the company

(a) Purpose of filing the form

(●) Appointment ( ) Cessation ( ) Change in designation

( ) Appointment due to disqualification of all the existing directors ( ) Appointment by liquidator / IRP / RP

(b) Director Identification Number (DIN)	0*7*5*4*
(c) Name	SANJAY KUMAR BANGA
(d) Father's name	*** *****SH *****

The Tata Power Company Ltd. TATA

(e) Present residential address	***** Dhabolkar Wadi, Jer Bai Wadia Road, Parel, Mumbai ,Parel,Mumbai,Mumbai,Maharashtra,India,400012
(f) Nationality	India
(g) Date of birth (DD/MM/YYYY)	24/07/1967
(h) Gender	Male
(i) E-mail ID of director	**********il.com
(j) Designation *(Director/Managing director/Alternate director/Additional director/Director appointed in casual vacancy/ Nominee director/Whole-time director)*	Additional Director
(k) Date of Appointment or change in designation (DD/MM/YYYY)	01/06/2025
(l) Category *(Promoter/Professional/Independent/Small shareholder's director)*	Professional
(m) Whether Chairman, Executive Director, Non-Executive Director	☐ Chairman ☑ Executive Director ☐ Non-Executive Director
(n) DIN of such director to whom appointee is alternate	
(o) Name of the director to whom such appointee is alternate	
(p) Name of the company or institution whose authorized representative or nominee the appointee is	

(q) In case of cessation, hereby confirmed that the above-mentioned ○ Director ○ Managing Director is not associated with the company with effect from _____ (DD/MM/YYYY) due to _____

Interest in other entities

(r) Number of such entities: 8

S. No.	CIN/ LLPIN/ FCRN/ Registration number	Name	Address	Designation	Percentage of Shareholding	Amount	Others (specify)
1	U40101MH2020PLC343139	TP SAURYA LIMITED	C/O THE TATA POWER CO. LTD, CORP. CENTRE 34, SANT TUKARAM RD., CARNAC BUNDER MUMBAI Maharashtra	Director	0	0	0
2	U40108MH2011PLC211851	TATA POWER GREEN ENERGY LIMITED	B Block,Corporate Centre 34, Sant Tukaram Road, Carnac Bunder Mumbai Maharashtra	Additional Director	0	0	0
3	U40100MH2022PLC385685	TP SOLAR LIMITED	The Tata Power Co. Ltd, Corporate Centre 34 Sant Tukaram Road, Carnac Bunder Mumbai Maharashtra	Additional Director	0	0	0
4	U40109OR2021PLC035951	TP NORTHERN ODISHA DISTRIBUTION LIMITED	C/O-MANAGING DIRECTOR, NESCO CORPORATE OFFICE OF NESCO, JANUGANJ BALASORE Orissa	Director	0	0	0
5	U40109DL2001PLC111526	TATA POWER DELHI DISTRIBUTION LIMITED	NDPL House Hudson Lines, Kingsway Camp,	Director	0	0	0

The Tata Power Company Ltd. TATA

S. No.	CIN/ LLPIN/ FCRN/ Registration number	Name	Address	Designation	Percentage of Shareholding	Amount	Others (specify)
			Delhi Delhi				
6	U40109OR2020PLC032901	TP CENTRAL ODISHA DISTRIBUTION LIMITED	Power House Square, Unit8, Bhubaneswar Orissa	Director	0	0	0
7	U40109OR2020PLC035230	TP WESTERN ODISHA DISTRIBUTION LIMITED	WESCO CORPORATE BUILDING BURLA, BESIDES BURLA POLICE STATION BURLA Orissa	Director	0	0	0
8	U40109OR2020PLC035195	TP SOUTHERN ODISHA DISTRIBUTION LIMITED	C/O- OFFICE OF THE MANAGING DIRECTOR SOUTHCO, KAMAPALLI, COURTPETA BERHAMPUR Orissa	Director	0	0	0

4 *Number of manager(s), secretary(s), Chief financial Officer or Chief Executive Officer for which the form is being filed: 0

5 Details of manager(s), secretary(s), Chief financial Officer or Chief Executive Officer of the company

(a) Purpose of filing the form

○ Appointment

○ Cessation

(b) Director Identification Number (DIN), if any

(c) Income Tax permanent account number (PAN)

(d) Membership number of the company secretary

(e) (i) First Name *(Either of applicant's First name or Surname shall be mandatory to enter)*

(ii) Middle Name

(iii) Last Name *(Either of applicant's First name or Surname shall be mandatory to enter)*

The Tata Power Company Ltd. TATA

(f) Father's name

(i) First Name *(Either of applicant's father's first name or Surname shall be mandatory to enter*

(ii) Middle Name

(iii) Last Name *(Either of applicant's father's first name or Surname shall be mandatory to ente*

(g) Present residential address

Address Line 1

Address Line 2

Country

Pin Code/Zip Code

Area/Locality

City

District

State/UT

(h) Date of birth (DD/MM/YYYY)

(i) Designation *(Manager/Company Secretary/CEO/CFO)*

(j) Date of appointment or cessation (DD/MM/YYYY)

(k) Mobile Number (with Country code)

(l) E-mail ID

6 SRN of form INC-28

Attachments

7 (a) Order from court/NCLT/Members resolution

(b) Notice of resignation

(c) Evidence of cessation

The Tata Power Company Ltd TATA

(d) Optional attachments – if any

Sanjay Banga - PAN.pdf
Sanjay Banga_Aadhar.pdf
TPREL- CTC - Additional Director 26082025.pdf

Director's Consent and Declaration

I, SANJAY KUMAR BANGA hereby give my consent to act as a director of TATA POWER RENEWABLE ENERGY LIMITED

(name of the company), pursuant to sub-section (5) of section 152 of the companies Act, 2013 and Certify that I am not disqualified to become a director under the companies Act, 2013.

☑ I declare that I have not been convicted of any offense in connection with the promotion, formation or management of any company or LLP and have not been found guilty of any fraud or misfeasance or of any breach of duty to any company under this Act or any previous company law in the last five year.

☑ I further declare that if appointed my total Directorship in all the companies shall not exceed the prescribed number of companies in which a person can be appointed as a Director.

☑ I further declare that I have not incurred disqualification under the Companies Act, 2013 in any of the above companies and that I, at present, stand free from any disqualification from being a director.

☑ I also declare that:

- (●) I am not required to obtain the security clearance from the Ministry of Home Affairs, Government of India under sub-rule (1) of rule 10 before applying for director identification number; or
- ( ) I am required to obtain the security clearance from the Ministry of Home Affairs, Government of India under sub-rule (1) of rule 10 before applying for director identification number and the same has been obtained and is attached,

To be digitally signed by the Director/ Managing Director

Declaration

I* JERAZ E. MAHERNOSH authorized by the Board of Directors of the Company/ by the court or NCLT vide*

04 number dated* 09/08/2022 (DD/MM/YYYY) to sign this form and

declare that all the requirements of Companies Act, 2013 and the rules made thereunder in respect of the subject matter of this form and matters incidental thereto have been complied with. I also declare that all the information given herein above is true, correct, and complete including the attachments to this form and nothing material has been suppressed.

***To be digitally signed by**

The Tata Power Company Ltd. TATA

*Designation *(Director/Manager/Company Secretary/Chief executive officer/Chief Financial Officer/Promoter Shareholder /Liquidator/IRP/RP)*	Company Secretary
*Director identification number of the director; or DIN or PAN of the manager or CEO or CFO or liquidator/IRP/RP or Promoter Shareholder; or Membership number of the secretary	7*0*

Certificate by practicing professional

I declare that I have been duly engaged for the purpose of certification of this form. It is hereby certified that I have gone through the provisions of the Companies Act, 2013 and Rules thereunder for the subject matter of this form and matters incidental thereto and I have verified the above particulars [including attachment(s)] from the original/certified records maintained by the Company/applicant which is subject matter of this form and found them to be true, correct and complete and no information material to this form has been suppressed.

I further certify that:

☑ The said records have been properly prepared, signed by the required officers of the Company and maintained as per the relevant provisions of the Companies Act, 2013 and were found to be in order

☑ All the required attachments have been completely and legibly attached to this form;

☑ It is understood that I shall be liable for action under Section 448 of The Companies Act, 2013 for wrong certification, if any found at any stage

To be digitally signed by

Category

- ○ Chartered Accountant (in whole time practice)
- ◉ Company Secretary (in whole time practice)
- ○ Cost Accountant (in whole time practice)

Whether associate or fellow:

○ Associate ◉ Fellow

Membership number	
Certificate of practice number	1*6*6

The Tata Power Company Limited

For Office use only:

eForm Service request number (SRN)	AB6282146
eForm filing date (DD/MM/YYYY)	26/08/2025
Digital signature of the authorizing officer	
This eForm is hereby registered	
Date of signing (DD/MM/YYYY)	

OR

This eForm has been taken on file maintained by the Registrar of Companies through electronic mode and on the basis of statement of correctness given by the company

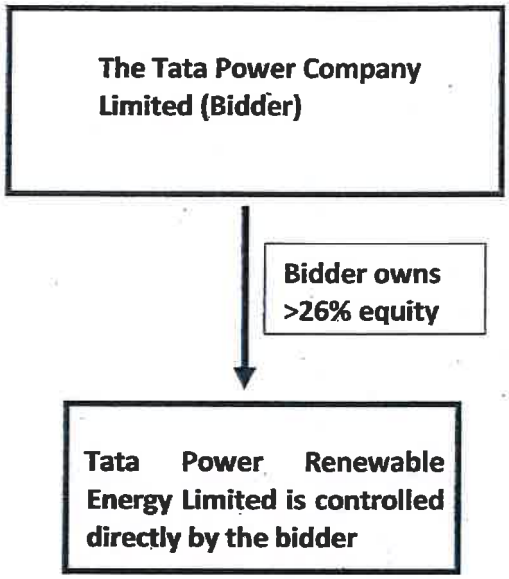
The Tata Power Company Ltd. TATA

10. Annexure-12 Illustration of Affiliate

The Tata Power Company Ltd.
TATA

TATA

ANNEXURE 12 - ILLUSTRATION OF AFFILIATES



For **The Tata Power Company Limited**

Vispi S. Patel
Company Secretary
FCS 7021
Date: April 1, 2026

THE TATA POWER COMPANY LIMITED

The Tata Power Company Ltd. TATA

Printed on 100% Recycled Paper

Shareholding Pattern as on 31st March 2026 of Tata Power Renewable Energy Limited

Sl. No.	Name and Category of Shareholder	Total no. of equity shares	Total shareholding as % of total no. of equity shares
1	The Tata Power Company Limited	1,29,58,73,125	88.57
2	The Tata Power Company Limited Jointly with Mr. Jinendra Patil	1	0
3	The Tata Power Company Limited Jointly with Mr. Santosh C.R.	1	0
4	The Tata Power Company Limited Jointly with Mr. Kasturi Soundararajan	1	0
5	The Tata Power Company Limited Jointly with Mr. Vispi Sarosh Patel	1	0
6	The Tata Power Company Limited Jointly with Ms. Krupa Dharmen Sutaria	1	0
7	The Tata Power Company Limited Jointly with Mr. Kailash Mali	1	0
8	GreenForest New Energies Bidco Limited	16,72,23,397	11.43
	Total	**146,30,96,528**	**100.00**

For The Tata Power Company Limited

VISPI SAROSH PATEL

Digitally signed by VISPI SAROSH PATEL
Date: 2026.04.01 11:12:46 +05'30'

Vispi S. Patel
Company Secretary
Membership No. FCS 7021
Date: 1st April 2026

For Tata Power Renewable Energy Limited

SANTOSH CHANDRASEKHAR RAMANATHAN

Digitally signed by SANTOSH CHANDRASEKHAR RAMANATHAN
Date: 2026.04.01 11:02:52 +05'30'

Santosh C.R.
Company Secretary
Membership No. ACS 20179
Date: 1st April 2026

The Tata Power Company Ltd.

11. Annexure-13
Disclosure

Date: 06 April 2026

DISCLOSURE

We hereby declare that the following companies with which we have direct or indirect relationship are also separately participating in this Bid process as per following details

S. No.	Name of the Company	Relationship
1.	Nil	Nil

Further we confirm that we don't have any Conflict of Interest with any other company participating in this bid process.

Certified as True

.....

(Signature & Stamp)

Name: Piyush Kumar
Designation: Authorized Signatory

The Tata Power Company Ltd. TATA

12. Annexure-14
Bid Bond

The Tata Power Company Ltd.
TATA

ICICI Bank

Date: 04-04-2026
Ref: 0393NDLG00004327

To,
REC POWER DEVLOPMENT AND CONSULTANCY LIMITED
REC CORPORATE HEAD QUARTER
D BLOCK PLOT NO I 4 SEC 29

Gurugram
HARYANA
INDIA
122001

Sub: Issuance of Bank Guarantee

Dear Sir/Madam,

Please find enclosed Bank Guarantee issued by ICICI Bank Limited ("ICICI Bank") favoring yourself on behalf of: THE TATA POWER COMPANY LTD, FCOE,42 KISHANLAL MARWAH,ROAD., OFF SAKI VIHAR ROAD,ANDHERI EAST, , MUMBAI, MAHARASHTRA, INDIA, 400072 ("Bank Guarantee") with the tenor and claim period as requested by you. For ease of reference the details have been reproduced as below:

Bank Guarantee No. & Date of Issue	Expiry Date	Claim Expiry Date	Currency	Amount of Bank Guarantee
0393NDLG00004327 04-04-2026	06-04-2027	06-04-2028	INR	20,93,00,000.00

We confirm that the officials who have signed the above Bank Guarantee are authorized to sign such documents on behalf of ICICI Bank. You may verify genuineness of the Bank Guarantee by writing to us at bgconfirmation@icicibank.com for receiving the confirmation over email.

Alternatively, you may also write to the following address to verify the genuineness of the BG :

ICICI Bank Limited, Trade Finance Operations Group,
ICICI Bank Towers, Survey No.115/27, Tower 3, South Wing, 6th Floor,
Plot No. 12, Nanakramguda, Serilingampally, Hyderabad - 500032, Telangana

In the event of invocation, we request you to please ensure compliance with the terms and conditions of the Bank Guarantee in order to ensure timely payment. You are requested to ensure special care inter alia with respect to the following in the invocation claim letter -

- Bank Guarantee Number
- Expiry/Claim Expiry date
- Claim Amount
- Designated Bank branch for submission of invocation claim
- Any declaration / certification that may be required as part of the guarantee text.
- Any other requisite document including the original Bank Guarantee, Applicable where such condition is a part of BG text.

Please note that ICICI Bank shall not be liable under the Bank Guarantee post expiry of the claim period as requested by you.

Thanking you,

Yours faithfully,

RAKESH SINGH
Manager-I : 492042

For ICICI Bank Limited
Authorized Signatory

The Tata Power Company Ltd. TATA

675

Sr.No. 2858651

BG Number:0393NDLG00004327
Issuance Date : 04-04-2026

BANK GUARANTEE
ICICI Bank Limited
(Incorporated in India)

ICICI Bank

1. e-Stamp Payment Certificate ID:	IN-DL87705576977062Y
2. e-Stamp Issuance Date:	04/04/2026 00:00:00
3. State Of Execution:	IN-DL
4. Article No. / Article ID:	1081
5. Bank Guarantee Amount:	INR 20,93,00,000.00
6. Amount Of Stamp Duty Paid:	INR 100
7. Issuing Bank Branch:	ICICI Bank Ltd., ICICI Bank Centre, 163 H.T.Parekh Marg ,Backbay Reclamation ,Churchgate, Mumbai 400020, India
8. Bank Guarantee Number:	0393NDLG00004327
9. Bank Guarantee Beneficiary:	REC POWER DEVLOPMENT AND CONSULTANCY LIMITED

BENEFICIARY COPY

For ICICI Bank Limited

Authorised Signatory
Transaction Banking, R.A., C.A., N.D.-1

VAIBHAV SOLANKI
Deputy Manager-II 878134

ASHUTOSH SHARMA
Manager-I : 491451

The Tata Power Company Ltd. TATA

The beneficiary may, in its own interest, verify the genuineness of the bank guarantee by seeking confirmation of its issuance by writing to the email ID bgconfirmation@icicibank.com or to ICICI Bank Limited,Trade Finance Operations Group, ICICI Bank Towers, Survey No.115/27, Tower 3, South Wing, 6th Floor, Plot No. 12, Nanakramguda, Serilingampally, Hyderabad – 500032, Telangana.

Regd. Office: ICICI Bank Ltd., ICICI Bank Tower, Near Chakli Circle, Old Padra Road, Vadodara, Pin code- 390 007, Gujarat
Phone : +91-265-6722286, CIN L65190GJ1994PLC021012

Sr.No. 2858652

BG Number:0393NDLG00004327
Issuance Date : 04-04-2026

BANK GUARANTEE
ICICI Bank Limited
(Incorporated in India)

ICICI Bank

THE UNCONDITIONAL AND IRREVOCABLE BANK GUARANTEE FOR BID BOND

In consideration of The Tata Power Company Limited,FCOE,42 KISHANLAL MARWAH,ROAD, OFF SAKI VIHAR ROAD,ANDHERI EAST MUMBAI 400072 MAHARASHTRA submitting the Bid inter alia for establishing the Intra-State transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" on build, own, operate and transfer basis, in response to the RFP dated 07.03.2026 issued by REC Power Development and Consultancy Limited, and the Bid Process Coordinator (hereinafter referred to as BPC) agreeing to consider such Bid of The Tata Power Company Limited, as per the terms of the RFP, the ICICI Bank Ltd, a schedule bank in India incorporated under the Provisions of the Companies Act, 1956 and having its registered office at ICICI BANK LIMITED, Near Chakli Circle, Old Padra Road, Vadodara-390007, India and having a branch office at ICICI Bank Ltd., ICICI Bank Centre, 163 H.T.Parekh Marg ,Backbay Reclamation ,Churchgate, Mumbai 400020, India (hereinafter referred to as "Guarantor Bank") hereby agrees unequivocally, irrevocably and unconditionally to pay to REC Power Development and Consultancy Limited, or its authorized representative at REC Corporate Head Quarter, D Block, Plot No. I – 4, Sec – 29 Gurugram 122001 forthwith on demand in writing from REC Power Development and Consultancy Limited or any representative authorized by it in this behalf, any amount up to and not exceeding Rs.20,93,00,000.00 (Rupees Twenty Crore and Ninety-three Lakhs only), on behalf of M/s The Tata Power Company Limited.

BENEFICIARY COPY

This guarantee shall be valid and binding on the Guarantor Bank up to and including 06.04.2027 and shall not be terminable by notice or any change in the constitution of the Guarantor Bank or by any other reasons whatsoever and our liability hereunder shall not be impaired or discharged by any extension of time or variations or alternations made, given, or agreed with or without our knowledge or consent, by or between concerned parties.

Our liability under this Guarantee is restricted to Rs.20,93,00,000.00 (Rupees Twenty Crore and Ninety-three Lakhs only). Our Guarantee shall remain in force until 06.04.2027. REC Power Development and Consultancy Limited or its authorized representative shall be entitled to invoke this Guarantee until 06.04.2028. The Guarantor Bank hereby expressly agrees that it shall not require any proof in addition to the written demand from REC Power Development and Consultancy Limited or its authorized representative, made in any format, raised at the above-mentioned address of the Guarantor Bank, in order to make the said payment to REC Power Development and Consultancy Limited or its authorized representative.

The Guarantor Bank shall make payment hereunder on first demand without restriction or conditions and notwithstanding any objection, disputes, or disparities raised by the Bidder or any other person. The Guarantor Bank shall not require REC Power Development and Consultancy Limited or its authorized representative to justify the invocation of this BANK GUARANTEE, nor shall the Guarantor Bank have any recourse against REC Power Development

VAIBHAV SOLANKI
Deputy Manager-II 878134

For ICICI Bank Limited
Authorised Signatory
Transaction Banking, GA, C.P., N.D.-1

The beneficiary may, in its own interest, verify the genuineness of the bank guarantee by seeking confirmation of its issuance by writing to the email ID bgconfirmation@icicibank.com or to ICICI Bank Limited,Trade Finance Operations Group, ICICI Bank Towers, Survey No.115/27, Tower 3, South Wing, 6th Floor, Plot No. 12, Nanakramguda, Serilingampally, Hyderabad – 500032, Telangana.

Regd. Office: ICICI Bank Ltd., ICICI Bank Tower, Near Chakli Circle, Old Padra Road, Vadodara, Pin code- 390 007, Gujarat
Phone : +91-265-6722286, CIN L65190GJ1994PLC021012

The Tata Power Company Ltd. TATA

ASHUTOSH SHARMA
Manager-I : 491451

Sr.No. 2858653

BG Number:0393NDLG00004327
Issuance Date : 04-04-2026

BANK GUARANTEE
ICICI Bank Limited
(Incorporated in India)

ICICI Bank

and Consultancy Limited or its authorized representative in respect of any payment made hereunder.

This BANK GUARANTEE shall be interpreted in accordance with the laws of India.

The Guarantor Bank represents that this BANK GUARANTEE has been established in such form and with such content that it is fully enforceable in accordance with its terms as against the Guarantor Bank in the manner provided herein.

This BANK GUARANTEE shall not be affected in any manner by reason of merger, amalgamation, restructuring or any other change in the constitution of the Guarantor Bank.

This BANK GUARANTEE shall be a primary obligation of the Guarantor Bank and accordingly REC Power Development and Consultancy Limited or its authorized representative shall not be obliged before enforcing this BANK GUARANTEE to take any action in any court or arbitral proceedings against the Bidder, to make any claim against or any demand on the Bidder or to give any notice to the Bidder to enforce any security held by REC Power Development and Consultancy Limited or its authorized representative or to exercise, levy or enforce any distress, diligence or other process against the Bidder.

BENEFICIARY COPY

Notwithstanding anything contained herein above, our liability under this Guarantee is restricted to Rs.20,93,00,000.00 (Rupees Twenty Crore and Ninety-three Lakhs only) and it shall remain in force until 06.04.2027, with an additional claim period of three hundred sixty-five (365) days thereafter. We are liable to pay the guaranteed amount or any part thereof under this BANK GUARANTEE only if REC Power Development and Consultancy Limited or its authorized representative serves upon us a written claim or demand.

The liability of the Guarantor under this Guarantee shall not exceed Rs.20,93,00,000.00 (Rupees Twenty Crore and Ninety-three Lakhs only) (the "Guaranteed Amounts").

This Guarantee shall be valid up to 06.04.2027 (the "Expiry Date").

Notwithstanding anything to the contrary contained herein, no obligation of the Guarantor to pay any amount under this Guarantee shall arise prior to the fulfillment of the following conditions precedent:

(a) written claim/demand(s) in terms of this Guarantee of an aggregate amount less than or equal to the Guaranteed Amounts is/are made by the Beneficiary hereunder; and

For ICICI Bank Limited

VAIBHAV SOLANKI
Deputy Manager-II 878154

Authorised Signatory
Transaction Banking, BA, C.P., N.D.-1

ASHUTOSH SHARMA
Manager-I : 491451

The beneficiary may, in its own interest, verify the genuineness of the bank guarantee by seeking confirmation of its issuance by writing to the email ID bgconfirmation@icicibank.com or to ICICI Bank Limited,Trade Finance Operations Group, ICICI Bank Towers, Survey No.115/27, Tower 3, South Wing, 6th Floor, Plot No. 12, Nanakramguda, Serilingampally, Hyderabad – 500032, Telangana.

Regd. Office: ICICI Bank Ltd., ICICI Bank Tower, Near Chakli Circle, Old Padra Road, Vadodara, Pin code- 390 007, Gujarat
Phone : +91-265-6722286, CIN L65190GJ1994PLC021012

The Tata Power Company Ltd. TATA

Sr.No. 2858654

BANK GUARANTEE
ICICI Bank Limited
(Incorporated in India)

BG Number:0393NDLG00004327
Issuance Date : 04-04-2026

ICICI Bank

(b) such written claim/demand(s) is/are delivered to the Guarantor on or before 06.04.2028 at the ICICI Bank branch located at ICICI Bank Ltd, ICICI Centre, H T Parekh Marg, Backbay Reclamation, Churchgate, Mumbai 400020."

Date : 04-04-2026
Place : Delhi
FOR ICICI BANK LIMITED
AUTHORISED SIGNATORIES

SIGNATURE : For ICICI Bank Limited Authorised Signatory Transaction Banking, OA, C.P., N.D.-1
NAME: VAIBHAV SOLANKI
SIGNATURE CODE: Deputy Manager-II 878134

SIGNATURE : For ICICI Bank Limited Authorised Signatory Transaction Banking, OA, C.P., N.D.-1
NAME: ASHUTOSH SHARMA
SIGNATURE CODE: Manager-I : 491451

BENEFICIARY COPY

The Tata Power Company Ltd. TATA

The beneficiary may, in its own interest, verify the genuineness of the bank guarantee by seeking confirmation of its issuance by writing to the email ID bgconfirmation@icicibank.com or to ICICI Bank Limited,Trade Finance Operations Group, ICICI Bank Towers, Survey No.115/27, Tower 3, South Wing, 6th Floor, Plot No. 12, Nanakramguda, Serilingampally, Hyderabad – 500032, Telangana.

Regd. Office: ICICI Bank Ltd., ICICI Bank Tower, Near Chakli Circle, Old Padra Road, Vadodara, Pin code- 390 007, Gujarat
Phone : +91-265-6722286, CIN L65190GJ1994PLC021012

760COV:

Identifier :- I
Message Type :- 760COV
Sender :- ICIC0000393
Receiver :- ICIC0000007
Send\Receive Date :-04 Apr 2026 17:36:37
Status :- DELIVERED
Text :-
{

:7020:0393NDLG00004327
:7022:0393NDLG00004327
:7024:PERFORMANCE
:7025:INR209300000,
:7026:2026040420270406
:7027:20260404
:7029:20280406
:7030:ICICI BANK LTD.
:7031:ICIC0000393
:7032:ICICI BANK LTD.,BACKBAY RECLAMATION
, BACKBAY RECLAMATION MUMBAI
:7033:THE TATA POWER COMPANY LTD, FCOE,42
KISHANLAL MARWAH,ROAD OFF SAKI VIH
AR ROAD,ANDHERI EAST, MUMBAI, MAHAR
ASHTRA, INDIA, 400072
:7034:REC POWER DEVLOPMENT AND CONSULTANC
Y LIMITED, REC CORPORATE HEAD QUART
ER, D BLOCK PLOT NO I 4 SEC 29, GUR
UGRAM, HARYANA, INDIA, 122001
:7035:ICIC0000007
:7036:ICICI BANK LIMITED ,CONNAUGHT PLACE
9A ,9A PHELPS BUILDING INNER CIRCL
E CONNAUGHT PLACE NEW DELHI 11001 ,
DELHI ,DL ,IN
:7038:PGBND
:7042:20260404165330
:7046:20260404
-}

13. Annexure-16 Checklist for Technical Bid Submission Requirements

The Tata Power Company Ltd.
TATA

TATA

CHECKLIST FOR TECHNICAL BID SUBMISSION REQUIREMENTS

S.No.	Technical Bid Submission Requirements	Response (Yes/ No)
1.	Format for the Covering Letter on the letterhead of Bidding Company;	Yes
2.	Format for Letter of Consent from each Consortium Member, including Lead Member, on their respective letterheads;	Not Applicable
3.	Format for evidence of authorized signatory's authority	Yes
4.	Board resolution from the Bidding Company in favor of the person executing the Power of Attorney as per **Annexure-3**;	Yes
5.	Power of Attorney from each Consortium Member in favour of Lead Member to be provided by each of the other Members of the Consortium as per **Annexure-4**;	Not Applicable
6.	Board Resolution from each Member of the Consortium, other than the Lead Member, in favour of their respective authorized representatives for executing the POA, Consortium Agreement and signing of the requisite formats;	Not Applicable
7.	Format for Bidder's composition and ownership structure, along with status of equity holding (owning ten percent or more of the total paid up equity) not earlier than thirty (30) days prior to the Bid Deadline as per **Annexure-5**;	Yes
8.	Consortium Agreement duly signed as per **Annexure-6**, along with Appendix-1, indicating the responsibilities and obligations of each Member of the Consortium;	Not Applicable
9.	Format for Qualification Requirement:	
	a. Calculation sheets, detailing computation of Networth considered for meeting Qualifying Requirements, duly signed and stamped by the Statutory Auditor of the Bidding Company;	Yes

The Tata Power Company Ltd.

S. No.		Technical Bid Submission Requirements	Response (Yes/ No)
	b.	Calculation sheets, detailing computation of capital expenditure of projects and revenue received in construction projects considered for meeting Qualification Requirements, duly signed and stamped by the Statutory Auditor of the TEE;	Yes
	c.	Last financial year unconsolidated / consolidated audited annual accounts / statements, as the case may be, of the Financially Evaluated Entity / Technical Evaluated Entity	Yes
	d.	Unconsolidated audited annual accounts of both the TEE and the Bidding Company, as applicable, from the financial years in which financial closure was achieved till the financial year in which the said project was completed/ commissioned.	Yes
10.		Copy of the Memorandum and Articles of Association and certificate of incorporation or other organizational document (as applicable), including their amendments, certified by the Company Secretary of Bidding Company.	Yes
11.		Attachment of **Annexure-7D**, detailing projects completed/ commissioned and for which commercial operation has commenced including Executive Summary for each project.	Yes
12.		For each project listed in the attachment above, certified true copy of the certificates of final acceptance and/ or certificates of good operating performance duly issued by owners or clients for the project, duly signed by authorized signatory in support of technical capability as defined in Clause2.1.2 of RFP.	Yes
13.		Authority letter in favour of BPC from the Bidder authorizing the BPC to seek reference from their respective bankers & others	Yes
14.		Authorization from Affiliate of Bidding Company whose technical capability has been used by the Bidding Company.	Yes
15.		Initialing of all pages of Technical Bid by the Authorized Signatory in whose favour the POA (**Annexure-3**) has been	Yes

The Tata Power Company Ltd. TATA

S.No.	Technical Bid Submission Requirements	Response (Yes/ No)
	Executed.	
16.	Format for Illustration of Affiliates at the most seven (7) days prior to the Bid Deadline, duly certified by Company Secretary and supported by documentary evidence.	Yes
17.	Certified copy of the Register of Members/ Demat Account Statement, Share Certificate, Annual Return filed with ROC etc. submitted as documentary evidence along with **Annexure-12**.	Yes
18.	Format for Disclosure by Bidding Company	Yes
19.	Format for Affidavit by Bidding Company	Yes
20.	Format for Authorization submitted in Non-Judicial stamp paper duly notarized.	Yes
21.	Bidders Undertaking and details of Equity Investment	Yes
22.	Proof of Payment of RFP Fees	Yes
23.	Bid Bond	Yes
24.	Board Resolution as per **Annexure-11** (If required)	Yes

For and on behalf of Bidder

M/s. The Tata Power Company Limited

.....

The Tata Power Company Ltd. TATA

(Signature of Authorized Signatory)

14. Proof of Payment of RFP fee

The Tata Power Company Ltd
TATA

TAX INVOICE

(ORIGINAL FOR RECIPIENT) **e-Invoice**

IRN : 39a872b478112a2f6e4502883e0a114307c2d940-fac96fa10ab0248c06243028
Ack No. : 132522717713878
Ack Date : 27-Jun-25

REC Power Development & Consultancy Limited (Formerly REC Power Distribution Company Limited) Ground Floor, I-4, RECPDCL REC World Headquarter, Block-D, Sector-29, Gurgaon GSTIN/UIN: 06AADCR7399K1ZP State Name : Haryana, Code : 06 CIN: U40101DL2007GOI165779 E-Mail : fin.delhi@recpdcl.in	Invoice No. **HRY/59/25-26** Dated **26-Jun-25** Reference No. & Date Other References Buyer's Order No Dated
Buyer (Bill to) **Tata Power Co. Ltd. (RFP)** 5th Floor, 34, Corporate Centre, B Wing, Carnac Bunder Road, Carnac, Mumbai City GSTIN/UIN : 27AAACT0054A1Z1 Place of Supply : Maharashtra	

Sl No.	Particulars	HSN/SAC	Rate	per	Amount
1	**Income From RFP documents**	998431			**5,00,000.00**
	IGST OUTPUT TAX-HARYANA		*18*	%	**90,000.00**
	Total				**₹ 5,90,000.00**

Declaration

We declare that this invoice shows the actual price of the services described and that all particulars are true and correct.

Amount Chargeable (in words)

INR Five Lakh Ninety Thousand Only

(Scan for Payment)

Remarks:

Being invoice raised to M/s. Tata Power Co. Ltd. towards RFP Fee for Evacuation Scheme for 2000MW solar park at Ryapte Village,Tumkur District.

Company's PAN : **AADCR7399K**

Company's Bank Details
A/c Holder's Name : REC Power Distribution Company Limited
Bank Name : **ICICI Bank Ltd.**
A/c No. : **00705041275**
Branch & IFS Code : NBCC Tower, Pragati Vihar, New Delhi & ICIC0000007

(Scan for Payment)

Company's Bank Details
A/c Holder's Name : REC Power Distribution Company Limited
Bank Name : **ICICI Bank Ltd.**
A/c No. : **00705041275**
Branch & IFS Code : NBCC Tower, Pragati Vihar, New Delhi & ICIC0000007

for REC Power Development & Consultancy Limited

Authorised Signatory

SUBJECT TO DELHI JURISDICTION

This is a Computer Generated Invoice

The Tata Power Company Ltd. TATA

15. Board Resolution

The Tata Power Company Ltd.
TATA

Certified True Extract from the Minutes of the
Board Meeting held on 25th March 2019

"RESOLVED that a Committee christened 'Committee of Directors' be and is hereby constituted comprising the following Directors:

Mr. Sanjay V. Bhandarkar, Chairman
Mr. Banmali Agrawala
Mr. Praveer Sinha

FURTHER RESOLVED that this Committee be and is hereby authorized to approve the following:

.....

j) Fresh investments and to recommend investment proposals to Tata Power group companies within overall Board approved framework;

.....

Certified True Copy
For The Tata **Power Company Limited**

Company Secretary

TATA POWER
The Tata Power Company Limited
Registered Office Bombay House 24 Homi Mody Street Mumbai 400 001
Tel 91 22 6665 8282 Fax 91 22 6665 8801
Website : www.tatapower.com Email : tatapower@tatapower.com CIN : L28920MH1919PLC000567

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Certified true copy of resolution passed by the Board of Directors on 4th May 2023

"RESOLVED that the Committee of Directors be and is hereby reconstituted as under, with effect from 4th May 2023:

Mr. Sanjay V. Bhandarkar, Chairman
Dr. Praveer Sinha
Mr. Sanjeev Churiwala."

For **The Tata Power Company Limited**

Company Secretary

The Tata Power Company Ltd.

Certified True Extract of the Resolution passed at the Board Meeting held on 6th August 2021

FURTHER RESOLVED that the Committee of Directors be and is hereby authorized to -

(i) approve participation by the Company, either by itself or through its subsidiaries, in individual Power Transmission bids and

(ii) issue resolutions, as may be required, in the bid RFS for submission as a part of bidding document.

FURTHER RESOLVED that, if required, the Company do take necessary technical support from its subsidiaries / affiliates to meet the eligibility criteria in order to qualify in the bid process.

FURTHER RESOLVED that the CEO & Managing Director, the Chief Financial Officer, the President-T&D of the Company and the following persons be and are hereby severally authorized to do all such acts, deeds and things necessary with respect to various opportunities (including in connection with or incidental to the Company's response to various Request for Selection / Request for Proposals) and sign agreements including but not limited to Implementation Support Agreement (ISA), Lease/Sub-Lease Agreements, Transmission Service Agreements (TSA) and its copies, Financing agreements, Shareholders Agreement (SHA), Share Subscription Agreement (SSA), Share Purchase Agreement (SPA), applications to Central/State/Licensee entities as may be required in this connection, any statutory undertakings and to deal with all correspondence along with submission and signing of all documents and providing information / response to various RfS/RfP, representing the Company in all matters in connection with the bid and payment/collection of Security Deposit and any other fees and signing the stamped receipts for the same and to confirm all of the above to the relevant governing authority or its assignees as may be required by the State/Central/Licensee approving authorities / Nodal agencies, in connection with proposed Transmission bids:

Mr. Sanjeev Gupta, CFO-T&D
Mr. Tarun Katiyar, Chief-Business Development T&D
Mr. Piyush Kumar, Head-BD T&D (International)

FURTHER RESOLVED that the Common Seal of the Company be affixed to any such agreements, documents, etc., if required, in accordance with its Articles of Association.

FURTHER RESOLVED that, in terms of Article 179 of the Company's Articles of Association, the following officers be and are hereby severally authorised to sign as 'Authorised Person', any of the above documents to which the Common Seal of the Company is affixed, along with a Director of the Company:

Mr. Ramesh N. Subramanyam, Chief Financial Officer
Mr. Sanjay Banga, President-T&D
Mr. Sanjeev Gupta, CFO-T&D
Mr. Tarun Katiyar, Chief-Business Development T&D
Mr. Piyush Kumar, Head-BD T&D (International)

FURTHER RESOLVED that the Company be and is hereby authorized to take its Common Seal out of its Registered Office to any destination for the purpose of affixation thereof on any such documents/agreements."

The Tata Power Company Ltd. TATA

For The Tata Power Company Limited

Company Secretary

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Certified True Copy of the Resolution passed by circulation on November 21, 2025

The Committee vide resolution passed on November 21, 2025 with the consent of all the Directors and in compliance of the provisions of the Companies Act, 2013, passed the following resolution:

"RESOLVED that approval be and is hereby granted to the Company to submit bid in response to the Request for Proposal (RfP) floated by REC Power Development and Consultancy Limited (Bid Process Coordinator) for Selection of Bidder as Transmission Service Provider through TBCB to Establish Intra-State Transmission System for "Evacuation Scheme For 2000 MW Solar Park at Ryapte Village, Tumkur District.

FURTHER RESOLVED that pursuant to the provisions of the Companies Act, 2013 and compliance thereof and as permitted under the Memorandum and Articles of Association of the Company, approval of the Board be and is hereby accorded for investment of 100% (Hundred per cent) of the total equity share capital of SPV, Ryapte Power Transmission Limited representing the entire amount proposed to be invested by the Company for the transmission system for "Evacuation Scheme For 2000 MW Solar Park at Ryapte Village, Tumkur District", partly by acquisition of the existing equity shares from RECPDCL and/ or partly by subscribing to the new equity shares, as per the terms of the RfP.

FURTHER RESOLVED that a specific Power of Attorney be severally issued in favour of any of the following officials of the company, authorizing them to take all the steps required to be taken by the company for the submission of the Bid, including in particular signing of the Bid, making changes thereto and submitting amended Bid, all the documents related to the Bid, or such other documents as may be necessary in this regard:

Mr. Sanjeev Gupta, CFO - T&D Cluster
Mr. Tarun Katiyar , Chief-Distribution (North) & Chief – BD (T&D)
Mr. Mithun Chakraborty, - Head BD (T&D)
Mr. Piyush Kumar, Head BD - T&D (International)

FURTHER RESOLVED that pursuant to the provisions of the Companies Act, 2013 and compliance thereof and as permitted under the Memorandum and Articles of Association of the Company, approval of the Board be and is hereby accorded for issuing an undertaking to Bid Process Coordinator for execution of Transmission project as per Timelines, standards and codes as per RfP and execute the Share purchase agreement, and agree with obligation of equity lock-in and other liabilities thereof, with Special Purpose Vehicle in response to RfP dated 10 June, 2025 including amendments thereof, as per the format specified in RfP.

FURTHER RESOLVED that the CEO & Managing Director, the Chief Financial Officer and the following officials of the Company be and are hereby severally authorized to do all such acts, deeds and things, execute all necessary documents and take all such steps as may be necessary in connection with or incidental to the Company's response to the RfP document for Selection of Bidder as Transmission Service Provider through TBCB to Establish Intra-State Transmission System for "Evacuation Scheme For 2000 MW Solar Park at Ryapte Village, Tumkur District", as well as for signing and submission of the Bid and all documents specified in the RfP, including, undertakings, letters, certificates, acceptances, clarifications, guarantees, making changes and submitting the amended bid related thereto, entering into contractual commitments on behalf of the Company:

Mr. Sanjeev Gupta, CFO - T&D Cluster
Mr. Tarun Katiyar , Chief-Distribution (North) & Chief – BD (T&D)
Mr. Mithun Chakraborty - Head BD (T&D)
Mr. Piyush Kumar, Head BD - T&D (International)

FURTHER RESOLVED that the Common Seal of the Company be affixed to any of the necessary documents for participation in the said bid, including Powers of Attorney, if required, in accordance with the Company's Articles of Association.

FURTHER RESOLVED that approval be and is hereby severally granted to CFO (T&D) Cluster, Head BD - T&D of the Company and Mr. Tarun Katiyar, Chief-Distribution (North) & Chief – BD (T&D) to approve bid strategy, investment structure and final bid amount for participation in TBCB bid at the time of bid submission and e-RA within the said framework.

FURTHER RESOLVED that, in terms of Article 179 of the Company's Articles of Association, the following Officers be and are hereby severally Authorised to sign as 'Authorised Person', any of the above documents to which the Common Seal of the Company is affixed, along with a Director of the Company:

Mr. Sanjeev Churiwala, Chief Financial Officer
Mr. Sanjeev Gupta, CFO-T&D
Mr. Tarun Katiyar , Chief-Distribution (North) & Chief – BD (T&D)
Mr. Mithun Chakraborty - Head BD (T&D)
Mr. Piyush Kumar- Head BD- T&D (International)

FURTHER RESOLVED that any one of the Directors or Company Secretary of the Company be and are hereby severally authorized to furnish the Certified True Copy of the above resolution."

Certified True Copy
For The Tata Power Company Limited

Vispi S. Patel
Company Secretary
FCS No.7021

Printed on 100 % Recycled Paper

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the Request for Proposal (RfP) Document dated June 10, 2025 for selection of Bidder as Transmission Service Provider through tariff based competitive bidding process to establish Intra-State Transmission system for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District", has been re-issued on March 7, 2026 by REC Power Development and Consultancy Limited (Bid Process Coordinator).

As there is no change in the scope, terms and conditions as approved by the Committee of Directors on November 21, 2025 for the RfP dated June 10, 2025, accordingly, the resolution passed by the Committee in this regard continues to remain valid and holds good for the said RfP dated March 7, 2026.

For **The Tata Power Company Limited**

Vispi S. Patel
Company Secretary
FCS No.7021
March 31, 2026

The Tata Power Company Ltd.

16. Affidavit

The Tata Power Company Ltd.
TATA

INDIA NON JUDICIAL

Government of Uttar Pradesh

e-Stamp

694

IN-UP80784223837947X

Signature

ACC Name: RAJ KUMAR, ACC Code: UP14005404
ACC ADD.: NOIDA, Mob: 8750758046
License No. 172/2013, Tehsil & District: G.B. Nagar

Certificate No.	:	IN-UP80784223837947X
Certificate Issued Date	:	07-Apr-2025 12:37 PM
Account Reference	:	NEWIMPACC (SV)/ up14005404/ NOIDA/ UP-GBN
Unique Doc. Reference	:	SUBIN-UPUP14005404583428922784 71X
Purchased by	:	THE TATA POWER COMANY LIMITED
Description of Document	:	Article 5 Agreement or Memorandum of an agreement
Property Description	:	Not Applicable
Consideration Price (Rs.)	:	
First Party	:	THE TATA POWER COMANY LIMITED
Second Party	:	Not Applicable
Stamp Duty Paid By	:	THE TATA POWER COMANY LIMITED
Stamp Duty Amount(Rs.)	:	100 (One Hundred only)

NOTARY GOVT. OF INDIA Karan Singh Kardam (Advocate) Reg. No. 19752 NOTARIAL

IN-UP80784223837947X

Please write or type below this line

AFFIDAVIT

We [including any of our Affiliate and Consortium Member & any of its Affiliate], hereby declare that as on Bid Deadline:

a. the Bidder & any of its Affiliate including any Consortium Member & any of its Affiliate, their directors or key personnel have not been barred or included in the blacklist by any government agency or authority in India, the government of the jurisdiction of the Bidder or Members

NOTARY GOVT. OF INDIA Karan Singh Kardam (Advocate) Reg. No. 19752

The Tata Power Company TATA

Statutory Alert:
1. The authenticity of this Stamp certificate should be verified at 'www.shcilestamp.com' or using e-Stamp Mobile App of Stock Holding. Any discrepancy in the details on this Certificate and as available on the website / Mobile App renders it invalid.
2. The onus of checking the legitimacy is on the users of the certificate.
3. In case of any discrepancy please inform the Competent Authority.

07-Apr-2025 12:37 PM 07-Apr-2025 12:37 PM 07-Apr-2025 12:37 PM

where they are incorporated or the jurisdiction of their principal place of business, any international financial institution such as the World Bank Group, Asian Development Bank, African Development Bank, Inter-American Development Bank, Asian Infrastructure Investment Bank etc.or the United Nations or any of its agencies; or

b. The Bidder & any of its Affiliate including any Consortium Member & any of its Affiliate or their directors have not been convicted of any offence in India or abroad.

We further declare that no investigation is pending against us [including any of our Affiliate] or CEO or any of our directors/ manager/key managerial personnel of the Applicant.

We further undertake to inform the BPC of any such matter as mentioned above on its occurrence after the date of this affidavit till the Effective Date.

We undertake that, in case, any information provided in relation to this affidavit is found incorrect at any time hereafter, our BID / Letter of Intent / contract (if entered) would stand rejected / recalled / terminated, as the case may be.

.....

Name of Authorized Signatory: Piyush Kumar
Date: 06 April 2026

The Tata Power Company Ltd. TATA

.....

(Signature of Notary Public)

Place: Noida
Date: 06 April 2026

NOTARY Karan Singh Kardam (Advocate) Reg. No. 19752 GOVT. OF INDIA

ATTESTED Karan Singh Kardam Notary Advocate Reg. No. 19752 Govt. of India

Annexure P-15

REC Power Development and Consultancy Limited
(Formerly Known as REC Power Distribution Company Limited
A wholly owned subsidiary of REC Limited, a 'Maharatna CPSE'
under Ministry of Power, Govt. of India)

696

REC Power Development

संदर्भ संख्या: आरईसीपीडीसीएल/टीबीसीबी/Ryapte/26-27/ 174

दिनांक: 10.04.2026

M/s The Tata Power Company Limited
B-12/13, 2nd Floor, Shatabdi Bhawan,
Sector-04, Noida, UP - 201301

सादर ध्यानाकर्षण: श्री रजत उप्रेती

विषय: RFP dated 07.03.2026 for Selection of Transmission Service Provider for establishment of "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through Tariff Based Competitive Bidding process - Response to RfP – reg.

महोदय,

We are in the process of evaluating your response submitted against RFP of subject cited project. To proceed further in the evaluation process, it is requested to provide the documents/clarification etc. as mentioned in the enclosed **Annexure 1.**

In this regard, it is to mention that the clarification on the response to RFP document should be uploaded on the MSTC e-commerce portal latest by 13.04.2026, 16:00 Hrs (IST), for its consideration. Further, it may be noted that physical submission in this regard shall not be entertained.

Any documents/clarification etc. provided in response to this letter shall be binding and shall be read as part of the Bidder's response to RFP.

धन्यवाद,

भवदीय,

(विजय कुलकर्णी)
वरिष्ठ महाप्रबंधक एवं विभागाध्यक्ष (टी & डी)

Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District

Name of Bidder: M/s The Tata power Company Limited

Annexure 1

Sr. No.	Details Required as per Format	Key Findings	Clarification Required
1.	Annexure 8: *Undertaking and details of Equity Investment*	In point 2 of the Annexure 8, the Bidder has mentioned "*We confirm that the Project shall also comply with the standards and codes as per Clause 1.6.1.2 of the RFP and the TSP shall comply with the provisions contained in the KERC (Transmission Open Access) Regulations, 2025 and any other relevant KERC regulation as amended from time to time*". However, as per the RFP format the correct statement is "*We confirm that the Project shall also comply with the standards and codes as per Clause 1.6.1.2 of the RFP and the TSP shall comply with the provisions contained in the KERC (Terms and Conditions for Open Access) Regulations, 2025 and any other relevant KERC regulation as amended from time to time*"	The Bidder is required to submit the revised Annexure 8 (*Undertaking and Details of Equity Investment)* with correct Regulations as mentioned in the RFP format.

Annexure P-16

Ref: T&D/BD/DOM/FY27/RECPDCL/Ryapte/08 **Date: Apr' 10, 2026**

To,
Chief Executive Officer,
REC Power Development and Consultancy Limited (A wholly owned subsidiary of REC Limited)
REC Corporate Head Quarter, D Block, Plot No. I – 4, Sec – 29 Gurugram – 122 001

Subject: Furnishing Clarifications in response to the BPC's observations pertaining to Intra-State Transmission System for "Evacuation system for 2000MW solar park at Ryapte Village, Tumkur District" through Tariff Based Competitive Bidding

Dear Sir,

This is with reference to the BPC's **Letter Ref. No. RECPDCL/TBCB/Ryapte/26-27/174** dated 10.04.2026, stating its observations on the technical proposal submitted by **"The Tata Power Company Limited"** for the subject transmission scheme.

The point wise response to the queries raised in the above letter is given below:

S.No.	Bid Format Annexure	BPC's key findings and Clarification required	Clarifications submitted by The Tata Power Company Limited (Bidder)
1.	**Annexure 8 –** Undertaking and details of Equity Investment	In point 2 of the annexure 8, the bidder has mentioned "We confirm that the Project shall also comply with the standards and codes as per Clause 1.6.1.2 of the RFP and the TSP shall comply with the provisions contained in the KERC (Transmission Open Access) Regulations, 2025 and any other relevant KERC regulation as amended from time to time".However, as per the RFP format the correct statement is "We confirm that the Project shall also comply with the standards and codes as per Clause 1.6.1.2 of the RFP and the TSP shall comply with the provisions contained in the KERC (Terms and Conditions for Open Access) Regulations, 2025 and any other relevant KERC regulation as amended from time to time". **Clarification required:** The revised Annexure 8 (Undertaking and details of Equity Investment) as per the RFP format is to be submitted.	The Annexures 8 (Undertaking and details of Equity Investment) Format 1 - Bidders' Undertakings has been duly edited as per the BPC's key findings and attached as **Annexure A** to this document.

We welcome any further queries from your end.

Thanking you and assuring our best services always.

Yours sincerely,

Piyush Kumar
Authorized Signatory

TATA POWER
The Tata Power Company Limited
"Shatabdi Bhawan", B-12&13, Sector-4 Noida 201 301 (U.P.)
Tel.: 91 120 610 2000
Registered Office Bombay House 24 Homi Mody Street Mumbai 400 001
Website : www.tatapower.com Email : tatapower@tatapower.com
CIN : L28920MH1919PLC000567

1. Annexure-A Undertaking and Details of Equity Investment

The Tata Power Company Ltd.
TATA

UNDERTAKING AND DETAILS OF EQUITY INVESTMENT

Format 1: **Bidders' Undertakings**

Date: 06 April 2026

To,
Chief Executive Officer,
REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited)
REC Corporate Head Quarter,
D Block, Plot No. I – 4, Sec – 29 Gurugram – 122 001

Dear Sir,

Sub: Bidders' Undertakings in respect of Bid for selection of Bidder as TSP to establish Intra-State Transmission System for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District"

We hereby undertake on our own behalf and on behalf of the TSP, that if selected as the Successful Bidder for the Project:

1. The Project shall comply with all the relevant electricity laws, codes, regulations, standards and Prudent Utility Practices, environment laws and relevant technical, operational and safety standards, and we shall execute any agreements that may be required to be executed as per law in this regard.

2. We confirm that the Project shall also comply with the standards and codes as per Clause 1.6.1.2 of the RFP and the TSP shall also comply with the provisions contained in the KERC (Terms and conditions for Open Access) Regulations, 2025 and any other relevant KERC regulation as amended from time to time.

3. We give our unconditional acceptance to the RFP dated **07.03.2026** issued by the BPC and the RFP Project Documents, as amended, and undertake to ensure that the TSP shall execute all the RFP Project Documents, as per the provisions of this RFP.

4. We have submitted the Bid on the terms and conditions contained in the RFP and the RFP Project Documents. Further, the Financial Bid submitted by us is strictly as per the format provided in Annexure 21 of the RFP, without mentioning any deviations, conditions, assumptions or notes in the said Annexure.

5. Our Bid is valid up to the period required under Clause 2.8 of the RFP.

The Tata Power Company Ltd.

6. Our Bid has been duly signed by authorized signatory and stamped in the manner and to the extent indicated in this RFP and the power of attorney / Board resolution in requisite format as per RFP has been enclosed with this undertaking.

7. Not Applicable

8. We confirm that our Bid meets the Scheduled COD of each transmission Element and the Project as specified below:

S. No.	Name of the Transmission Element	Scheduled COD	Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project	Element(s) which are prerequired for declaring the commercial operation (COD) of the respective Element
1	Establishment of 5x500 MVA, 400/220 kV S/s at Ryapte in Tumkur District along with 2x125MVAr 400 kV Bus Reactors • 400/220 kV ICTs: 5 Nos. (5x500 MVA) • 400 kV ICT Bays: 5 Nos. • 400 kV Line bays (along with space provision for switchable line reactors): 2 Nos. • 125 MVAr, 420 kV Bus reactor – 2 Nos. • 400 kV Bus reactor bay: 2 Nos • 220 kV ICT Bays: 5 Nos • 220 KV line Bay - 8 No. • 220 kV TBC bay – 2 No. • 220 kV BC bay – 2 No • 220 kV Sectionalization bay: 1 set • 400 kV Bus PT bay- 2 Nos • 220 kV Bus PT bay- 4 Nos Space For Future Provision: • 400/220 KV ICTs - 5 Nos. • 400 kV ICT bay – 5 Nos. • 400 kV Bus Reactor: 3 Nos • 400 kV Bus Reactor bays: 3 Nos • 220 kV ICT Bays: 5 Nos • 220 kV line bays – 8 Nos • 400 kV Line bays (along with space provision for switchable line reactors): 4 Nos.	30 months from Effective date	100%	All Elements are required to be commissioned Simultaneously as their utilization is dependent on each other.
2	400kV DC line (Quad moose conductor) from Prop. 400/220 kV Ryapte Sub-station to Prop. 400/220 kV			

The Tata Power Company Ltd. TATA

	Doddathaggalli S/s.			
3	Establishing 3X500 MVA, 400/220kV GIS sub-station at Doddathaggalli (Near Hosakote) along with 2x125 MVAr, 400 kV Bus Reactors • 400/220 kV ICTs: 3 nos. • 400 kV ICT Bays: 3 nos. • 400 kV Line bays: 4 nos. • 125 MVAr, 420 kV Bus reactor – 2 No • 400 kV Bus reactor bay: 2 Nos • 220 kV ICT Bays: 3 Nos • 220 kV Line bays: 6 Nos. • 220 kV BC bay – 1 No • 400 kV Bus PT bay - 2 Nos • 220 kV Bus PT bay - 2 Nos Future Provision: • 400 kV line bays – 4 Nos. • 400/220 kV ICTs - 2 Nos. • 400 kV ICT bays - 2 Nos • 400 kV Bus Reactor: 2 Nos. • 400 kV Bus Reactor bays: 2 Nos. • 220 kV ICT Bays: 2 Nos • 220 kV Line bays: 4 Nos			
4	400kV DC line (Quad moose conductor) from Kolar S/s to Prop. 400/220 kV Doddathaggalli Sub-station with following works at Kolar S/s:- One circuit of Kolar – Doddathaggalli 400kV (quad) D/c line may be terminated in existing vacant bay no. 415 at Kolar S/s. Other circuit may be terminated in new GIS diameter with 2-CB scheme. This option requires following main elements: • Termination of one circuit in the spare 400kV AIS bay no. 415 by providing required bay equipment to complete the 400kV Dia (413.414 and 415 bays) • Construction of 2 nos. 400kV outdoor GIS bays in 2 CB configuration for termination of other circuit • Extension of 400kV Main Bus-I and II through GIB duct to proposed 400kV outdoor GIS bays with AIS isolators • Dismantling and re-erection of one no. LM, if required Further, any requirement suggested by substation owners shall be followed as per site condition.			
5	220kV DC line with Single Zebra and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions) from proposed 400/220 kV Doddathagalli substation to 220kV Ekarajapura substation with 2 No.s of AIS TB at Ekarajapura S/s with rearrangement/Shifting of existing Bus PT bay			

The Tata Power Company Ltd TATA

	Note: The Tower design shall be suitable for TWIN Zebra.			
6	220kV DC line with partial AAAC Moose and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions), from proposed 400/220 kV Doddathagalli sub-station to proposed 220kV Hosakote New substation			
7	220kV DC line with Single Zebra and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions) from proposed 400/220kV Doddathagalli to Sarjapura AIS S/s with 2 Nos. of outdoor GIS TB at Sarjapura S/s by extending existing AIS bus bar along with AIS isolator Note: The Tower design shall be suitable for TWIN Zebra			

We agree that the payment of Transmission Charges for any Element irrespective of its successful commissioning on or before its Scheduled COD shall only be considered after the successful commissioning of Element(s) which are pre - required for declaring the commercial operation of such Element as mentioned in the above table.

Scheduled COD for the Project: 30 months from Effective date.

1. We confirm that our Financial Bid conforms to all the conditions mentioned in this RFP, and in particular, we confirm that:
   a. Financial Bid in the prescribed format of Annexure 21 has been submitted duly signed by the authorized signatory
   b. Financial Bid is unconditional.
   c. Only one Financial Bid has been submitted.
2. We have neither made any statement nor provided any information in this Bid, which to the best of our knowledge is materially inaccurate or misleading. Further, all the confirmations, declarations and representations made in our Bid are true and accurate. In case this is found to be incorrect after our acquisition of **Ryapte Power Transmission Limited**, pursuant to our selection as Selected Bidder, we agree that the same would be treated as a TSP's Event of Default under Transmission Service Agreement, and relevant provisions of Transmission Service Agreement shall apply.
3. We confirm that there are no litigations or other disputes against us which materially affect our ability to fulfil our obligations with regard to the Project as per the terms of RFP Project Documents.
4. Power of attorney/ Board resolution as per Clause 2.5.2 is enclosed.

The Tata Power Company Ltd. TATA

Yours faithfully

.....

(Signature and stamp)

Name: Piyush Kumar

Date: 06 April 2026

Place: Noida

REC Power Development and Consultancy Limited
(Formerly Known as REC Power Distribution Company Limited
A wholly owned subsidiary of REC Limited, a 'Maharatna CPSE'
under Ministry of Power, Govt. of India)

REC Power Development

संदर्भ संख्या: RECPDCL/TBCB/Ryapte/2026-27/209

दिनांक: 14.04.2026

M/s The Tata Power Company Limited
B-12/13, 2nd Floor, Shatabdi Bhawan,
Sector-04, Noida, UP - 201301

सादर ध्यानाकर्षण: श्री रजत उप्रेती

विषय: RFP dated 07.03.2026 for selection of Bidder as Transmission Service Provider for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through Tariff Based Competitive Bidding process

महोदय,

We are thankful for your participation by submission of Response to RFP and pleased to inform you that pursuant to our evaluation, your response fulfils the qualification requirements as stipulated in the RFP and in accordance with Clause 3.2 to 3.4 you have been declared as "Qualified Bidder".

We look forward for your participation.

धन्यवाद,

भवदीय,

(विजय कुलकर्णी)
वरिष्ठ महाप्रबंधक एवं विभागाध्यक्ष (टी & डी)

REC Power Development and Consultancy Limited
(Formerly Known as REC Power Distribution Company Limited)
A wholly owned subsidiary of REC Limited, a 'Maharatna CPSE'
under Ministry of Power, Govt. of India)

REC Power Development

संदर्भ संख्या: RECPDCL/TBCB/Ryapte/2026-27/232

दिनांक: 15.04.2026

M/s The Tata Power Company Limited
B-12/13, 2nd Floor, Shatabdi Bhawan,
Sector-04, Noida, UP - 201301

सादर ध्यानाकर्षण: श्री रजत उप्रेती

विषय: Selection of Bidder as Transmission Service Provider for "**Evacuation Scheme for 2000 MW solar park at Ryapte Village, Tumkur District**" through Tariff Based Competitive Bidding process – **Start of e-Reverse Auction**.

महोदय,

This has reference to the response to RFP submitted by you in respect to the subject cited transmission project.

In this regard, it is to inform you that you are qualified to participate in next stage of bidding i.e., e-Reverse Auction. Please note that e-RA will start from 10:00 Hrs. (IST) on **16.04.2026 (Thursday)** and the lowest Initial Offer for start of e-RA is Rs. 5,250.00 Million.

In case of any issues during the e-RA process you are requested to contact RECPDCL @ +91 8536909089, +91 7389907977 and tbcb@recpdcl.in.

धन्यवाद।

भवदीय,

(विजय कुलकर्णी)
वरिष्ठ महाप्रबंधक एवं विभागाध्यक्ष (टी & डी)

Annexure P-19 707

Jaiswal Ananya

From: TBCB Projects <tbcb@recpdcl.in>
Sent: 16 April 2026 16:35
To: Uprety Rajat; Srivastava Neeraj; Jaiswal Ananya; Chakraborty Mithun; Kumar Nitin; Rakshit Ankita; Kumar Amrendra; Kumar Piyush
Cc: Vijay Kulkarni; Anil Kumar Perala; Gaurav Pant; Ritam Biswas
Subject: Selection of Bidder as Transmission Service Provider for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through Tariff based competitive bidding process - Submission of Original Documents

[EXTERNAL sender, Exercise caution..!]

महोदय/महोदया,

This has reference to the response to RFP submitted by you in respect to the subject cited transmission project and subsequent e-reverse auction concluded on 16.04.2026.

In this regard, as per provisions of Clause 2.5.2 of RFP Document, you are requested to submit original hard copies of Annexure 3 and Annexure 14 on or before 21.04.2026 (Tuesday) within office hours (0930 Hrs (IST) to 1800 Hrs (IST)) for its further evaluation.

--
Regards/धन्यवाद

Shashank Singh / शशांक सिंह
TBCB Division / टीबीसीबी प्रभाग

8563882022 | www.recpdcl.in | tbcb@recpdcl.in

REC Power Development & Consultancy Limited
आरईसी पावर डेवलपमेंट एंड कंसल्टेंसी लिमिटेड
D-block- Ground Floor, REC World Headquarter,
Plot No. I-4, Sector-29, Gurugram, Haryana - 122001.
Landmark: Near IFFCO Chowk Metro Station.

Please consider the environment before printing.

Save Energy, Save Water, Save Soil, Save Environment

::DISCLAIMER::

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recipients and may contain legally confidential and / or privileged information. It shall not attach any liability on the originator. Any views or opinions presented in this email are solely those of the author and may not necessarily reflect the opinions of RECPDCL or its subsidiaries. If the reader of this message is not the intended recipient, immediately inform the originator by reply e-mail and delete this mail will all content and attachment(s) . Any unauthorized reproduction, dissemination, copying, disclosure, modification, distribution and / or publication of this e-mail and attachment is strictly prohibited and may be unlawful. Before opening any mail and attachments please check them for viruses and defect. Email communications are not secure and capable of interception corruption and delays. Anyone communicating with the originator or RECPDCL or its subsidiaries by email accept the risk of email communication and their consequences.

Annexure P-20

Ref. No: T&D/BD/DOM/FY27/RECPDCL/Ryapte/~~09~~ 12 Date: Apr' 17, 2026

To,

Chief Executive Officer,
REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited)
REC Corporate Head Quarter,
D Block, Plot No. I – 4, Sec – 29 Gurugram – 122 001

Subject: Selection of bidder as Transmission Service Provider through tariff based competitive bidding process to establish Intra-State Transmission System for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District"

Ref: Mail from the BPC dated 16th April 2026 for submission of original hard copies copies of Annexure 3 and Annexure 14

Dear Sir,

This is in reference to your aforementioned communication dated 16.04.2026 regarding the submission of the original hard copies of Annexure 3 and Annexure 14 by the bidder, for the subject cited project.

In this regard, we are submitting the required documents as per the desired timeline.

Thanking you,

The Tata Power Company Ltd. TATA

Piyush Kumar
Authorized Signatory,
The Tata Power Company Limited

महाराष्ट्र MAHARASHTRA ◑ 2026 ◑ EV 204662

प्रधान मुद्रांक कार्यालय, मुंबई
प.मु.वि.क्र.८०००९०
- 1 APR 2026
सक्षम अधिकारी

श्रीमती. सायली कोळी

This stamp paper forms an integral part of the Specific Power of Attorney dated 2nd April, 2026 granted to Mr. Piyush Kumar.

जोडपत्र - २ Annexure - II

दस्ताचा प्रकार	POWER OF ATTORNEY
दस्त नोंदणी करणार आहेत का ?	YES/NO
मिळकतीचे वर्णन -	---
मुद्रांक विक्रत घेणाऱ्याचे नाव	
दुसऱ्या पक्षकाराचे नाव	Piyush Kumar
दस्त असल्यास त्याचे नाव व पत्ता	
मुद्रांक शुल्क रक्कम	
मुद्रांक विक्रीचे बॉंड ची अनु. क्रमांक/दिनांक	
मुद्रांक विक्रत घेणाऱ्याची सही	6731
मुद्रांक विक्रेत्याची सही	

परवाना क्रमांक : ८०००९०
मुद्रांक विक्रिचे नाव/पत्ता : श्री। कल्पेश प्रेमजी गाला
गाळा नं.४, भाग्योदय बिल्डींग, ७९ [illegible] 2 APR 2026 [illegible]००००१
ज्या कारणासाठी त्यांनी मुद्रांक खरेदी केला त्यांनी त्याच कारणासाठी
मुद्रांक खरेदी केल्या पासून ६ महिन्यात वापरणे बंधनकारक आहे

2 APR 2026

The Tata Power Co. Ltd.
Bombay House,
24, Homi Mody Street,
Mumbai - 400 001.

The Tata Power Company Ltd.
TATA

SPECIFIC POWER OF ATTORNEY

Know all men by these presents, We, **The Tata Power Company Limited**, having registered office at **Bombay House, 24, Homi Mody Street, Mumbai 400 001** do hereby constitute, appoint and authorize **Mr. Piyush Kumar,** who is presently employed with us and holding the position of **Authorized signatory** as our attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to our Bid for selection of Bidder as Transmission Service Provider to establish Intra-State Transmission System for **"Evacuation Scheme For 2000 MW Solar Park at Ryapte Village, Tumkur District"** through tariff based competitive bidding process in the country of India, including signing and submission of all documents related to the Bid, including signing and submission of all documents related to the Bid, including, undertakings, letters, certificates, acceptances, clarifications, guarantees, etc., making representations to the BPC, and providing information / responses to the BPC, representing us in all matters before the BPC, and generally dealing with the BPC in all matters in connection with our Bid for the said Project till the completion of the bidding process in accordance with the RfP and signing of the Share Purchase Agreement by all the parties thereto.

We hereby agree to ratify all acts, deeds and things lawfully done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney shall always be deemed to have been done by us.

All the terms used herein but not defined shall have the meaning ascribed to such terms under the RfP.

For The Tata Power Company Limited

.....
(Signature)

Name: Dr. Praveer Sinha
Designation: CEO & Managing Director

Accepted

.....
(Signature of the Attorney)

Name: Piyush Kumar
Designation: Authorized Signatory
Address: The Tata Power Company Limited
"Shatabdi Bhawan", B-12&13, Sector-4 Noida, 201 301 (U.P), India

Attested

.....
(Signature of the Executant)

Name: Dr. Praveer Sinha
Designation: CEO & Managing Director

The COMMON SEAL of THE TATA POWER COMPANY LIMITED was hereunto affixed pursuant to Resolution passed by its Committee of Directors on the 21st day of November 2025 in our presence

.....
Dr. Praveer Sinha
CEO & Managing Director

.....
Vispi S. Patel
Company Secretary

.....
(Signature of Notary Public)

Place:

Date:

NOTARY S.M.H.ZAIDI Mumbai & Thane Dist. R. J. No. 3640 My Commission Expires 25 Sept. 2026 GOVT. OF INDIA

BEFORE ME
S. M. H. ZAIDI
NOTARY
Government of India
Mumbai & Thane Dist
- 2 APR 2026

NOTED & REGISTERED
Sr. No. 1427 Page No. 95
Book No. 1 Date
- 2 APR 2026

ICICI Bank

Date: 04-04-2026
Ref: 0393NDLG00004327

To,
REC POWER DEVLOPMENT AND CONSULTANCY LIMITED
REC CORPORATE HEAD QUARTER
D BLOCK PLOT NO I 4 SEC 29

Gurugram
HARYANA
INDIA
122001

Sub: Issuance of Bank Guarantee

Dear Sir/Madam,

Please find enclosed Bank Guarantee issued by ICICI Bank Limited ("ICICI Bank") favoring yourself on behalf of: THE TATA POWER COMPANY LTD, FCOE,42 KISHANLAL MARWAH,ROAD,, OFF SAKI VIHAR ROAD,ANDHERI EAST, , MUMBAI, MAHARASHTRA, INDIA, 400072 ("Bank Guarantee") with the tenor and claim period as requested by you. For ease of reference the details have been reproduced as below:

Bank Guarantee No. & Date of Issue	Expiry Date	Claim Expiry Date	Currency	Amount of Bank Guarantee
0393NDLG00004327 04-04-2026	06-04-2027	06-04-2028	INR	20,93,00,000.00

We confirm that the officials who have signed the above Bank Guarantee are authorized to sign such documents on behalf of ICICI Bank. You may verify genuineness of the Bank Guarantee by writing to us at bgconfirmation@icicibank.com for receiving the confirmation over email.

Alternatively, you may also write to the following address to verify the genuineness of the BG :

ICICI Bank Limited, Trade Finance Operations Group,
ICICI Bank Towers, Survey No.115/27, Tower 3, South Wing, 6th Floor,
Plot No. 12, Nanakramguda, Serilingampally, Hyderabad - 500032, Telangana

In the event of invocation, we request you to please ensure compliance with the terms and conditions of the Bank Guarantee in order to ensure timely payment. You are requested to ensure special care inter alia with respect to the following in the invocation claim letter -

- Bank Guarantee Number
- Expiry/Claim Expiry date
- Claim Amount
- Designated Bank branch for submission of invocation claim
- Any declaration / certification that may be required as part of the guarantee text.
- Any other requisite document including the original Bank Guarantee, Applicable where such condition is a part of BG text.

Please note that ICICI Bank shall not be liable under the Bank Guarantee post expiry of the claim period as requested by you.

Thanking you,

Yours faithfully.

RAKESH SINGH
Manager-I : 492042
For ICICI Bank Limited
Authorized Signatory

The Tata Power Company Ltd. TATA

Sr.No. 2858651

BANK GUARANTEE
ICICI Bank Limited
(Incorporated in India)

BG Number:0393NDLG00004327
Issuance Date : 04-04-2026

ICICI Bank

1. e-Stamp Payment Certificate ID:	IN-DL87705576977062Y
2. e-Stamp Issuance Date:	04/04/2026 00:00:00
3. State Of Execution:	IN-DL
4. Article No. / Article ID:	1081
5. Bank Guarantee Amount:	INR 20,93,00,000.00
6. Amount Of Stamp Duty Paid:	INR 100
7. Issuing Bank Branch:	ICICI Bank Ltd., ICICI Bank Centre, 163 H.T.Parekh Marg ,Backbay Reclamation ,Churchgate, Mumbai 400020, India
8. Bank Guarantee Number:	0393NDLG00004327
9. Bank Guarantee Beneficiary:	REC POWER DEVLOPMENT AND CONSULTANCY LIMITED

BENEFICIARY COPY

For ICICI Bank Limited

Authorised Signatory
Transaction Banking, A, G.P., N.D.-1

VAIBHAV SOLANKI
Deputy Manager-II 878134

ASHUTOSH SHARMA
Manager-I : 491451

The Tata Power Company Ltd. TATA

The beneficiary may, in its own interest, verify the genuineness of the bank guarantee by seeking confirmation of its issuance by writing to the email ID bgconfirmation@icicibank.com or to ICICI Bank Limited,Trade Finance Operations Group, ICICI Bank Towers, Survey No.115/27, Tower 3, South Wing, 6th Floor, Plot No. 12, Nanakramguda, Serilingampally, Hyderabad – 500032, Telangana.

Regd. Office: ICICI Bank Ltd., ICICI Bank Tower, Near Chakli Circle, Old Padra Road, Vadodara, Pin code- 390 007, Gujarat
Phone : +91-265-6722286, CIN L65190GJ1994PLC021012

Sr.No. 2858652

BANK GUARANTEE
ICICI Bank Limited
(Incorporated in India)

BG Number:0393NDLG00004327
Issuance Date : 04-04-2026

ICICI Bank

1 THE UNCONDITIONAL AND IRREVOCABLE BANK GUARANTEE FOR BID BOND

2 In consideration of The Tata Power Company Limited,FCOE,42 KISHANLAL MARWAH,ROAD,
3 OFF SAKI VIHAR ROAD,ANDHERI EAST MUMBAI 400072 MAHARASHTRA submitting the Bid
4 inter alia for establishing the Intra-State transmission system for "Evacuation Scheme for
5 2000MW solar park at Ryapte Village, Tumkur District" on build, own, operate and transfer
6 basis, in response to the RFP dated 07.03.2026 issued by REC Power Development and
7 Consultancy Limited, and the Bid Process Coordinator (hereinafter referred to as BPC) agreeing
8 to consider such Bid of The Tata Power Company Limited, as per the terms of the RFP, the ICICI
9 Bank Ltd, a schedule bank in India incorporated under the Provisions of the Companies Act,
10 1956 and having its registered office at ICICI BANK LIMITED, Near Chakli Circle, Old Padra Road,
11 Vadodara-390007, India and having a branch office at ICICI Bank Ltd., ICICI Bank Centre, 163
12 H.T.Parekh Marg ,Backbay Reclamation ,Churchgate, Mumbai 400020, India (hereinafter
13 referred to as "Guarantor Bank") hereby agrees unequivocally, irrevocably and unconditionally
14 to pay to REC Power Development and Consultancy Limited, or its authorized representative at
15 REC Corporate Head Quarter, D Block, Plot No. I – 4, Sec – 29 Gurugram-122001 forthwith on
16 demand in writing from REC Power Development and Consultancy Limited or any representative
17 authorized by it in this behalf, any amount up to and not exceeding Rs.20,93,00,000.00 (Rupees
18 Twenty Crore and Ninety-three Lakhs only), on behalf of M/s The Tata Power Company Limited.

19 This guarantee shall be valid and binding on the Guarantor Bank up to and including 06.04.2027
20 and shall not be terminable by notice or any change in the constitution of the Guarantor Bank or
21 by any other reasons whatsoever and our liability hereunder shall not be impaired or discharged
22 by any extension of time or variations or alternations made, given, or agreed with or without our
23 knowledge or consent, by or between concerned parties.

BENEFICIARY COPY

24 Our liability under this Guarantee is restricted to Rs.20,93,00,000.00 (Rupees Twenty Crore and
25 Ninety-three Lakhs only). Our Guarantee shall remain in force until 06.04.2027. REC Power
26 Development and Consultancy Limited or its authorized representative shall be entitled to invoke
27 this Guarantee until 06.04.2028. The Guarantor Bank hereby expressly agrees that it shall not
28 require any proof in addition to the written demand from REC Power Development and
29 Consultancy Limited or its authorized representative, made in any format, raised at the above-
30 mentioned address of the Guarantor Bank, in order to make the said payment to REC Power
31 Development and Consultancy Limited or its authorized representative.

32 The Guarantor Bank shall make payment hereunder on first demand without restriction or
33 conditions and notwithstanding any objection, disputes, or disparities raised by the Bidder or
34 any other person. The Guarantor Bank shall not require REC Power Development and
35 Consultancy Limited or its authorized representative to justify the invocation of this BANK
36 GUARANTEE, nor shall the Guarantor Bank have any recourse against REC Power Development

For ICICI Bank Limited

VAIBHAV SOLANKI
Deputy Manager-II 878134

Authorised Signatory
Transaction Banking, O.A., O.P., N.D.-1

The beneficiary may, in its own interest, verify the genuineness of the bank guarantee by seeking confirmation of its issuance by writing to the email ID bgconfirmation@icicibank.com or to ICICI Bank Limited,Trade Finance Operations Group, ICICI Bank Towers, Survey No.115/27, Tower 3, South Wing, 6th Floor, Plot No. 12, Nanakramguda, Serilingampally, Hyderabad – 500032, Telangana.

Regd. Office: ICICI Bank Ltd., ICICI Bank Tower, Near Chakli Circle, Old Padra Road, Vadodara, Pin code- 390 007, Gujarat
Phone : +91-265-6722286, CIN L65190GJ1994PLC021012

ASHUTOSH SHARMA
Manager-I : 491451

Sr.No. 2858653

BANK GUARANTEE
ICICI Bank Limited
(Incorporated in India)

BG Number:0393NDLG00004327
Issuance Date : 04-04-2026

ICICI Bank

and Consultancy Limited or its authorized representative in respect of any payment made hereunder.

This BANK GUARANTEE shall be interpreted in accordance with the laws of India.

The Guarantor Bank represents that this BANK GUARANTEE has been established in such form and with such content that it is fully enforceable in accordance with its terms as against the Guarantor Bank in the manner provided herein.

This BANK GUARANTEE shall not be affected in any manner by reason of merger, amalgamation, restructuring or any other change in the constitution of the Guarantor Bank.

This BANK GUARANTEE shall be a primary obligation of the Guarantor Bank and accordingly REC Power Development and Consultancy Limited or its authorized representative shall not be obliged before enforcing this BANK GUARANTEE to take any action in any court or arbitral proceedings against the Bidder, to make any claim against or any demand on the Bidder or to give any notice to the Bidder to enforce any security held by REC Power Development and Consultancy Limited or its authorized representative or to exercise, levy or enforce any distress, diligence or other process against the Bidder.

BENEFICIARY COPY

Notwithstanding anything contained herein above, our liability under this Guarantee is restricted to Rs.20,93,00,000.00 (Rupees Twenty Crore and Ninety-three Lakhs only) and it shall remain in force until 06.04.2027 with an additional claim period of three hundred sixty-five (365) days thereafter. We are liable to pay the guaranteed amount or any part thereof under this BANK GUARANTEE only if REC Power Development and Consultancy Limited or its authorized representative serves upon us a written claim or demand.

The liability of the Guarantor under this Guarantee shall not exceed Rs.20,93,00,000.00 (Rupees Twenty Crore and Ninety-three Lakhs only) (the "Guaranteed Amounts").

This Guarantee shall be valid up to 06.04.2027 (the "Expiry Date").

Notwithstanding anything to the contrary contained herein, no obligation of the Guarantor to pay any amount under this Guarantee shall arise prior to the fulfillment of the following conditions precedent:

(a) written claim/demand(s) in terms of this Guarantee of an aggregate amount less than or equal to the Guaranteed Amounts is/are made by the Beneficiary hereunder; and

For ICICI Bank Limited

VAIBHAV SOLANKI
Deputy Manager-II 878154

Authorised Signatory
Transaction Banking, BA, O.P., N.D.-1

ASHUTOSH SHARMA
Manager-I : 491451

The beneficiary may, in its own interest, verify the genuineness of the bank guarantee by seeking confirmation of its issuance by writing to the email ID bgconfirmation@icicibank.com or to ICICI Bank Limited,Trade Finance Operations Group, ICICI Bank Towers, Survey No.115/27, Tower 3, South Wing, 6th Floor, Plot No. 12, Nanakramguda, Serilingampally, Hyderabad – 500032, Telangana.

Sr.No. 2858654

BANK GUARANTEE
ICICI Bank Limited
(Incorporated in India)

BG Number:0393NDLG00004327
Issuance Date : 04-04-2026

ICICI Bank

(b) such written claim/demand(s) is/are delivered to the Guarantor on or before 06.04.2028 at the ICICI Bank branch located at ICICI Bank Ltd, ICICI Centre, H T Parekh Marg, Backbay Reclamation, Churchgate, Mumbai 400020."

Date : 04-04-2026
Place : Delhi
FOR ICICI BANK LIMITED
AUTHORISED SIGNATORIES

SIGNATURE : For ICICI Bank Limited — Authorised Signatory — Transaction Banking, OA, C.P., N.D.-1
NAME: VAIBHAV SOLANKI
SIGNATURE CODE: Deputy Manager-II 878134

SIGNATURE : For ICICI Bank Limited — Authorised Signatory — Transaction Banking, OA, C.P., N.D.-1
NAME: ASHUTOSH SHARMA
SIGNATURE CODE: Manager-I : 491451

BENEFICIARY COPY

The Tata Power Company Ltd. TATA

The beneficiary may, in its own interest, verify the genuineness of the bank guarantee by seeking confirmation of its issuance by writing to the email ID bgconfirmation@icicibank.com or to ICICI Bank Limited,Trade Finance Operations Group, ICICI Bank Towers, Survey No.115/27, Tower 3, South Wing, 6th Floor, Plot No. 12, Nanakramguda, Serilingampally, Hyderabad – 500032, Telangana.

Regd. Office: ICICI Bank Ltd., ICICI Bank Tower, Near Chakli Circle, Old Padra Road, Vadodara, Pin code- 390 007, Gujarat
Phone : +91-265-6722286, CIN L65190GJ1994PLC021012

Annexure P-21

Date: 23.04.2026

CERTIFICATE BY BID EVALUATION COMMITTEE

Subject: **Selection of Successful Bidder as Transmission Service Provider through Tariff Based Competitive Bidding Process for "Evacuation Scheme for 2000 MW Solar Park at Ryapte Village, Tumkur District".**

It is certified that:

a. The entire bid process has been carried out in accordance with the "Tariff based Competitive Bidding Guidelines for Transmission Service" and "Guidelines for encouraging competition in development of the Transmission Projects" issued by Ministry of Power, Govt. of India under Section 63 of the Electricity Act, 2003 as amended from time to time.

b. M/s Tata Power Company Limited, with the lowest annual transmission charges of Rs. 5,210.71 million, emerged as the successful Bidder after the conclusion of electronic reverse auction.

c. The transmission charges of Rs. 5,210.71 million discovered after electronic reverse auction is acceptable.

(Ram Prasath Manohar V,)
Managing Director, KPTCL
Chairman, BEC

(D. Kodandapani)
Managing Director, PCKL,
Member, BEC

(Vishwanath Naik)
Director (Operations),
KPTCL
Member, BEC

(Satyanarayan BN)
CE (Ele), Tendering &
Procurement, KPTCL
Member, BEC

(Venkatesh P K)
Additional Director
(Projects), PCKL
Member, BEC

(Ramappa. N.N)
FA, A&R KPTCL
Member, BEC

(Jaspal Singh Kushwaha)
General Manager, RECPDCL
Convener Member, BEC

Annexure P-22

GOVERNMENT OF KARNATAKA

No.: EN/86/VSC/2026 (2131733)

Karnataka Government Secretariat
Vikasa soudha, Dr. B R Ambedkar Veedhi
Bengaluru Dated: 05-06-2026

From:
The Additional Chief Secretary to Government
Energy Department,
Vikasa Soudha, Bangalore

To,
Sri Arvind Kumar,
Director, Ryapte Power Transmission Limited
(A wholly owned subsidiary of M/s RECPDCL)
Registered office: Core-4,
SCOPE Complex, 7, Lodhi Road,
New Delhi, South Delhi - 11003

Sir,

Sub:	Prior approval of Government of Karnataka under Section 68(1) of the Electricity Act, 2003 for 'Evacuation scheme for 2000MW solar park at Ryapte village, Tumkur district – Reg'
Ref:	1) Your letter No: RYAPTE-PTL/InSTS/Approval/ Section-68/2025-26/2384, Date 8.10.2025 2) Energy Department GoK GO No. ENERGY-PPT/73/2024 dated 04.03.2025 3) KPTCL e-office File No. KPTCL/PNC/19/2025-CEE PLANNING COORDINATION 4) KPTCL e-office File No: KPTCL/PNC/SEEP/17/2026-SEE Planning Comp. No:2181035 (Recommendations in Note#10)

*****

Reference is invited to the above-mentioned reference letter (1) seeking approval under Section 68 of the Electricity Act, 2003, for "Evacuation scheme for 2000MW solar park at Ryapte village, Tumkur district".

The approval is sought in favor of Ryapte Power Transmission Limited, a wholly owned subsidiary & project specific SPV formed by M/s. REC Power Development and Consultancy Limited (RECPDCL), which has been appointed

as the Bid Processing Coordinator for the implementation of the said project through a tariff-based competitive bidding process.

Chief Engineer (P&C), KPTCL, in KPTCL e-Office File No. KPTCL/PNC/SEEP/17/2026-SEE Planning (Computer No. 2181035) has reported that the Special Purpose Vehicle (SPV), Ryapte Power Transmission Limited, formed for implementation of the "Evacuation scheme for 2000MW solar park at Ryapte village, Tumkur district intra-State transmission scheme" by M/s REC Power Development and Consultancy Limited (RECPDCL), has submitted the necessary documents for grant of prior approval under Section 68(1) of the Electricity Act, 2003. Chief Engineer (P&C), KPTCL has certified that the documents submitted are in accordance with the requirements prescribed by the Ministry of Power and has recommended grant of prior approval under Section 68(1) of the Electricity Act, 2003.

The scope of transmission works are mentioned below:

1	Establishment of 5x500 MVA, 400/220 kV S/s at Ryapte in Tumkur District along with 2x125MVAr 400 kV Bus Reactors • 400/220 kV ICTs: 5 Nos (5x500 MVA) • 400 kV ICT Bays: 5 Nos. • 400 kV Line bays (along with space provision for switchable line reactors): 2 Nos • 125 MVAr, 420 kV Bus reactor – 2 Nos • 400 kV Bus reactor bay: 2 Nos • 220 kV ICT Bays: 5 Nos • 220 kV line Bay- 8 No • 220 kV TBC bay – 2 No • 220 kV BC bay – 2 No • 220 kV Sectionalization bay: 1 set • 400 kV Bus PT Bay – 2 Nos • 220 kV Bus PT Bay – 4 Nos **Space For Future Provision** • 400/220 kV ICTs – 5 Nos • 400 kV ICT bay – 5 Nos • 400 kV Bus Reactor: 3 Nos • 400 kV Bus Reactor bays: 3 Nos • 220 kV ICT Bays: 5 Nos • 220 kV line bays – 8 Nos • 400 kV Line bays (along with space provision for switchable line reactors): 4 Nos.

2	400kV DC line (Quad moose conductor) from Prop. 400/220kV Ryapte Sub-station to Prop. 400/220 kV Doddathaggalli S/s.
3	Establishing 3x500 MVA, 400/220kV GIS sub-station at Doddathaggalli (Near Hosakote) along with 2x125 MVAr, 400kV Bus Reactors. • 400/220 kV ICTs: 3 No • 400 kV ICT Bays: 3 Nos • 400 kV Line bays: 4 Nos • 125 MVAr, 420 kV Bus reactor-2 No • 400 kV Bus reactor bay: 2 Nos • 220 kV ICT Bays: 3 Nos • 220 kV Line bays: 6 Nos • 220 kV BC bay- 1 No • 400 kV Bus PT bay-2 Nos • 220 kV Bus PT bay – 2 Nos **Future Provision:** • 400 kV line bays – 4 Nos • 400/220 kV ICTs – 2 Nos • 400 kV ICT bays - 2 Nos • 400 kV Bus Reactor: 2 Nos • 400 kV Bus Reactor bays: 2 Nos • 220 kV ICT Bays: 2 Nos • 220 kV Line bays: 4 Nos
4	400kV DC line (Quad moose conductor) from Kolar S/s to Prop. 400/220 kV Doddathaggalli Sub-station with following works at Kolar S/s:- One circuit of Kolar – Doddataggalli 400kV (quad) D/c line may be terminated in existing vacant bay no. 415 at Kolar S/s. Other circuit may be terminated in new GIS diameter with 2-CB scheme. This option requires following main elements: • Termination of one circuit in the spare 400kV AIS bay no. 415 by providing required bay equipment to complete the 400kV Dia (413, 414 and 415 bays) • Construction of 2 nos. 400 kV outdoor GIS bays in 2 CB configuration for termination of other circuit • Extension of 400kV Main Bus-I and II through GIB duct to proposed 400kV outdoor GIS bays with AIS isolators • Dismantling and re-erection of one no. LM, if required

	Further, any requirement suggested by substation owners shall be followed as per site condition.
5	220kV DC line with Single Zebra and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions) from proposed 400/220 kV Doddathagalli sub-station to 220kV Ekarajapura Sub-station with 2 Nos. of AIS TB at Ekarajapura S/s with rearrangement/Shifting of existing Bus PT bay Note: The Tower design shall be suitable for TWIN Zebra.
6	220kV DC line with partial AAAC Moose and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions) from proposed 400/220 kV Doddathagalli sub-station to proposed 220kV Hosakote New sub-station.
7	220kV DC line with Single Zebra and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions) from proposed 400/220kV Doddathagalli to Sarjapura AIS S/s with 2 Nos. of outdoor GIS TB at Sarjapura S/s by extending existing AIS bus bar along with AIS isolator Note: The Tower design shall be suitable for TWIN Zebra.

Energy Department, Government of Karnataka, vide Government Order No. Energy 73 PPT 2024 dated 04.03.2025 had accorded approval to take up the above-mentioned Intra-State transmission system project under TBCB mode through M/s. RECPDCL as Bid Processing Coordinator (BPC) pursuant to the decision of the State Empowered Committee on Transmission's 4th meeting held on 21.02.2025.

Considering the request of SPV and the recommendations of KPTCL, prior approval of the Government of Karnataka under section 68 (1) of the Electricity Act, 2003 is conveyed to "M/s Ryapte Power Transmission Limited" a wholly owned subsidiary & project specific SPV formed by M/s. REC Power Development and Consultancy Limited (RECPDCL), for "Evacuation scheme for 2000MW solar park at Ryapte village, Tumkur district" subject to the compliance of:

i. The relevant provisions of the Electricity Act, 2003 & as amended from time to time and the rules and regulations framed there under, and

ii. CEA (Measures relating to Safety and Electrical Supply) Regulations, 2023, CEA (Technical Standards for construction of Electrical Plants and Electric

Lines) Regulation 2022 and CEA (Safety Requirements for construction, operation and maintenance of Electrical Plants and Electric Lines) Regulation 2022 & any subsequent amendments made thereto.

The approval is also subject to the following conditions:

1. The implementing agency will commence construction of the project within three years of grant of approval, unless this term is extended by the Government of Karnataka.
2. Government of Karnataka may withdraw the approval before the expiry of the period of three years after giving a one-month notice.
3. The implementing agencies shall abide by the provisions of Works of Licensee Rules, 2006 notified by the Government of India, Ministry of Power in the Gazette of India, extra-ordinary Part-II, Section 3 (i) dated 18-04-2006 (vide GSR 217 (E) dated 18-04-2006)

Your faithfully,

(Shantharama)
Under Secretary to Govt.
Energy Department
Ph. No. 080 – 2203 4674

Copy for information and necessary action:
Chief Engineer (P&C), KPTCL, Indhana Bhavana, Race Course Road, Bengaluru

REC Power Development and Consultancy Limited
(Formerly Known as REC Power Distribution Company Limited
A wholly owned subsidiary of REC Limited, a 'Navratna CPSE'
under Ministry of Power, Govt. of India)

REC Power Development

Ref. No.: RECPDCL/TBCB/Ryapte/2026-27/1250 Date: 17.06.2026

ORIGINAL

M/s The Tata Power Company Limited,
B-12/13, 2nd Floor, Shatabdi Bhawan,
Sector-04, Noida, UP - 201301

Kind Attention: Shri Rajat Uprety

Subject: "Evacuation Scheme for 2000 MW solar park at Ryapte Village, Tumkur District" through Tariff Based Competitive Bidding (TBCB) Process – **Letter of Intent.**

Dear Sir,

We refer to:

1. The Request for Proposal (RfP) dated 07.03.2026 comprising RfP, Draft Transmission Service Agreement, Share Purchase Agreement and Survey Report dated 09.03.2026 issued to M/s The Tata Power Company Limited as regards participation in the Global Invitation for Bids for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through Tariff Based Competitive Bidding (TBCB) Process including all correspondence/ clarifications/ amendments/ errata/ corrigendum issued by REC Power Development and Consultancy Limited in regard thereto (hereinafter collectively referred to as the 'Final RFP') till the submission Bid Deadline and as listed below:

   (i) Clarification dated 09.03.2026
   (ii) Additional clarification dated 01.04.2026

2. The offer of M/s The Tata Power Company Limited by way of a Technical Bid pursuant to (1) above submitted on 06.04.2026 in response to the Final RFP.

3. The Initial Price Offer of M/s The Tata Power Company Limited as submitted on 06.04.2026 in response to the Final RFP.

4. The final offer of M/s The Tata Power Company Limited discovered during e-Reverse Auction, conducted on 16.04.2026 in response to the Final RFP.

5. The Technical Bid as in (2) above, the Initial Price Offer as in (3) above and the Final Offer as in (4) above hereinafter collectively referred to as the 'Bid'.

We are pleased to inform you that your proposal and offer received by way of the 'Bid' has been accepted and M/s The Tata Power Company Limited is hereby declared as Successful Bidder as per clause 3.6.1 of the Final RFP for the above project and consequently, this Letter of Intent (hereinafter referred to as the 'LoI') is being issued in 2 copies, One original plus One copy.

This LoI is based on the Final RFP and is further contingent upon you satisfying the following conditions:

(a) Acknowledging its issuance and unconditionally accepting its contents and recording 'Accepted unconditionally' under the signature and stamp of your authorized signatory on each page of the duplicate copy of this letter attached herewith and returning the same to REC Power Development and Consultancy Limited within 7 (Seven) days from the date of issuance of LoI.

(b) Completion of various activities as stipulated in the RFP including in particular Clause 2.15.2, Clause 2.15.3 and Clause 2.15.4 of the Final RFP within the timelines as prescribed therein.

(c) Provide the Contract Performance Guarantee of Rs. 52.33 Crore (Rupees Fifty-Two Crore Thirty-Three Lakh Only) within 10 (Ten) days from issue of this LoI, in favour of the Nodal Agency, as per the provisions of Clause 2.12 of Final RFP.

It may be noted that REC Power Development and Consultancy Limited has the rights available to them under the Final RFP, including rights under clause 2.15.5 and 3.6.3 thereof, upon your failure to comply with the aforementioned conditions.

As you are aware, the issuance and contents of this LoI are based on the Bid submitted by you as per the Final RFP including the Transmission Charges and other details regarding the Scheduled COD as contained therein. The Quoted Transmission Charges as submitted by you and the Scheduled COD of transmission elements as agreed by you in your Bid, as per Annexure 21 and Format-1 of Annexure-8 respectively of the Final RFP is enclosed herewith as Schedule-A and incorporated herein by way of reference.

Further, please note that relationship of M/s The Tata Power Company Limited with the REC Power Development and Consultancy Limited & Nodal Agency will be governed solely on the basis of the Final RFP.

You are requested to unconditionally accept the LoI, and record on one copy of the LoI, 'Accepted unconditionally', under the signature of the authorized signatory of your Company and return such copy to us within 7 (Seven) days of issue of LoI.

Yours faithfully

19.06.24

Ratnesh Kumar
General Manager (Engg.)

Enclosures:

1. Schedule A: Quoted Transmission Charges and the scheduled COD of transmission element submitted in your Bid, as per Annexure 21 and Format-1 of Annexure-8 respectively of the Final RfP.

Copy for kind information to:

1. **The Additional Chief Secretary (Energy) to Government,** Room No. 236, 2nd Floor, Vikasa Soudha, Dr B.R Ambedkar Street, Bangalore - 560001

2. **The Secretary, KERC,** No 16C-1, Millers Road, Kaverappa Layout, Vasantha Nagar, Bengaluru Karnataka 560052

3. **Managing Director, KPTCL,** Indhana Bhavan Building, Nehru Nagar, Seshadripuram, Bengaluru, Karnataka 560001

ANNEXURE 21 - FORMAT FOR FINANCIAL BID

Quoted Annual Transmission Charges: Rs. 5210.71 Million

Notes:

1. The Bidders are required to ensure compliance with the provisions of Clause 2.5.3 of this RFP.

2. Quotes to be in Rupees Millions and shall be up to two (2) decimal points.

3. The contents of this format shall be clearly typed.

4. The Financial Bid shall be digitally signed by the authorized signatory in whose name power of attorney as per Clause 2.5.2 is issued.

5. Ensure only one value for annual Transmission Charges is quoted. The same charge shall be payable every year to TSP for the term of TSA.

TATA

UNDERTAKING AND DETAILS OF EQUITY INVESTMENT

Format 1: Bidders' Undertakings

Date: 06 April 2026

To,
Chief Executive Officer,
REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited)
REC Corporate Head Quarter,
D Block, Plot No. I – 4, Sec – 29 Gurugram – 122 001

Dear Sir,

Sub: Bidders' Undertakings in respect of Bid for selection of Bidder as TSP to establish Intra-State Transmission System for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District"

We hereby undertake on our own behalf and on behalf of the TSP, that if selected as the Successful Bidder for the Project:

1. The Project shall comply with all the relevant electricity laws, codes, regulations, standards and Prudent Utility Practices, environment laws and relevant technical, operational and safety standards, and we shall execute any agreements that may be required to be executed as per law in this regard.

2. We confirm that the Project shall also comply with the standards and codes as per Clause 1.6.1.2 of the RFP and the TSP shall also comply with the provisions contained in the KERC (Terms and conditions for Open Access) Regulations, 2025 and any other relevant KERC regulation as amended from time to time.

3. We give our unconditional acceptance to the RFP dated **07.03.2026** issued by the BPC and the RFP Project Documents, as amended, and undertake to ensure that the TSP shall execute all the RFP Project Documents, as per the provisions of this RFP.

4. We have submitted the Bid on the terms and conditions contained in the RFP and the RFP Project Documents. Further, the Financial Bid submitted by us is strictly as per the format provided in Annexure 21 of the RFP, without mentioning any deviations, conditions, assumptions or notes in the said Annexure.

5. Our Bid is valid up to the period required under Clause 2.8 of the RFP.

The Tata Power Company Ltd. TATA

REC Power Development and Consultancy Limited Gurugram

6. Our Bid has been duly signed by authorized signatory and stamped in the manner and to the extent indicated in this RFP and the power of attorney / Board resolution in requisite format as per RFP has been enclosed with this undertaking.

7. Not Applicable

8. We confirm that our Bid meets the Scheduled COD of each transmission Element and the Project as specified below:

S. No.	Name of the Transmission Element	Scheduled COD	Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project	Element(s) which are prerequired for declaring the commercial operation (COD) of the respective Element
1	Establishment of 5x500 MVA, 400/220 kV S/s at Ryapte in Tumkur District along with 2x125MVAr 400 kV Bus Reactors • 400/220 kV ICTs: 5 Nos. (5x500 MVA) • 400 kV ICT Bays: 5 Nos. • 400 kV Line bays (along with space provision for switchable line reactors): 2 Nos. • 125 MVAr, 420 kV Bus reactor – 2 Nos. • 400 kV Bus reactor bay: 2 Nos • 220 kV ICT Bays: 5 Nos • 220 KV line Bay - 8 No. • 220 kV TBC bay – 2 No. • 220 kV BC bay – 2 No • 220 kV Sectionalization bay: 1 set • 400 kV Bus PT bay- 2 Nos • 220 kV Bus PT bay- 4 Nos Space For Future Provision: • 400/220 KV ICTs - 5 Nos. • 400 kV ICT bay – 5 Nos. • 400 kV Bus Reactor: 3 Nos • 400 kV Bus Reactor bays: 3 Nos • 220 kV ICT Bays: 5 Nos • 220 kV line bays – 8 Nos • 400 kV Line bays (along with space provision for switchable line reactors): 4 Nos.	30 months from Effective date	100%	All Elements are required to be commissioned Simultaneously as their utilization is dependent on each other.
2	400kV DC line (Quad moose conductor) from Prop. 400/220 kV Ryapte Sub-station to Prop. 400/220 kV			

REC Power Development and Consultancy Limited ★ Gurugram

The Tata Power Company Ltd. TATA

	Doddathaggalli S/s.			
3	Establishing 3X500 MVA, 400/220kV GIS sub-station at Doddathaggalli (Near Hosakote) along with 2x125 MVAr, 400 kV Bus Reactors • 400/220 kV ICTs: 3 nos. • 400 kV ICT Bays: 3 nos. • 400 kV Line bays: 4 nos. • 125 MVAr, 420 kV Bus reactor – 2 No • 400 kV Bus reactor bay: 2 Nos • 220 kV ICT Bays: 3 Nos • 220 kV Line bays: 6 Nos. • 220 kV BC bay – 1 No • 400 kV Bus PT bay - 2 Nos • 220 kV Bus PT bay - 2 Nos Future Provision: • 400 kV line bays – 4 Nos. • 400/220 kV ICTs - 2 Nos. • 400 kV ICT bays - 2 Nos • 400 kV Bus Reactor: 2 Nos. • 400 kV Bus Reactor bays: 2 Nos. • 220 kV ICT Bays: 2 Nos • 220 kV Line bays: 4 Nos			
4	400kV DC line (Quad moose conductor) from Kolar S/s to Prop. 400/220 kV Doddathaggalli Sub-station with following works at Kolar S/s:- One circuit of Kolar – Doddathaggalli 400kV (quad) D/c line may be terminated in existing vacant bay no. 415 at Kolar S/s. Other circuit may be terminated in new GIS diameter with 2-CB scheme. This option requires following main elements: • Termination of one circuit in the spare 400kV AIS bay no. 415 by providing required bay equipment to complete the 400kV Dia (413.414 and 415 bays) • Construction of 2 nos. 400kV outdoor GIS bays in 2 CB configuration for termination of other circuit • Extension of 400kV Main Bus-I and II through GIB duct to proposed 400kV outdoor GIS bays with AIS isolators • Dismantling and re-erection of one no. LM, if required Further, any requirement suggested by substation owners shall be followed as per site condition.			
5	220kV DC line with Single Zebra and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions) from proposed 400/220 kV Doddathagalli substation to 220kV Ekarajapura substation with 2 No.s of AIS TB at Ekarajapura S/s with rearrangement/Shifting of existing Bus PT bay			

REC Power Development and Consultancy Limited Gurugram
The Tata Power Company Ltd TATA

	Note: The Tower design shall be suitable for TWIN Zebra.			
6	220kV DC line with partial AAAC Moose and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions), from proposed 400/220 kV Doddathagalli sub-station to proposed 220kV Hosakote New substation			
7	220kV DC line with Single Zebra and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions) from proposed 400/220kV Doddathagalli to Sarjapura AIS S/s with 2 Nos. of outdoor GIS TB at Sarjapura S/s by extending existing AIS bus bar along with AIS isolator Note: The Tower design shall be suitable for TWIN Zebra			

We agree that the payment of Transmission Charges for any Element irrespective of its successful commissioning on or before its Scheduled COD shall only be considered after the successful commissioning of Element(s) which are pre - required for declaring the commercial operation of such Element as mentioned in the above table.

Scheduled COD for the Project: 30 months from Effective date.

1. We confirm that our Financial Bid conforms to all the conditions mentioned in this RFP, and in particular, we confirm that:
   a. Financial Bid in the prescribed format of Annexure 21 has been submitted duly signed by the authorized signatory
   b. Financial Bid is unconditional.
   c. Only one Financial Bid has been submitted.
2. We have neither made any statement nor provided any information in this Bid, which to the best of our knowledge is materially inaccurate or misleading. Further, all the confirmations, declarations and representations made in our Bid are true and accurate. In case this is found to be incorrect after our acquisition of **Ryapte Power Transmission Limited**, pursuant to our selection as Selected Bidder, we agree that the same would be treated as a TSP's Event of Default under Transmission Service Agreement, and relevant provisions of Transmission Service Agreement shall apply.
3. We confirm that there are no litigations or other disputes against us which materially affect our ability to fulfil our obligations with regard to the Project as per the terms of RFP Project Documents.
4. Power of attorney/ Board resolution as per Clause 2.5.2 is enclosed.

REC Power Development and Consultancy Limited Gurugram

The Tata Power Company Ltd. TATA

Yours faithfully

.....

(Signature and stamp)

Name: Piyush Kumar

Date: 06 April 2026

Place: Noida

The Tata Power Company Ltd TATA

REC Power Development and Consultancy Limited Gurugram

Annexure P-24

Ref. No: T&D/BD/DOM/FY27/RECPDCL/Ryapte_RPTL/38 **Date: June 22, 2026**

To,

Chief Executive Officer,
REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited)
REC Corporate Head Quarter,
D Block, Plot No. I – 4, Sec – 29 Gurugram – 122 001

Subject: Acceptance of LOI for selection of bidder as Transmission Service Provider through tariff based competitive bidding process to establish Intra-State Transmission System for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumku District"

Dear Sir,

With reference to your Letter No. RECPDCL/TBCB/Ryapte/2026-27/1250 dated 17.06.2026, we acknowledge the issuance of LoI and hereby enclose the duplicate copy of the subject LoI, accepted unconditionally, with the signature of authorized signatory on each page as per Clause (a) of the LoI.

Thanking you and assuring you of our best attention at all times.

Yours sincerely,

For & on behalf of The Tata Power Company Limited

The Tata Power Company Ltd. TATA

Piyush Kumar
Authorized Signatory

REC Power Development and Consultancy Limited
(Formerly Known as REC Power Distribution Company Limited
A wholly owned subsidiary of REC Limited, a 'Navratna CPSE'
under Ministry of Power, Govt. of India)

REC Power Development

Ref. No.: RECPDCL/TBCB/Ryapte/2026-27/1250 Date: 17.06.2026

DUPLICATE

M/s The Tata Power Company Limited,
B-12/13, 2nd Floor, Shatabdi Bhawan,
Sector-04, Noida, UP - 201301

Kind Attention: Shri Rajat Uprety

Subject: "Evacuation Scheme for 2000 MW solar park at Ryapte Village, Tumkur District" through Tariff Based Competitive Bidding (TBCB) Process – **Letter of Intent.**

Dear Sir,

We refer to:

1. The Request for Proposal (RfP) dated 07.03.2026 comprising RfP, Draft Transmission Service Agreement, Share Purchase Agreement and Survey Report dated 09.03.2026 issued to M/s The Tata Power Company Limited as regards participation in the Global Invitation for Bids for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" through Tariff Based Competitive Bidding (TBCB) Process including all correspondence/ clarifications/ amendments/ errata/ corrigendum issued by REC Power Development and Consultancy Limited in regard thereto (hereinafter collectively referred to as the 'Final RFP') till the submission Bid Deadline and as listed below:

   (i) Clarification dated 09.03.2026
   (ii) Additional clarification dated 01.04.2026

2. The offer of M/s The Tata Power Company Limited by way of a Technical Bid pursuant to (1) above submitted on 06.04.2026 in response to the Final RFP.

3. The Initial Price Offer of M/s The Tata Power Company Limited as submitted on 06.04.2026 in response to the Final RFP.

4. The final offer of M/s The Tata Power Company Limited discovered during e-Reverse Auction, conducted on 16.04.2026 in response to the Final RFP.

5. The Technical Bid as in (2) above, the Initial Price Offer as in (3) above and the Final Offer as in (4) above hereinafter collectively referred to as the 'Bid'.

We are pleased to inform you that your proposal and offer received by way of the 'Bid' has been accepted and M/s The Tata Power Company Limited is hereby declared as Successful Bidder as per clause 3.6.1 of the Final RFP for the above project and consequently, this Letter of Intent (hereinafter referred to as the 'LoI') is being issued in 2 copies, One original plus One copy.

The Tata Power Company Limited TATA

Accepted Unconditionally

This LoI is based on the Final RFP and is further contingent upon you satisfying the following conditions:

(a) Acknowledging its issuance and unconditionally accepting its contents and recording 'Accepted unconditionally' under the signature and stamp of your authorized signatory on each page of the duplicate copy of this letter attached herewith and returning the same to REC Power Development and Consultancy Limited within 7 (Seven) days from the date of issuance of LoI.

(b) Completion of various activities as stipulated in the RFP including in particular Clause 2.15.2, Clause 2.15.3 and Clause 2.15.4 of the Final RFP within the timelines as prescribed therein.

(c) Provide the Contract Performance Guarantee of Rs. 52.33 Crore (Rupees Fifty-Two Crore Thirty-Three Lakh Only) within 10 (Ten) days from issue of this LoI, in favour of the Nodal Agency, as per the provisions of Clause 2.12 of Final RFP.

It may be noted that REC Power Development and Consultancy Limited has the rights available to them under the Final RFP, including rights under clause 2.15.5 and 3.6.3 thereof, upon your failure to comply with the aforementioned conditions.

As you are aware, the issuance and contents of this LoI are based on the Bid submitted by you as per the Final RFP including the Transmission Charges and other details regarding the Scheduled COD as contained therein. The Quoted Transmission Charges as submitted by you and the Scheduled COD of transmission elements as agreed by you in your Bid, as per Annexure 21 and Format-1 of Annexure-8 respectively of the Final RFP is enclosed herewith as Schedule-A and incorporated herein by way of reference.

Further, please note that relationship of M/s The Tata Power Company Limited with the REC Power Development and Consultancy Limited & Nodal Agency will be governed solely on the basis of the Final RFP.

You are requested to unconditionally accept the LoI, and record on one copy of the LoI, 'Accepted unconditionally', under the signature of the authorized signatory of your Company and return such copy to us within 7 (Seven) days of issue of LoI.

The Tata Power Company Ltd. TATA

Accepted Unconditionally

Yours faithfully

Kumar, 14.06.24

Ratnesh Kumar
General Manager (Engg.)

Enclosures:

1. Schedule A: Quoted Transmission Charges and the scheduled COD of transmission element submitted in your Bid, as per Annexure 21 and Format-1 of Annexure-8 respectively of the Final RfP.

Copy for kind information to:

1. **The Additional Chief Secretary (Energy) to Government,** Room No. 236, 2nd Floor, Vikasa Soudha, Dr B.R Ambedkar Street, Bangalore - 560001

2. **The Secretary, KERC,** No 16C-1, Millers Road, Kaverappa Layout, Vasantha Nagar, Bengaluru Karnataka 560052

3. **Managing Director, KPTCL,** Indhana Bhavan Building, Nehru Nagar, Seshadripuram, Bengaluru, Karnataka 560001

The Tata Power Company Ltd. TATA

Accepted
Unconditionally

ANNEXURE 21 - FORMAT FOR FINANCIAL BID

Quoted Annual Transmission Charges: Rs. 5210.71 Million

Notes:

1. The Bidders are required to ensure compliance with the provisions of Clause 2.5.3 of this RFP.

2. Quotes to be in Rupees Millions and shall be up to two (2) decimal points.

3. The contents of this format shall be clearly typed.

4. The Financial Bid shall be digitally signed by the authorized signatory in whose name power of attorney as per Clause 2.5.2 is issued.

5. Ensure only one value for annual Transmission Charges is quoted. The same charge shall be payable every year to TSP for the term of TSA.

Accepted Unconditionally

UNDERTAKING AND DETAILS OF EQUITY INVESTMENT

Format 1: **Bidders' Undertakings**

Date: 06 April 2026

To,
Chief Executive Officer,
REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited)
REC Corporate Head Quarter,
D Block, Plot No. I – 4, Sec – 29 Gurugram – 122 001

Dear Sir,

Sub: Bidders' Undertakings in respect of Bid for selection of Bidder as TSP to establish Intra-State Transmission System for "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District"

We hereby undertake on our own behalf and on behalf of the TSP, that if selected as the Successful Bidder for the Project:

1. The Project shall comply with all the relevant electricity laws, codes, regulations, standards and Prudent Utility Practices, environment laws and relevant technical, operational and safety standards, and we shall execute any agreements that may be required to be executed as per law in this regard.

2. We confirm that the Project shall also comply with the standards and codes as per Clause 1.6.1.2 of the RFP and the TSP shall also comply with the provisions contained in the KERC (Terms and conditions for Open Access) Regulations, 2025 and any other relevant KERC regulation as amended from time to time.

3. We give our unconditional acceptance to the RFP dated **07.03.2026** issued by the BPC and the RFP Project Documents, as amended, and undertake to ensure that the TSP shall execute all the RFP Project Documents, as per the provisions of this RFP.

4. We have submitted the Bid on the terms and conditions contained in the RFP and the RFP Project Documents. Further, the Financial Bid submitted by us is strictly as per the format provided in Annexure 21 of the RFP, without mentioning any deviations, conditions, assumptions or notes in the said Annexure.

5. Our Bid is valid up to the period required under Clause 2.8 of the RFP.

REC Power Development and Consultancy Limited ★ Gurugram

TATA POWER
The Tata Power Company Limited
"Shatabdi Bhawan", B-12 & 15, Sector-4 Noida 201 301 (U.P.)
Tel.: 91 120 610 2000
Registered Office Bombay House 24 Homi Mody Street Mumbai 400 001
Website : www.tatapower.com Email : tatapower@tatapower.com
CIN : L78920MH1919PLC000567

The Tata Power Company Ltd. TATA

Accepted Unconditionally

6. Our Bid has been duly signed by authorized signatory and stamped in the manner and to the extent indicated in this RFP and the power of attorney / Board resolution in requisite format as per RFP has been enclosed with this undertaking.

7. Not Applicable

8. We confirm that our Bid meets the Scheduled COD of each transmission Element and the Project as specified below:

S. No.	Name of the Transmission Element	Scheduled COD	Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project	Element(s) which are prerequired for declaring the commercial operation (COD) of the respective Element
1	Establishment of 5x500 MVA, 400/220 kV S/s at Ryapte in Tumkur District along with 2x125MVAr 400 kV Bus Reactors • 400/220 kV ICTs: 5 Nos. (5x500 MVA) • 400 kV ICT Bays: 5 Nos. • 400 kV Line bays (along with space provision for switchable line reactors): 2 Nos. • 125 MVAr, 420 kV Bus reactor – 2 Nos. • 400 kV Bus reactor bay: 2 Nos • 220 kV ICT Bays: 5 Nos • 220 KV line Bay - 8 No. • 220 kV TBC bay – 2 No. • 220 kV BC bay – 2 No • 220 kV Sectionalization bay: 1 set • 400 kV Bus PT bay- 2 Nos • 220 kV Bus PT bay- 4 Nos Space For Future Provision: • 400/220 KV ICTs - 5 Nos. • 400 kV ICT bay – 5 Nos. • 400 kV Bus Reactor: 3 Nos • 400 kV Bus Reactor bays: 3 Nos • 220 kV ICT Bays: 5 Nos • 220 kV line bays – 8 Nos • 400 kV Line bays (along with space provision for switchable line reactors): 4 Nos.	30 months from Effective date	100%	All Elements are required to be commissioned Simultaneously as their utilization is dependent on each other.
2	400kV DC line (Quad moose conductor) from Prop. 400/220 kV Ryapte Sub-station to Prop. 400/220 kV			

REC Power Development and Consultancy Limited Gurugram

The Tata Power Company Ltd. TATA

Accepted Unconditionally

	Doddathaggalli S/s.			
3	Establishing 3X500 MVA, 400/220kV GIS sub-station at Doddathaggalli (Near Hosakote) along with 2x125 MVAr, 400 kV Bus Reactors • 400/220 kV ICTs: 3 nos. • 400 kV ICT Bays: 3 nos. • 400 kV Line bays: 4 nos. • 125 MVAr, 420 kV Bus reactor – 2 No • 400 kV Bus reactor bay: 2 Nos • 220 kV ICT Bays: 3 Nos • 220 kV Line bays: 6 Nos. • 220 kV BC bay – 1 No • 400 kV Bus PT bay - 2 Nos • 220 kV Bus PT bay - 2 Nos Future Provision: • 400 kV line bays – 4 Nos. • 400/220 kV ICTs - 2 Nos. • 400 kV ICT bays - 2 Nos • 400 kV Bus Reactor: 2 Nos. • 400 kV Bus Reactor bays: 2 Nos. • 220 kV ICT Bays: 2 Nos • 220 kV Line bays: 4 Nos			
4	400kV DC line (Quad moose conductor) from Kolar S/s to Prop. 400/220 kV Doddathaggalli Sub-station with following works at Kolar S/s:- One circuit of Kolar – Doddathaggalli 400kV (quad) D/c line may be terminated in existing vacant bay no. 415 at Kolar S/s. Other circuit may be terminated in new GIS diameter with 2-CB scheme. This option requires following main elements: • Termination of one circuit in the spare 400kV AIS bay no. 415 by providing required bay equipment to complete the 400kV Dia (413.414 and 415 bays) • Construction of 2 nos. 400kV outdoor GIS bays in 2 CB configuration for termination of other circuit • Extension of 400kV Main Bus-I and II through GIB duct to proposed 400kV outdoor GIS bays with AIS isolators • Dismantling and re-erection of one no. LM, if required Further, any requirement suggested by substation owners shall be followed as per site condition.			
5	220kV DC line with Single Zebra and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions) from proposed 400/220 kV Doddathagalli substation to 220kV Ekarajapura substation with 2 No.s of AIS TB at Ekarajapura S/s with rearrangement/Shifting of existing Bus PT bay			

REC Power Development and Consultancy Limited Gurugram

The Tata Power Company Ltd. TATA

Accepted Unconditionally

The Tata Power Company Ltd. TATA

	Note: The Tower design shall be suitable for TWIN Zebra.			
6	220kV DC line with partial AAAC Moose and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions), from proposed 400/220 kV Doddathagalli sub-station to proposed 220kV Hosakote New substation			
7	220kV DC line with Single Zebra and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions) from proposed 400/220kV Doddathagalli to Sarjapura AIS S/s with 2 Nos. of outdoor GIS TB at Sarjapura S/s by extending existing AIS bus bar along with AIS isolator Note: The Tower design shall be suitable for TWIN Zebra			

We agree that the payment of Transmission Charges for any Element irrespective of its successful commissioning on or before its Scheduled COD shall only be considered after the successful commissioning of Element(s) which are pre - required for declaring the commercial operation of such Element as mentioned in the above table.

Scheduled COD for the Project: 30 months from Effective date.

1. We confirm that our Financial Bid conforms to all the conditions mentioned in this RFP, and in particular, we confirm that:
   a. Financial Bid in the prescribed format of Annexure 21 has been submitted duly signed by the authorized signatory
   b. Financial Bid is unconditional.
   c. Only one Financial Bid has been submitted.
2. We have neither made any statement nor provided any information in this Bid, which to the best of our knowledge is materially inaccurate or misleading. Further, all the confirmations, declarations and representations made in our Bid are true and accurate. In case this is found to be incorrect after our acquisition of **Ryapte Power Transmission Limited**, pursuant to our selection as Selected Bidder, we agree that the same would be treated as a TSP's Event of Default under Transmission Service Agreement, and relevant provisions of Transmission Service Agreement shall apply.
3. We confirm that there are no litigations or other disputes against us which materially affect our ability to fulfil our obligations with regard to the Project as per the terms of RFP Project Documents.
4. Power of attorney/ Board resolution as per Clause 2.5.2 is enclosed.

REC Power Development and Consultancy Limited Gurugram

The Tata Power Company Ltd. TATA

Accepted Unconditionally

The Tata Power Company Ltd. TATA

Yours faithfully

.....

(Signature and stamp)

Name: Piyush Kumar

Date: 06 April 2026

Place: Noida

REC Power Development and Consultancy Limited Gurugram

The Tata Power Company Ltd TATA

Accepted Unconditionally

Annexure P-25

F.No. 21-44/1/2024-REC DESK
भारत सरकार/Government of India
विद्युत मंत्रालय/Ministry of Power
***

Shram Shakti Bhawan, Rafi Marg,
New Delhi, dated the 30th June, 2026

To

The CEO, RECPDCL
Plot No. I-4, Sector-29,
Gurugram (Haryana)-122001.

Sub: Seeking approval for sale & transfer of WR ER Part C Power Transmission Limited, WR ER Part A Power Transmission Limited, Musalgaon Power Transmission Limited and Ryapte Power Transmission Limited to the Successful Bidder(s), selected through Tariff-Based Competitive Bidding process.

Sir,

I am directed to refer to RECPDCL's letter SEC No. 1/219/2026/1304 dated 22.06.2026 on the subject mentioned above and to convey the approval of Competent Authority for divesting the shareholding of RECPDCL and its nominee in following Special Purpose Vehicles(SPVs), incorporated for carrying out bidding of various Inter- State/intra-State transmission projects under Tariff Based Competitive Bidding(TBCB) mode, to the respective successful bidder(s), as indicated in below table, with a view to facilitate transfer of the SPV to the successful bidder, as required under Ministry of Heavy Industries, Department of Public Enterprises O.M. No. 22(I)12009-GM dated 04.02.2010:

Sl. No.	Name of the Project	Name of SPV	Successful Bidder
1	WR-ER Inter-Regional Network Expansion Scheme- Part C	WR ER Part C Power Transmission Limited	H G Infra Engineering Limited
2	WR-ER Inter-Regional Network Expansion Scheme- Part A	WR ER Part A Power Transmission Limited	Power Grid Corporation of India Limited
3	Establishment of 220/132/33 k V AIS Musalgaon (Dist. Nashik)	Musalgaon Power Transmission Limited	Maharastra State Electricity Transmission Company Limited
4	Evacuation Scheme for 2000 MW Solar Park at Ryapte village, Tumkur District, Karnataka	Ryapte Power Transmission Limited	The Tata Power Company Limited

Yours faithfully,

30/6/26

(Nidhi Juneja)
Under Secretary to the Govt. of India
email: juneja.n13@nic.in /
sopfcrec-mop@gov.in
Tel: 011-23711302

Copy for information and necessary action to:

i. CMD, REC Ltd.

ii. US (Trans), MoP. with the request that transmission wing should also write to concerned states informing about the project for extending all possible help in assessment of compensation to be paid to landowners and also expediting forest clearance, if involved in the project.

iii. Sr. PPS to Secretary (Power)/JS (Distt. &Reforms)/Dir (Distt.), Ministry of Power

REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited, a 'Maharatna CPSE'
under Ministry of Power, Govt. of India)

Annexure P-26 (Colly)

Ref No.: REC PDCL/FIN/RPTL/2026-27/260 Dated: 17.07.2026

To,

M/s. The Tata Power Company Limited
B-12/13, 2nd Floor, Shatabdi Bhawan
Sector-04, Noida, UP-201301

Kind Attention: Sh. Shri Rajat Uprety, Executive Director

Subject: Payment of Acquisition Price towards handing over of M/s. RYAPTE POWER TRANSMISSION LIMITED.

Sir,

This is to inform that the acquisition price of M/s. Ryapte Power Transmission Limited is **Rs 10,86,62,034/- (Rupees Ten Crore Eighty-Six Lakh Sixty-Two Thousand Thirty-Four Only)** as per the breakup given below:

S No	Particulars	Amount (INR)
1	Professional Fee of BPC #	9,28,10,150
2	Reimbursement of cost incurred by BPC #	1,53,51,884
3	Share Capital of Rypate Power Transmission Limited	5,00,000
Acquisition Value/ Net Amount Payable by Bidder		**10,86,62,034**

including GST

Kindly credit the above total amount i.e., **Rs. 10,86,62,034/-** in the below mentioned Bank Account of REC Power Development and Consultancy Limited. TDS will be deposited by RECPDCL on behalf and under TAN of Ryapte Power Transmission Limited.

D-Block, REC World Headquarter, Plot No. I-4, Sector-29, Gurugram, (Haryana) - 122001.
E-mail: co@recpdcl.in | Tel.: 0124-4441300 | www.recpdcl.in | CIN No. RECPDCL-U40101DL2007GOI165779 GST No. 06AADCR7399K1ZP

The acquisition price may be credited to our account through RTGS as per the following:

Bank Name, Address & Branch	**IDFC First Bank Limited** Gurgaon Golf Course Road Branch, Ground Floor Unit no. CG-01A and 01B, Gurgaon - 122003
Bank Account Name	**REC Power Development and Consultancy Ltd**
Bank Account No	**10171707713**
Bank IFSC Code No	**IDFB0021001**

Thanking You,

Yours faithfully

(Sumit Mehra)
DGM (F&A), RECPDCL

From:	TBCB karnataka
To:	Uprety Rajat
Cc:	Katiyar Tarun; Chakraborty Mithun; Srivastava Neeraj; Kumar Nitin; Monisha Barua; TBCB Projects; Director Projects KPTCL; CEE Planning and Co-Ordination; SEE Planning
Subject:	Final acquistion price and date of signing of TSA
Date:	22 July 2026 11:06:27
Attachments:	Intimation Letter for acquisition price to bidder1.pdf

[EXTERNAL sender, Exercise caution..!]

Sir,

Please find the final acquisition price of Ryapte Power Transmission Limited. Date of signing of TSA and SPV transfer shall be 30.07.2026.

Warm Regards
TBCB, RECPDCL
Bengaluru

::DISCLAIMER::

The contents of this e-mail and any attachment(s) with it are confidential and intended for the sole use of named recipients and may contain legally confidential and / or privileged information. It shall not attach any liability on the originator. Any views or opinions presented in this email are solely those of the author and may not necessarily reflect the opinions of RECPDCL or its subsidiaries. If the reader of this message is not the intended recipient, immediately inform the originator by reply e-mail and delete this mail will all content and attachment(s) . Any unauthorized reproduction, dissemination, copying, disclosure, modification, distribution and / or publication of this e-mail and attachment is strictly prohibited and may be unlawful. Before opening any mail and attachments please check them for viruses and defect. Email communications are not secure and capable of interception corruption and delays. Anyone communicating with the originator or RECPDCL or its subsidiaries by email accept the risk of email communication and their consequences.

Annexure P-27

View RAW

Eximbills Enterprise SWIFT

Main Reference NO:	0999526BG0Y01277	**Transaction Reference NO:**	0999526BG0Y01277
Unit Code:	09995	**Operator:**	VDE0064
Module Name:	BGIF	**Function Name:**	Issue_After_RegBG
Transaction Date:	27-07-2026	**Transaction Time:**	16:28:06
Event Time:	4	**Release by**	4409639
Release Date	27-07-2026	**Release Time:**	17:54:48

MT760COV Acking Waiting for Ack/Nak Notifying

B1: Outgoing SWIFT Header 1

F01SBIN0009995500000000000

B2: Receiver's BIC Code

I760SBIN0006861N

7020: Transaction Referance Number (Issuing Bank Guarantee Number)

0999526BG0Y01277

7022: Guarantee Form Number

OTH DOMST BANKS

7024: Type of Bank Guarantee : Performance, Financial, Others

PERFORMANCE

7025: Amount of Guarantee Currency Code Amount

INR523300000,00

7026: Guarantee Validity Guarantee From Date Guarantee To Date

2026072720290430

7027: Guarantee Effective Date

20260727

7029: End date for lodgement of claim

20300430

7030: Place of lodgement of claim

CAG MUMBAI

7031: Issuing Branch IFSC

SBIN0009995

7032: Issuing branch name and address

CAG MUMBAI
CORPORATE ACCOUNTS GROUP BR
VOLTAS HOUSE, 23 J.N.HEREDIA MARG
BALLARD ESTATE,MUMBAI

7033: Name of applicant and his details

THE TATA POWER CO. LTD.
CORPORATE FINANCE DEPT., 34, SANT
TUKARAM ROAD, CARNAC BUNDER,
MUMBAI 400009, INDIA

7034: Name of Counter party and his details

KARNATAKA POWER TRANSMISSION CORP
LIMITED (KPTCL),INDHANA BHAVANA
BENGALURU 560009
BENGALURU

Girish V. Ghanshani
V3817

AARTI CHAURASIA
SS. No. C6997

30/7

Controller (P&C)
KPTCL, Indhana Bhavana
Bangalore-560009

7035: Counter party IFSC

SBIN0006861

7036: Counter party branch name and address

STATE BANK OF INDIA
OVERSEAS BRANCH, BANGALORE
NO.65 ST. MARKS RD. BANGALORE

7037: Sender to Receiver Information

TBCB RYAPTE 2026 27 1250

7039: Reference/Description of the underlined contract

TBCB RYAPTE 2026 27 1250

7040: Stamp Duty Electronically Paid (Y/N)

N

7048: e-Bank Guarantee to be held in Demat Form(Y/N)

N

20Z: Transaction Reference Number

NON-REGULAR

Print Close

AARTI CHAURASIA
SS. No. C6997

Girish V. Ghanshani
V3817

महाराष्ट्र MAHARASHTRA ◑ 2026 ◑ FB 319325

प्रधान मुद्रांक कार्यालय, मुंबई
प.मु.वि.क ८०००००३
25 JUN 2026
सक्षम अधिकारी

This Stamp paper is an integral part of bank Guarantee / Bank Guarantee Amendment No. 0999526 BG 0401277 executed by us 27/7/26

श्री. विनायक जाधव

Bank Guarantee
No. 0999526 BG0401277

Date..... 27/7/26.....

For STATE BANK OF INDIA

Dy. Manager / Manager (Trade Finance)
Dy. Manager / Manager (Trade Finance)
CAG Br. Mumbai, Br. Code: 09995
Ballard Estate, Mumbai - 400 001.

AARTI CHAURASIA
SS. No. C6997

Girish V. Ghanshani

जोडपत्र - २ Annexure - II

रद्दचा प्रकार	
रद्द नोंदणी करणार आहेत का ?	YES/NO
जिल्हाधिकारी वर्गीकरण -	
मुद्रांक विक्रेत परवानाधारी नाव	
मुद्रांक पडताळणारी नाव	
ज्या असल्यास त्याचे नाव व पत्ता	
मुद्रांक शुल्क रक्कम	
मुद्रांक विक्री केली त्या व्यक्तीचे नाव	
मुद्रांक विक्रेत्याची सही	
मुद्रांक विक्रेत्याची सही	

STATE BANK OF INDIA
CORPORATE ACCOUNTS BRANCH
NEVILLE HOUSE, BALLARD ESTATE,
MUMBAI - 400 001.

Girish V. Ghanshani
V3817

- 1 JUL 2026
- 1 JUL 2026

परवाना क्रमांक : ८ ० ० ० ० ० ३
मुद्रांक विक्रेते नाव/पत्ता : श्री. अशोक रघुनाथ कदम
२१०, शहिद भगत सिंह रोड, २/१५, आनंद सदन, कोर्ट,
मुंबई - ४०० ००१. टेलि. नं. ०२२८९८८६७७

ज्या कारणासाठी ज्यांनी मुद्रांक खरेदी केला त्यांनी त्याच कारणासाठी मुद्रांक खरेदी केल्यापासून ६ महिन्यात वापरणे बंधनकारक आहे

000028

SBI

Contract Performance Guarantee.

Karnataka Power Transmission Corporation Limited (KPTCL)
Indhana Bhavana Bengaluru 560009

In consideration of the M/s The Tata Power Company Limited having its registered office at Bombay House, 24, Homi Mody Street, Mumbai Maharashtra - 400001 (Selected Bidder) agreeing to undertake the obligations under the Transmission Service Agreement to be executed on 30.07.2026 and the other RFP Project Documents and the Nodal Agency and the REC Power Development and Consultancy Limited, agreeing to execute the RFP Project Documents with the Selected Bidder, regarding setting up the Project, we State Bank of India, a bank constituted under the State Bank of India Act 1955 and having its Corporate Centre at State Bank Bhavan, Madame Cama Road, Nariman Point, Mumbai and having a Branch Office at Corporate Accounts Group Mumbai Branch, J.N Heredia Marg, Neville House, Ballard Estate, Mumbai 400001, (Hereinafter called 'the Guarantor Bank") hereby agrees unequivocally, irrevocably and unconditionally to pay to CEE(P&C)/ Karnataka Power Transmission Corporation Limited (KPTCL) /STU (being the Nodal Agency) at Indhana Bhavana, Bengaluru - 560009 forthwith on demand in writing from the Nodal Agency or any Officer authorized by it in this behalf, any amount up to and not exceeding Rs. 52,33,00,000 (Rupees Fifty-Two Crore and Thirty-Three Lakh only) on behalf of M/s Tata Power Company Limited.

This guarantee shall be valid and binding on the Guarantor Bank up to and including 30.04.2029 and shall not be terminable by notice or any change in the constitution of the Bank or the term of the Transmission Service Agreement or by any other reasons whatsoever and our liability hereunder shall not be impaired or discharged by any extension of time or variations or alternations made, given, or agreed with or without our knowledge or consent, by or between parties to the respective agreement.

Our liability under this Guarantee is restricted to Rs. 52,33,00,000 (Rupees Fifty-Two Crore and Thirty-Three Lakh only). Our Guarantee shall remain in force until 30.04.2029. The Nodal Agency shall be entitled to invoke this Guarantee up to three hundred sixty-five (365) days of the last date of the validity of this Guarantee i.e., 30.04.2030

The Guarantor Bank hereby expressly agrees that it shall not require any proof in addition to the written demand from Karnataka Power Transmission Corporation Limited (KPTCL) /STU (in its role as the Nodal Agency), made in any format, raised at the above-mentioned address of the Guarantor Bank, in order to make the said payment to the Nodal Agency.

The Guarantor Bank shall make payment hereunder on first demand without restriction or conditions and notwithstanding any objection by Ryapte Power Transmission Limited, M/s The Tata Power Company Limited and / or any other person. The Guarantor Bank shall not require the Nodal Agency to justify the invocation of this BANK GUARANTEE, nor shall the Guarantor Bank have any recourse against the Nodal Agency in respect of any payment made hereunder.

This BANK GUARANTEE shall be interpreted in accordance with the laws of India.

The Guarantor Bank represents that this BANK GUARANTEE has been established in such form and with such content that it is fully enforceable in accordance with its terms as against the Guarantor Bank in the manner provided herein.

This BANK GUARANTEE shall not be affected in any manner by reason of merger, amalgamation, restructuring, liquidation, winding up, dissolution or any other change in the constitution of the Guarantor Bank.

This BANK GUARANTEE shall be a primary obligation of the Guarantor Bank and accordingly Nodal agency shall not be obliged before enforcing this BANK GUARANTEE to take any action in any court or arbitral proceedings against Ryapte Power Transmission Limited or M/s The Tata Power Company Limited, to make any claim against or any demand on Ryapte Power Transmission Limited or M/s The Tata Power Company Limited, as the case may be, or to give any notice to Ryapte Power Transmission Limited or M/s The Tata Power Company Limited, as the case may be, or to enforce any security held by the Nodal Agency or to exercise, levy or enforce any distress, diligence or other process against Ryapte Power Transmission Limited or M/s The Tata Power Company Limited, as the case may be.

The Guarantor Bank acknowledges that this BANK GUARANTEE is not personal to the Nodal Agency and may be assigned, in whole or in part, (whether absolutely or by way of security) by Nodal Agency to any entity to whom the Nodal Agency is entitled to assign its rights and

0999526BG0Y01277

2026-07-27

FOR STATE BANK OF INDIA

Dy.Manager / Manager (Trade Finance)
Dy. Manager / Manager (Trade Finance)
SC Br. Mumbai, Br. Code: 09995
Estate, Mumbai - 400 001.

AARTI CHAURASIA
SS. No. C6997

Girish V. Ghansham
V3817

obligations under the Transmission Service Agreement.

This Bank Guarantee shall be effective only when the BG message is transmitted by the Issuing Bank through SFMS (message Type: IFN 760 COV – Bank Guarantee message) to State Bank of Inda St Marks Overseas Branch , Bengaluru IFSC : SBIN0006861 (Bank of Beneficiary) and written confirmation to that effect is issued by the bank of Beneficiary.

The Guarantor Bank hereby agrees and acknowledges that the Nodal Agency shall have a right to invoke this Bank Guarantee either in part or in full, as it may deem fit.

This BANK GUARANTEE may be extended from time to time for such period, as may be desired by M/s The Tata Power Company Limited and at sole discretion of the bank.

Notwithstanding anything to the contrary contained herein.
i)Our Liability under this Guarantee shall not exceed Rs. 52,33,00,000 (Rupees Fifty-Two Crore and Thirty-Three Lakh only).
ii)This Bank Guarantee shall be valid up to 30.04.2029
iii)We are liable to pay the guarantee amount only and only if we receive from you written demand on or before 30.04.2030

ORIGINAL

For STATE BANK OF INDIA

Dy. Manager / Manager (Trade Finance)
Dy. Manager / Manager (Trade Finance)
CAG Br. Mumbai, Br. Code: 09995
Ballard Estate, Mumbai - 400 001.

0999526BG0Y01277

2026-07-27

AARTI CHAURASIA
SS. No. C6997

Girish V. Ghanshani
V3817

भारतीय स्टेट बैंक
STATE BANK OF INDIA

STATE BANK OF INDIA

Form No. 0999526BG0Y01277 Date 27-07-2026

Karnataka Power Transmission Corp
Limited (KPTCL),Indhana Bhavana
Bengaluru 560009
Bengaluru

Dear Sir,
Guarantee No 0999526BG0Y01277
Amount of Guarantee Rs. 523,300,000.00 /-Guarantee cover from 27-07-2026 to 30-04-2029 Last date for lodgement of claim – 30-04-2030

This Deed of guarantee executed by the State Bank of India constituted under the State Bank of India Act, 1955 having its Central Office at Nariman Point, Mumbai and amongst other places, a branch at CAG MUMBAI in favour of Karnataka Power Transmission Corp for an amount not exceeding Rs. 523,300,000.00 /- (Rupees Fifty Two Crore Thirty Three Lakh Rupees only) at the request of THE TATA POWER CO. LTD.

This Guarantee is issued subject to the condition that the liability of the bank under this Guarantee is limited to a maximum of Rs. 523,300,000.00 /- (Rupees Fifty Two Crore Thirty Three Lakh Rupees only) and the Guarantee shall remain in full force up to 30-04-2029 and cannot be invoked otherwise than by a written demand or claim under this Guarantee served on the Bank on or before the 30-04-2030

Notwithstanding anything contrary contained in any law for the time being in force or banking practice, this guarantee shall not be assignable or transferable by the Counter party. Notice or invocation by any person such as assignee, transferee or agent of Counter party shall not be entertained by the Bank. Any invocation of guarantee can be made only by the Counter party directly."

The beneficiaries are advised in their own interest to verify the genuineness of the Guarantee with the BG issuing Branch.

CAG MUMBAI
CORPORATE ACCOUNTS GROUP BR
VOLTAS HOUSE, 23 J.N.HEREDIA MARG
BALLARD ESTATE,MUMBAI
sbi.09995@sbi.co.in

0999526BG0Y01277

27-07-2026

AARTI CHAURASIA
SS. No. C6997

Girish V. Ghanshani
V3817

SBI

भारतीय स्टेट बैंक
STATE BANK OF INDIA

27-07-2026

To
THE TATA POWER CO. LTD.
CORPORATE FINANCE DEPT., 34, SANT
TUKARAM ROAD, CARNAC BUNDER,
MUMBAI 400009, INDIA
27AAACT0054A1Z1

Madam / Dear Sir,

INLAND BG - ISSUANCE DEBIT ADVICE

Greetings from SBI,

We have debited your Account No XXXXXXX6265 for INR 463928.80 towards BG issuance as per the details mentioned below:

1. e-Trade Ref. No. : 0999526TT0300008
2. BG No. : 0999526BG0Y01277
3. Amount in Rs. : 523,300,000.00
4. Beneficiary : Karnataka Power Transmission Corp

DETAILS OF CHARGES	AMOUNT (INR)	GST (INR)	
Guarantee Commission for Perf.	392410.00	70633.80	
Guarantee Commission for Fin.			
Stamp Charges			
Postage Charges	250.00	45.00	
Other Charges			
SFMS Charges	500.00	90.00	
Total charges	393160.00	70768.80	463928.80

At your request, the commission will be recovered periodically as detailed below. The commission for the first period has been debited to your account. Please ensure there is an adequate balance in your operative account on the respective due dates as per details below: -

RECOVERY FREQUENCY	COMMISSION AMOUNT	NEXT DUE DATE
Quarterly	3,92,410.00	27-10-2026
Quarterly	3,92,410.00	27-01-2027
Quarterly	3,92,410.00	27-04-2027
Quarterly	3,92,410.00	27-07-2027
Quarterly	3,92,410.00	27-10-2027
Quarterly	3,92,410.00	27-01-2028
Quarterly	3,92,410.00	27-04-2028
Quarterly	3,92,410.00	27-07-2028
Quarterly	3,92,410.00	27-10-2028
Quarterly	3,92,410.00	27-01-2029
Quarterly	3,92,410.00	27-04-2029
Quarterly	3,92,410.00	27-07-2029
Quarterly	3,92,410.00	27-10-2029
Quarterly	3,92,410.00	27-01-2030
Quarterly	1,30,803.00	27-04-2030
Total Charges to be Recovered	5,624,543.00	

Please note that the commission amount may undergo a change in case there is upward revision in service charges in future

Jul 27, 2026 5:54 PM

AARTI CHAURASIA
SS. No. C6997

Girish V. Ghanshani
V3817

Yours faithfully,

Authorized Signatory
This document is system generated and does not require signature.

"For a better digital experience and faster processing, we recommend you to please contact your home / dealing branch to guide you for enabling access to Trade Finance facility in YONO Business, SBI's online banking platform for Business Customers."

CAG MUMBAI
CORPORATE ACCOUNTS GROUP BR

VOLTAS HOUSE, 23 J.N.HEREDIA MARG

BALLARD ESTATE,MUMBAI

sbi.09995@sbi.co.in

Annexure P-28

SHARE PURCHASE AGREEMENT

BETWEEN

REC POWER DEVELOPMENT AND CONSULTANCY LIMITED

AND

RYAPTE POWER TRANSMISSION LIMITED

AND

THE TATA POWER COMPANY LIMITED

Dated: 30TH JULY, 2026

सत्यमेव जयते

INDIA NON JUDICIAL

Government of National Capital Territory of Delhi

e-Stamp

Certificate No.	:	IN-DL63163896159452Y
Certificate Issued Date	:	28-Jul-2026 12:56 PM
Account Reference	:	SELFPRINT (PU)/ dl-self/ NEHRU/ DL-DLH
Unique Doc. Reference	:	SUBIN-DLDL-SELF32072020089022Y
Purchased by	:	REC POWER DEVELOPMENT AND CONSULTANCY
Description of Document	:	Article 5 General Agreement
Property Description	:	CORE-4, SCOPE COMPLEX, 7, LODHI ROAD, NEW DELHI - 110003
Consideration Price (Rs.)	:	0 (Zero)
First Party	:	RYAPTE POWER TRANSMISSION LIMITED
Second Party	:	THE TATA POWER COMPANY LIMITED
Stamp Duty Paid By	:	RYAPTE POWER TRANSMISSION LIMITED
Stamp Duty Amount(Rs.)	:	500 (Five Hundred only)

SELF PRINTED CERTIFICATE TO BE VERIFIED BY THE RECIPIENT AT WWW.SHCILESTAMP.COM

Please write or type below this line

SHARE PURCHASE AGREEMENT

This **SHARE PURCHASE AGREEMENT** ('**Agreement**') made on the 30th day of July, 2026 at New Delhi by and between:

REC POWER DEVELOPMENT AND CONSULTANCY LIMITED, a company incorporated under the Companies Act, 1956, vide CIN-U40101DL2007GOI165779 having its registered office at Core 4, SCOPE Complex, 7, Lodhi Road, New Delhi 110 003, India (hereinafter referred to as "**REC PDCL**", which expression shall, unless it be repugnant to the context or meaning thereof, be deemed to mean and include its successors and permitted assigns) of the **FIRST PART**;

RECPDCL RPTL TPCL

Statutory Alert:
1. The authenticity of this Stamp certificate should be verified at 'www.shcilestamp.com' or using e-Stamp Mobile App of Stock Holding. Any discrepancy in the details on this Certificate and as available on the website / Mobile App renders it invalid.
2. The onus of checking the legitimacy is on the users of the certificate.
3. In case of any discrepancy please inform the Competent Authority.

सत्यमेव जयते

INDIA NON JUDICIAL

Government of National Capital Territory of Delhi

₹500

e-Stamp

Certificate No.	:	IN-DL63151266101853Y
Certificate Issued Date	:	28-Jul-2026 12:44 PM
Account Reference	:	SELFPRINT (PU)/ dl-self/ NEHRU/ DL-DLH
Unique Doc. Reference	:	SUBIN-DLDL-SELF32049340311955Y
Purchased by	:	REC POWER DEVELOPMENT AND CONSULTANCY
Description of Document	:	Article 5 General Agreement
Property Description	:	CORE-4, SCOPE COMPLEX, 7, LODHI ROAD, NEW DELHI - 110003
Consideration Price (Rs.)	:	0 (Zero)
First Party	:	RYAPTE POWER TRANSMISSION LIMITED
Second Party	:	THE TATA POWER COMPANY LIMITED
Stamp Duty Paid By	:	RYAPTE POWER TRANSMISSION LIMITED
Stamp Duty Amount(Rs.)	:	500 (Five Hundred only)

SELF PRINTED CERTIFICATE TO BE VERIFIED BY THE RECIPIENT AT WWW.SHCILESTAMP.COM

Please write or type below this line

AND

RYAPTE POWER TRANSMISSION LIMITED a company incorporated under the Companies Act, 2013 vide CIN - U42202DL2025GOI448817, having its registered office at Core 4, SCOPE Complex, 7, Lodhi Road, New Delhi 110003, India (herein after referred to as "**Company**" which expression shall, unless repugnant to the context, mean and include its successors in interest) of the **SECOND PART**;

REC Power Development and Consultancy Limited Gurugram

Ryapte Power Transmission Limited New Delhi 110003 Core-4, Scope Complex, 7, Lodhi Road

The Tata Power Company Ltd. TATA

RECPDCL RPTL TPCL

Statutory Alert:

1. The authenticity of this Stamp certificate should be verified at 'www.shcilestamp.com' or using e-Stamp Mobile App of Stock Holding. Any discrepancy in the details on this Certificate and as available on the website / Mobile App renders it invalid.
2. The onus of checking the legitimacy is on the users of the certificate.
3. In case of any discrepancy please inform the Competent Authority.

सत्यमेव जयते

INDIA NON JUDICIAL

Government of National Capital Territory of Delhi

₹200

e-Stamp

Certificate No.	:	IN-DL63138475080562Y
Certificate Issued Date	:	28-Jul-2026 12:32 PM
Account Reference	:	SELFPRINT (PU)/ dl-self/ NEHRU/ DL-DLH
Unique Doc. Reference	:	SUBIN-DLDL-SELF32026250243963Y
Purchased by	:	REC POWER DEVELOPMENT AND CONSULTANCY
Description of Document	:	Article 5 General Agreement
Property Description	:	CORE-4, SCOPE COMPLEX, 7, LODHI ROAD, NEW DELHI - 110003
Consideration Price (Rs.)	:	0 (Zero)
First Party	:	RYAPTE POWER TRANSMISSION LIMITED
Second Party	:	THE TATA POWER COMPANY LIMITED
Stamp Duty Paid By	:	RYAPTE POWER TRANSMISSION LIMITED
Stamp Duty Amount(Rs.)	:	200 (Two Hundred only)

SELF PRINTED CERTIFICATE TO BE VERIFIED BY THE RECIPIENT AT WWW.SHCILESTAMP.COM

IN-DL63138475080562Y

Please write or type below this line

AND

THE TATA POWER COMPANY LIMITED, a company incorporated under the Companies 1956 vide CIN-L28920MH1919PLC000567 having its registered office at Bombay House 24 Homi Mody Street Mumbai 400001 (herein after referred to as "**Selected Bidder**" which expression shall, unless repugnant to the context or meaning thereof, be deemed to mean and include its successors and permitted assigns) of the **THIRD PART**.

REC Power Development & Consultancy Limited Gurugram

Ryapte Power Transmission Limited New Delhi 110003 Core-4, Scope Complex, 7, Lodhi Road

The Tata Power Company Ltd TATA

RECPDCL RPTL TPCL

Statutory Alert:

1. The authenticity of this Stamp certificate should be verified at 'www.shcilestamp.com' or using e-Stamp Mobile App of Stock Holding. Any discrepancy in the details on this Certificate and as available on the website / Mobile App renders it invalid.
2. The onus of checking the legitimacy is on the users of the certificate.
3. In case of any discrepancy please inform the Competent Authority.

WHEREAS:

A. The Government of Karnataka vide its Order No. Energy 73 PPT 2024, Bengaluru dated 04.03.2025 has appointed REC Power Development and Consultancy Limited to be the Bid Process Coordinator (BPC) for the purpose of selection of Bidder as Transmission Service Provider (TSP) to establish Intra State Transmission System for "**Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District**" through tariff based competitive bidding process (hereinafter referred to as the "Project").

B. In accordance with the Bidding Guidelines, the BPC had initiated a competitive bidding process through issue of RFP for selecting a Successful Bidder to build, own, operate and transfer the Project comprising of the Elements mentioned in **Schedule 2** of the Transmission Service Agreement (TSA). BPC had initiated this process in accordance with and on the terms and conditions mentioned in the RFP Project Documents (as defined hereinafter).

C. BPC has incorporated the Company and has undertaken the preliminary studies, obtained certain approvals, etc. regarding the Project on behalf of the Company.

D. REC PDCL along with the Nominees hold one hundred per cent (100%) of the total issued and paid up equity share capital of the Company.

E. Pursuant to the said Bid Process, The Tata Power Company Limited has been identified as the Selected Bidder vide Letter of Intent dated 17th June 2026 issued by the BPC in favour of the Selected Bidder.

F. As envisaged in the RFP, the Shares Seller (as defined hereinafter) has agreed to sell the Sale Shares (as defined hereinafter) to the Selected Bidder and the Selected Bidder has agreed to purchase the Sale Shares from the Shares Seller, subject to and on the terms and conditions set forth in this Agreement.

NOW THEREFORE, IN CONSIDERATION OF THE MUTUAL COVENANTS AND AGREEMENTS SET FORTH IN THIS AGREEMENT AND FOR OTHER GOOD AND VALUABLE CONSIDERATION, THE PARTIES HEREBY AGREE AS FOLLOWS:

1. DEFINITIONS

1.1 Capitalised terms in this Agreement, unless defined in this Agreement shall, in so far as the context admits, have the same meaning in this Agreement as has been ascribed to them in the TSA.

1.2 Additionally, the following terms shall have the meaning hereinafter respectively assigned to them herein below:

(i) **"Acquisition Price"** shall mean INR 10,86,62,034/- (Rupees Ten Crore Eighty-Six Lakh Sixty-Two Thousand Thirty-Four Only), which is the aggregate consideration payable by the Selected Bidder towards purchase of the Sale Shares at par and for taking over of all assets and liabilities of the Company as on the Closing Date subject to adjustment as per the audited accounts of the Company as on the Closing Date;

(ii) **"Agreement"** or **"the Agreement"** or **"this Agreement"** shall mean this Share Purchase Agreement and shall include the recitals and/or annexures attached hereto, and the contracts, certificates, disclosures and other documents to be executed and delivered pursuant hereto, if any, and any amendments made to this Agreement by the Parties in writing;

(iii) **"Bid Process"** shall mean the competitive bidding process initiated by the BPC, by issuance of RFP for selecting a Successful Bidder to build, own, operate and transfer the Project in accordance with and on the terms and conditions mentioned in the RFP Project Documents;

(iv) **"Board"** shall mean the board of directors of the Company;

(v) **"Closing Date"** shall mean a mutually agreed date between the Parties falling within the period as mentioned in clause 2.15.2 of RFP or on failure of such mutual agreement between the Parties shall be the date falling on the last date of such period;

(vi) "**Encumbrance**" shall mean any mortgage, pledge, lien, charge, security assignment, hypothecation, trust, encumbrance or any other agreement having the effect of creating security interest;

(vii) "**Letter of Intent**" shall have the meaning ascribed thereto under the Bid Documents;

(viii) "**Nominees"** shall mean the Persons, who are named in Annexure A of this Agreement, holding the Sale Shares as nominees of REC PDCL;

(ix) "**Party**" shall mean REC PDCL, Company and the Selected Bidder, referred to individually, and "**Parties**" shall mean REC PDCL, Company and the Selected Bidder collectively referred to, as relevant;

RECPDCL RPTL TPCL

(x) "**Person**" shall include an individual, an association, a corporation, a partnership, a joint venture, a trust, an unincorporated organisation, a joint stock company or other entity or organisation, including a government or political subdivision, or an agency or instrumentality thereof, and/or any other legal entity;

(xi) "**RFP Project Documents**" shall mean the following documents, referred to collectively:

a. Transmission Service Agreement; and
b. this Agreement.

(xii) "**Representations and Warranties**" shall mean the representations and warranties mentioned in **Clause 4** hereto;

(xiii) "**RoC**" shall mean the Registrar of Companies;

(xiv) "**Sale Shares**" shall mean 50,000 (Fifty Thousand) shares, representing one hundred percent (100%) of the total issued, subscribed and fully paid-up equity share capital of the Company held by the Shares Seller and Nominees as more particularly described in Annexure A attached hereto;

(xv) "**Shares**" shall mean the fully paid-up equity shares of Company, of face value Rs. 10 each;

(xvi) "**Shares Seller**" shall mean REC PDCL; and

(xvii) "**Transmission Service Agreement**" or "**TSA**" means the agreement titled 'Transmission Service Agreement' to be executed on 30th July, 2026 entered into between the Karnataka Power Transmission Corporation Limited (KPTCL) and Ryapte Power Transmission Limited pursuant to which the TSP shall build, own, operate and transfer the Project and make available the assets of the Project on a commercial basis.

1.3 Interpretation Clause

Unless the context otherwise requires, the provisions of the TSA relating to the interpretation of the TSA shall apply to this Agreement as if they were set out in full in this Agreement and to this end are incorporated herein by reference.

2. TRANSFER OF SHARES

2.1 Subject to the terms and conditions of this Agreement, the Shares Seller agrees to sell and transfer to the Selected Bidder and the Selected Bidder hereby agrees to purchase from the Shares Seller, the Sale Shares free from Encumbrances together with all assets and liabilities of the Company with rights and benefits attached thereto in consideration of the Acquisition Price and the covenants, undertakings and the agreements of the Selected Bidder contained in this Agreement.

2.2 The Shares Seller hereby undertakes to cause the Nominees to transfer part of the Sale Shares held by them as nominees of the Shares Seller to the Nominees of Selected Bidder and execute any documents required to deliver good title to the Sale Shares to the Selected Bidder.

3. CLOSING

3.1 Prior to the Closing Date, the Selected Bidder shall provide to the Shares Seller, valid share transfer forms duly stamped with requisite amount of stamp duty payable on the transfer of the Sale Shares ("**Share Transfer Forms**").

3.2 On the Closing Date, the Shares Seller shall hand over to the Selected Bidder or its authorised representative, the original share certificates representing the Sale Shares ("**Sale Share Certificates**") executed by the Shares Seller and the Nominees, simultaneously against the Selected Bidder handing over to the Shares Seller, demand drafts drawn in favour of the Shares Seller or by confirmation of RTGS transfer in favour of the Shares Seller, for the Acquisition Price payable to it.

Provided that prior to the handing over of the Sale Share Certificates to the Selected Bidder as mentioned above, the Selected Bidder shall provide satisfactory evidence to REC PDCL that on the Closing Date, the Selected Bidder has furnished the Contract Performance Guarantee to the Karnataka Power Transmission Corporation Limited (KPTCL) and is in a position to comply with all other requirements of Clause 2.15.2 of the RFP.

3.3 The Selected Bidder shall immediately upon receiving the Sale Share Certificates and the Share Transfer Forms, duly execute the Share Transfer Forms and duly lodge the Share Transfer Forms and the Share Certificates with the Company along with the names of its nominees to be appointed on the Board of the Company. The new registered office address of the Company shall be within the jurisdiction of the RoC of New Delhi or within the jurisdiction of any other RoC, as required by selected bidder, by following the due process as may be required, which would be the new registered office of the Company. The Company shall, upon receipt of the said documents from the Selected Bidder, do the following:

RECPDCL RPTL TPCL

(i) Immediately on the Closing Date convene a meeting of the Board, wherein the Board shall pass the following necessary resolutions:

(a) approving the transfer of the Shares constituting the Sale Shares from the Shares Seller and the Nominees to the name of the **The Tata Power Company Limited** and transfer of all assets and liabilities of the Company as on Closing Date;

(b) approving the **The Tata Power Company Limited** and its nominees as the members of the Company and entering the name of the **The Tata Power Company Limited** and its nominees in the register of members.

(c) changing the address of the registered office of the Company to the new address within 15 days as per statutory provisions as provided by the Selected Bidder as per clause 3.3 above.

(d) appointing the Directors of the Selected Bidder on the Board of the Company.

Immediately pursuant to the resignation of the existing Directors, the newly constituted Board of Directors shall continue/hold the meeting and pass the following resolutions:

(e) accepting the resignations of the other existing Directors on the Board and the Chair of the meeting which was taken by one of the existing Directors shall be vacated and appointment of a new Chairman who shall be one of the newly appointed Director.

(f) terminating all the authorizations granted regarding the business and/or operations of the Company or the operations of the bank accounts of the Company, with prospective effect; and

(g) acknowledging and accepting the terms and conditions as contained in the executed copies of the RFP Project Documents and to abide by the provisions contained therein.

(ii) Enter the name of the **The Tata Power Company Limited** and its nominees as the legal and beneficial owner of the Sale Shares, free of all encumbrances, in the register of members of the Company;

(iii) Make the necessary endorsements on the Sale Share Certificates, indicating the name of the **The Tata Power Company Limited** and its nominees as the legal and beneficial owner of the Sale Shares evidenced there under;

RECPDCL RPTL TPCL

(iv) Return the original Sale Share Certificates, duly endorsed in the name of the **The Tata Power Company Limited** and its nominees, to the **The Tata Power Company Limited** and its nominees, as the case may be or its authorized representative;

(v) Handover all the statutory registers and records, if any, of the Company to the Selected Bidder.

(vi) Handover certified true copies of the Board resolution passed by the Company as per (i) (c) to (i) (d) of Clause 3.3 (i) to the Selected Bidder.

3.4 The Parties to this Agreement agree to take all measures that may be required to ensure that all the events contemplated in the **Clauses 3.1 to 3.3** above on the Closing Date are completed on the same day.

Notwithstanding the provisions of **Clause 3.3** hereto, all proceedings to be taken and all documents to be executed and delivered by the Parties at the Closing Date shall be deemed to have been taken and executed simultaneously and no proceedings shall be deemed to have been taken nor documents executed or delivered until all have been taken, executed and delivered.

3.5 The Selected Bidder hereby acknowledges and agrees that after the date of acquisition of one hundred percent (100%) of the Shares of the Company by the Selected Bidder as per Clause 3.3, (a) the authority of the BPC in respect of the Bid Process shall forthwith cease and any actions to be taken thereafter regarding the Bid Process will be undertaken by the Karnataka Power Transmission Corporation Limited (KPTCL), (b) all rights and obligations of the BPC shall cease forthwith, (c) all other rights and obligations of the Company shall be of the TSP and (d) any decisions taken by the BPC on behalf of the Company prior to the date of acquisition, shall continue to be binding on the Company and/or Karnataka Power Transmission Corporation Limited (KPTCL) as the case may be.

3.6 This Agreement shall be effective from the date of its signing by the Parties and shall remain in force until all the obligations of the respective Parties under Clause 3.3 hereto are fulfilled.

4. REPRESENTATIONS AND WARRANTIES

4.1 The Selected Bidder hereby represents and warrants to the Shares Seller that:

4.1.1 The Selected Bidder has full legal right, power and authority to enter into, execute and deliver this Agreement and to perform the obligations, undertakings and transactions set forth herein, and this Agreement has been duly and validly executed and delivered by the Selected Bidder and constitutes its legal, valid and binding obligations, enforceable against it in accordance with its terms;

RECPDCL RPTL TPCL

4.1.2 The execution, delivery and performance of this Agreement by the Selected Bidder (i) will not violate or contravene any provision of the Memorandum of Association or Articles of the Selected Bidder, (ii) will not violate or contravene any law, statute, rule, regulation, licensing requirement, order, writ, injunction or decree of any court, governmental instrumentality or other regulatory, governmental or public body, agency or authority by which the Selected Bidder is bound or by which any of its and/or their properties or assets are bound, and (iii) except to the extent that the same have been duly and properly completed or obtained, will not require any filing with, or permit, consent or approval of or license from, or the giving of any notice to, any court, governmental instrumentality or other regulatory, governmental or public body, agency or authority, joint venture party, or any other entity or person whatsoever; and

4.1.3 The Selected Bidder is not restricted in any manner whatsoever, including without limitation, on account of any judicial or governmental order, action or proceeding, or any contractual obligation assumed by the Selected Bidder, from purchasing the Sale Shares from the Shares Seller in the manner provided for in this Agreement.

4.2 The Shares Seller hereby represents and warrants to the Selected Bidder that;

4.2.1 The Shares Seller and the Nominees are the legal and beneficial owners of the Sale Shares, free and clear of any Encumbrance and the delivery to the Selected Bidder of the Sale Shares pursuant to the provisions of this Agreement will transfer to the Selected Bidder a good title to the Sale Shares.

4.2.2 The Shares Seller has full legal right, power and authority to enter into, execute and deliver this Agreement and to perform the obligations, undertakings and transactions set forth herein. The execution, delivery and performance of this Agreement will not violate the Memorandum and Articles of Association of the Shares Seller or contravene any contract by which it is bound.

4.2.3 The Shares Seller has obtained requisite authorizations to sell and transfer the Sale Shares to the Selected Bidder. The Shares Seller also represent that it is not prevented from transferring and selling the Sale Shares. Also, to the best of its knowledge, the Sale Shares are not the subject matter of any claim or pending proceeding or threatened by any legal proceeding made by any third party.

4.3 Except as specified in Clause 4.2 above, the Shares Seller shall not be deemed to have, made any representation or warranty whatsoever, whether express or implied, in relation to the Sale Shares or Company, including but not limited to any implied warranty or representation as to the business or affairs of Company.

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TPCL

4.4 The Representations and Warranties are given as at the date of this Agreement except that where a Representation and Warranty is expressed to be made as at another date, the Representation and Warranty is given with respect to that date only.

4.5 Each Representation and Warranty is to be construed independently of the others and is not limited by reference to any other Warranty. The Representations, Warranties and undertakings contained in this **Clause 4** hereto or in any document delivered pursuant to or in connection with this Agreement are continuing in nature and shall survive the Closing Date for a period of one (1) year.

4.6 The Parties represent to each other that all Representations and Warranties provided herein by the respective Party shall be true as of Closing Date.

5. OBLIGATIONS OF THE SELECTED BIDDER

The Selected Bidder agrees that the Shares Seller shall not be liable in any manner, nor shall it assume any responsibility or liability whatsoever, in respect of the business of the Company and its operations or activities, arising after the Closing Date, to any Person or any authority, central, state, local or municipal or otherwise and the same shall be the sole responsibility of the Selected Bidder.

6. MISCELLANEOUS

6.1 NOTICES

a) All notices to be given under this Agreement shall be in writing and in the English language.

b) All notices must be delivered personally or by registered or certified mail or by recognised courier to the addresses below:

Selected Bidder: **The Tata Power Company Limited,**
Bombay House, 24, Homi Mody Street, Mumbai 400001

REC PDCL: **REC Power Development and Consultancy Limited**
Core-4, SCOPE Complex, 7, Lodhi Road, New Delhi-110003

Company: **Ryapte Power Transmission Limited**
Core-4, SCOPE Complex, 7, Lodhi Road, New Delhi-110003

c) Any Party may by notice of at least fifteen (15) days to the other Parties change the address and / or addresses to which such notices and communications to it are to be delivered or mailed.

RECPDCL RPTL TPCL

6.2 RESOLUTION OF DISPUTES

6.2.1 If any dispute arises between the Parties, in connection with the validity, interpretation, implementation or alleged breach of any provision of this Agreement ("Dispute"), the disputing Parties hereto shall endeavor to settle such Dispute amicably. The attempt to bring about an amicable settlement shall be considered to have failed if not resolved within sixty (60) days from the date of the Dispute.

6.2.2 If the Parties are unable to amicably settle the Dispute in accordance with Clause 6.2.1 within the period specified therein, any of the Parties shall be entitled to within thirty (30) days after expiry of the aforesaid period, refer the Dispute to the Chief Executive Officer/Director of REC PDCL and Chief Executive/ Managing Director of the Selected Bidder for resolution of the said Dispute. The attempt to bring about such resolution shall be considered to have failed if not resolved within thirty (30) days from the date of receipt of a written notification in this regard.

6.2.3 In the event the Dispute is not settled in accordance with Clause 6.2.2 above, any Party to the Dispute shall be entitled to serve a notice invoking this Clause and making a reference to a sole arbitrator. If the Parties to the Dispute cannot agree as to the appointment of the sole arbitrator within thirty (30) days of receipt of the notice of the Party making the reference, then the Shares Seller along with the Company shall appoint one arbitrator and the Selected Bidder shall appoint one arbitrator and the two arbitrators, so appointed shall appoint a third arbitrator. However, after the Closing Date, in such an event the Shares Seller shall appoint one arbitrator and the Selected Bidder along with the Company shall appoint one arbitrator and the two arbitrators, so appointed shall appoint the third arbitrator.

6.2.4 The place of the arbitration shall be New Delhi. The Arbitration proceedings shall be governed by the Arbitration and Conciliation Act, 1996.

6.2.5 The proceedings of arbitration shall be in English language.

6.2.6 The arbitrator's award shall be substantiated in writing. The arbitrators shall also decide on the costs of the arbitration proceedings. In case the arbitrators have not decided on the costs of the arbitration proceedings, each Party to the Dispute shall bear its own costs, in relation to the arbitration proceedings.

RECPDCL REC Power Development and Consultancy Limited Gurugram

RPTL Ryapte Power Transmission Limited New Delhi 110003 Core-4, Scope Complex-7, Lodhi Road

TPCL The Tata Power Company Ltd. TATA

6.3 AUTHORISED PERSON

For the purposes of this Agreement, the Selected Bidder is represented by Mr. Piyush Kumar, Head BD – T&D (International), pursuant to an authorization granted to Mr. Piyush Kumar, Head BD – T&D (International) through necessary Board resolutions. Further, Mr. Piyush Kumar, Head BD – T&D (International) is also authorized by such resolutions to take any decision which may be required to be taken, do all acts and execute all documents which are or may be required by the Selected Bidder for the proper and effective fulfillment of the rights and obligations under this Agreement. Any action taken or document executed by Mr. Piyush Kumar, Head BD – T&D (International) shall be deemed to be acts done or documents executed by the Selected Bidder and shall be binding on the Selected Bidder.

6.4 RESERVATION OF RIGHTS

No forbearance, indulgence or relaxation or inaction by any Party at any time to require performance of any of the provisions of this Agreement shall in any way affect, diminish or prejudice the right of such Party to require performance of that provision, and any waiver or acquiescence by any Party of any breach of any of the provisions of this Agreement shall not be construed as a waiver or acquiescence of any continuing or succeeding breach of such provisions, a waiver of any right under or arising out of this Agreement or acquiescence to or recognition of rights other than that expressly stipulated in this Agreement.

6.5 CUMULATIVE RIGHTS

All remedies of either Party under this Agreement whether provided herein or conferred by statute, civil law, common law, custom or trade usage, are cumulative and not alternative and may be enforced successively or concurrently.

6.6 PARTIAL INVALIDITY

If any provision of this Agreement or the application thereof to any person or circumstance shall be invalid or unenforceable to any extent, the remainder of this Agreement and the application of such provision to persons or circumstances other than those as to which it is held invalid or unenforceable shall not be affected thereby, and each provision of this Agreement shall be valid and enforceable to the fullest extent permitted by law. Any invalid or unenforceable provision of this Agreement shall be replaced with a provision, which is valid and enforceable and most nearly reflects the original intent of the unenforceable provision.

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6.7 TERMINATION

If (i) the Closing does not occur on the Closing Date for any reason whatsoever, or (ii) the Letter of Intent is withdrawn or terminated for any reason, or (iii) due to termination of the TSA by the Karnataka Power Transmission Corporation Limited (KPTCL) in accordance with Article 3.3.2 or Article 13 of the TSA thereof, REC PDCL shall have a right to terminate this Agreement forthwith by giving a written notice to the other Parties hereto.

6.8 AMENDMENTS

No modification or amendment of this Agreement and no waiver of any of the terms or conditions hereof shall be valid or binding unless made in writing and duly executed by all the Parties.

6.9 ASSIGNMENT

This Agreement and the rights and liabilities hereunder shall bind and inure to the benefit of the respective successors of the Parties hereto, but no Party hereto shall assign or transfer its rights and liabilities hereunder to any other Person without the prior written consent of the other Parties, which will not be unreasonably withheld.

6.10 ENTIRE AGREEMENT

This Agreement constitutes the entire Agreement between the Parties with respect to the subject matter herein and supersedes and cancels any prior oral or written agreement, representation, understanding, arrangement, communication or expression of intent relating to the subject matter of this Agreement.

6.11 COSTS

Each of the Parties hereto shall pay their own costs and expenses relating to the negotiation, preparation and execution of this Agreement and the transactions contemplated by this Agreement.

The Selected Bidder shall be liable to bear and pay the costs in respect of this Agreement and transfer of Sale Shares.

6.12 RELATIONSHIP

None of the provisions of this Agreement shall be deemed to constitute a partnership between the Parties hereto and no Party shall have any authority to bind the other Party otherwise than under this Agreement or shall be deemed to be the agent of the other in any way.

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6.13 GOVERNING LAW AND JURISDICTION

This Agreement shall be governed by and construed in accordance with the laws of India and shall be subject to the exclusive jurisdiction of the courts of Delhi.

6.14 COUNTERPARTS

This Agreement may be executed in counterparts by the Parties and each fully executed counterpart shall be deemed to be original.

6.15 CONFIDENTIALITY

The Parties undertake to hold in confidence and not to disclose the terms and conditions of the transaction contemplated hereby to third parties, except:

(a) to their professional advisors;

(b) to their officers, employees, agents or representatives, who need to have access to such information for the proper performance of their activities;

(c) disclosures required under Law;

without the prior written consent of the other Parties.

Provided that the Karnataka Power Transmission Corporation Limited (KPTCL) and RECPDCL may at any time, disclose the terms and conditions of transactions contemplated hereby to any person, to the extent stipulated under the law or the Bidding Guidelines.

6.16 INDEMNIFICATION

The Parties hereby agree that transfer of Sale Shares to the Selected Bidder shall vest all the rights, privileges, licenses, responsibilities, liabilities and other obligations pertaining to the Company in the Selected Bidder.

- The Selected Bidder hereby agrees that the Selected Bidder shall not be entitled to any claims or initiate any legal proceedings by itself or through the Transmission Service Provider against the Shares Seller, its directors, officers, employees and the subscribers including the members of any committees appointed by them in respect of any actions or decisions taken by any of them up to the Closing Date in furtherance of the Project referred to in recital A of this Agreement.

- Further, the Selected Bidder hereby indemnifies and holds harmless at all times the Shares Seller against all past, present and future third party claims and liabilities arising out of actions or decisions taken by any of the persons or bodies referred to in Clause 6.3 up to the Closing Date in furtherance of the Project referred to above or otherwise concerning the Company. All such actions shall be defended by the Selected Bidder either itself or through the TSP at its own cost.

- The Parties hereby agree that the provisions of this clause shall survive the termination of this Agreement.

6.17 SURVIVAL

The provisions of Clause 1 (Definitions and Interpretation), Clause 4 (Representations and Warranties), Clause 6.2 (Resolution of Disputes), Clause 6.7 (Termination), Clause 6.15 (Confidentiality), Clause 6.16 (Indemnification) and other representations, warranties, covenants and provisions contained herein that by their nature are intended to survive, shall survive the termination of this Agreement

6.18 FORCE MAJEURE

No party shall be liable for its inability or delay in performing any of its obligations hereunder if such delay is caused by circumstances beyond the reasonable control of the party including delay caused through flood, riot, Act of God, lighting civil commotion, storm, tempest and earthquake.

IN WITNESS WHEREOF, THE PARTIES HERETO HAVE CAUSED THIS AGREEMENT TO BE DULY EXECUTED AND DELIVERED AS OF THE DAY AND YEAR FIRST ABOVE WRITTEN

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SIGNED AND DELIVERED by the within named **REC POWER DEVELOPMENT AND CONSULTANCY LIMITED** by the hand of Sh. Rajkumar Sonkar, HoD (CS)

(Authorised pursuant to the resolution passed by its Board of Directors in its meeting held on 17th June, 2026)

IN THE PRESENCE OF:

WITNESS:
(Name and address)

1. MRIDUSMITA BHATTACHARYA
OFFICER (ENGG.), RECPDCL

Mridusmita Bhattacharya
(Core-4, SCOPE Complex, 7, Lodhi Road, New Delhi-110003)

2. RITAM BISWAS
DM (ENGG.), RECPDCL

(Core-4, SCOPE Complex, 7, Lodhi Road, New Delhi-110003)

SIGNED AND DELIVERED by the within named **RYAPTE POWER TRANSMISSION LIMITED** by the hand of Sh. Arvind Kumar, Chairman

(Authorised pursuant to the resolution passed by its Board of Directors in its meeting held on 30th July, 2026)

WITNESS:
(Name and address)

RAHUL MADAN ARORA
CM(CS)
REC LIMITED

(Core-4, SCOPE Complex, 7, Lodhi Road, New Delhi-110003)

Nirbhay Goel, DM (CS)
REC Limited

(Core-4, SCOPE Complex, 7, Lodhi Road, New Delhi-110003)

SIGNED AND DELIVERED by the within named **THE TATA POWER COMPANY LIMITED** by the hand of Mr. Piyush Kumar, Head BD – T&D (International)

(Authorised pursuant to the resolution passed by the Committee of Directors on 21st November, 2025)

WITNESS:
(Name and address)

1. Mithun Chakraborty
Chief, BD T&D

Shatabdi Bhawan, B - 12 & 13, Sector 4, Noida, U. P. - 201301

2. Rajat Uprety
Lead - BD Manager

Shatabdi Bhawan, B - 12 & 13, Sector 4, Noida, U. P. - 201301

ANNEXURE A

DESCRIPTION OF THE SALE SHARES

S. NO.	NAME OF THE SHAREHOLDER	NUMBER OF EQUITY SHARES HELD	PERCENTAGE OF THE TOTAL PAID UP EQUITY CAPITAL
1.	REC Power Development and Consultancy Limited	49,994	99.988
2.	Shri Jaspal Singh Kushwaha*	1	0.002
3.	Shri Mukul Agarwal*	1	0.002
4.	Shri Ch. V. Lakshmana Charyulu*	1	0.002
5.	Smt. Navita Dubal*	1	0.002
6.	Shri Arvind Kumar*	1	0.002
7.	Shri Anil Kumar Perala*	1	0.002
	Total	50,000	100.000

*** Held as nominee of REC PDCL.**

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Annexure P-29

Proof of Payment of SPV Acquisition Price made by TPCL

Description	Transaction Amount	UTR No.	Date
0040029800-28 07 2026-HD763HD763	108,662,034.00	HDFCH01152277481	28-Jul-2026

Annexure P-30

INDIA NON JUDICIAL

सत्यमेव जयते

Government of Karnataka

e-Stamp

Certificate No.	:	**IN-KA42581248832316Y**
Certificate Issued Date	:	30-Jul-2026 10:49 AM
Account Reference	:	NONACC (FI)/ kagcsl08/ AVENUE ROAD/ KA-GN
Unique Doc. Reference	:	SUBIN-KAKAGCSL0867813953628982Y
Purchased by	:	KPTCL BANGALORE
Description of Document	:	Article 5(J) Agreement (in any other cases)
Property Description	:	AGREEMENT
Consideration Price (Rs.)	:	0 (Zero)
First Party	:	KPTCL BANGALORE
Second Party	:	RYAPTE POWER TRANSMISSION LTD
Stamp Duty Paid By	:	KPTCL BANGALORE
Stamp Duty Amount(Rs.)	:	500 (Five Hundred only)

G SEVA KENDRA AVENUE ROAD BRANCH Authorized Signatory

Please write or type below this line

This forms part and parcel of the Transmission Service Agreement signed on the 30th day of July 2026 between KPTCL and Ryapte Power Transmission Limited

Ryapte Power Transmission Limited New Delhi 110003

30/7/26

Statutory Alert:
1 The authenticity of this Stamp certificate should be verified at 'www.shcilestamp.com' or using e-Stamp Mobile App of Stock Holding. Any discrepancy in the details on this Certificate and as available on the website / Mobile App renders it invalid.
2 The onus of checking the legitimacy is on the users of the certificate.
3 In case of any discrepancy please inform the Competent Authority.

TRANSMISSION SERVICE AGREEMENT

FOR

DEVELOPMENT AND OPERATION OF INTRA-STATE TRANSMISSION SYSTEM

FOR TRANSMISSION OF ELECTRICITY THROUGH TARIFF BASED COMPETITIVE BIDDING FOR

EVACUATION SCHEME FOR 2000MW SOLAR PARK AT RYAPTE VILLAGE, TUMKUR DISTRICT

BETWEEN THE

KARNATAKA POWER TRANSMISSION CORPORATION LIMITED (KPTCL)

(Nodal Agency)

AND

RYAPTE POWER TRANSMISSION LIMITED

S.E.E. (P & C)
KPTCL...

Ryapte Power Transmission Limited
New Delhi
110003
Core-4 Scope Complex-7, Lodhi Road

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Karnataka Power Transmission Corporation Limited

C.E.E.B. (P & C)
KPTCL.

Ryapte Power Transmission Limited

Ryapte Power Transmission Limited * New Delhi 110003 * Corp. Scope Complex-7, Lodi Road

THIS TRANSMISISON SERVICE AGREEMENT (hereinafter referred to as "TSA" or "Agreement" or "the Agreement" or "this Agreement") is made on the ..... [Insert day] of ..... [Insert month] of Two Thousand and.....[Insert Year]

BETWEEN:

The Karnataka Power Transmission Corporation Limited (KPTCL), Indhana Bhavana, 8th Floor, Race Course Road, Bengaluru – 560009, acting as a Nodal Agency, which expression shall unless repugnant to the context or meaning thereof include its successors, and permitted assigns) as Party of the one part;

AND

Ryapte Power Transmission Limited, incorporated under the Companies Act, 1956/ Companies Act, 2013 (as the case may be), having its registered office at Core-4, SCOPE COMPLEX, 7, Lodhi Road, New Delhi – 110003 (herein after referred to as "Transmission Service Provider" or "TSP" or "InSTS Licensee", which expression shall unless repugnant to the context or meaning thereof include its successors, and permitted assigns) as Party of the other part;

("Nodal Agency" and "TSP" are individually referred to as "Party" and collectively as the "Parties")

AND WHEREAS:

A) In accordance with the Bidding Guidelines, the Bid Process Coordinator (hereinafter referred to as BPC) had initiated a competitive e-reverse bidding process through issue of RFP for selecting a Successful Bidder to build, own, operate and transfer the Project comprising of the Elements mentioned in Schedule 1 (hereinafter referred to as the Project)

B) Pursuant to the said e-reverse bidding process, the BPC has identified the Successful Bidder, who will be responsible to set up the Project on build, own, operate and transfer basis to provide Transmission Service in accordance with the terms of this Agreement and the Transmission License.

C) The Selected Bidder have submitted the Contract Performance Guarantee and acquired one hundred percent (100%) of the equity shareholding of Ryapte Power Transmission Limited, along with all its related assets and liabilities in terms of the provisions of the Share Purchase Agreement.

D) The TSP has agreed to make an application for a Transmission License to the State Commission for setting up the Project on build, own, operate and transfer basis.

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Ryapte Power Transmission Limited

Ryapte Power Transmission Limited New Delhi 110003 Core-4, Scope Complex-7, Lodhi

E) The TSP has further agreed to make an application to the State Commission for the adoption of the Transmission Charges under Section 63 of the Electricity Act, 2003, along with a certification from the Bid Evaluation Committee in accordance with the Bidding Guidelines issued by Ministry of Power, Government of India.

F) The TSP agrees to the terms and conditions of this agreement, for making available the InSTS and charge the Transmission Charges in accordance with the terms and conditions of this agreement.

G) The billing, collection and disbursement of the Transmission Charges by the KPTCL to the Licensee shall be governed as per this agreement.

H) The terms and conditions stipulated in the Transmission License issued by the State Commission to the TSP shall be applicable to this Agreement and the TSP agrees to comply with these terms and conditions. In case of inconsistency between the Transmission License terms & conditions and the conditions of this Agreement, the conditions stipulated in the Transmission License granted by the State Commission shall prevail.

NOW, THEREFORE, IN CONSIDERATION OF THE PREMISES AND MUTUAL AGREEMENTS, COVENANTS AND CONDITIONS SET FORTH HEREIN, IT IS HEREBY AGREED BY AND BETWEEN THE PARTIES HERETO AS FOLLOWS:

C.E.E. (P & C)
KPTCL

Karnataka Power Transmission Corporation Limited

Ryapte Power Transmission Limited

Ryapte Power Transmission Limited * New Delhi 110003 * Unit: Scope Complex-7, Lodhi

ARTICLE: 1

1 DEFINITIONS AND INTERPRETATIONS

1.1 Definitions:

1.1.1 The words / expressions used in this Agreement, unless as defined below or repugnant to the context, shall have the same meaning as assigned to them by the Electricity Act, 2003 and the rules or regulations framed there under including those issued / framed by the State Commission (as defined hereunder), as amended or re-enacted from time to time or the General Clauses Act, failing which it shall bear its ordinary English meaning.

The words/expressions when used in this Agreement shall have the respective meanings as specified below:

"Acquisition Price" shall have the same meaning as defined in the Share Purchase Agreement;

"Act" or **"Electricity Act"** or **"Electricity Act 2003"** shall mean the Electricity Act, 2003 and any amendments made to the same or any succeeding enactment thereof;

"Affiliate" shall mean a company that either directly or indirectly

i. controls or

ii. is controlled by or

iii. is under common control with

a Bidding Company (in the case of a single company) or a Member (in the case of a Consortium) and "**control**" means ownership by one entity of at least twenty six percent (26%) of the voting rights of the other entity;

"Availability" in relation to the Project or in relation to any Element of the Project, for a given period shall mean the time in hours during that period the Project is capable to transmit electricity at its Rated Voltage and shall be expressed in percentage of total hours in the given period and shall be calculated as per the procedure contained in, Annexure V of Karnataka Electricity Regulatory Commission (Multi Year Transmission, Distribution and Retail Supply Tariff) Regulations, 2024 attached herewith in Schedule 6;

Karnataka Power Transmission Corporation Limited

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"Bid" shall mean technical bid and financial bid submitted by the Bidder, in response to the RFP, in accordance with the terms and conditions of the RFP;

"Bid Deadline" shall mean the last date and time for submission of the Bid in response to RFP, as specified in the RFP;

"Bidding Company" shall refer to such single company that has made a Response to RFP for the Project;

"Bidding Consortium / Consortium" shall refer to a group of companies that has collectively made a Response to RFP for the Project;

"Bid Documents" or **"Bidding Documents"** shall mean the RFP, along with all attachments thereto or clarifications thereof;

"Bidding Guidelines" shall mean the "Tariff Based Competitive Bidding Guidelines for Transmission Service" and "Guidelines for Encouraging Competition in Development of Transmission Projects" issued by Government of India, Ministry of Power under Section — 63 of the Electricity Act as amended from time to time;

"Bid Process Coordinator" or **"BPC"** shall mean a person or its authorized representative as notified by the Government of Karnataka, responsible for carrying out the process for selection of Bidder who will acquire Transmission Service Provider;

"Business Day" shall mean a day other than Sunday or a statutory holiday, on which the banks remain open for business in the State in which the Nodal Agency's registered office is located and the concerned TSP are located;

"CEA" shall mean the Central Electricity Authority constituted under Section -70 of the Electricity Act;

"Change in law" shall have the meaning ascribed thereto in Article 12;

"Commercial Operation Date" or **"COD"** shall mean the date as per Article 6.2;

"Central Commission" or **"CERC"** shall mean the Central Electricity Regulatory Commission referred to in sub-section (1) of Section 76 of the Electricity Act, 2003 or its successors and assigns;

"Central Government" shall mean the Government of India;

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"Competent Court of Law" shall mean the Supreme Court or any High Court, or any tribunal or any similar judicial or quasi-judicial body in India that has jurisdiction to adjudicate upon issues relating to the Project;

"Connection Agreement" shall mean the agreement between the CTU or STU or any other concerned parties and the TSP, setting out the terms relating to the connection of the Project to the Inter connection Facilities and use of the Inter State Transmission System / Intra State Transmission System (as the case may be) as per the provisions of the IEGC/State Grid Code, as the case may be;

"Consultation Period" shall mean the period of sixty (60) days or such longer period as the Parties may agree, commencing from the date of issue of a TSP's Preliminary Notice or a Nodal Agency's Preliminary Termination Notice, as provided in Article 13 of this Agreement, for consultation between the Parties to mitigate the consequence of the relevant event having regard to all the circumstances;

"Consents, Clearances and Permits" shall mean all authorizations, licenses, approvals, registrations, permits, waivers, privileges, acknowledgements, agreements, or concessions required to be obtained from or provided by any concerned authority for the development, execution and operation of Project including without any limitation for the construction, ownership, operation and maintenance of the Transmission Lines and/or sub-stations;

"Construction Period" shall mean the period from (and including) the Effective Date of the Transmission Service Agreement up to (but not including) the COD of the Element of the Project in relation to an Element and up to (but not including) the COD of the Project in relation to the Project;

"Contractors" shall mean the engineering, procurement, construction, operation & maintenance contractors, surveyors, advisors, consultants, designers, suppliers to the TSP and each of their respective sub-contractors (and each of their respective successors and permitted assigns) in their respective capacities as such;

"Contract Performance Guarantee" shall mean the irrevocable unconditional bank guarantee, or insurance surety bond or Payment on Order Instrument submitted and to be submitted by the TSP or by the Selected Bidder on behalf of the TSP to the Nodal Agency from a bank mentioned in Annexure 17 of the RFP, in the form attached here to as

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Schedule 8 (for bank guarantee) or Schedule 8A (for insurance surety bond issued by any of the insurance companies authorized by Insurance Regulatory and Development Authority of India), or Schedule-8B (for Payment on Order Instrument issued by PFC/REC/IREDA, in accordance with Article 3 of this Agreement and which shall include the additional bank guarantee or insurance surety bond or Payment on Order Instrument furnished by the TSP under this Agreement;

"Contract Year", for the purpose of payment of Transmission Charges, shall mean the period beginning on the COD, and ending on the immediately succeeding March 31 and thereafter each period of 12 months beginning on April 1 and ending on March 31 provided that the last Contract Year shall end on the last day of the term of the TSA;

"CTU" or **"Central Transmission Utility"** shall have same meaning as defined in the Electricity Act, 2003;

"Day" shall mean a day starting at 0000 hours and ending at 2400 hours;

"D/C" shall mean Double Circuit;

"Dispute" shall mean any dispute or difference of any kind between the Parties, in connection with or arising out of this Agreement including any issue on the interpretation and scope of the terms of this Agreement as provided in Article 16;

"Due Date" in relation to any Invoice shall mean the forty fifth (45th) day after the date on which any Invoice is received (or, if that day is not a Business Day, the immediately following Business Day),

"Effective Date" for the purposes of this Agreement, shall have the same meaning as per Article 2.1 of this Agreement;

"Electrical Inspector" shall mean a person appointed as such by the State Government under sub-section (1) of Section 162 of the Electricity Act 2003 and also includes Chief Electrical Inspector;

"Electricity (Late Payment Surcharge and related matters) Rules, 2022" shall mean the rules notified by the Ministry of Power, Government of India, vide Notification No. G.S.R. 416 (E) dated 03.06.2022, as amended from time to time, which govern the payment of late payment surcharge by a distribution licensee to generating company, transmission licensee or trading licensee for delay in payment

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of charges beyond the due date, and include all subsequent amendments, modifications, clarifications, and re-enactments thereof (hereinafter referred to as LPS Rules, 2022)

"Electricity Rules 2005" shall mean the rules framed pursuant to the Electricity Act 2003 and as amended from time to time;

"Element" shall mean each Transmission Line or each circuit of the Transmission Lines (where there are more than one circuit) or each bay of Sub-station or switching station or HVDC terminal or inverter station of the Project, including ICTs, Reactors, SVC, FSC, etc. forming part of the InSTS, which will be owned, operated and maintained by the concerned Licensee, and which has a separate Scheduled COD as per Schedule 2 of this Agreement and has a separate percentage for recovery of Transmission Charges on achieving COD as per Schedule 5 of this Agreement

"Event of Default" shall mean the events as defined in Article 13 of this Agreement;

"Expiry Date" shall be the date which is thirty five (35) years from the COD of the Project;

"Financial Closure" shall mean the first Business Day on which funds are made available to the TSP pursuant to the Financing Agreements;

"Financially Evaluated Entity" shall mean the company which has been evaluated for the satisfaction of the financial requirement set forth in the RFP;

"Financing Agreements" shall mean the agreements pursuant to which the TSP is to finance the Project including the loan agreements, security documents, notes, indentures, security agreements, letters of credit and other documents, as may be amended, modified, or replaced from time to time, but without in anyway increasing the liabilities of the Nodal Agency;

"Financial Year" shall mean a period of twelve months at midnight Indian Standard Time (IST) between 1st April & 31st March;

"Force Majeure" and **"Force Majeure Event"** shall have the meaning assigned thereto in Article 11;

"GOI" shall mean Government of India;

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"Grid Code" / "IEGC" or "State Grid Code" shall mean the Grid Code specified by the Central Commission under clause (h) of sub-section (1) of Section 79 of the Electricity Act and/or the State Grid Code as specified by the concerned State Commission referred under clause

(h) of sub-section (1) of Section 86 of the Electricity Act as applicable;

"Independent Engineer" shall mean an agency/ company, appointed by Nodal Agency in accordance with the Guidelines for Encouraging Competition in Development of Transmission Projects.

"Indian Governmental Instrumentality" shall mean Government of India, Government of any State in India or any ministry, department, board, authority, agency, corporation, commission under the direct or indirect control of Government of India or any State Government or both, any political sub-division of any of them including any court or CERC or KERC or tribunal or judicial or quasi-judicial body in India but excluding the CTU, TSP and the KPTCL;

"Insurances" shall mean the insurance cover to be obtained and maintained by the TSP in accordance with Article 9 of this Agreement;

"Inter connection Facilities" shall mean the facilities as may be set up for transmission of electricity through the use of the Project, on either one or both side of generating station's / CTU's / STU's / InSTS Licensee's substations (as the case may be) which shall include, without limitation, all other transmission lines, gantries, sub-stations and associated equipment not forming part of the Project;

"Invoice" shall mean a Monthly Transmission Charges Invoice or Monthly Bill comprising the Monthly Transmission Charges, as per Schedule 4 hereof, a Supplementary Invoice or any other Invoice or Bill raised by any of the Parties;

"Law" or "Laws" in relation to this Agreement, shall mean all laws including electricity laws in force in India and any statute, ordinance, rule, regulation, notification, order or code, or any interpretation of any of them by an Indian Governmental Instrumentality having force of law and shall include all rules, regulations, decisions and orders of the State Commission;

"Lead Member of the Bidding Consortium" or "Lead Member" shall mean a company who commits at least 26% equity stake in the Project, meets the technical requirement as specified in the RFP and so

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designated by other Member(s) in Bidding Consortium;

"Lenders" means the banks, financial institutions, multilateral funding agencies, non-banking financial companies registered with the Reserve Bank of India (RBI), insurance companies registered with the Insurance Regulatory & Development Authority (IRDA), pension funds regulated by the Pension Fund Regulatory & Development Authority (PFRDA),mutual funds registered with Securities & Exchange Board of India (SEBI), etc., including their successors and assigns, who have agreed on or before COD of the Project to provide the TSP with the debt financing described in the capital structure schedule, and any successor banks or financial institutions to whom their interests under the Financing Agreements may be transferred or assigned; Provided that, such assignment or transfer shall not relieve the TSP of its obligations to the Nodal Agency under this Agreement in any manner and shall also does not lead to an increase in the liability of the Nodal Agency;

"Lenders Representative" shall mean the person notified by the Lender(s) in writing as being the representative of the Lender(s) or the Security Trustee and such person may from time to time be replaced by the Lender(s) pursuant to the Financing Agreements by written notice to the **TSP;**

"Letter of Credit" or "LC" shall mean an unconditional, irrevocable, Letter of Credit opened by the Nodal Agency in favour of the TSP with any scheduled bank in line with Payment Security Mechanism mentioned in LPS Rules, 2022;

"Letter of Intent" or **"LOI"** shall have the same meaning as in the RFP;

"Licensee" shall be the TSP under this Agreement, consequent to having been awarded a Transmission License by the State Commission and shall be referred to as the TSP or the Licensee, as the context may require in this Agreement

"Member in a Bidding Consortium / Member" shall mean each company in the Bidding Consortium;

"Month" shall mean a period of thirty (30) days from (and excluding) the date of the event;

"Monthly Transmission Charges" for any Element of the Project, after COD of the Element till COD of the Project, and for the Project after COD of the Project, shall mean the amount of Transmission Charges as

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specified in Schedule 5 of this Agreement multiplied by no. of days in the relevant month and divided by no. of days in the year;

"National Load Despatch Centre" shall mean the centre established as per sub-section (1) of Section 26 of the Electricity Act 2003;

"State Load Despatch Centre" shall mean the centre established as per sub-section (1) of Section 31 of the Electricity Act 2003;

"**Nodal Agency**" shall mean KPTCL, which shall execute and implement the Transmission Service Agreement (TSA);

"Notification" shall mean any notification, issued in the Gazette of India/State Government;

"Operating Period" for any Element of the Project shall mean the period from (and including) the COD of such Element of the Project, up to (and including) the Expiry Date and for the Project, shall mean the period from (and including) the COD of the Project, up to (and including) the Expiry Date;

"Parent Company" shall mean an entity that holds at least twenty six percent (26%) of the paid - up equity capital directly or indirectly in the Bidding Company or in the Member in a Bidding Consortium, as the case may be;

"Payment on Order Instrument" shall mean Letter of Undertaking from Indian Renewable Energy Development Agency Limited (IREDA) or Power Finance Corporation Limited (PFC) or REC Limited (REC) [the three non-banking financial institutions under Ministry of New & Renewable Energy (MNRE)/ Ministry of Power (MoP), to pay in case situation of default of Transmission Service Provider (TSP) in terms of tender conditions/ Power Purchase Agreement (PPA) arises. Such Letter(s) will have same effect as that of a Bank Guarantee issued by any public sector bank. Such "Payment on Order instrument" would have terms and conditions similar to that of any Bank Guarantee given by any public sector bank and would promise to pay the Nodal Agency on demand within stipulated time. TSPs can seek such Letter(s) by offering due security to the above-mentioned three non-banking financial institutions mentioned above (IREDA, PFC & REC). Nodal Agency shall not accept the instrument of 'Letter of Undertaking' as described above or in any other form, from any other non- banking financial institutions or bank, except IREDA, PFC & REC;

"Preliminary Termination Notice" shall mean a Nodal Agency's

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Preliminary Termination Notice as defined in Article 13 of this Agreement;

"Project" shall mean "Evacuation Scheme for 2000MW solar park at Ryapte Village, Tumkur District" as detailed in Schedule 1 of this Agreement;

"**Project Assets**" shall mean all physical and other assets relating to and forming part of the Project including:

(a) rights over the Site for substations, ROW for transmission lines;

(b) tangible & intangible assets such as civil works and equipment including foundations, embankments, pavements, electrical systems, communication systems, relief centres, administrative offices, Sub-stations, software, tower and sub-stations designs etc;

(c) project facilities situated on the Site;

(d) all rights of the TSP under the project agreements;

(e) financial assets, such as receivables, security deposits etc;

(f) insurance proceeds; and

(g) Applicable Permits and authorisations relating to or in respect of the Transmission System;"

"Project Execution Plan" shall mean the plan referred to in Article 3.1.3(c) hereof;

"Prudent Utility Practices" shall mean the practices, methods and standards that are generally accepted internationally from time to time by electric transmission utilities for the purpose of ensuring the safe, efficient and economic design, construction, commissioning, operation, repair and maintenance of the Project and which practices, methods and standards shall be adjusted as necessary, to take account of:

(i) operation, repair and maintenance guidelines given by the manufacturers to be incorporated in the Project,

(ii) the requirements of Law, and

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(iii) the physical conditions at the Site;

(iv) the safety of operating personnel and human beings;

"Rated Voltage" shall mean voltage at which the Transmission System is designed to operate or such lower voltage at which the line is charged, for the time being, in consultation with the State Transmission Utility;

"Rebate" shall have the meaning as ascribed to in Article 10.3 of this Agreement;

"RFP" shall mean Request for Proposal dated 07.03.2026 along with all schedules, annexures and RFP Project Documents attached thereto, issued by the BPC for tariff based competitive bidding process for selection of Bidder as TSP to execute the Project, including any modifications, amendments or alterations thereto;

"RFP Project Documents" shall mean the following documents to be entered into in respect of the Project, by the Parties to the respective agreements:

a. Transmission Service Agreement,

b. Share Purchase Agreement, and

c. Any other agreement as may be required;

"RLDC" shall mean the relevant Regional Load Dispatch Centre as defined in the Electricity Act, 2003, in the region(s) in which the Project is located;

"RPC" shall mean the relevant Regional Power Committee established by the Government of India for the specific Region(s) in accordance with the Electricity Act, 2003 for facilitating integrated operation of the Power System in that Region;

"Scheduled COD" in relation to an Element(s) shall mean the date(s) as mentioned in Schedule 2 as against such Element(s) and in relation to the Project, shall mean the date as mentioned in Schedule 2 as against such Project, subject to the provisions of Article 4.4 of this Agreement, or such date as may be mutually agreed among the Parties;

"Scheduled Outage" shall mean the final outage plan as approved by the RPC / SLDC as per the provisions of the Grid Code;

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"Selected Bid" shall mean the technical Bid and the Final Offer of the Selected Bidder submitted during e-reverse bidding, which shall be downloaded and attached in Schedule 7 on or prior to the Effective Date;

"Share Purchase Agreement" shall mean the agreement amongst REC Power Development and Consultancy Limited, Ryapte Power Transmission Limited and the Successful Bidder for the purchase of one hundred (100%) per cent of the shareholding of the Ryapte Power Transmission Limited for the Acquisition Price, by the Successful Bidder on the terms and conditions as contained therein;

"Site" in relation to a substation, switching station or HVDC terminal or inverter station, shall mean the land and other places upon which such station / terminal is to be established;

"SLDC" shall mean the State Load Despatch Centre established as per sub-section (1) of Section 31 of the Electricity Act 2003;

"State Commission" or "KERC" shall mean the Karnataka Electricity Regulatory Commission referred to in sub-section (1) of section 82 of the Electricity Act, 2003 or its successors and assigns;

"State Government" shall mean the Government of Karnataka;

"STU" or **"State Transmission Utility"** shall be the Board or the Government company, specified as such by the State Government under sub-section (1) of Section 39 of the Electricity Act 2003;

"Successful Bidder" or **"Selected Bidder"** shall mean the Bidder selected pursuant to the RFP and who has to acquire one hundred percent (100%) equity shares of Ryapte Power Transmission Limited, along with all its related assets and liabilities, which will be responsible as the TSP to establish the Project on build, own, operate and transfer basis as per the terms of the TSA and other RFP Project Documents;

"TSP's Preliminary Notice" shall mean a notice issued by the TSP in pursuant to the provisions of Article 13.3 of this Agreement;

"Target Availability" shall have the meaning as ascribed hereto in Article 8.2 of this Agreement;

"Technically Evaluated Entity" shall mean the company which has been evaluated for the satisfaction of the technical requirement set forth in RFP;

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"Termination Notice" shall mean a Nodal Agency's Termination Notice given by the Nodal Agency to the TSP pursuant to the provisions of Articles 3.3.2, 3.3.4, 4.4.2, 5.8, 13.2 and 13.3 of this Agreement for the termination of this Agreement;

"Term of Agreement" for the purposes of this Agreement shall have the meaning ascribed thereto in Article 2.2 of this Agreement;

"Transmission Charges" shall mean the Final Offer of the Selected Bidder during the e-reverse bidding and adopted by the State Commission, payable to the TSP by Nodal Agency as per the provisions of TSA;

"Transmission License" shall mean the license granted by the State Commission in terms of the relevant regulations for grant of such license issued under the Electricity Act;

"Transmission Service" shall mean making the Project available as per the terms and conditions of this Agreement;

"Unscheduled Outage" shall mean an interruption resulting in reduction of the Availability of the Element(s) / Project (as the case may be) that is not a result of a Scheduled Outage or a Force Majeure Event.

"Ultimate Parent Company" shall mean an entity which owns at least twenty six percent (26%) equity in the Bidding Company or Member of a Consortium, (as the case may be) and in the Technically Evaluated Entity and / or Financially Evaluated Entity (as the case may be) and such Bidding Company or Member of a Consortium, (as the case may be) and the Technically Evaluated Entity and / or Financially Evaluated Entity (as the case may be) shall be under the direct control or indirectly under the common control of such entity;

1.2 Interpretation:

Save where the contrary is indicated, any reference in this Agreement to:

"Agreement" shall be construed as including a reference to its Schedules, Appendices and Annexures;

"Rupee", **"Rupees"** and **"Rs."** shall denote lawful currency of India;

"crore" shall mean a reference to ten million (10,000,000) and a **"lakh"** shall mean a reference to one tenth of a million (1,00,000);

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"encumbrance" shall be construed as a reference to a mortgage, charge, pledge, lien or other encumbrance securing any obligation of any person or any other type of preferential arrangement (including, without limitation, title transfer and retention arrangements) having a similar effect;

"holding company" of a company or corporation shall be construed as a reference to any company or corporation of which the other company or corporation is a subsidiary;

"indebtedness" shall be construed so as to include any obligation (whether incurred as principal or surety) for the payment or repayment of money, whether present or future, actual or contingent;

"person" shall have the meaning as defined in Section 2(49) of the Act;

"subsidiary" of a company or corporation (the holding company) shall be construed as a reference to any company or corporation:

(i) which is controlled, directly or indirectly, by the holding company, or

(ii) more than half of the issued share capital of which is beneficially owned, directly or indirectly, by the holding company, or

(iii) which is a subsidiary of another subsidiary of the holding company, for these purposes, a company or corporation shall be treated as being controlled by another if that other company or corporation is able to direct its affairs and/or to control the composition of its

board of directors or equivalent body;

"winding-up", **"dissolution"**, **"insolvency"**, or **"reorganization"** in the context of a company or corporation shall have the same meaning as defined in the Companies Act, 1956/ Companies Act, 2013 (as the case may be).

1.2.1 Words importing the singular shall include the plural and vice versa.

1.2.2 This Agreement itself or any other agreement or document shall be construed as a reference to this or to such other agreement or document as it may have been, or may from time to time be, amended, varied, novated, replaced or supplemented.

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1.2.3 A Law shall be construed as a reference to such Law including its amendments or re-enactments from time to time.

1.2.4 A time of day shall, save as otherwise provided in any agreement or document be construed as a reference to Indian Standard Time.

1.2.5 Different parts of this Agreement are to be taken as mutually explanatory and supplementary to each other and if there is any inconsistency between or among the parts of this Agreement, they shall be interpreted in a harmonious manner so as to give effect to each part.

1.2.6 The tables of contents and any headings or sub-headings in this Agreement have been inserted for ease of reference only and shall not affect the interpretation of this Agreement.

1.2.7 All interest payable under this Agreement shall accrue from day to day and be calculated on the basis of a year of three hundred and sixty five (365) days.

1.2.8 The words "hereof" or "herein", if and when used in this Agreement shall mean a reference to this Agreement.

1.2.9 The contents of Schedule 7 shall be referred to for ascertaining accuracy and correctness of the representations made by the Selected Bidder in Article 17.2.1 hereof.

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ARTICLE: 2

2 EFFECTIVENESS AND TERM OF AGREEMENT

2.1 Effective Date:

This Agreement shall be effective from later of the dates of the following events:

a. The Selected Bidder, on behalf of the TSP, has provided the Contract Performance Guarantee, as per terms of Article 3.1 of this Agreement; and

b. The Selected Bidder has acquired for the Acquisition Price, one hundred percent (100%) of the equity shareholding of REC Power Development and Consultancy Limited in Ryapte Power Transmission Limited along with all its related assets and liabilities as per the provisions of the Share Purchase Agreement. and

c. The Agreement is executed and delivered by the Parties;

2.2 Term and Termination:

2.2.1 Subject to Article 2.2.3 and Article 2.4, this Agreement shall continue to be effective in relation to the Project until the Expiry Date, when it shall automatically terminate.

2.2.2 Post the Expiry Date of this Agreement, the TSP shall ensure transfer of Project Assets to KPTCL or its successors or an agency as decided by the Government of Karnataka at zero cost and free from any encumbrance and liability. The transfer shall be completed within 90 days of expiry of this Agreement failing which KPTCL or its successors or an agency as decided by the State Government shall be entitled to take over the Project Assets Suo moto.

2.2.3 This Agreement shall terminate before the Expiry Date in accordance with Article 13 or Article 3.3.2 or Article 3.3.4.

2.3 Conditions prior to the expiry of the Transmission License

2.3.1 In order to continue the Project beyond the expiry of the Transmission License, the TSP shall be obligated to make an application to the State Commission at least two (2) years before the date of expiry of the Transmission License, seeking the State Commission's approval for the extension of the term of the Transmission License up to the Expiry Date.

2.3.2 The TSP shall timely comply with all the requirements that may be laid down by the State Commission for extension of the term of the Transmission License beyond the initial term of twenty-five (25) years & upto the Expiry Date and the TSP shall keep the Nodal Agency fully

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informed about the progress on its application for extension of the term of the Transmission License.

2.4 Survival:

The expiry or termination of this Agreement shall not affect any accrued rights, obligations/ roles and liabilities of the Parties under this Agreement, including the right to receive liquidated damages as per the terms of this Agreement, nor shall it effect the survival of any continuing obligations/ roles for which this Agreement provides, either expressly or by necessary implication, which are to survive after the Expiry Date or termination including those under Articles 3.3.3, 3.3.5, Article 9.3 (Application of Insurance Proceeds), Article 11 (Force Majeure), Article 13 (Events of Default and Termination), Article 14 (Liability & Indemnification), Article 16 (Governing Law & Dispute Resolution), Article 19 (Miscellaneous).

2.5 Applicability of the provisions of this Agreement

2.5.1 For the purpose of Availability, Target Availability and the computation of Availability, Incentive, Penalty, the provisions provided in this Agreement shall apply and any future modifications in the relevant Rules and Regulations shall not be applicable for this Project.

2.5.2 For the purposes of this Agreement for InSTS systems developed under the tariff based competitive bidding framework, the provisions relating to the definitions (Availability and COD), Article 3 (Contract Performance Guarantee and Conditions Subsequent), Article 5 (Construction of the Project), Article 6 (Connection and Commissioning of the Project), Article 8 (Target Availability and calculation of Availability), Article 11 (Force Majeure), Article 12 (Change in Law), Article 13 (Event of Default), Article 14 (Indemnification), Article 15 (Assignment and Charges), Articles16.1,16.2 and 16.4 (Governing Laws and Dispute Resolution) and Article 17 (representation and warranties of the Licensee) of this agreement shall supersede the corresponding provisions of relevant Regulations.

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ARTICLE: 3

3 CONDITIONS SUBSEQUENT

3.1 Satisfaction of conditions subsequent by the TSP

3.1.1 Within ten (10) days from the date of issue of Letter of Intent, the Selected Bidder, shall:

a. Provide the Contract Performance Guarantee, and

b. Acquire, for the Acquisition Price, one hundred percent (100%) equity shareholding of Ryapte Power Transmission Limited from REC Power Development and Consultancy Limited, who shall sell to the Selected Bidder, the equity shareholding of Ryapte Power Transmission Limited, along with all its related assets and liabilities.

c. Execute this Agreement;

The TSP shall, within five (5) working days from the date of acquisition of SPV by the Selected Bidder, undertake to apply to the State Commission for the grant of Transmission License and for the adoption of tariff as required under section-63 of the Electricity Act.

The Selected Bidder, on behalf of the TSP, will provide to the Karnataka Power Transmission Corporation Limited (KPTCL) (being the Nodal Agency) the Contract Performance Guarantee for an amount of Rs 52.33 Crore (Rupees Fifty Two Crore and Thirty Three Lakh Only).

3.1.2 The Contract Performance Guarantee shall be initially valid for a period up to three (3) months after the Scheduled COD of the Project and shall be extended from time to time to be valid for a period up to three (3) months after the COD of the Project. In case the validity of the Contract Performance Guarantee is expiring before the validity specified in this Article, the TSP shall, at least thirty (30) days before the expiry of the Contract Performance Guarantee, replace the Contract Performance Guarantee with another Contract Performance Guarantee or extend the validity of the existing Contract Performance Guarantee until the validity period specified in this Article.

3.1.3 The TSP agrees and undertakes to duly perform and complete the following activities within six (6) months from the Effective Date (except for c) below), unless such completion is affected due to any Force Majeure Event, or if any of the activities is specifically waived in writing by the Nodal Agency:

a. To obtain the Transmission License for the Project from the State Commission;

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b. To obtain the order for adoption of Transmission Charges by the State Commission, as required under Section 63 of the Electricity Act 2003;

c. To submit to the Nodal Agency, STU & Independent Engineer, the Project Execution Plan, immediately after award of contract(s) and maximum within one hundred and twenty (120) days from the Effective Date. Also, an approved copy each of Manufacturing Quality Plan (MQP) and Field Quality Plan (FQP) would be submitted to Independent Engineer &) Nodal Agency in the same time period. The TSP's Project Execution Plan should be in conformity with the Scheduled COD as specified in Schedule 2 of this Agreement, and shall bring out clearly the organization structure, time plan and methodology for executing the Project, award of major contracts, designing, engineering, procurement, shipping, construction, testing and commissioning to commercial operation;

d. To submit to the Nodal Agency, STU & Independent Engineer a detailed bar (GANTT) chart of the Project outlining each activity (taking longer than one Month), linkages as well as durations;

e. To submit to the Nodal Agency, STU & Independent Engineer detailed specifications of conductor meeting the functional specifications specified in RFP;

f. To achieve Financial Closure;

g. To provide an irrevocable letter to the Lenders duly accepting and acknowledging the rights provided to the Lenders under the provisions of Article 15.3 of this Agreement and all other RFP Project Documents; and

h. To award the Engineering, Procurement and Construction contract ("EPC contract") for the design and construction of the Project and shall have given to such Contractor an irrevocable notice to proceed;

3.2 Recognition of Lenders' Rights by the Nodal Agency

3.2.1 The Nodal Agency hereby accepts and acknowledges the rights provided to the Lenders as per Article 15.3 of this Agreement and all other RFP Project Documents.

3.3 Consequences of non-fulfilment of conditions subsequent

3.3.1 If any of the conditions specified in Article 3.1.3 is not duly fulfilled by the TSP even within three (3) Months after the time specified therein, then on and from the expiry of such period and until the TSP has satisfied all the conditions specified in Article 3.1.3, the TSP shall, on a monthly basis, be liable to furnish to Karnataka Power Transmission Corporation Limited (KPTCL) (being the Nodal agency) additional Contract

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Performance Guarantee of Rupees 5.23 Crores (Rs. Five Crore and twenty Three Lakh Only) within two (2) Business Days of expiry of every such Month. Such additional Contract Performance Guarantee shall be provided to Karnataka Power Transmission Corporation Limited (KPTCL) (being the Nodal agency) in the manner provided in Article 3.1.1 and shall become part of the Contract Performance Guarantee and all the provisions of this Agreement shall be construed accordingly Karnataka Power Transmission Corporation Limited (KPTCL) (being the Nodal agency) shall be entitled to hold and / or invoke the Contract Performance Guarantee, including such additional Contract Performance Guarantee, in accordance with the provisions of this Agreement.

3.3.2 Subject to Article 3.3.4, if:

(i) the fulfilment of any of the conditions specified in Article 3.1.3 is delayed beyond nine (9) Months from the Effective Date and the TSP fails to furnish additional Contract Performance Guarantee to the Nodal Agency in accordance with Article 3.3.1 hereof; or

(ii) the TSP furnishes additional Performance Guarantee to the Nodal Agency in accordance with Article 3.3.1 hereof but fails to fulfil the conditions specified in Article 3.1.3 within a period of twelve (12) months from the Effective Date,

the Nodal Agency shall have the right to terminate this Agreement, by giving a Termination Notice to the TSP, in writing, of at least seven (7) days, with a copy to Government of Karnataka, STU and the Lenders' Representative in order to enable the Lenders to exercise right of substitution in accordance with Article 15.3 of this Agreement.

3.3.3 If the Nodal Agency elects to terminate this Agreement as per the provisions of Article 3.3.2, the TSP shall be liable to pay to the Nodal Agency an amount of Rs 52.33 Crore (Rupees Fifty-Two Crore and Thirty Three Lakh Only) as liquidated damages. The Nodal Agency shall be entitled to recover this amount of damages by invoking the Contract Performance Guarantee to the extent of liquidated damages, which shall be required by the Nodal Agency, and the balance shall be returned to TSP, if any.

It is clarified for removal of doubt that this Article shall survive the termination of this Agreement.

3.3.4 In case of inability of the TSP to fulfil the conditions specified in Article 3.1.3 due to any Force Majeure Event, the time period for fulfilment of the condition subsequent as mentioned in Article 3.1.3, may be extended for a period of such Force Majeure Event. Alternatively, if deemed necessary, this Agreement may be terminated by the Nodal Agency giving a Termination Notice to the TSP, in writing, of at least

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seven (7) days, with a copy to Government of Karnataka, STU and the Lenders' Representative in order to enable the Lenders to exercise right of substitution in accordance with Article 15.3 of this Agreement and the Contract Performance Guarantee shall be returned as per the provisions of Article 6.5.1.

Provided, that due to the provisions of this Article 3.3.4, any increase in the time period for completion of conditions subsequent mentioned under Article 3.1.3, shall lead to an equal increase in the time period for the Scheduled COD. If the Scheduled COD is extended beyond a period of one hundred eighty (180) days due to the provisions of this Article 3.3.4, the TSP will be allowed to recover the interest cost during construction corresponding to the period exceeding one hundred eighty (180) days by adjustment in the Transmission Charges in accordance with Schedule 9.

3.3.5 Upon termination of this Agreement as per Articles 3.3.2 and 3.3.4, the Nodal Agency may take steps to bid out the Project again.

3.3.6 The Nodal agency, on the failure of the TSP to fulfil its obligations, if it considers that there are sufficient grounds for so doing, apart from invoking the Contract Performance Guarantee under para 3.3.3 may also initiate proceedings for blacklisting the TSP as per provisions of Article 13.2 of TSA.

3.4 Progress Reports

The TSP shall notify the Nodal Agency and STU in writing at least once a Month on the progress made in satisfying the conditions subsequent in Articles 3.1.3.

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ARTICLE: 4

4 DEVELOPMENT OF THE PROJECT

4.1 TSP's obligations in development of the Project:

Subject to the terms and conditions of this Agreement, the TSP at its own cost and expense shall observe, comply with, perform, undertake and be responsible:

a. for procuring and maintaining in full force and effect all Consents, Clearances and Permits, required in accordance with Law for development of the Project;

b. for financing, constructing, owning and commissioning each of the Element of the Project for the scope of work set out in Schedule 1 of this Agreement in accordance with:

i. the Electricity Act and the Rules made thereof;

ii. the Grid Code;

iii. the CEA Regulations applicable, and as amended from time to time, for Transmission Lines and sub-stations:

- the Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007;
- Central Electricity Authority (Technical Standards for construction of Electrical Plants and Electric Lines) Regulation, 2010;
- Central Electricity Authority (Grid Standard) Regulations, 2010;
- Central Electricity Authority (Safety requirements for construction, operation and maintenance of Electrical Plants and Electrical Lines) Regulation, 2011;
- Central Electricity Authority (Measures relating to Safety and Electricity Supply) Regulation, 2010;
- Central Electricity Authority (Technical Standards for Communication System in Power System Operation) Regulations, 2020.

iv. Safety/ security Guidelines laid down by the Central Government and State Government;

v. prudent Utility Practices, relevant Indian Standards and the Law;not later than the Scheduled COD as per Schedule 2 of this Agreement;

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c. for entering into a Connection Agreement with the concerned parties in accordance with the Grid Code.

d. for owning the Project throughout the term of this Agreement free and clear of any encumbrances except those expressly permitted under Article 15 of this Agreement;

e. to co-ordinate and liaise with concerned agencies and provide on a timely basis relevant information with regard to the specifications of the Project that may be required for interconnecting the Project with the Inter connection Facilities;

f. for providing all assistance to the Arbitrators as they may require for the performance of their duties and responsibilities;

g. to provide to the Nodal Agency and STU, on a monthly basis, progress reports with regard to the Project and its execution (in accordance with prescribed form) to enable the STU to monitor and co-ordinate the development of the Project matching with the Interconnection Facilities;

h. to comply with Ministry of Power order no. 25-11/6/2018 — PG dated 02.07.2020 as well as other Guidelines issued by Govt. of India pertaining to this;

i. to procure the products associated with the Transmission System as per provisions of Public Procurement (Preference to Make in India) orders issued by Ministry of Power vide orders No. A-1/2021-FSC-Part(5) dated 16.11.2021 and No.: P45021/2/2017-PP (BE-II)-Part-4 Vol.II dated 19.07.2024 issued by Ministry of Power for transmission sector, as amended from time to time read with Department for Promotion of Industry and Internal Trade (DPIIT) orders in this regard (Procuring Entity as defined in above orders shall deemed to have included Selected Bidder and/ or TSP).

   Also, to comply with Department of Expenditure, Ministry of Finance vide Order (Public Procurement No 1) bearing File No. 6/18/2019-PPD dated 23.07.2020, Office Memorandum (OM) No. F.18/37/2020-PPD dated 08.02.2021, OM No. F.12/1/2021- PPD(Pt.) dated 02.03.2021, OM No. F.7/10/2021-PPD dated 08.06.2021 and Order (Public Procurement No 4) bearing File No. F.7/10/2021-PPD dated 23.02.2023 as amended from time to time, regarding public procurement from a bidder of a country, which shares land border with India;

j. to submit to Nodal Agency information in the prescribed format [To be devised by Nodal Agency for ensuring compliance to Article 4.1 i) above.

k. to comply with all its obligations undertaken in this Agreement.

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4.2 Roles of the Nodal Agency in implementation of the Project:

4.2.1 Subject to the terms and conditions of this Agreement, the Nodal Agency shall be the holder and administrator of this Agreement and shall inter alia:

a. appoint an Independent Engineer within 90 days of the Effective Date

b. provide letters of recommendation to the concerned Indian Governmental Instrumentality, as may be requested by the TSP from time to time, for obtaining the Consents, Clearances and Permits required for the Project;

c. coordinate among TSP and upstream/downstream entities in respect of Interconnection Facilities; and

d. monitor the implementation of the Agreement and take appropriate action for breach thereof including revocation of guarantees, cancellation of Agreement, blacklisting etc

e. provide all assistance to the Arbitrators as required for the performance of their duties and responsibilities; and

f. perform any other responsibility (ies) as specified in this Agreement.

4.3 Time for Commencement and Completion:

a. The TSP shall take all necessary steps to commence work on the Project from the Effective Date of the Agreement and shall achieve Scheduled COD of the Project in accordance with the time schedule specified in Schedule 2 of this Agreement;

b. The COD of each Element of the Project shall occur no later than the Scheduled COD or within such extended time to which the TSP shall be entitled under Article 4.4 hereto.

4.4 Extension of time:

4.4.1 In the event that the TSP is unable to perform its obligations for the reasons solely attributable to the Nodal Agency, the Scheduled COD shall be extended, by a 'day to day' basis, subject to the provisions of Article 13.

4.4.2 In the event that an Element or the Project cannot be commissioned by its Scheduled COD on account of any Force Majeure Event as per Article 11, the Scheduled COD shall be extended, by a 'day to day' basis for a period of such Force Majeure Event. Alternatively, if deemed necessary, the Nodal Agency may terminate the Agreement as per the provisions of Article 13.4 by giving a Termination Notice to the TSP, in writing, of at least seven (7) days, with a copy to Government of Karnataka, STU and

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the Lenders' Representative in order to enable the Lenders to exercise right of substitution in accordance with Article 15.3 of this Agreement.

4.4.3 If the Parties have not agreed, within thirty (30) days after the affected Party's performance has ceased to be affected by the relevant circumstance, on how long the Scheduled COD should be deferred by, any Party may raise the Dispute to be resolved in accordance with Article 16.

4.5 Metering Arrangements:

4.5.1 The TSP shall comply with all the provisions of the Grid Code and the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006 as amended from time to time, with regard to the metering arrangements for the Project. The TSP shall fully cooperate with the CTU / STU / RLDC and extend all necessary assistance in taking meter readings.

4.6 Interconnection Facilities:

4.6.1 Subject to the terms and conditions of this Agreement, the TSP shall be responsible for connecting the Project with the Interconnection point(s) specified in Schedule 1 of this Agreement. The Interconnection Facilities shall be developed as per the scope of work and responsibilities assigned in Schedule 1 of this Agreement. The Nodal Agency shall be responsible for coordinating to make available the Interconnection Facilities.

4.6.2 In order to remove any doubts, it is made clear that the obligation of the TSP within the scope of the project is to construct the Project as per Schedule-1 of this Agreement and in particular to connect it to the Interconnection Facilities as specified in this Agreement.

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ARTICLE: 5

5 CONSTRUCTION OF THE PROJECT

5.1 TSP's Construction Responsibilities:

5.1.1 The TSP, at its own cost and expense, shall be responsible for designing, constructing, erecting, testing and commissioning each Element of the Project by the Scheduled COD in accordance with the Regulations and other applicable Laws specified in Article 4.1 of this Agreement.

5.1.2 The TSP acknowledges and agrees that it shall not be relieved from any of its obligations under this Agreement or be entitled to any extension of time or any compensation whatsoever by reason of the unsuitability of the Site or Transmission Line route(s).

5.1.3 The TSP shall be responsible for obtaining all Consents, Clearances and Permits related but not limited to road / rail / river / canal / power line / crossings, Power and Telecom Coordination Committee (PTCC), defence, civil aviation, right of way / way-leaves and environmental & forest clearances from relevant authorities required for developing, financing, constructing, maintaining/ renewing all such Consents, Clearances and Permits in order to carry out its obligations under this Agreement in general and shall furnish to the Nodal Agency such copy/ies of each Consents, Clearances and Permits, on demand. Nodal Agency shall provide letters of recommendation to the concerned Indian Governmental Instrumentality, as may be requested by the TSP from time to time for obtaining the Consents, Clearances and Permits required for the Project

5.1.4 The TSP shall be responsible for:

(a) acquisition of land for location specific substations, switching stations or HVDC terminal or inverter stations. Also, the actual location of Greenfield Substation (Switching Station HVDC Terminal or Inverter Station or in the Scope of TSA;

- For a Generation Pooling Substation shall not be beyond 3 Km radius of the location proposed by the BPC in their Survey Report.
- For load Serving Substation within the scope of TSP shall not be beyond 5 Km radius of the location proposed by the BPC in their Survey Report
- For an intermediate Substation shall not be beyond 10 Km radius of the location proposed by the BPC in their Survey Report.

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(b) final selection of Site including its geo-technical investigation;

(c) survey and geo-technical investigation of line route in order to determine the final route of the Transmission Lines;

(d) seeking access to the Site and other places where the Project is being executed, at its own risk and costs, including payment of any crop, tree compensation or any other compensation as may be required.

5.1.5 In case the Project involves any resettlement and rehabilitation, the resettlement and rehabilitation package will be implemented by the State Government authorities, for which the costs is to be borne by the TSP and no changes would be allowed in the Transmission Charges on account of any variation in the resettlement and rehabilitation cost. The TSP shall provide assistance on best endeavour basis, in implementation of the resettlement and rehabilitation package, if execution of such package is in the interest of expeditious implementation of the Project and is beneficial to the Project affected persons.

5.2 Appointing Contractors:

5.2.1 The TSP shall conform to the requirements as provided in this Agreement while appointing Contractor(s) for procurement of goods & services.

5.2.2 The appointment of such Contractor(s) shall neither relieve the TSP of any of its obligations under this Agreement nor make the Nodal Agency liable for the performance of such Contractor(s).

5.3 Monthly Progress Reporting:

The TSP shall provide to the STU, Nodal Agency & Independent Engineer, on a monthly basis, progress reports along with likely completion date of each Element with regard to the Project and its execution (in accordance with prescribed form). The Nodal Agency/ STU shall monitor the development of the Project for its timely completion for improving and augmenting the electricity system as a part of its statutory responsibility.

5.4 Quality of Workmanship:

The TSP shall ensure that the Project is designed, built and completed in a good workmanship using sound engineering and construction practices, and using only materials and equipment that are new and manufactured as per the MQP and following approved FQP for erection, testing & commissioning and complying with Indian /International Standards such that, the useful life of the Project will be at least thirty five (35) years from the COD of the Project. The TSP shall ensure that all major substation

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equipment / component (e.g. transformers, reactors, Circuit Breakers, Instrument Transformers (IT), Surge Arresters (SA), Protection relays, clamps & connectors etc.), equipment in terminal stations of HVDC installations including Thyristor/ IGBT valves, Converter Transformers, smoothing reactors, Transformer bushings and wall bushings, GIS bus ducts, towers and gantry structures and transmission towers or poles and line materials (conductors, earthwire, OPGW, insulator, accessories for conductors, OPGW & earthwires, hardware fittings for insulators, aviation lights etc), facilities and system shall be designed, constructed and tested (Type test, Routine tests, Factory Acceptance Test (FAT)) in accordance with relevant CEA Regulations and Indian Standards. In case Indian Standards for any particular equipment/ system/ process is not available, IEC/ IEEE or equivalent International Standards and Codes shall be followed.

5.5 Progress Monitoring & Quality Assurance:

5.5.1 The Project Execution Plan submitted by the TSP in accordance with Article 3.1.3 c) shall comprise of detailed schedule of all the equipments / items /materials required for the Project, right from procurement of raw material till the dispatch from works and receipt at the site. Further, it should also include various stages of the construction schedule up to the commissioning of the Project.

5.5.2 Nodal Agency, STU & Independent Engineer shall have access at all reasonable times to the Site and to the Manufacturer's works and to all such places where the Project is being executed.

5.5.3 Independent Engineer shall ensure conformity of the conductor specifications with the functional specifications specified in RFP.

5.5.4 The Independent Engineer shall monitor the following during construction of the Project:

a) Quality of equipments, material, foundation, structures and workmanship etc. as laid down in Article 5.4 and 6.1.4 of the TSA. Specifically, quality of Sub-station equipments, transmission line material and workmanship etc. would be checked in accordance with the Article 5.4.

b) Progress in the activities specified in Condition Subsequent

c) Verification of readiness of the elements including the statutory clearances & completion of civil works, fixing of all components and finalisation of punch points (if any) prior to charging of the elements

d) Progress of construction of substation and Transmission Lines

5.5.5 The progress shall be reviewed by the Independent Engineer against the Project Execution Plan. The Independent Engineer shall prepare its report

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on monthly basis and submit the same to Nodal Agency highlighting the progress achieved till the end of respective month vis-à-vis milestone activities, areas of concern, if any, which may result in delay in the timely completion of the Project. Based on the progress, Nodal Agency and/ or STU shall issue written instructions to the TSP to take corrective measures, as may be prudent for the timely completion of the Project. In case of any deficiency, the Nodal Agency would be at liberty to take action in accordance with the procedure of this Agreement.

5.5.6 For any delay in commissioning any critical Element(s), as identified in Schedule 1 & Schedule 2 of this Agreement, beyond a period of 45 days shall lead to a sequestration of 10% of the Contract Performance Guarantee.

5.6 Site regulations and Construction Documents

The TSP shall abide by the Safety Rules and Procedures as mentioned in Schedule 3 of this Agreement

The TSP shall retain at the Site and make available for inspection at all reasonable times, copies of the Consents, Clearances and Permits, construction drawings and other documents related to construction.

5.7 Supervision of work:

The TSP shall provide all necessary superintendence for execution of the Project and its supervisory personnel shall be available to provide full-time superintendence for execution of the Project. The TSP shall provide skilled personnel who are experienced in their respective fields.

5.8 Remedial Measures:

The TSP shall take all necessary actions for remedying the shortfall in achievement of timely progress in execution of the Project, if any, as intimated by the Independent Engineer and/ or STU and/ or the Nodal Agency. However, such intimation by the Independent Engineer and/ or STU and/ or Nodal Agency and the subsequent effect of such remedial measures carried out by the TSP shall not relieve the TSP of its obligations in the Agreement. Independent Engineer and/ or STU and/ or the Nodal Agency may carry out random inspections during the Project execution, as and when deemed necessary by it. If the shortfalls as intimated to the TSP are not remedied to the satisfaction of the STU and/ or the Nodal Agency, this Agreement may be terminated by the Nodal Agency by giving a Termination Notice to the TSP, in writing, of at least seven (7) days, with a copy to Government of Karnataka, STU and the Lenders' Representative in order to enable the Lenders to exercise right of substitution in accordance with Article 15.3 of this Agreement.

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ARTICLE: 6

6 CONNECTION AND COMMISSIONING OF THE PROJECT

6.1 Connection with the Interconnection Facilities:

6.1.1 The TSP shall give the RLDC(s), CTU, / STU, as the case may be, and any other agencies as required, at least sixty (60) days advance written notice of the date on which it intends to connect an Element of the Project, which date shall not be earlier than its Scheduled COD or Schedule COD extended as per Article 4.4.1 & 4.4.2 of this Agreement, unless mutually agreed to by Parties. Further, any preponing of COD of any element prior to Scheduled COD must be approved by the Nodal Agency,

6.1.2 The RLDC / SLDC (as the case may be) or the CTU / STU (as the case may be), for reasonable cause, including non-availability of Interconnection Facilities as per Article 4.2, can defer the connection for up to fifteen (15) days from the date notified by the TSP pursuant to Article 6.1.1, if it notifies to the TSP in writing, before the date of connection, of the reason for the deferral and when the connection is to be rescheduled. However, no such deferment on one or more occasions would be for more than an aggregate period of thirty (30) days. Further, the Scheduled COD would be extended as required, for all such deferments on "day to day" basis.

6.1.3 Subject to Articles 6.1.1 and 6.1.2, any Element of Project may be connected with the Interconnection Facilities when:

a. it has been completed in accordance with this Agreement and the Connection Agreement;

b. it meets the Grid Code, Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007 as amended from time to time and all other Indian legal requirements, and

c. The TSP has obtained the approval in writing of the Electrical Inspector certifying that the Element is ready from the point of view of safety of supply and can be connected with the Interconnection Facilities.

d. It has satisfactorily met all the testing requirements as per Articles 6.1.4

6.1.4 Site Acceptance Test (SAT)/ pre-commissioning tests of all major substation equipment, component, system, facilities shall be successfully carried out before commissioning. The Type tests, FAT

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and SAT reports should be available at the substation / terminal station of HVDC installations for ready reference of operation and maintenance staff and has to be made available to the Independent Engineer appointed for quality monitoring or their authorised representatives, as and when they wish to examine the same.

6.2 Commercial Operation:

6.2.1 An Element of the Project shall be declared to have achieved COD twenty four (24) hours following the connection of the Element with the Interconnection Facilities pursuant to Article 6.1 or seven (7) days after the date on which it is declared by the TSP to be ready for charging but is not able to be charged for reasons not attributable to the TSP subject to Article 6.1.2.

Provided that an Element shall be declared to have achieved COD only after all the Element(s), if any, which are pre-required to have achieved COD as defined in Schedule 2 of this Agreement, have been declared to have achieved their respective COD.

6.2.2 Once any Element of the Project has been declared to have achieved deemed COD as per Article 6.2.1 above, such Element of the Project shall be deemed to have Availability equal to the Target Availability till the actual charging of the Element and to this extent, TSP shall be eligible for the Monthly Transmission Charges applicable for such Element.

6.3 Compensation for Direct Non Natural Force Majeure Event or Indirect Non Natural Force Majeure Event or Natural Force Majeure Event (affecting the Nodal Agency)

6.3.1 If the TSP is otherwise ready to connect the Element(s) of the Project and has given due notice, as per provisions of Article 6.1.1, to the concerned agencies of the date of intention to connect the Element(s) of the Project, where such date is not before the Scheduled COD, but is not able to connect the Element(s) of the Project by the said date specified in the notice, due to Direct Non Natural Force Majeure Event or Indirect Non Natural Force Majeure Event or Natural Force Majeure Event affecting the Nodal Agency, provided such Direct Non Natural Force Majeure Event or Indirect Non Natural Force Majeure Event or Natural Force Majeure Event affecting the Nodal Agency has continued for a period of more than three
(3) continuous or non-continuous Months, the TSP shall, until the effects of the Direct Non Natural Force Majeure Event or of Indirect Non Natural Force Majeure Event or Natural Force Majeure Event affecting the Nodal Agency no longer prevent the TSP from connecting the Element(s) of the Project, be deemed to have achieved COD relevant

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to that date and to this extent, be deemed to have been providing Transmission Service with effect from the date notified, and shall be treated as follows:

a. In case of delay due to Direct Non Natural Force Majeure Event, TSP is entitled for Transmission Charges calculated on Target Availability for the period of such events in excess of three (3) continuous or non continuous Months in the manner provided in (c) below.

b. In case of delay due to Indirect Non Natural Force Majeure Event or Natural Force Majeure Event affecting the Nodal Agency, TSP is entitled for payment for debt service which is due under the Financing Agreements, subject to a maximum of Transmission Charges

calculated on Target Availability, for the period of such events in excess of three (3) continuous or non continuous Months in the manner provided in (c) below.

c. In case of delay due to Direct Non Natural Force Majeure Event or Indirect Non Natural Force Majeure Event or Natural Force Majeure Event affecting the Nodal Agency, the TSP is entitled for payments mentioned in (a) and (b) above, after commencement of Transmission Service, in the form of an increase in Transmission Charges. These amounts shall be paid from the date, being the later of a) the date of cessation of such Indirect Non Natural Force Majeure Event or Natural Force Majeure Event affecting the Nodal Agency and b) the completion of sixty (60) days from the receipt of the Financing Agreements by the Nodal Agency from the TSP.

Provided such increase in Transmission Charges shall be so as to put the TSP in the same economic position as the TSP would have been in case the TSP had been paid amounts mentioned in (a) and
(b) above in a situation where the Force Majeure Event had not occurred.

6.4 Liquidated Damages for Delay in achieving COD of Project:

6.4.1 If the TSP fails to achieve COD of any Element of the Project or the Project, by the Element's / Project's Scheduled COD or such Scheduled COD as extended under Articles 4.4.1 and 4.4.3, then the TSP shall pay to the Nodal Agency, a sum equivalent to 3.33% of Monthly Transmission Charges applicable for the Element of the Project [in case where no Elements have been defined, to be on the Project as a whole] / Project, for each day of delay up to sixty (60) days of delay and

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beyond that time limit, at the rate of five percent (5%) of the Monthly Transmission Charges applicable to such Element / Project, as liquidated damages for such delay and not as penalty, without prejudice to any rights of the Nodal Agency under the Agreement.

6.4.2 The TSP's maximum liability under this Article 6.4 shall be limited to the amount of liquidated damages calculated in accordance with Article 6.4.1 for and up to six (6) months of delay for the Element or the Project.

Provided that, in case of failure of the TSP to achieve COD of the Element of the Project even after the expiry of six (6) months from its Scheduled COD, the provisions of Article 13 shall apply.

6.4.3 The TSP shall make payment to the Nodal Agency of the liquidated damages calculated pursuant to Article 6.4.1 within ten (10) days of the earlier of:

a. the date on which the applicable Element achieves COD; or

b. the date of termination of this Agreement.

The payment of such damages shall not relieve the TSP from its obligations to complete the Project or from any other obligation and liabilities under the Agreement.

6.4.4 If the TSP fails to pay the amount of liquidated damages to the Nodal Agency within the said period of ten (10) days, the Nodal Agency shall be entitled to recover the said amount of the liquidated damages by invoking the Contract Performance Guarantee. If the then existing Contract Performance Guarantee is for an amount which is less than the amount of the liquidated damages payable by the TSP to the Nodal Agency under this Article 6.3 and the TSP fails to make payment of the balance amount of the liquidated damages not covered by the Contract Performance Guarantee, then such balance amount shall be deducted from the Transmission Charges payable to the TSP. The right of the Nodal Agency to encash the Contract Performance Guarantee is without prejudice to the other rights of the Nodal Agency under this Agreement.

6.4.5 For avoidance of doubt, it is clarified that amount payable by TSP under this Article is over and above the penalty payable by TSP under Article 5.5.6 of this Agreement.

6.5 Return of Contract Performance Guarantee

6.5.1 The Contract Performance Guarantee as submitted by TSP in accordance with Article 3.1.1 shall be released by the Nodal Agency within three (3) months from the COD of the Project. In the event of delay

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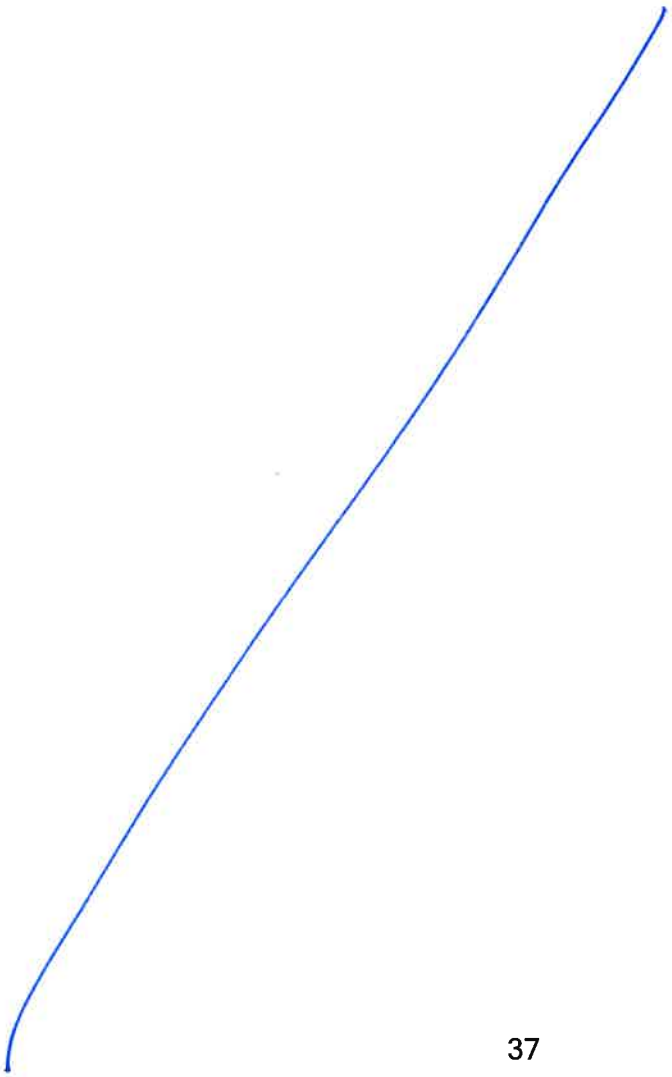
in achieving Scheduled COD of any of the Elements by the TSP (otherwise than due to reasons as mentioned in Article 3.1.3 or Article 11) and consequent part invocation of the Contract Performance Guarantee by the Nodal Agency. Nodal Agency shall release the Contract Performance Guarantee, if any remaining unadjusted, after the satisfactory completion by the TSP of all the requirements regarding achieving the Scheduled COD of the remaining Elements of the Project. It is clarified that the Nodal Agency shall also return / release the Contract Performance Guarantee in the event of (i) applicability of Article 3.3.2 to the extent the Contract Performance Guarantee is valid for an amount in excess of Rs 52.33 Crores (Rupees Fifty Two Crore and Thirty Three Lakh Only) or (ii) termination of this Agreement by the Nodal Agency as mentioned under Article 3.3.4 of this Agreement.

6.5.2 The release of the Contract Performance Guarantee shall be without prejudice to other rights of the Nodal Agency under this Agreement.



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ARTICLE: 7

7 OPERATION AND MAINTENANCE OF THE PROJECT

7.1 Operation and Maintenance of the Project:

The TSP shall be responsible for ensuring that the Project is operated and maintained in accordance with the regulations made by the State Commission and CEA from time to time and provisions of the Act.

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ARTICLE: 8

8 AVAILABILITY OF THE PROJECT

8.1 Calculation of Availability of the Project:

Calculation of Availability for the Elements and for the Project, as the case may be, shall be as per schedule 6 of this agreement, as applicable on the Bid Deadline and as appended in Schedule 6 of this Agreement.

8.2 Target Availability:

The Target Availability of each Element and the Project shall be 98.5%.

Payment of monthly Transmission charges based on actual availability will be calculated as per para 1.2 of Schedule 4 of this Agreement.

If the availability of any Element or the Project is below the Target Availability, for six consecutive months in a Contract Year, the Nodal Agency or STU may issue a show cause notice to the TSP, asking them to show cause as to why the Transmission Service Agreement be not terminated, and if no satisfactory cause is shown it may terminate the Agreement. If the Nodal Agency or STU is of the opinion that the transmission system is of critical importance, it may carry out or cause to carry the operation and maintenance of transmission system at the risk and cost of TSP.

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ARTICLE: 9

9 INSURANCES

9.1 Insurance:

9.1.1 The TSP shall effect and maintain or cause to be effected and maintained during the Construction Period and the Operating Period, adequate Insurances against such risks, with such deductibles including but not limited to any third party liability and endorsements and co-beneficiary/insured, as may be necessary under

a. any of the Financing Agreements,

b. the Laws, and

c. in accordance with Prudent Utility Practices.

The Insurances shall be taken effective from a date prior to the date of the Financial Closure till the Expiry Date.

9.2 Evidence of Insurance cover:

9.2.1 The TSP shall furnish to the Nodal Agency copies of certificates and policies of the Insurances, as and when the Nodal Agency may seek from the TSP as per the terms of Article 9.1

9.3 Application of Insurance Proceeds:

9.3.1 Save as expressly provided in this Agreement, the policies of Insurances and the Financing Agreements, the proceeds of any insurance claim made due to loss or damage to the Project or any part of the Project shall be first applied to reinstatement, replacement or renewal of such loss or damage.

9.3.2 If a Natural Force Majeure Event renders the Project no longer economically and technically viable and the insurers under the Insurances make payment on a "total loss" or equivalent basis, the portion of the proceeds of such Insurance available to the TSP (after making admissible payments to the Lenders as per the Financing Agreements) shall be allocated only to the TSP. Nodal Agency and / or STU shall have no claim on such proceeds of the Insurance.

9.3.3 Subject to the requirements of the Lenders under the Financing Agreements, any dispute or difference between the Parties as to whether the Project is no longer economically and technically viable due to a Force Majeure Event or whether that event was adequately covered in accordance with this Agreement by the Insurances shall be determined in accordance with Article 16.

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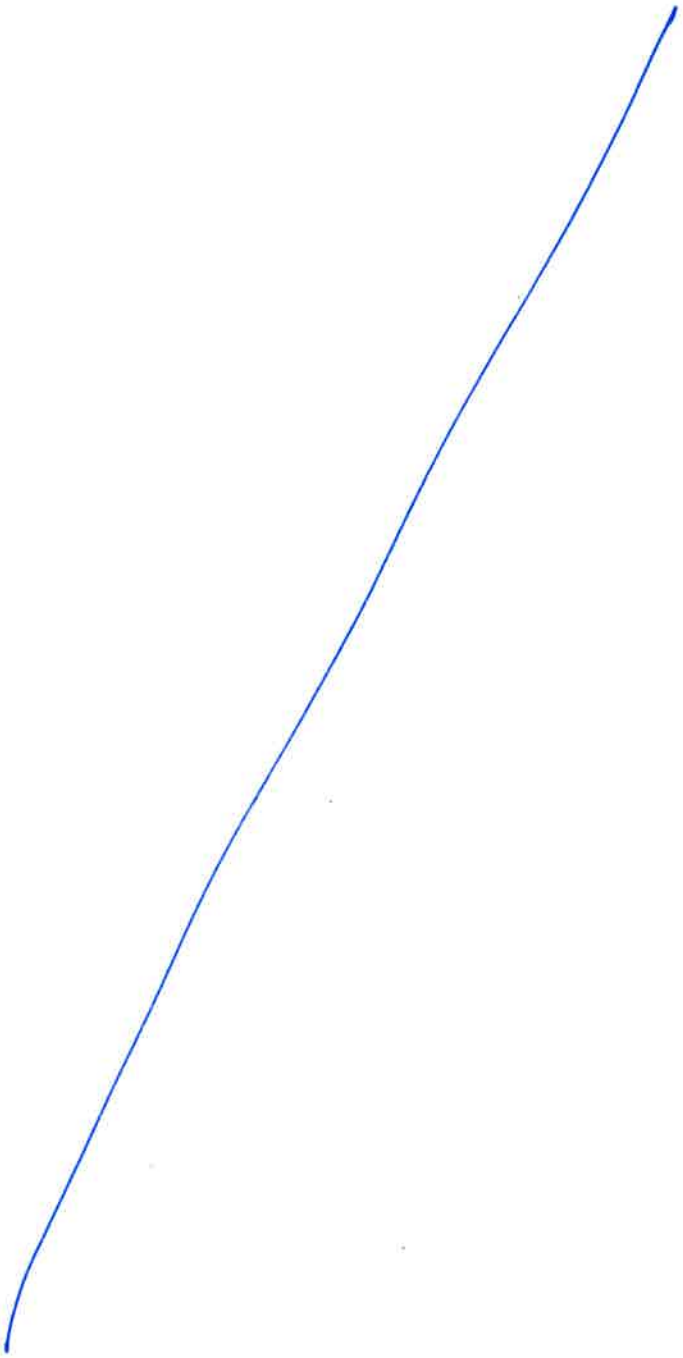
9.4 Effect on liability of the Nodal Agency / STU

9.4.1 The Nodal Agency and STU shall have no financial obligations or liability whatsoever towards the TSP in respect of this Article 9.



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ARTICLE: 10

10 BILLING AND PAYMENT OF TRANSMISSION CHARGES

10.1 Subject to provisions of this Article 10, the Monthly Transmission Charges shall be paid to the TSP, in Indian Rupees, on monthly basis as per the provisions of this Agreement, from the date on which an Element(s) has achieved COD until the Expiry Date of this Agreement, unless terminated earlier and in line with the provisions of Schedule 4 of this Agreement.

10.1.1 Delivery of Invoices:

10.1.1.1 TSP's Invoices

a. Commencing with the month following the month in which the COD of an Element (which is first Commissioned) occurs, the TSP shall submit to the Nodal Agency by the fifth day of such and each succeeding month (or, if such day is not a Business Day, the immediately following Business Day) an Invoice in the Agreed Form (the "Monthly Transmission Charge Invoice") signed by the authorised signatory of the TSP setting out the computation of the Monthly Transmission Charges to be paid by the Nodal Agency to the TSP in respect of the immediately preceding month in accordance with this Agreement; and

b. Each Monthly Transmission Charge Invoice shall include detailed calculations of the amounts payable under it, together with such further supporting documentation and information as the Nodal Agency may reasonably require / request, from time to time.

10.1.1.2 Nodal Agency Invoices

a. The Nodal Agency shall (as and when any amount becomes due to be paid by TSP), on the fifth day of the month (or, if such day is not a Business Day, the immediately following Business Day) submit to the TSP an Invoice in the Agreed Form (the "Nodal Agency Invoice") setting out the computation of any amount that may be payable to it by the TSP for the immediately preceding month pursuant to this Agreement.

b. The Nodal Agency's Invoice shall include detailed calculations of the amounts payable under it, together with such further supporting documentation as the TSP may reasonably require/request, from time to time.

10.1.2 Payment of Invoices:

10.1.2.1 Any amount payable under an Invoice shall be paid in immediately available and freely transferable clear funds, for value on or before the Due Date, to such account of the TSP or Nodal Agency as shall have been previously notified to Nodal Agency or the TSP, as the case may be.

10.1.2.2 Where in respect of any month there is both:

a. an amount payable by the Nodal Agency to TSP pursuant to a Monthly Transmission Charge Invoice and

b. an amount payable by the TSP to Nodal Agency pursuant to a Nodal Agency Invoice as per provisions of this Agreement,

the two amounts, to the extent agreed to be set off by the TSP may, be set off against each other and the balance, if any, shall be paid by Nodal Agency to the TSP or by TSP to Nodal Agency, as the case may be.

10.1.2.3 The Nodal Agency shall pay the amount payable under the Monthly Transmission Charge Invoice and the Supplementary Bill on the Due Date to such account of the TSP, as shall have been previously notified by the TSP to the Nodal Agency in accordance with Article 10.1.2.6 below.

10.1.2.4 All payments made by the Nodal Agency shall be appropriated by the TSP in the following order of priority:

i. towards Late Payment Surcharge, payable to the TSP, if any;

ii. towards earlier unpaid Monthly Transmission Charge Invoice, if any;

iii. towards earlier unpaid Supplementary Bill, if any;

iv. towards the then current Monthly Transmission Charge Invoice, if any; and

v. towards the then current Supplementary Bill.

10.1.2.5 All payments required to be made under this Agreement shall only include any deduction or set off for:

i. deductions required by the Law; and

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ii. amounts claimed by the Nodal Agency from the TSP, through an Invoice duly acknowledged by the TSP, to be payable by the TSP, and not disputed by the TSP within thirty (30) days of receipt of the said Invoice and such deduction or set-off shall be made to the extent of the amounts not disputed. It is clarified that the Nodal Agency shall be entitled to claim any set off or deduction under this Article, after expiry of the said thirty (30) day period.

Provided further, the maximum amounts that can be deducted or set-off by all the Nodal Agency taken together under this Article in a Contract Year shall not exceed Rs. 17.44 Crores (Rupees Seventeen Crore Forty-Four Lakh Only), except on account of payments under sub Article (i) above.

10.1.2.6 The TSP shall open a bank account at ..... [Insert identified place or account] (the "Designated Account") for all payments to be made by the Nodal Agency to the TSP, and notify the Nodal Agency of the details of such account at least ninety (90) days before the Scheduled COD of the first Element to the Nodal Agency. The Nodal Agency shall, on the day of payment, notify the TSP of the payment made to the Designated Account. The Nodal Agency shall also designate a bank account at ..... [Insert identified place] for payments to be made by the TSP to Nodal Agency and notify the TSP of the details of such account ninety (90) days before the Scheduled COD of the first Element.

10.2 Calculation of Monthly Transmission Charges:

The Monthly Transmission Charges for each Contract Year including Incentive & Penalty payment shall be calculated in accordance with the provisions of Schedule 4 of this Agreement.

10.3 Rebate & Late Payment Surcharge:

10.3.1 **Rebate:** In case the Nodal Agency pays to the TSP in respect of a Monthly Transmission Charge Invoice or Supplementary Bill, the following shall apply:

a. For payment of Invoices through letter of credit on presentation or through National Electronic Fund Transfer (NEFT) or Real Time Gross Settlement (RTGS) payment mode, a Rebate of 1.5% shall be allowed on the Monthly Transmission Charge Invoice or Supplementary Bill for payments made within a period of 5 days of presentation of invoice/bill;or
Explanation: In case of computation of '5 days', the number of days shall be counted consecutively without considering any

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holiday. However, in case the last day or 5th day is an official holiday, the 5th day for the purpose of rebate shall be construed as the immediate succeeding working day (as per the official State Government's calendar, where the Office of the Authorised Signatory or Representative of the Beneficiary, for the purpose of receipt or acknowledgement of Bill is situated).

b. Where payments are made on any day after 5 days and within a period of 30 days of presentation of invoices/bills, a rebate of 1% shall be allowed.

c. Applicable rate of Rebate at (a) and (b) above shall be based on the date on which the payment has been actually credited to the TSP's account. Any delay in transfer of money to the TSP's account, on account of a statutory holiday, public holiday, or any other reasons shall be to the account of the Nodal Agency provided that the Invoice is not submitted on the day immediately preceding a statutory holiday or public holiday.

d. No Rebate shall be payable on the bills raised on account of Change in Law relating to taxes, duties and cess;

Provided that if the Nodal Agency fails to pay a Monthly Transmission Charge Invoice/ Supplementary Bill or part thereof within and including the Due Date, the TSP shall recover such amount as per provisions of Article 10.4.3.1 (f).

10.3.2 **Late Payment Surcharge:** Any amount due from one Party to the other, pursuant to this Agreement and remaining unpaid after the Due Date, shall bear Late Payment Surcharge as per the LPS Rules, 2022.

10.4 Disputed Bills, Default in payment by the Nodal Agency & Annual Reconciliation:

10.4.1 Disputed Invoices

10.4.1.1 If either Party does not question or dispute an Invoice within thirty (30) days of receiving it, the Invoice shall be considered correct, complete and conclusive between the Parties.

10.4.1.2 If either Party disputes any item or part of an item set out in any Invoice then that Party shall serve a notice (an "Invoice Dispute Notice") on the other Party setting out (i) the item or part of an item which is in dispute, (ii) its estimate of what such item or part of an item should be, (iii) and with all written material in support of its claim.

10.4.1.3 If the invoicing Party agrees to the claim raised in the Invoice Dispute

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Notice issued pursuant to Article 10.4.1.2, the invoicing Party shall revise such Invoice within seven (7) days of receiving such notice from the disputing Party and if the disputing Party has already made the excess payment, the invoicing Party shall refund to the disputing Party, such excess amount within fifteen (15) days of receiving such notice. In such a case, the excess amount shall be refunded along with interest at the same rate as the Late Payment Surcharge, which shall be applied from the date on which such excess payment was made to the invoicing Party and up to and including the date on which such payment has been received as refund.

10.4.1.4 If the invoicing Party does not agree to the claim raised in the Invoice Dispute Notice issued pursuant to Article 10.4.1.2, it shall, within fifteen
(15) days of receiving the Invoice Dispute Notice, furnish a notice to the disputing Party providing (i) reasons for its disagreement; (ii) its estimate of what the correct amount should be; and (iii) all written material in support of its counter-claim.

10.4.1.5 Upon receipt of notice of disagreement to the Invoice Dispute Notice under Article 10.4.1.4, authorised representative(s) or a director of the board of directors/member of board of each Party shall meet and make best endeavours to amicably resolve such Dispute within fifteen (15) days of receiving such notice of disagreement to the Invoice Dispute Notice.

10.4.1.6 If the Parties do not amicably resolve the dispute within fifteen (15) days of receipt of notice of disagreement to the Invoice Dispute Notice pursuant to Article 10.4.1.4, the matter shall be referred to Appropriate Commission for Dispute resolution in accordance with Article 16.

10.4.1.7 If a Dispute regarding a Monthly Transmission Charge Invoice or a Supplementary Invoice is settled pursuant to Article 10.3.1 or by Dispute resolution mechanism provided in this Agreement in favour of the Party that issues the Invoice Dispute Notice, the other Party shall refund the amount, if any incorrectly charged and collected from the disputing Party or pay as required, within five (5) days of the Dispute either being amicably resolved by the Parties pursuant to Article 10.4.1.5 or settled by Dispute resolution mechanism, along with interest (at the same rate as Late Payment Surcharge) or Late Payment Surcharge from the date on which such payment had been made to the invoicing Party or the date on which such payment was originally due, as may be applicable.

10.4.1.8 For the avoidance of doubt, it is clarified that despite a Dispute regarding an Invoice, the Nodal Agency shall, without prejudice to its right to Dispute, be under an obligation to make payment, of the lower of (a) an amount equal to simple average of last three (3) months Invoices (being the undisputed portion of such three months Invoices) and (b) Monthly Invoice which is being disputed, provided such Monthly Invoice has been

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raised in accordance with this Agreement.

10.4.2 Payment of Supplementary Bill

10.4.2.1 Either Party may raise a bill on the other Party ("Supplementary Bill") for payment on account of:

i. adjustments (if any) required by the Regional Energy Account / State Energy Account (as the case may be); or

ii. quarterly or annual reconciliation as per Article 10.4.5; or

iii. Change in Law as provided in Article 12, and such Bill shall be paid by the other Party.

10.4.3 Payment Security Mechanism:

10.4.3.1 Establishment of Letter of Credit:

(a) Not later than one (1) Month prior to the Scheduled COD of the first Element of the Project, Nodal Agency shall, through a scheduled bank, open a Letter of Credit in favour of the TSP, to be made operative from a date prior to the Due Date of its first Monthly Transmission Charge Invoice under this Agreement and shall be renewed annually.

(b) The draft of the proposed Letter of Credit shall be provided by Nodal Agency to the TSP not later than the Financial Closure of the Project and shall be mutually agreed between the Parties.

(c) The Letter of Credit shall have a term of twelve (12) Months and shall be for an amount:

(i) for the first Contract Year or for each subsequent Contract Year, equal to one point one (1.1) times the estimated average Monthly Transmission Charges based on Target availability of the Elements or Project with Scheduled COD in such Contract Year, as the case may be;

(ii) Provided that, the TSP shall not make any drawl before the Due Date and shall not make more than one drawal in a month.
Provided further that if at any time, such Letter of Credit amount falls short of the amount specified in Article 10.4.3.1, otherwise than by reason of drawal of such Letter of Credit by the TSP, the Nodal Agency shall restore such

shortfall within seven (7) days.

(d) Nodal Agency shall cause the scheduled bank issuing the Letter of Credit to intimate the TSP, in writing regarding establishing of such Letter of Credit.

(e) In case of drawal of the Letter of Credit by the TSP in accordance with the terms of this Article 10.4.3.1, the amount of the Letter of Credit shall be reinstated within seven (7) days from the date of such drawal.

(f) If Nodal Agency fails to pay a Monthly Transmission Charge Invoice / Supplementary Bill or part thereof within and including the Due Date, then, unless an Invoice Dispute Notice is received by the TSP as per the provisions of Article 10.4.1.2, the TSP may draw upon the Letter of Credit, and accordingly the bank shall pay without any reference or instructions from the Nodal Agency, an amount equal to such Monthly Transmission Charge Invoice/Supplementary Bill or part thereof plus Late Payment Surcharge, if applicable, in accordance with Article 10.3.2 above, by presenting to the scheduled bank issuing the Letter of Credit, the following documents:

i. a copy of the Monthly Transmission Charge Invoice/Supplementary Bill which has remained unpaid by Nodal Agency;

ii. a certificate from the TSP to the effect that the Invoice at item (i) above, or specified part thereof, is in accordance with the Agreement and has remained unpaid beyond the Due Date; and

iii. calculations of applicable Late Payment Surcharge, if any.

Provided that failure on the part of the TSP to present the documents for negotiation of the Letter of Credit shall not attract any Late Payment Surcharge on the Nodal Agency.

(g) Nodal Agency shall ensure that the Letter of Credit shall be renewed not later than thirty (30) days prior to its expiry.

(h) All costs relating to opening and maintenance of the Letter of Credit shall be borne by the Nodal Agency. However, the Letter of Credit negotiation charges shall be borne and paid by the TSP.

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(i) In case of non payment of dues by Nodal Agency, Power shall be regulated as per the LPS Rules 2022 (as amended from time to time)

10.4.4 Payment Intimation

Nodal Agency shall remit all amounts due under an Invoice raised by the TSP to the TSP's account by the Due Date and notify the TSP of such remittance on the same day. Similarly, the TSP shall pay all amounts due under an Invoice raised by Nodal Agency by the Due Date to Nodal Agency's account and notify Nodal Agency of such payment on the same day.

10.4.5 Quarterly and Annual Reconciliation

10.4.5.1 Parties acknowledge that all payments made against Monthly Bill(s) and Supplementary Bill(s) shall be subject to quarterly reconciliation at the beginning of the following quarter of each Contract Year and annual reconciliation at the end of each Contract Year to take into account Regional Energy Account/ State Energy Account, adjustments in Transmission Charges payments, Rebates, Late Payment Surcharge, Incentive, Penalty, or any other reasonable circumstance as may be mutually agreed between the Parties.

10.4.5.2 The Parties, therefore, agree that as soon as all such data in respect of any quarter of a Contract Year or a full Contract Year, as the case may be, is available and has been finally verified and adjusted, the TSP and Nodal Agency shall jointly sign such reconciliation statement. Within fifteen (15) days of signing of a reconciliation statement, the TSP or Nodal Agency, as the case may be, shall raise a Supplementary Bill for the payments as may be due as a result of reconciliation for the relevant quarter/ Contract Year and shall make payment of such Supplementary Bill for the adjustments in Transmission Charges payments for the relevant quarter/Contract Year.

10.4.5.3 Interest / Late Payment Surcharge shall be payable in such a case from the date on which such payment had been made to the invoicing Party or the date on which any payment was originally due, as may be applicable. Any dispute with regard to the above reconciliation shall be dealt with in accordance with the provisions of Article 16.

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ARTICLE: 11

11 FORCE MAJEURE

11.1 Definitions

11.1.1 The following terms shall have the meanings given hereunder.

11.2 Affected Party

11.2.1 An Affected Party means any Party whose performance has been affected by an event of Force Majeure.

11.2.2 Any event of Force Majeure shall be deemed to be an event of Force Majeure affecting the TSP only if the Force Majeure event affects and results in, late delivery of machinery and equipment for the Project or construction, completion, commissioning of the Project by Scheduled COD and/or operation thereafter;

11.3 Force Majeure

A 'Force Majeure' means any event or circumstance or combination of events and circumstances including those stated below that wholly or partly prevents or unavoidably delays an Affected Party in the performance of its obligations/ roles under this Agreement, but only if and to the extent that such events or circumstances are not within the reasonable control, directly or indirectly, of the Affected Party and could not have been avoided if the Affected Party had taken reasonable care or complied with Prudent Utility Practices:

(a) **Natural Force Majeure Events:**

i. act of God, including lightning, drought, fire and explosion, earthquake, volcanic eruption, landslide, flood, cyclone, typhoon, tornado, geological surprises, or exceptionally adverse weather conditions, which are in excess of the statistical measures for the last hundred (100) years; and

(b) **Non-Natural Force Majeure Events :**

i. Direct Non–Natural Force Majeure Events

- the unlawful, unreasonable or discriminatory revocation of, or refusal to renew, any Consents, Clearances and Permits required by the Affected Party to perform their obligations/ roles under the RFP Project Documents or any unlawful,
- unreasonable or discriminatory refusal to grant any other Consents, Clearances and Permits required for the development/ operation of the Project, provided that a

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Competent Court of Law declares the revocation or refusal to be unlawful, unreasonable and discriminatory and strikes the same down; or

ii. Indirect Non - Natural Force Majeure Events

- act of war, invasion, armed conflict or act of foreign enemy, blockade, embargo, revolution, riot, insurrection, terrorist or military action; or industry-wide strikes and labour disturbances, having a nationwide impact in India.

11.4 Force Majeure Exclusions

11.4.1 Force Majeure shall not include (i) any event or circumstance which is within the reasonable control of the Parties and (ii) the following conditions, except to the extent that they are consequences of an event of Force Majeure:

(a) Unavailability, late delivery, or changes in cost of the machinery, equipment, materials, spare parts etc. for the Project;

(b) Delay in the performance of any Contractors or their agents;

(c) Non-performance resulting from normal wear and tear typically experienced in transmission materials and equipment;

(d) Strikes or labour disturbance at the facilities of the Affected Party;

(e) Insufficiency of finances or funds or the Agreement becoming onerous to perform; and

(f) Non-performance caused by, or connected with, the Affected Party's:

i. negligent or intentional acts, errors or omissions;

ii. failure to comply with an Indian Law; or

iii. breach of, or default under this Agreement or any Project Document

(g) Any error or omission in the survey report provided by BPC during the bidding process.

11.5 Notification of Force Majeure Event

11.5.1 The Affected Party shall give notice to the other Party of any event of Force Majeure as soon as reasonably practicable, but not later than seven (7) days after the date on which such Party knew or should

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reasonably have known of the commencement of the event of Force Majeure. If an event of Force Majeure results in a breakdown of communications rendering it unreasonable to give notice within the applicable time limit specified herein, then the Party claiming Force Majeure shall give such notice as soon as reasonably practicable after reinstatement of communications, but not later than one (1) day after such reinstatement.Provided that, such notice shall be a pre-condition to the Affected Party's entitlement to claim relief under this Agreement. Such notice shall include full particulars of the event of Force Majeure, its effects on the Party claiming relief and the remedial measures proposed. The Affected Party shall give the other Party regular reports on the progress of those remedial measures and such other information as the other Party may reasonably request about the Force Majeure.

11.5.2 The Affected Party shall give notice to the other Party of (i) the cessation of the relevant event of Force Majeure; and (ii) the cessation of the effects of such event of Force Majeure on the performance of its rights or obligations/ roles under this Agreement, as soon as practicable after becoming aware of each of these cessations.

11.6 Duty to perform and duty to mitigate

To the extent not prevented by a Force Majeure Event, the Affected Party shall continue to perform its obligations/ roles as provided in this Agreement. The Affected Party shall use its reasonable efforts to mitigate the effect of any event of Force Majeure as soon as practicable.

11.7 Available Relief for a Force Majeure Event

Subject to this Article 11,

(a) no Party shall be in breach of its obligations/ roles pursuant to this Agreement to the extent that the performance of its obligations/ roles was prevented, hindered or delayed due to a Force Majeure Event;

(b) each Party shall be entitled to claim relief for a Force Majeure Event affecting its performance in relation to its obligations/ roles under Articles 3.3.4, 4.4.2 and 6.3.1 of this Agreement.

(c) For the avoidance of doubt, it is clarified that the computation of Availability of the Element(s) under outage due to Force Majeure Event, as per Article 11.3 affecting the TSP shall be as per Schedule 6 of this agreement as on Bid Deadline. For the event(s) for which the Element(s) is/are deemed to be available as per Schedule 6 of this agreement, then the Transmission Charges, as applicable to such Element(s), shall be payable as per Schedule 4, for the duration of such event(s).

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(d) For so long as the TSP is claiming relief due to any Force Majeure Event under this Agreement, the Nodal Agency may, if it so desires, from time to time on one (1) day notice, inspect the Project and the TSP shall provide the Nodal Agency's personnel with access to the Project to carry out such inspections.

(e) For avoidance of doubt, the TSP acknowledges that for extension of Scheduled COD a period up to one hundred eighty (180) days due to Force Majeure event, no compensation on the grounds such as interest cost, incident expenditure, opportunity cost will be made to the TSP. However, if Scheduled COD is extended beyond a period of one hundred eighty (180) days due to Force Majeure event, the TSP will be allowed to recover the interest cost during construction corresponding to the period exceeding one hundred eighty (180) days by adjustment in the Transmission Charges in accordance with Schedule 9.

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ARTICLE: 12

12 CHANGE IN LAW

12.1 Change in Law

12.1.1 Change in Law means the occurrence of any of the following after the Bid Deadline resulting into any additional recurring / non-recurring expenditure by the TSP or any savings of the TSP:

a) enactment, bringing into effect or promulgation of any new Indian law; or

b) adoption, amendment, modification, repeal or re-enactment of any existing Indian law; or

c) change in interpretation or application of any Indian law by a competent court, Tribunal or Indian Governmental Instrumentality which is the final authority under law for such interpretation or application; or

d) change by any competent statutory authority in any condition or covenant of any consent or clearances or approval or licence available or obtained for the project

OR

e) coming into force or change in any bilateral or multilateral agreement or treaty between the Government of India and any other Sovereign Government having implications for the generating station or the transmission system regulated under these regulations.

12.2 Relief for Change in Law

12.2.1 During Construction Period, the impact of increase/decrease in the cost of the Project on the Transmission Charges shall be governed by the formula given in Schedule 9 of this Agreement subject to approval of the State Commission.

12.2.2 During the Operation Period:

During the operation period, if as a result of Change in Law, the TSP suffers or is benefited from a change in costs or revenue, the aggregate financial effect of which exceeds 0.30% (zero point three percent) of the Annual Transmission Charges in aggregate for a Contract Year, the TSP may notify so to the Nodal Agency and propose amendments to this

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Agreement so as to place the TSP in the same financial position as it would have enjoyed had there been no such Change in Law resulting in change in costs or revenue as aforesaid.

12.2.3 For any claims made under Articles 12.2.1 and 12.2.2 above, the TSP shall provide to the Nodal Agency documentary proof of such increase / decrease in cost of the Project / revenue for establishing the impact of such Change in Law. In cases where Change in Law results in decrease of cost and it comes to the notice of Nodal Agency that TSP has not informed Nodal Agency about such decrease in cost, Nodal Agency may initiate appropriate claim.

12.3 Notification of Change in Law:

12.3.1 If the TSP is affected by a Change in Law in accordance with Article 12.1 and wishes to claim relief for such Change in Law under this Article 12, it shall give notice to Nodal Agency of such Change in Law as soon as reasonably practicable after becoming aware of the same.

12.3.2 The TSP shall also be obliged to serve a notice to the Nodal Agency even when it is beneficially affected by a Change in Law.

12.3.3 Any notice served pursuant to Articles 12.3.1 and 12.3.2 shall provide, amongst other things, precise details of the Change in Law and its estimated impact on the TSP.

12.4 Payment on account of Change in Law

12.4.1 The payment for Change in Law shall be through a separate Bill. However, in case of any change in Monthly Transmission Charges by reason of Change in Law, as determined in accordance with this Agreement, the Bills to be raised by the Nodal Agency after such change in Transmission Charges shall appropriately reflect the changed Monthly Transmission Charges.

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ARTICLE: 13

13 EVENTS OF DEFAULT AND TERMINATION

13.1 TSP's Event of Default

The occurrence and continuation of any of the following events shall constitute a TSP Event of Default, unless any such TSP Event of Default occurs as a result of any non-fulfilment of its obligations as prescribed under this Agreement by the Nodal Agency or a Force Majeure Event:

a. After having taken up the construction of the Project, the abandonment by the TSP or the TSP's Contractors of the construction of the Project for a continuous period of two (2) months and such default is not rectified within thirty (30) days from the receipt of notice from the Nodal Agency in this regard;

b. The failure to commission any Element of the Project by the date falling six (6) months after its Scheduled COD unless extended by Nodal Agency as per provisions of this Agreement;

c. If the TSP:

i. assigns, mortgages or charges or purports to assign, mortgage or charge any of its assets or rights related to the Project in contravention of the provisions of this Agreement; or

ii. transfers or novates any of its obligations pursuant to this Agreement, in a manner contrary to the provisions of this Agreement;

Except where such transfer is in pursuance of a Law and

- it does not affect the ability of the transferee to perform, and such transferee has the financial and technical capability to perform, its obligations under this Agreement;
- is to a transferee who assumes such obligations under the Project and this Agreement remains effective with respect to the transferee;

d. If:

i. The TSP becomes voluntarily or involuntarily the subject of any bankruptcy or insolvency or winding up proceedings and such proceedings remain uncontested for a period of thirty (30) days; or

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ii. any winding up or bankruptcy or insolvency order is passed against the TSP; or

iii. the TSP goes into liquidation or dissolution or a receiver or any similar officer is appointed over all or substantially all of its assets or official liquidator is appointed to manage its affairs, pursuant to Law,

Provided that a dissolution or liquidation of the TSP will not be a TSP's Event of Default, where such dissolution or liquidation of the TSP is for the purpose of a merger, consolidation or reorganization with the prior approval of the State Commission as per the provisions of Karnataka Electricity Regulatory Commission (Licensing) Regulations, 2004 or as amended from time to time; or

e. Failure on the part of the TSP to comply with the provisions of Article 19.1 of this Agreement; or

f. the TSP repudiates this Agreement and does not rectify such breach even within a period of thirty (30) days from a notice from the Nodal Agency in this regard; or

g. g. after Commercial Operation Date of the Project, the TSP fails to achieve monthly Target Availability of 98.5 %, for a period of six(6) consecutive months or within a non-consecutive period of six (6) months within any continuous aggregate period of eighteen(18) months except where the Availability is affected by Force Majeure Events as per Article 11; or

h. any of the representations and warranties made by the TSP in Article 17 of this Agreement being found to be untrue or inaccurate. Further, in addition to the above, any of the undertakings submitted by the Selected Bidder at the time of submission of the Bid being found to be breached or inaccurate, including but not limited to undertakings from its Parent Company / Affiliates related to the minimum equity obligation; or

i. the TSP fails to complete / fulfil all the activities / conditions within the specified period as per Article 3; or

j. except for the reasons solely attributable to Nodal Agency, the TSP is in material breach of any of its obligations under this Agreement and such material breach is not rectified by the TSP within thirty (30) days of receipt of notice in this regard from the Nodal Agency; or

k. the TSP fails to take the possession of the land required or HVDC terminal or inverter stations and/ or fails to pay the

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requisite price to the parties and/ or any State Government authority from whom the land is acquired, within twelve (12) months from the Effective Date.

13.2 Termination Procedure for TSP Event of Default

a. Upon the occurrence and continuance of any TSP's Event of Default under Article 13.1 the Nodal Agency may serve notice on the TSP, with a copy to the Government of Karnataka, STU and the Lenders' Representative, of their intention to terminate this Agreement (a "Nodal Agency's Preliminary Termination Notice"), which shall specify in reasonable detail, the circumstances giving rise to such Nodal Agency's Preliminary Termination Notice.

b. Following the issue of a Nodal Agency's Preliminary Termination Notice, the Consultation Period shall apply and would be for the Parties to discuss as to what steps shall be taken with a view to mitigate the consequences of the relevant Event of Default having regard to all the circumstances.

c. During the Consultation Period, the Parties shall, save as otherwise provided in this Agreement, continue to perform their respective obligations/ roles under this Agreement, and the TSP shall not remove any material, equipment or any part of the Project, without prior consent of the Nodal Agency.

Following the expiry of the Consultation Period, unless the Parties shall have otherwise agreed to the contrary or the circumstances giving rise to Nodal Agency's Preliminary Termination Notice shall have ceased to exist or shall have been remedied, this Agreement may be terminated by the Nodal Agency by giving a Termination Notice to the TSP, in writing, of at least seven (7) days, with a copy to Government of Karnataka, STU and the Lenders' Representative in order to enable the Lenders to exercise right of substitution in accordance with Article 15.3 of this Agreement.

Further, the Nodal Agency may also initiate proceedings to blacklist the TSP & its Affiliates from participation in any RFP issued by BPCs for a period of 5 years.

13.3 Procedure for Nodal Agency's non-fulfilment of Role

a. Upon the Nodal Agency not being able to fulfil its role under Article 4.2, the TSP may serve notice on the Nodal Agency, with a copy to Government of Karnataka, STU and the Lenders' Representative (a "TSP's Preliminary Notice"), which notice shall specify in reasonable detail the circumstances giving rise to such non- fulfilment of role by the Nodal Agency.

b. Following the issue of a TSP's Preliminary Notice, the Consultation Period shall apply.

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c. The Consultation Period would be for the Parties to discuss as to what steps shall be taken with a view to mitigate the consequences of the relevant non-fulfilment of role by the Nodal Agency including giving time extension to TSP, having regard to all the circumstances.

d. During the Consultation Period, both Parties shall, save as otherwise provided in this Agreement, continue to perform their respective obligations/ roles under this Agreement.

13.4 Termination due to Force Majeure

13.4.1 In case the Parties could not reach an agreement pursuant to Articles 3.3.4 and 4.4.2 of this Agreement and the Force Majeure Event or its effects continue to be present, the Nodal Agency shall have the right to cause termination of the Agreement. In case of such termination, the Contract Performance Guarantee shall be returned to the TSP as per the provisions of Article 6.5.1.

13.4.2 In case of termination of this Agreement, the TSP shall provide to the Nodal Agency the full names and addresses of its Contractors as well as complete designs, design drawings, manufacturing drawings, material specifications and technical information, as required by the Nodal Agency within thirty (30) days of Termination Notice.

13.5 Termination or amendment due to non-requirement of any Element or Project during construction

13.5.1 In case any Element or Project, which is under construction, is no longer required due to any reason whatsoever, the Nodal Agency may issue a notice to this effect to the TSP.

13.5.2 Nodal agency may also issue notice to the TSP seeking their response to the proposed termination/ amendment (as the case may be) of the Agreement. The Nodal Agency shall issue copy of such notice to Lenders. In the notice, Nodal Agency shall also include an assessment of the physical progress made by TSP in the Element/ Project (as the case may be) that is no longer required.

13.5.3 The TSP shall neither carry out further investment nor carry out any work on the Element/ Project (as the case may be) that is no longer required after delivery of the notice.

13.5.4 After taking into account the comments of the TSP, the Nodal Agency may terminate the Agreement or amend it if both Parties agree to the amendment.

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13.6 Revocation of the Transmission License

13.6.1 The State Commission may, as per the provisions of the Electricity Act, 2003, revoke the Transmission License of the Licensee. Further, in such a case, the Agreement shall be deemed to have been terminated.

13.7 Termination Payment

13.7.1 If Agreement is terminated on account of Force Majeure Events, non-requirement of any Element or Project during Construction, Nodal Agency's non-fulfilment of Role & TSP's Event of Default, the TSP shall be entitled for Termination Payment equivalent to valuation of Project Assets. Upon payment, the Nodal Agency shall take over the Project Assets.

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ARTICLE: 14

14 LIABILITY AND INDEMNIFICATION

14.1 Indemnity

14.1.1 The TSP shall indemnify, defend and hold the Nodal Agency harmless against:

(a) any and all third party claims, actions, suits or proceedings against the Nodal Agency for any loss of or damage to property of such third party, or death or injury to such third party, arising out of a breach by the TSP of any of its obligations under this Agreement, except to the extent that any such claim, action, suit or proceeding has arisen due to a negligent act or omission, breach of this Agreement or non- fulfilment of statutory duty on the part of Nodal Agency; and

(b) any and all losses, damages, costs and expenses including legal costs, fines, penalties and interest actually suffered or incurred by the Nodal Agency from third party claims arising by reason of:

i. a breach by the TSP of any of its obligations under this Agreement, (provided that this Article 14 shall not apply to such breaches by the TSP, for which specific remedies have been provided for under this Agreement) except to the extent that any such losses, damages, costs and expenses including legal costs, fines, penalties and interest (together to constitute "Indemnifiable Losses") has arisen due to a negligent act or omission, breach of this Agreement or non-fulfilment of statutory duty on the part of the Nodal Agency, or

ii. any of the representations and warranties of the TSP under this Agreement being found to be inaccurate or untrue.

14.1.2 The Nodal Agency shall, in accordance with the Regulations framed by KERC in this regard, indemnify, defend and hold the TSP harmless against:

(a) any and all third party claims, actions, suits or proceedings against the TSP, for any loss of or damage to property of such third party, or death or injury to such third party, arising out of any material breach by the Nodal Agency of any of their roles under this Agreement, except to the extent that any such claim, action, suit or proceeding has arisen due to a negligent act or omission, breach of this Agreement or breach of statutory duty on the part of the TSP, its Contractors, servants or agents; and

(b) any and all losses, damages, costs and expenses including legal

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costs, fines, penalties and interest ('Indemnifiable Losses') actually suffered or incurred by the TSP from third party claims arising by reason of:

i. any material breach by the Nodal Agency of any of its roles under this Agreement (provided that, this Article 14 shall not apply to such breaches by the Nodal Agency, for which specific remedies have been provided for under this Agreement), except to the extent that any such Indemnifiable Losses have arisen due to a negligent act or omission, breach of this Agreement or breach of statutory duty on the part of the TSP, its Contractors, servants or agents or

ii. any of the representations and warranties of the Nodal Agency under this Agreement being found to be inaccurate or untrue.

14.2 Patent Indemnity:

14.2.1

(a) The TSP shall, subject to the Nodal Agency's compliance with Article 14.2.1 (b), indemnify and hold harmless the Nodal Agency and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of whatsoever nature, including attorney's fees and expenses, which the Nodal Agency may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright or other intellectual property right registered or otherwise existing at the date of the Agreement by reason of the setting up of the Project by the TSP.

Such indemnity shall not cover any use of the Project or any part thereof other than for the purpose indicated by or to be reasonably inferred from the Agreement, any infringement resulting from the misuse of the Project or any part thereof, or any products produced in association or combination with any other equipment, plant or materials not supplied by the TSP, pursuant to the Agreement.

(b) If any proceedings are brought or any claim is made against the Nodal Agency arising out of the matters referred to in Article 14.2.1(a), the Nodal Agency shall promptly give the TSP a notice thereof, and the TSP shall at its own expense take necessary steps and attend such proceedings or claim and any negotiations for the settlement of any such proceedings or claim. The TSP shall promptly notify the Nodal Agency of all actions taken in such proceedings or claims.

(c) If the TSP fails to notify the Nodal Agency within twenty-eight (28)

days after receipt of such notice from the Nodal Agency under Article 14.2.1(b) above, that it intends to attend any such proceedings or claim, then the Nodal Agency shall be free to attend the same on their own behalf at the cost of the TSP. Unless the TSP has so failed to notify the Nodal Agency within the twenty eight (28) days period, the Nodal Agency shall make no admission that may be prejudicial to the defence of any such proceedings or claims.

(d) The Nodal Agency shall, at the TSP's request, afford all available assistance to the TSP in attending to such proceedings or claim, and shall be reimbursed by the TSP for all reasonable expenses incurred in so doing.

14.2.2

(a) The Nodal Agency, in accordance with the Regulations framed by KERC in this regard, subject to the TSP's compliance with Article 14.2.2(b) shall indemnify and hold harmless the TSP and its employees, officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs and expenses of whatsoever nature, including attorney's fees and expenses, which the TSP may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright or other intellectual property right registered or otherwise existing at the date of the Agreement by reason of the setting up of the Project by the TSP.

(b) If any proceedings are brought or any claim is made against the TSP arising out of the matters referred to in Article 14.2.2 (a) the TSP shall promptly give the Nodal Agency a notice thereof, and the Nodal Agency shall at its own expense take necessary steps and attend such proceedings or claim and any negotiations for the settlement of any such proceedings or claim. The Nodal Agency shall promptly notify the TSP of all actions taken in such proceedings or claims.

(c) If the Nodal Agency fails to notify the TSP within twenty-eight (28) days after receipt of such notice from the TSP under Article 14.2.2(b) above, that it intends to attend any such proceedings or claim, then the TSP shall be free to attend the same on its own behalf at the cost of the Nodal Agency. Unless the Nodal Agency has so failed to notify the TSP within the twenty (28) days period, the TSP shall make no admission that may be prejudicial to the defence of any such proceedings or claim.

(d) The TSP shall, at the Nodal Agency request, afford all available assistance to the Nodal Agency in attending to such proceedings or claim, and shall be reimbursed by the Nodal Agency for all

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reasonable expenses incurred in so doing.

14.3 Monetary Limitation of liability

14.3.1 A Party ("Indemnifying Party") shall be liable to indemnify the other Party ("Indemnified Party") under this Article 14 for any indemnity claims made in a Contract Year only up to an amount of Rupees 3.49 Crore Only (Rs. Three Crore and Forty Nine Lakh Only).

14.4 Procedure for claiming indemnity

14.4.1 Where the Indemnified Party is entitled to indemnification from the Indemnifying Party pursuant to Articles 14.1 or 14.2 the Indemnified Party shall promptly notify the Indemnifying Party of such claim, proceeding, action or suit referred to in Articles 14.1 or 14.2 in respect of which it is entitled to be indemnified. Such notice shall be given as soon as reasonably practicable after the Indemnified Party becomes aware of such claim, proceeding, action or suit. The Indemnifying Party shall be liable to settle the indemnification claim within thirty (30) days of receipt of the above notice.

Provided however that, if:

i. the Parties choose to contest, defend or litigate such claim, action, suit or proceedings in accordance with Article 14.4.3 below; and

ii. the claim amount is not required to be paid/deposited to such third party pending the resolution of the Dispute,

the Indemnifying Party shall become liable to pay the claim amount to the Indemnified Party or to the third party, as the case may be, promptly following the resolution of the Dispute, if such Dispute is not settled in favour of the Indemnified Party.

14.4.2 The Indemnified Party may contest, defend and litigate a claim, action, suit or proceeding for which it is entitled to be indemnified under Articles 14.1 or 14.2 and the Indemnifying Party shall reimburse to the Indemnified Party all reasonable costs and expenses incurred by the Indemnified Party. However, such Indemnified Party shall not settle or compromise such claim, action, suit or proceedings without first getting the consent of the Indemnifying Party, which consent shall not be unreasonably withheld or delayed.

14.4.3 An Indemnifying Party may, at its own expense, assume control of the defence of any proceedings brought against the Indemnified Party if it acknowledges its obligation to indemnify such Indemnified Party, gives such Indemnified Party prompt notice of its intention to assume control of the defence, and employs an independent legal counsel at its own cost that is reasonably satisfactory to the Indemnified Party.

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14.5 Limitation on Liability

14.5.1 Except as expressly provided in this Agreement, neither the TSP nor the Nodal Agency nor their respective officers, directors, agents, employees or Affiliates (including, officers, directors, agents or employees of such Affiliates), shall be liable or responsible to the other Party or its Affiliates including its officers, directors, agents, employees, successors, insurers or permitted assigns for incidental, indirect or consequential, punitive or exemplary damages, connected with or resulting from performance or non-performance of this Agreement, or anything done in connection herewith, including claims in the nature of lost revenues, income or profits (other than payments expressly required and properly due under this Agreement), any increased expense of, reduction in or loss of transmission capacity or equipment used therefore, irrespective of whether such claims are based upon breach of warranty, tort (including negligence, whether of the Nodal Agency, the TSP or others), strict liability, contract, breach of statutory duty, operation of law or otherwise.

14.5.2 The Nodal Agency shall have no recourse against any officer, director or shareholder of the TSP or any Affiliate of the TSP or any of its officers, directors or shareholders for such claims excluded under this Article. The TSP shall also have no recourse against any officer, director or shareholder of the Nodal Agency, or any Affiliate of the Nodal Agency or any of its officers, directors or shareholders for such claims excluded under this Article.

14.6 Duty to Mitigate

The party entitled to the benefit of an indemnity under this Article 14 shall take all reasonable measures to mitigate any loss or damage which has occurred. If the Party fails to take such measures, the other Party's liabilities shall be correspondingly reduced.

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ARTICLE: 15

15 ASSIGNMENTS AND CHARGES

15.1 Assignments:

15.1.1 This Agreement shall be binding upon, and inure to the benefit of the Parties and their respective successors and permitted assigns. This Agreement shall not be assigned by any Party, except as provided in Article 15.3.

15.2 Permitted Charges:

15.2.1 Neither Party shall create or permit to subsist any encumbrance over all or any of its rights and benefits under this Agreement.

15.2.2 However, the TSP may create any encumbrance over all or part of the receivables, or the Project Assets of the Project in favour of the Lenders or the Lenders' Representative on their behalf, as security for amounts payable under the Financing Agreements and any other amounts agreed by the Parties.

Provided that:

i. the Lenders or the Lenders' Representative on their behalf shall have entered into the Financing Agreements and agreed in writing to the provisions of this Agreement; and

ii. any encumbrance granted by the TSP in accordance with this Article 15.2.2 shall contain provisions pursuant to which the Lenders or the Lender's Representative on their behalf agrees unconditionally with the TSP to release from such encumbrances upon payment by the TSP to the Lenders of all amounts due under the Financing Agreements.

15.2.3 Article 15.2.1 does not apply to:

a. liens arising by operation of law (or by an agreement evidencing the same) in the ordinary course of the TSP developing and operating the Project;

b. pledges of goods, the related documents of title and / or other related documents, arising or created in the ordinary course of the TSP developing and operating the Project; or

c. security arising out of retention of title provisions in relation to goods acquired in the ordinary course of the TSP developing and operating the Project.

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15.3 Substitution Rights of the Lenders

15.3.1 The TSP would need to operate and maintain the Project under the provisions of this Agreement and cannot assign the Transmission License or transfer the Project or part thereof to any person by sale, lease, exchange or otherwise, without the prior approval of the Nodal Agency.

15.3.2 However, in the case of default by the TSP in debt repayments or in the case of default by the TSP as per Article 13 of this Agreement during the debt repayments, the Commission may, on an application from the Lenders, assign the Transmission License to the nominee of the Lenders subject to the fulfilment of the qualification requirements and provisions of the Karnataka Electricity Regulatory Commission (Licensing) Regulations, 2004 and as amended from time to time.

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ARTICLE: 16

16 GOVERNING LAW AND DISPUTE RESOLUTION

16.1 Governing Law:

This Agreement shall be governed by and construed in accordance with the Laws of India. Any legal proceedings in respect of any matters, claims or disputes under this Agreement shall be under the jurisdiction of appropriate courts in Karnataka.

16.2 Amicable Settlement:

16.2.1 Either Party is entitled to raise any claim, dispute or difference of whatever nature arising under, out of or in connection with this Agreement, including its existence or validity or termination or whether during the execution of the Project or after its completion and whether prior to or after the abandonment of the Project or termination or breach of the Agreement by giving a written notice to the other Party, which shall contain:

(i) a description of the Dispute;

(ii) the grounds for such Dispute; and

(iii) all written material in support of its claim.

16.2.2 The other Party shall, within thirty (30) days of issue of notice issued under Article 16.2.1, furnish:

(i) counter-claim and defences, if any, regarding the Dispute; and

(ii) all written material in support of its defences and counter-claim.

16.2.3 Within thirty (30) days of issue of notice by the Party pursuant to Article 16.2.1, if the other Party does not furnish any counter claim or defense under Article 16.2.2, or thirty (30) days from the date of furnishing counter claims or defence by the other Party, both the Parties to the Dispute shall meet to settle such Dispute amicably. If the Parties fail to resolve the Dispute amicably within thirty (30) days from the later of the dates mentioned in this Article 16.2.3, the Dispute shall be referred for dispute resolution in accordance with Article 16.3.

16.3 Dispute Resolution:

All Disputes shall be adjudicated by the State Commission.

16.4 Parties to Perform Obligations:

Notwithstanding the existence of any Dispute and difference referred to

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the State Commission as provided in Article 16.3 and save as the State Commission may otherwise direct by a final or interim order, the Parties hereto shall continue to perform their respective obligations/ roles (which are not in dispute) under this Agreement.

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ARTICLE: 17

17 REPRESENTATION AND WARRANTIES

17.1 Representation and warranties of the Nodal Agency

17.1.1 The Nodal Agency hereby represents and warrants to and agrees with the TSP as follows and acknowledges and confirms that the TSP is relying on such representations and warranties in connection with the transactions described in this Agreement:

a. It has all requisite powers and authority to execute and consummate this Agreement;

b. This Agreement is enforceable against the Nodal Agency in accordance with its terms;

c. The consummation of the transactions contemplated by this Agreement on the part of Nodal Agency will not violate any provision of nor constitute a default under, nor give rise to a power to cancel any charter, mortgage, deed of trust or lien, lease, agreement, license, permit, evidence of indebtedness, restriction, or other contract to which the Nodal Agency is a Party or to which the Nodal Agency is bound, which violation, default or power has not been waived;

17.2 Representation and Warranties of the TSP:

17.2.1 The TSP hereby represents and warrants to and agrees with the Nodal Agency as follows and acknowledges and confirms that the Nodal Agency is relying on such representations and warranties in connection with the transactions described in this Agreement:

a. It has all requisite powers and has been duly authorized to execute and consummate this Agreement;

b. This Agreement is enforceable against it, in accordance with its terms;

c. The consummation of the transactions contemplated by this Agreement on the part of the TSP will not violate any provision of nor constitute a default under, nor give rise to a power to cancel any charter, mortgage, deed of trust or lien, lease, agreement, license, permit, evidence of indebtedness, restriction, or other contract to which the TSP is a Party or to which the TSP is bound which violation, default or power has not been waived;

d. The TSP is not insolvent and no insolvency proceedings have been instituted, nor threatened or pending by or against the TSP;

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e. There are no actions, suits, claims, proceedings or investigations pending or, to the best of the TSP's knowledge, threatened in writing against the TSP at law, in equity, or otherwise, and whether civil or criminal in nature, before or by, any court, commission, arbitrator or governmental agency or authority, and there are no outstanding judgments, decrees or orders of any such courts, commission, arbitrator or governmental agencies or authorities, which materially adversely affect its ability to execute the Project or to comply with its obligations under this Agreement.

17.2.2 The TSP makes all the representations and warranties above to be valid as on the Effective Date of this Agreement.

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ARTICLE: 18

18 INDEPENDENT ENGINEER

18.1 Appointment of Independent Engineer

The Nodal Agency shall appoint an agency/ company as Independent Engineer as per framework provided in the Guidelines for Encouraging Competition in Development of Transmission Projects for selection of Independent Engineer.

18.2 Roles and functions of Independent Engineer

The role and functions of the Independent Engineer shall include the following:

a. Progress Monitoring as required under this Agreement;

b. Ensuring Quality as required under this Agreement;

c. determining, as required under the Agreement, the costs of any works or services and/or their reasonableness during construction phase;

d. determining, as required under the Agreement, the period or any extension thereof, for performing any duty or obligation during construction phase;

e. determining, as required under the Agreement, the valuation of the Project Assets.

f. Assisting the Parties in resolution of Disputes and

g. Undertaking all other duties and functions in accordance with the Agreement.

18.3 Remuneration of Independent Engineer

The fee and charges of the Independent Engineer shall be paid by the Nodal Agency as per terms & conditions of appointment.

18.4 Termination of appointment

18.4.1 The Nodal Agency may, in its discretion, terminate the appointment of the Independent Engineer at any time, but only after appointment of another Independent Engineer.

18.4.2 If the TSP has reason to believe that the Independent Engineer is not discharging its duties and functions in a fair, efficient and diligent manner,

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it may make a written representation to the Nodal Agency and seek termination of the appointment of the Independent Engineer. Upon receipt of such representation, the Nodal Agency shall hold a tripartite meeting with the TSP and Independent Engineer for an amicable resolution, and the decision of Nodal agency is final. In the event that the appointment of the Independent Engineer is terminated hereunder, the Nodal Agency shall appoint forthwith another Independent Engineer.

18.5 Authorised signatories

The Nodal Agency shall require the Independent Engineer to designate and notify to the Nodal Agency up to 2 (two) persons employed in its firm to sign for and on behalf of the Independent Engineer, and any communication or document required to be signed by the Independent Engineer shall be valid and effective only if signed by any of the designated persons; provided that the Independent Engineer may, by notice in writing, substitute any of the designated persons by any of its employees.

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ARTICLE: 19

19 MISCELLANEOUS PROVISIONS

19.1 Equity Lock-in Commitment:

19.1.1 The aggregate equity share holding of the Selected Bidder in the issued and paid up equity share capital of Ryapte Power Transmission Limited shall not be less than Fifty one percent (51%) up to a period of one (1) year after COD of the Project.

Provided that, in case the Lead Member or Bidding Company is holding equity through Affiliate/s, Ultimate Parent Company or Parent Company, such restriction as specified above shall apply to such entities.

Provided further, that in case the Selected Bidder is a Bidding Consortium, the Lead Member shall continue to hold equity of at least twenty six percent (26%) upto a period of one (1) year after COD of the Project and any Member of such Bidding Consortium shall be allowed to divest its equity as long as the other remaining Members (which shall always include the Lead Member) hold the minimum equity specified above.

19.1.2 If equity is held by the Affiliates, Parent Company or Ultimate Parent Company of the Selected Bidder, then, subject to the second proviso to Article 19.1.1, such Affiliate, Parent Company or Ultimate Parent Company shall be eligible to transfer its shareholding in Ryapte Power Transmission Limited to another Affiliate or to the Parent Company / Ultimate Parent Company of the Selected Bidder. If any such shareholding entity, qualifying as an Affiliate / Parent Company / Ultimate Parent Company, is likely to cease to meet the criteria to qualify as an Affiliate / Parent Company / Ultimate Parent Company, the shares held by such entity shall be transferred to another Affiliate / Parent Company / Ultimate Parent Company of the Selected Bidder.

19.1.3 Subject to Article 19.1.1, all transfer(s) of shareholding of Ryapte Power Transmission Limited by any of the entities referred to in Article 19.1.1 and 19.1.2 above, shall be after prior written intimation to the Nodal Agency.

19.1.4 For computation of effective Equity holding, the Equity holding of the Selected Bidder or its Ultimate Parent Company in such Affiliate(s) or Parent Company and the equity holding of such Affiliate(s) or Ultimate Parent Company in Ryapte Power Transmission Limited shall be computed in accordance with the example given below:

If the Parent Company or the Ultimate Parent Company of the Selected Bidder A directly holds thirty percent (30%) of the equity in Ryapte Power Transmission Limited then holding of Selected Bidder A

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in Ryapte Power Transmission Limited shall be thirty percent (30%);

If Selected Bidder A holds thirty percent (30%) equity of the Affiliate and the Affiliate holds fifty percent (50%) equity in Ryapte Power Transmission Limited, then, for the purposes of ascertaining the minimum equity/equity lock-in requirements specified above, the effective holding of Bidder A in Ryapte Power Transmission Limited shall be fifteen percent (15%), (i.e., 30% x 50%)

19.1.5 The provisions as contained in this Article 19.1 shall override the terms of the consortium agreement submitted as part of the Bid.

19.1.6 The TSP shall be responsible to report to Nodal Agency, within thirty (30) days from the occurrence of any event that would result in any change in its equity holding structure from that which existed as on the date of signing of the Share Purchase Agreement. In such cases, the Nodal Agency would reserve the right to ascertain the equity holding structure and to call for all such required documents / information / clarifications as may be required.

19.2 Commitment of maintaining Qualification Requirement

19.2.1 The Selected Bidder will be required to continue to maintain compliance with the Qualification Requirements, as stipulated in RFP Document, till the COD of the Project. Where the Technically Evaluated Entity and/or the Financially Evaluated Entity is not the Bidding Company or a Member in a Bidding Consortium, as the case may be, the Bidding Company or Member shall continue to be an Affiliate of the Technically Evaluated Entity and/or Financially Evaluated Entity till the COD of the Project.

19.2.2 Failure to comply with the aforesaid provisions shall be dealt in the same manner as TSP's Event of Default as under Article 13 of this Agreement.

19.3 Language:

19.3.1 All agreements, correspondence and communications between the Parties relating to this Agreement and all other documentation to be prepared and supplied under the Agreement shall be written in English, and the Agreement shall be construed and interpreted in accordance with English language.

19.3.2 If any of the agreements, correspondence, communications or documents are prepared in any language other than English, the English translation of such agreements, correspondence, communications or documents shall prevail in matters of interpretation.

19.4 Affirmation

The TSP and the Nodal Agency, each affirm that:

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1. neither it nor its respective directors, employees, or agents has paid or undertaken to pay or shall in the future pay any unlawful commission, bribe, pay-off or kick-back; and

2. it has not in any other manner paid any sums, whether in Indian currency or foreign currency and whether in India or abroad to the other Party to procure this Agreement, and the TSP and the Nodal Agency hereby undertake not to engage in any similar acts during the Term of Agreement.

19.5 Severability

The invalidity or enforceability, for any reason, of any part of this Agreement shall not prejudice or affect the validity or enforceability of the remainder of this Agreement, unless the part held invalid or unenforceable is fundamental to this Agreement.

19.6 Counterparts

This Agreement may be executed in one or more counterparts, each of which shall be deemed an original and all of which collectively shall be deemed one and the same Agreement.

19.7 Breach of Obligations/ Roles

The Parties acknowledge that a breach of any of the obligations/ roles contained herein would result in injuries. The Parties further acknowledge that the amount of the liquidated damages or the method of calculating the liquidated damages specified in this Agreement is a genuine and reasonable pre-estimate of the damages that may be suffered by the non-defaulting Party in each case specified under this Agreement.

19.8 Restriction of Shareholders / Owners Liability

19.8.1 Parties expressly agree and acknowledge that none of the shareholders of the Parties hereto shall be liable to the other Parties for any of the contractual obligations of the concerned Party under this Agreement.

19.8.2 Further, the financial liabilities of the shareholder(s) of each Party to this Agreement shall be restricted to the extent provided in the Indian Companies Act, 1956 / Companies Act, 2013 (as the case may be).

19.9 Taxes and Duties:

19.9.1 The TSP shall bear and promptly pay all statutory taxes, duties, levies and cess, assessed/levied on the TSP, its Contractors or their employees that are required to be paid by the TSP as per the Law in relation to the execution of the Project and for providing Transmission Service as per the

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terms of this Agreement.

19.9.2 The Nodal Agency shall be indemnified and held harmless by the TSP against any claims that may be made against the Nodal Agency in relation to the matters set out in Article 19.9.1.

19.9.3 The Nodal Agency shall not be liable for any payment of, taxes, duties, levies, cess whatsoever for discharging any obligation of the TSP by the Nodal Agency on behalf of TSP or its personnel, provided the TSP has consented in writing to the Nodal Agency for such work, for which consent shall not be unreasonably withheld.

19.10 No Consequential or Indirect Losses

The liability of the TSP shall be limited to that explicitly provided in this Agreement. Provided that, notwithstanding anything contained in this Agreement, under no event shall the Nodal Agency or the TSP claim from one another any indirect or consequential losses or damages.

19.11 Discretion:

Except where this Agreement expressly requires a Party to act fairly or reasonably, a Party may exercise any discretion given to it under this Agreement in any way it deems fit.

19.12 Confidentiality

19.12.1 The Parties undertake to hold in confidence this Agreement and RFP Project Documents and not to disclose the terms and conditions of the transaction contemplated hereby to third parties, except:

(a) to their professional advisors;

(b) to their officers, contractors, employees, agents or representatives, financiers, who need to have access to such information for the proper performance of their activities; or

(c) disclosures required under Law,

without the prior written consent of the other Parties.

Provided that, the TSP agrees and acknowledges that the Nodal Agency, may, at any time, disclose the terms and conditions of the Agreement and the RFP Project Documents to any person, to the extent stipulated under the Law and the Competitive Bidding Guidelines.

19.13 Order of priority in application:

Save as provided in Article 2.5, in case of inconsistencies between the terms and conditions stipulated in Transmission License issued by the

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State Commission to the TSP, agreement(s) executed between the Parties, applicable Law including rules and regulations framed thereunder, the order of priority as between them shall be the order in which they are placed below:

- terms and conditions of Transmission License;
- applicable Law, rules and regulations framed thereunder;
- this Agreement;

19.14 Independent Entity:

19.14.1 The TSP shall be an independent entity performing its obligations pursuant to the Agreement.

19.14.2 Subject to the provisions of the Agreement, the TSP shall be solely responsible for the manner in which its obligations under this Agreement are to be performed. All employees and representatives of the TSP or Contractors engaged by the TSP in connection with the performance of the Agreement shall be under the complete control of the TSP and shall not be deemed to be employees, representatives, Contractors of the Nodal Agency and nothing contained in the Agreement or in any agreement or contract awarded by the TSP shall be construed to create any contractual relationship between any such employees, representatives or Contractors and the Nodal Agency.

19.15 Amendments:

19.15.1 This Agreement may only be amended or supplemented by a written agreement between the Parties.

19.16 Waiver:

19.16.1 No waiver by either Party of any default or breach by the other Party in the performance of any of the provisions of this Agreement shall be effective unless in writing duly executed by an authorised representative of such Party.

19.16.2 Neither the failure by either Party to insist on any occasion upon the performance of the terms, conditions and provisions of this Agreement nor time or other indulgence granted by one Party to the other Parties shall act as a waiver of such breach or acceptance of any variation or the relinquishment of any such right or any other right under this Agreement, which shall remain in full force and effect.

19.17 Relationship of the Parties:

This Agreement shall not be interpreted or construed to create an association, joint venture, or partnership or agency or any such other

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relationship between the Parties or to impose any partnership obligation or liability upon either Party and neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

19.18 Entirety:

19.18.1 This Agreement along with its sections, schedules and appendices is intended by the Parties as the final expression of their agreement and is intended also as a complete and exclusive statement of the terms of their agreement.

19.18.2 Except as provided in this Agreement, all prior written or oral understandings, offers or other communications of every kind pertaining to this Agreement or the provision of Transmission Service under this Agreement to the Nodal Agency by the TSP shall stand superseded and abrogated.

19.19 Notices:

19.19.1 All notices or other communications which are required to be given under this Agreement shall be in writing and in the English language

19.19.2 If to the TSP, all notices or communications must be delivered personally or by registered post or facsimile or any other mode duly acknowledged to the addressee below:

Address :

Attention :

Email :

Fax. No. :

Telephone No. :

19.19.3 If to the Nodal Agency, all notices or communications must be delivered personally or by registered post or facsimile or any other mode duly acknowledged to the addresses below:

(i).....[Insert Name of the Nodal Agency]

Address :

Attention :

Email :

Fax. No. :

Telephone No. :

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19.19.4 All notices or communications given by facsimile shall be confirmed by sending a copy of the same via post office in an envelope properly addressed to the appropriate Party for delivery by registered mail. All notices shall be deemed validly delivered upon receipt evidenced by an acknowledgement of the recipient, unless the Party delivering the notice can prove in case of delivery through the registered post that the recipient refused to acknowledge the receipt of the notice despite efforts of the postal authorities.

19.19.5 Any Party may by notice of at least fifteen (15) days to the other Party change the address and/or addresses to which such notices and communications to it are to be delivered or mailed.

19.20 Fraudulent and Corrupt Practices

19.20.1 The TSP and its respective officers, employees, agents and advisers shall observe the highest standard of ethics during the subsistence of this Agreement. Notwithstanding anything to the contrary contained in the Agreement, the Nodal Agency may terminate the Agreement without being liable in any manner whatsoever to the TSP, if it determines that the TSP has, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice in the Bid process. In such an event, the Nodal Agency shall forfeit the Contract Performance Guarantee of the TSP, without prejudice to any other right or remedy that may be available to the Nodal Agency hereunder or subsistence otherwise.

19.20.2 Without prejudice to the rights of the Nodal Agency under Clause 19.20.1 hereinabove and the rights and remedies which the Nodal Agency may have under this Agreement, if a TSP is found by the Nodal Agency to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice during the Bid process, or after the issue of Letter of Intent (hereinafter referred to as LoI), the Nodal Agency may terminate the Agreement without being liable in any manner whatsoever to the TSP. Further, the TSP & its Affiliates shall not be eligible to participate in any tender or RFP issued by any BPC for an indefinite period from the date such TSP is found by the Nodal Agency to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practices, as the case may be.

19.20.3 For the purposes of this Clause 19.20, the following terms shall have the meaning hereinafter respectively assigned to them:

(a) **"corrupt practice"** means (i) the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the actions of any person connected with the Bid process (for avoidance of doubt, offering of employment to or employing or engaging in any

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manner whatsoever, directly or indirectly, any official of the BPC who is or has been associated or dealt in any manner, directly or indirectly with the Bid process or the LoI or has dealt with matters concerning the RFP Project Documents or arising there from, before or after the execution thereof, at any time prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of the BPC, shall be deemed to constitute influencing the actions of a person connected with the Bid Process); or (ii) engaging in any manner whatsoever, whether during the Bid Process or after the issue of the LoI or after the execution of the RFP Project Documents, as the case may be, any person in respect of any matter relating to the Project or the LoI or the RFP Project Documents, who at any time has been or is a legal, financial or technical adviser of the BPC in relation to any matter concerning the Project;

(b) "**fraudulent practice**" means a misrepresentation or omission of facts or suppression of facts or disclosure of incomplete facts, in order to influence the Bid process;

(c) "**coercive practice**" means impairing or harming, or threatening to impair or harm, directly or indirectly, any person or property to influence any person's participation or action in the Bid process;

(d) "**undesirable practice**" means (i) establishing contact with any person connected with or employed or engaged by the BPC with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the Bid process; or (ii) having a Conflict of Interest; and

(e) "**restrictive practice**" means forming a cartel or arriving at any understanding or arrangement among Bidders with the objective of restricting or manipulating a full and fair competition in the Bid process;

19.21 Compliance with Law:

Despite anything contained in this Agreement but without prejudice to Article 12, if any provision of this Agreement shall be in deviation or inconsistent with or repugnant to the provisions contained in the Electricity Act, 2003, or any rules and regulations made there under, such provision shall be deemed to be amended to the extent required to bring it into compliance with the aforesaid relevant provisions as amended from time to time.

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IN WITNESS WHEREOF, THE PARTIES HAVE CAUSED THIS AGREEMENT TO BE EXECUTED BY THEIR DULY AUTHORISED REPRESENTATIVES AS OF THE DATE AND PLACE SET FORTH ABOVE.

1. For and on behalf of TSP

Ryapte Power Transmission Limited New Delhi 110003 Core-4, Scope Complex-7, Lodhi Road

.....

[Signature, Name, Designation and Address]

2. For and on behalf of..... [Insert name of the Nodal Agency]

.....

K.A. Anand

[Signature, Name, Designation and Address]

C.E.E. (P & C)
KPTCL.,

WITNESSES:

1. For and on behalf of

: BPC

.....

[Signature]

Mousha Barua
GM & HOD, PCC PDCL, Bangalore

.....

[Insert, Name, Designation and Address of the Witness]

Gaurav Pant
Manager (Tech)
RECPDCL, Bengaluru

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KPTCL.,

Ryapte Power Transmission Limited New Delhi 110003 Core-4, Scope Complex-7, Lodhi Road

2. For and on behalf of

: Nodal Agency

.....

[Signature]

Chandrashekar Prasad

Controller (P&C)

.....KPTCL, Indhana Bhavana...

Bangalore-560009.

[Insert Name, Designation and Address of the Witness]

30/7/26

GIRISH. V

Superintending Engineer, Elecl., (Planning)
K.P.T.C.L. Indhana Bhavana,
8th Floor, Bengaluru-560009.

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SCHEDULES

Karnataka Power Transmission Corporation Limited

Ryapte Power Transmission Limited

Schedule: 1

Project Description and Scope of Project

Scope of the Project:

Sl. No.	Scope of the Transmission Scheme	Scheduled COD in months from Effective Date
1.	Establishment of 5x500 MVA, 400/220 kV S/s at Ryapte in Tumkur District along with 2x125MVAr 400 kV Bus Reactors • 400/220 kV ICTs: 5 Nos. (5x500 MVA) • 400 kV ICT Bays: 5 Nos. • 400 kV Line bays (along with space provision for switchable line reactors) : 2 Nos. • 125 MVAr, 420 kV Bus reactor – 2 Nos. • 400 kV Bus reactor bay: 2 Nos • 220 kV ICT Bays: 5 Nos • 220 KV line Bay - 8 No. • 220 kV TBC bay – 2 No. • 220 kV BC bay – 2 No • 220 kV Sectionalization bay: 1 set • 400 kv Bus PT bay- 2 Nos • 220 kv Bus PT bay- 4 Nos Space For Future Provision: 1. 400/220 KV ICTs - 5 Nos. 2. 400 KV ICT bay – 5 Nos. 3. 400 kV Bus Reactor: 3 Nos 4. 400 kV Bus Reactor bays : 3 Nos 5. 220 kV ICT Bays: 5 Nos 6. 220 Kv line bays – 8 Nos 7. 400 kV Line bays (along with space provision for switchable line reactors) : 4 Nos.	30 months
2.	400kV DC line (Quad moose conductor) from Prop. 400/220 kV Ryapte Sub-station to Prop. 400/220 kV Doddathaggalli S/s.	
3.	Establishing 3X500 MVA, 400/220kV GIS sub-station at Doddathaggalli (Near Hosakote) along with 2x125 MVAr, 400 kV Bus Reactors. • 400/220 kV ICTs: 3 no. • 400 kV ICT Bays: 3 Nos • 400 kV Line bays : 4 Nos • 125 MVAr, 420 kV Bus reactor – 2 No • 400 kV Bus reactor bay: 2 Nos • 220 kV ICT Bays: 3 Nos • 220 kV Line bays: 6 Nos.	

Sl. No.	Scope of the Transmission Scheme	Scheduled COD in months from Effective Date
	• 220 kV BC bay – 1 No • 400 kv Bus PT bay- 2 Nos • 220 kv Bus PT bay- 2 Nos Future Provision: • 400 kV line bays – 4 Nos. • 400/220 kV ICTs - 2 Nos. • 400 kV ICT bays - 2 Nos • 400 kV Bus Reactor: 2 Nos. • 400 kV Bus Reactor bays: 2 Nos. • 220 kV ICT Bays: 2 Nos • 220 kV Line bays: 4 Nos	
4.	400kV DC line (Quad moose conductor) from Kolar S/s to Prop. 400/220 kV Doddathaggalli Sub-station with following works at Kolar S/s:- *One circuit of Kolar – Doddataggalli 400kV (quad) D/c line may be terminated in existing vacant bay no. 415 at Kolar S/s. Other circuit may be terminated in new GIS diameter with 2-CB scheme. This option requires following main elements:* • *Termination of one circuit in the spare 400kV AIS bay no. 415 by providing required bay equipment to complete the 400kV Dia (413.414 and 415 bays)* • *Construction of 2 nos. 400kV outdoor GIS bays in 2 CB configuration for termination of other circuit* • *Extension of 400kV Main Bus-I and II through GIB duct to proposed 400kV outdoor GIS bays with AIS isolators* • *Dismantling and re-erection of one no. LM ,if required* Further, any requirement suggested by substation owners shall be followed as per site condition.	
5.	220kV DC line with Single Zebra and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions) from proposed 400/220 kV Doddathagalli sub-station to 220kV Ekarajapura sub-station with 2 No.s of AIS TB at Ekarajapura S/s with rearrangement/Shifting of existing Bus PT bay Note: The Tower design shall be suitable for TWIN Zebra.	
6.	220kV DC line with partial AAAC Moose and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions), from proposed 400/220 kV Doddathagalli sub-station to proposed 220kV Hosakote New sub-station.	
7.	220kV DC line with Single Zebra and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions) from proposed 400/220kV	

Sl. No.	Scope of the Transmission Scheme	Scheduled COD in months from Effective Date
	Doddathagalli to Sarjapura AIS S/s with 2 No.s of outdoor GIS TB at Sarjapura S/s by extending existing AIS bus bar along with AIS isolator Note: The Tower design shall be suitable for TWIN Zebra.	

Note:

1. *KPTCL to provide land for the construction of 5x500 MVA, 400/220 kV S/s at Ryapte in Tumkur District.*

   The land will remain under the ownership of KPTCL and a MoU between KPTCL and the TSP shall be executed for use of land.

   Currently, 150 Acres of land is identified for the substation and acquisition of land is under progress. The Land Cost of Rs 33,00,00,000 /- (as fixed by the DC, Tumkuru Dist.) has to be borne by the TSP.

   At the time of execution of work, difference in land cost, if any, shall be borne by the TSP. Further applicable GST & Statutory payments shall be paid by the TSP.

   KPTCL shall hand over possession of the land to the TSP upon completion of the requisite formalities.

2. *KPTCL to provide land for the construction of 3x500 MVA, 400/220 kV GIS sub-station at Doddathagalli in Bangalore Rural District.*

   The land will remain under the ownership of KPTCL and a MoU between KPTCL and the TSP shall be executed for use of land.

   Currently, 16 Acres of land is identified for the substation and acquisition of land is under progress. Onetime Land Cost of Rs 11,20,00,000 /- arrived based on the prevailing guidance value has to be borne by the TSP.

   At the time of execution of work, difference in land cost, if any, shall be borne by the TSP. Further applicable GST & Statutory payments shall be paid by the TSP.

   KPTCL shall hand over possession of the land to the TSP upon completion of the requisite formalities.

3. *TSP to pay onetime charges (arrived as per KPTCL norms based on the prevailing guidance value) for use of land and common infrastructure for bay extension works at the existing Substation of KPTCL as cited below:*

   220kV Sarjapura S/s Rs 2,02,22,250/- (inclusive of GST)

   220kV Ekarajapura S/s Rs6,51,29,338/-(inclusive of GST)

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At the time of execution of work, difference in land cost, if any, shall be borne by the TSP.

Operation and Maintenance (O&M) of the bays constructed by the TSP within existing KPTCL substations shall be undertaken by KPTCL. The O&M charges shall be recovered by KPTCL from TSP as per the rates prescribed by KERC from time to time.

An O&M agreement shall be executed between KPTCL and the TSP in this regard and the agreement will be in line with the Standard Format for Memorandum of Understating between New TSP and Existing TSP" issued by CEA vide its letter No. I/28514/2023 dated 22.06.2023

4. *220 kV Line Bays at Prop. 220kV Hosakote New substation can be utilized for termination of 220 kV Doddathaggalli - Hosakote New substation DC Line.*

The proposed 220kV Hosakote New substation is under bidding process (TBCB MODE), Hence any modalities related to use of land, O&M of bays, and any other applicable charges, TSP may co-ordinate with the successful bidder of Hoskote new Substation

Project Description

As per the Report on "Resource Adequacy Assessment of Karnataka from 2024-25 to 2034-35" about 25GW Solar and 13GW Wind generation capacity along with 6GW BESS needs to be added for which additional long term PPAs are to be signed by ESCOMs. M/s Karnataka Renewable Energy Development Ltd (KREDL), the State Nodal Agency for the Government of Karnataka which identifies, promotes and develops Renewable Energy projects in the state has planned to establish 2GW Solar Park at Ryapte in Pavagada Taluk, Tumakuru District.

The above Transmission Evacuation Scheme is planned for reliable evacuation of power from the proposed 2000MW Ryapte Solar Park.

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SPECIFIC TECHNICAL REQUIREMENTS FOR TRANSMISSION LINE

1. The design, routing and construction of transmission lines shall be in accordance with Chapter V, Part-A of CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations 2022, as amended from time to time. Other CEA Regulations and MoP guidelines, as applicable, shall also be followed.

2. Selection of tower type shall be made as per CEA Regulations, however in case lattice type towers are used, the following shall also be applicable:

2.1 Steel section of grade E 250 and/or grade E 350 as per IS 2062, only are permitted for use in towers, extensions, gantry structures and stub setting templates. For towers in snowbound areas, steel sections shall conform to Grade-C of IS-2062. The minimum size of sections shall be 50 x 50 x 5 for cross arm lower and upper member and 45 x 45 x5 for all other stress carrying members. Use of unequal sections is not permitted. The minimum thickness of angle sections used in the design of towers shall be kept not less than:

6mm: For Main corner leg members including the ground wire peak (including inner & outer members and cross arm).

5mm: For all other members.

2.2 Towers shall be designed as per IS-802:2015, however the drag coefficient of the tower shall be as follows:

Solidity Ratio	Drag Coefficient
Up to 0.05	3.6
0.1	3.4
0.2	2.9
0.3	2.5
0.4	2.2
0.5 and above	2.0

As per Clause 12.1.2.1 b) 2) of IS 802:2015, Under security condition for tension and dead end towers, the transverse loads due to line deviation shall be the component of 100 percent mechanical tension of conductor and ground wire/ OPGW corresponding to 100% of design wind pressure at everyday temperature or 36% design wind pressure at minimum temperature after accounting for drag coefficient and gust response factor. The above loading shall also be considered for design of suspension tower.

Transmission Service Provider (TSP) shall adopt any additional loading/ design criteria for ensuring reliability of the line, if so desired and/ or deemed necessary in accordance with CEA "Technical Standard for Construction of Electrical Plants and Electric Lines" Regulation 2022, as amended from time to time.

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3. Type testing of newly designed fully galvanized towers shall be carried out in CPRI/any other NABL accredited tower testing station in India. The Towers shall be erected in vertical position in the test bed and testing shall be carried out in accordance with IS 802 (part-III) with +6M body extensions. All standard tests, including quality control tests in accordance with relevant IS shall be carried out.

4. For power line crossing of 400 kV or above voltage level, large angle & dead end towers (i.e. D/DD/QD) shall be used on either side of power line crossing (i.e. D/DD/QD- D/DD/QD arrangement).

   For overhead crossing of existing power line of 110/132kV and 220kV voltage level, only (D/DD/QD) angle towers shall be used on either side of power line crossing.

   For power line crossing of 66kV and below voltage level, suspension/tension towers shall be provided on either side of power line crossing depending upon the merit of the prevailing site condition and line deviation requirement.

   For crossing of Railways, National highways and state highways, the rules/regulations of appropriate authorities shall be followed.

5. The conductor configuration shall be as follows:

For transmission lines with ACSR/AAAC/AL59/HPC conductor:

Transmission line	ACSR Conductor specified	Equivalent AAAC conductor based on 53% conductivity of Al Alloy	Equivalent minimum size of AL59 conductor based on 59% conductivity of AL Alloy*	Sub-conductor Spacing
400kV D/C (Quad Moose) transmission lines	Moose: Stranding 54/3.53 mm-Al + 7/3.53 mm-Steel, 31.77 mm diameter 528.5 mm2, Aluminium area, Maximum DC Resistance at 20°C (Ω/km): 0.05552 Minimum UTS: 161.20 kN	Stranding details: 61/3.55 mm 31.95 mm diameter; 604 mm2 Aluminium alloy area Maximum DC Resistance at 20°C (Ω/km): 0.05506 Minimum UTS: 159.80 kN	Stranding details: 61/3.31 mm 29.79 mm diameter; 525 mm2 Aluminium alloy area Maximum DC Resistance at 20°C (Ω/km): 0.0566 Minimum UTS: 124.70 kN	457 mm
220 kV D/C (Zebra) transmission lines	Zebra: Stranding 54/3.18 mm-Al + 7/3.18 mm-Steel, 428 Sq mm, Aluminium area, 28.62 mm diameter	Stranding Details: 61/3.19 mm 28.71 mm diameter; 487.5	Stranding Details: 61/3.08 mm 27.7 mm diameter; 454 sq.mm	NA

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		sq.mm Aluminum alloy area	Aluminium alloy area	
132 kV D/C (Panther) transmission lines	Panther: Stranding 30/3.0 mm-Al + 7/3.0 mm-Steel, 261.5 Sq mm, Aluminium area, 21.05 mm diameter	Stranding Details:37/3.15 mm 22.05mm Diameter; 288.3 Sq.mm Aluminum alloy area	Stranding Details: 37/3.08 mm 21.56mm Diameter; 275.66 Sq.mm Aluminum alloy area	NA

Note:

i. **To select any size above the minimum, the sizes mentioned in the Indian standard IS-398(part-6) shall be followed.*

ii. *The transmission lines shall have to be designed for a maximum operating conductor temperature of 85 deg C for ACSR, 95deg C for AAAC & Al-59.*

6. The High-Performance Conductors (HPC) shall be as per the standard technical specification issued by CEA.

7. The required phase to phase spacing and horizontal spacing for 400kV, 220kV, and 132kV line shall be governed by the tower design as well as minimum live metal clearances for each voltage level respectively under different insulator swing angles. All electrical clearances including minimum live metal clearance, ground clearance and minimum mid span separation between earth wire and conductor shall be as per Central Electricity Authority (Measures Relating to Safety & Electric Supply) Regulations as amended from time to time and IS: 5613.

For 400kV transmission lines:

The minimum live metal clearances for 400 kV D/C transmission lines shall be considered as follows:

i Under stationary conditions : From tower body: 3.05m
ii Under swing conditions:

Wind pressure Condition	Minimum electrical clearance
a) Swing angle (22°)	3.05 mtrs
b) Swing angle (44°)	1.86 mtrs

However, the phase-to-phase spacing for 400kV D/C Line shall not be less than 8m.

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For 220kV Transmission Lines:

The minimum live metal clearances for 220kV D/C transmission lines shall be considered as follows:

i Under stationary conditions : From tower body: 2.13m
ii Under swing conditions:

Wind pressure Condition	Minimum electrical clearance
a) Swing angle (15°)	1.98 mtrs
b) Swing angle (30°)	1.83 mtrs
c) Swing angle (45°)	1.675 mtrs

However, the phase to phase spacing for 220kV D/C Line shall not be less than 5m.

For 132kV Transmission Lines:

The minimum live metal clearances for 132kV D/C transmission lines shall be considered as follows:

i Under stationary conditions: From tower body: 1.53 m
ii Under swing conditions:

Wind pressure Condition	Minimum electrical clearance
a) Swing angle (15°)	1.53 mtrs
b) Swing angle (30°)	1.37mtrs
c) Swing angle (45°)	1.22 mtrs
d) Swing angle (60°)	1.07 mtrs

However, the phase to phase spacing for 132 kV D/C Line shall not be less than 4m.

8. The minimum ground clearance for 400kV D/C transmission lines shall be 8.84m, for 220 kV D/C line shall be 7.015 m and for 132 kV D/C line shall be 6.10 m so that maximum electric field does not exceed 10kV/m within the ROW and does not exceed 5kV/m at the edge of the ROW as per international guidelines.An allowance of 4% of max sag shall be provided to account for errors in stringing.Conductor creep shall be compensated by over tensioning the conductor at a temperature of 26° C lower than the stringing temperature.

9. The minimum mid span separation between earth wire and conductor shall be 9.0 m for 400 kV D/C transmission lines, 8.5 m for 220 kV D/C transmission lines & 6.1 m for 132 kV D/C transmission lines. Shielding angle shall not exceed 20 deg for 400 kV D/C & 30 deg for 220 kV D/C lines and 132 kV D/C lines.

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10. Transposition is to be done for all transmission lines whose length is greater than 100km. Transposition should be carried out at 1/3 and 2/3 of line length tower positions.

11. The switching impulse withstand voltage (wet) for 400kV line shall be 1050kVp. Lightning impulse withstand voltage (dry) for 400kV line shall be 1550kVp, for 220 kV line shall be 1050kVp & for 132kV line shall be 650kVp.

12. The Fault current for design of line shall be 63 kA for 1 sec for 400 kV, 50 kA for 1 sec for 220 kV and 40 kA for 1 sec for 132 kV.

13. Porcelain / Glass / Polymer insulators shall be used in the line as per requirement and site conditions. However, porcelain /glass disc insulators string shall be required to be used for Pilot string irrespective of type of insulators used for suspension/tension location.

14. Each tower shall be earthed such that tower footing resistance does not exceed 10 ohms. Pipe type or Counterpoise type earthing shall be provided in accordance with relevant IS. Additional earthing shall be provided on every 7 to 8 kms distance at tension tower for direct earthing of both shield wires. If site condition demands, multiple earthing or use of earthing enhancement compound shall be used. The line surge arrester, if required, may be used in lightning prone areas.

15. Pile type foundation shall be used for towers located in river or creek bed or on bank of river having scourable strata or in areas where river flow or change in river course is anticipated, based on detailed soil investigation and previous years' maximum flood discharge of the river, maximum velocity of water, highest flood level, scour depth & anticipated change in course of river based on river morphology data of at least past 20 years to ensure availability and reliability of the transmission line.

16. Transmission line route shall be finalized, in consultation with appropriate authorities so as to avoid the habitant zones of endangered species and other protected species. Bird diverters, wherever required or mandated, shall be provided on the line. In order to optimize the route use of GATISHAKTI platform shall also be made.

17. Wherever, transmission lines are passing through cyclone prone areas (i.e. areas up to 60 km from coast)/ creek regions/ aggressive soil areas following shall also be applicable:

a. The fabricated tower parts and stubs shall have a minimum overall zinc coating of 900 g/m2 of surface area except for plates and sections below 5mm which shall have a minimum overall zinc coating of 610g/m2 of surface area. The average zinc coating for all sections and plates 5mm and above shall be maintained as 127 microns and that for plates and sections below 5mm shall be maintained as 87 microns.

b. Ready mix concrete of M30 Grade shall be used to avoid use of locally available saline water. However, design mix concrete of M30 Grade conforming to IS 456 with

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potable water can be used at locations where transportation of ready-mix concrete is not feasible. Minimum cement content in any case shall not be less than 330 kg/m3.

c. The surface of the reinforced steel shall be treated with epoxy-based coating to enhance corrosion performance of foundation. Use of epoxy coated reinforcement in foundation shall be as per IS 13620. In addition, two (2) coats of bituminous painting of minimum 1.6 kg/m2 per coat shall be applied on all exposed faces of foundation (i.e. pedestal and base slab).

d. Double coat 20 mm thick cement plaster shall be provided on all exposed concrete surface as well up to 300 mm below ground level to give protection to concrete surface from environmental and saline effect.

e. Before coping of chimney top portion, three coats of anti-corrosive paint of minimum 30-35 microns dry film thickness each shall be applied on the stub in the 50 mm coping portion as well as up to 350 mm above CL portion.

18. In case of 400kV voltage class lines, at least one out of two earth wires shall be OPGW and second earth wire, if not OPGW, shall be either of galvanized standard steel (GSS) or AACSR or any other suitable conductor type depending upon span length and other technical consideration.

19. The raised chimney foundation is to be provided in areas prone to flooding/water stagnation like paddy field /agricultural field & undulated areas to avoid direct contact of water with steel part of tower. The top of the chimney of foundation should be at least above HFL (High Flood Level) or the historical water stagnation/ logging level (based on locally available data) or above High Tide Level or 500 mm above Natural Ground level (whichever is higher).

20. Transmission line shall be designed considering wind zones as specified in wind map given in National Building Code 2016, Vol.1 and IS:802-2015. The developer shall also make his own assessment of local wind conditions and frequent occurrences of high intensity winds (HIW) due to thunderstorms, dust-storms, downburst etc. along the line route and wherever required, higher wind zone than that given in wind map shall be considered for tower design for ensuring reliability of line. Further, for transmission line sections passing within a distance of 50 km from the boundary of two wind zones, higher of the two wind zones shall be considered for design of towers located in such sections. The other design parameters such as Reliability level, Terrain category etc, are as per IS:802-2015 and CBIP-2014.

21. Routing of transmission line through protected areas of India shall be avoided to the extent possible. In case, it is not possible to avoid protected areas, the towers of the transmission line up to 400 kV levels which are installed in protected areas shall be designed for Multi-circuit (4 circuits) configuration of same voltage level considering reliability level of at least two (2). The top two circuits of these multi-circuit towers shall be used for stringing of the transmission line under present scope and the bottom two

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circuits shall be made available for stringing of any future transmission line of any transmission service providers/ State transmission utilities/Central transmission utilities passing through the same protected area. Further, the configuration and coordinates of such transmission towers shall be submitted to KPTCL and BPC by the TSP.

22. The TSP shall abide by the Guidelines of CEA w.r.t. shifting of transmission lines for NHAI projects and other projects.

23. Safety precautions in regards to gas/oil pipelines in vicinity of Transmission lines shall be taken in coordination with gas/ petroleum authorities.

24. The last span from dead end tower to existing KPTCL substation gantry should be less than 90mtr.

25. In case the LILO of existing line is to be done, and any modification in the existing line is required for the above LILO work the same should be done by the TSP after obtaining necessary approval of KPTCL. Further, the span on either side of LILO points shall be maintained by the TSP.

26. The stringing of the transmission line in forest area shall be carried out through drone.

27. RoW width and Span in different terrain shall be as per Schedule VII of CEA (Technical Standards for Construction of Electrical plants and Electric Lines) Regulations 2022 and RoW guidelines issued vide CEA-PS-14-86/2/2019-PSETD Division dated 24.09.2024.

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SPECIFIC TECHNICAL REQUIREMENTS FOR SUBSTATION

The proposed **400/220kV Substation at Ryapte Substation, Pavagada Taluk, tumkur district shall be AIS type & 400/220kV Doddathagalli Substation (near Hoskote), Bengaluru shall** be GIS type generally conforming to the requirements of CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations 2022, as amended from time to time.

The proposed extension of 220/66 kV Sarjapura & 400kv Kolar S/s shall be GIS type and 220/66 kV Ekrajpura shall be conventional AIS type conforming to the requirements of CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations 2022, as amended from time to time.

Note: The technical Specification for bay extension work at Kolar S/s shall be as per PGCIL.

Other CEA Regulations/guidelines as amended up to date and MoP guidelines, as applicable, shall also be followed.

2.1 Salient features of 400/220 kV Sub Station Equipment and Facilities

The design and specification of substation equipment are to be governed by the following factors:

2.2 Insulation Coordination

420kV System would be designed to limit the Switching over voltage to 2.5 p.u and is expected to decay to 1.5 p.u. in 5 to 6 cycles. Consistent with these values and protective levels provided by lightning arrestors, the following insulation levels shall be adopted for 420kV, 245kV and 36 kV systems:

SL No	Description of parameters	400kV System	220kV System	33kV System
1.	System operating voltage (rms)	400kV	220kV	33kV
2.	Maximum voltage of the system (rms)	420kV	245kV	36kV
3.	Rated frequency	50Hz	50Hz	50Hz
4.	No. of phases	3	3	3
5.	Impulse withstand voltage for - Transformer and reactors - for other Equipment - for insulator strings	 1300 kVP 1425 kVP 1550 kVP	 950 kVP 1050 kVP 1050 kVP	 250kVP 170kVP
6.	Switching surge withstand Voltage	1050 kVP	-NA-	-NA-

7.	Minimum creepage distance - for insulator strings - for other Equipment	13020 mm	7595 mm	900 mm
8.	Max. fault current	63 kA	50 KA	31.5 KA
9.	Duration of fault	1 Sec	1 Sec	3 Sec
10.	Corona extinction voltage	320kV rms	156kV rms	NA

2.3 Switching Schemes

It is essential that the system should remain secured even under conditions of major equipment or bus- bar failure. Sub-stations being the main connection points have large influence on the security of the system as a whole. The selection of the bus switching scheme is governed by the various technical and other related factors. One & Half breaker bus scheme for 400kV system and Double Main and Transfer bus scheme for the 220kV system, have been considered for all proposed **AIS** substations and One & Half breaker bus scheme for 400kV system and Double bus scheme for the 220kV system, have been considered for all proposed **GIS** substations under present scope of work due to their merits in terms of reliability, security, operational flexibility and ease of maintenance of equipments. In 400kV substations, each circuit of a double circuit transmission line shall be terminated in different diameter. Similarly, 400kV ICTs shall also be terminated in different diameter. Accordingly, following switching schemes shall be adopted.

Voltage / Type of Substation	**400kV side**	**220kV side**
GIS Type	One & half breaker	Double bus scheme
AIS Type	One & half breaker	Double main bus and Transfer bus scheme (DMT)

2.4 Substation Equipment and facilities:

The switch-gear shall be designed to withstand operating conditions and duty requirements. The equipment shall be designed considering the transmission line capacity.

Sl. No	**Description of Bay**	**400kV**	**220kV**
1	Bus Bar	4500A	3500A
2	Line bays	3150A	1600A
3	ICT bays	3150A	1600A (for 400/220kV)
4	Bus Reactor bays	2000A	NA
5	Bus coupler bays	NA/4500A	3500A
6	Transfer Bus Coupler bay	NA	1600 A

2.5 Power Transformer

500MVA, 400/220/33kV 3-Phase Auto Transformer shall conform to CEA's "Standard Specifications and Technical Parameters for Transformers and Reactors (66 kV and above)" available on CEA website.

2.6 Shunt Reactors

125 MVAR, 420 KV, 3-Phase Reactor shall conform to CEA's "Standard Specifications and Technical Parameters for Transformers and Reactors (66 kV and above)" available on CEA website.

A. Controlled Switching Device at Bus & Line Reactor

The controlling relay shall record and monitor the switching operations and make adjustments to the switching instants to optimize the switching behavior as necessary. It shall provide self-diagnostic facilities, signaling of alarms and enable downloading of data captured from the switching events.

The controller shall be designed to operate correctly and satisfactorily with the excursion of auxiliary A/C & DC voltages and frequency as specified below:

Normal Voltage	Variation in Voltage	Frequency in Hz	Phase/Wire	Neutral Connection
415V	±10%	50±5%	3/4 Wire	Solidly Earthed
240V	±10%	50±5%	1/2 Wire	Solidly Earthed
220V	190V to 240V	DC	-	Isolated 2 wire system

The controller shall meet the requirements of IEC-60255-4 Appendix 'E' class III regarding HF disturbance test, and fast transient test shall be as per IEC-61000 – 4 level III and insulation test as per 60255 – 5.

2.7 Gas Insulated Switchgear: Refer Technical specification for SF6 gas insulated metal enclosed switchgear (GIS).

2.8 SF6 Circuit Breakers (AIS)

The circuit breakers and accessories shall conform to IEC: 62271-100, IEC: 62271-01 and shall be of SF6 Type. The circuit breakers shall be class C2-M2 (as per IEC) with regard to restrike probability during capacitive current breaking and mechanical endurance. The rated break time shall not exceed 40 ms for 400kV circuit breakers and 60 ms for 220kV circuit breakers. 400kV and 220kV Circuit breakers shall be provided with single phase and three phase auto reclosing. The Circuit breakers controlling 400kV lines wherever required shall be provided with pre insertion closing

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resistor of about 450 ohms maximum with 8 milliseconds minimum insertion time for lines longer than 200km. The short line fault capacity shall be same as the rated capacity and this is proposed to be achieved without use of opening resistors. 400kV Circuit Breaker shall be equipped with controlled switching device for controlling of transformer and shunt reactor. The controlled switching device
shall be provided in 400kV Circuit breakers of switchable line reactor bay and in Main & Tie bay circuit breakers of line with non- switchable line reactors, Bus reactors and ICTs. All the type test shall be done as per relevant IEC/IS standard. And validity of Type test report shall confirm to CEA guidelines.

The Technical Particulars / Parameters of Circuit Breakers:

Sl. No.	Parameter	400kV system	220kV system
1.	Rated voltage (Umax) kV (rms)	420	245
2.	Rated frequency (Hz)	50	50
3.	No. of poles	3	3
4.	Type of circuit breaker	SF6 gas insulated	SF6 gas insulated
5.	Rated continuous current (A) at an ambient temperature of 50°. C	3150	3150
6.	Rated short circuit capacity with percentage of DC component as per IEC-62271-100 corresponding to minimum opening time under operating conditions specified.	63kA	50 kA
7.	Symmetrical interrupting capability (rms)	63kA	50 kA
8.	Rated short circuit making current	157.5 kAp	125 kAp
9.	Short time current carrying capability (rms)	63 for one second	50 for one second
10.	Out of phase breaking current carrying capability (rms)	15.75	As per IEC
11.	Rated line charging interrupting current at 90°. Leading power factor angle (rms) (The breaker shall be able to interrupt the rated line charging current with test voltage immediately before opening equal to the product of U/√3 and 1.4 as per IEC-62271-100	600 A	As per IEC

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12.	First pole to clear factor	1.3	1.3
13.	Temperature rise over an ambient temperature of 50°C	As per IEC: 62271-100	As per IEC: 62271-100
14.	Rated break time as IEC (with limiting auxiliary voltage at all duties)	40 ms	60 ms
15.	Total break time	40ms	50ms
16.	Total closing time	Not more than 110ms	Not more than 100ms
17.	Operating mechanism or a combination of these	Spring	Spring
18.	Rated operating duty cycle	O-0.3s-CO-3 min-CO	O-0.3s-CO-3 min-CO
19.	Reclosing	Single phase &Three phase auto reclosing.	Single phase &Three phase auto reclosing.
20.	Pre-insertion resistor requirement		
i)	Rating (ohms)	400(max.) with tolerance as applicable	NA
ii)	Minimum electrical (mechanical insertion time+pre-arcing time) pre-insertion time (ms)	8	NA
iii)	Opening of PIR contacts	PIR contacts should open immediately after closing of main contacts OR At least 5 ms prior to opening of main contacts at rated air/gas pressure where the PIR contacts remain closed.	NA
21.	Max. difference in the instants of closing/opening of contacts (ms) between poles at rated control voltage and rated operating & quenching media pressures	2.5 (within a pole) 3.3(opening) 5.0 (closing)	3.3(opening) 5.0(closing)
22.	Maximum allowable switching over voltage under any switching condition	2.3 p.u.	As per IEC
23.	Trip coil and closing coil voltage with variation as specified	220V DC	220V DC

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24.	Noise level at base and up to 50 m distance from base of circuit breaker	140dB (max.)	140dB (max.)
25.	Rating of Auxiliary contacts	10A	10A
26.	Breaking capacity of Aux. Contacts	10A DC with circuit time constant not less than 20ms	10A DC with circuit time constant not less than 20ms
27.	Rated insulation levels		
i)	Full wave impulse withstand (1.2 /50 µs) between line terminals and ground	±1425 kVp	±1050 kVp
ii)	Full wave impulse withstand (1.2 /50 µs) between terminals with circuit breaker open	1425 kVp impulse on one terminal & 240 kVp power frequency voltage of opposite polarity on the other terminal	±1050 kVp
iii)	Rated switching impulse withstand voltage (250/2500 µs) Dry & wet between line terminals and ground	+1050 kVp .	NA
iv)	Rated switching impulse withstand voltage (250/2500 µs) Dry &wet Between terminals with circuit breaker open voltage of opposite polarity on the other terminal	900 kVp impulse on one terminal & 345 kVp power frequency	NA
v)	One minute power frequency dry withstand voltage between line terminals and ground	520 kV rms.	460 kV rms.
vi)	One minute power frequency dry withstand voltage between terminals with circuit breaker open	610 kV rms.	460 kV rms.
28.	Minimum corona extinction voltage with CB in all positions	320kV rms	156 kV rms
29.	Max. radio interference voltage for frequency between 0.5 MHz and 2 MHz (Micro volts)	1000 µV (at 266kV rms)	1000 µV (at 156kV rms)
30.	Minimum Creepage distance		
i)	Phase to ground (25mm/kV)	13020mm	7595mm
ii)	Between CB terminals	13020mm	7595mm
31.	Rated capacitance current switching duty	C2	C2
32.	Rated Mechanical Endurance duty	M2	M2

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2.9 Isolators (AIS)

The isolators shall comply to IEC 62271-102 in general. 400kV& 220kV isolators shall be double break type. All Isolators and earth switches shall be motor operated. Earth switches are provided at various locations to facilitate maintenance. Isolator rated for 400kV & 220kV shall be of extended mechanical endurance class-M2 and suitable for bus transfer current switching duty as per IEC-62271-102 Main blades and earth blades shall be interlocked and interlock shall be fail safe type. 400kV & 220kV earth switch for line isolator shall be suitable for induced current switching duty as defined for Class-B as per relevant standard. All the type test shall be done as per relevant IEC/IS standard. And validity of Type test report shall confirm to CEA guidelines.

The Technical Particulars / Parameters of Isolators:

Sl. No.	Description	Unit	420kV Isolator	245kV Isolator
1	Rated voltage	kVrms	420	245
2	Rated frequency	Hz	50	50
3	No. of poles	Nos.	3	3
4	Design ambient Temperature	°C	50	50
5	Type		Outdoor, AC Motor Operated	Outdoor, AC Motor Operated
6	Rated current at 50°. C ambient temperature	A	2000A/3150A (as applicable)	1600A/2500A (as applicable)
7	Rated short time withstand current of isolator and earth switch	kA	63 for 1 sec	50 for 1 sec
8	Rated dynamic short time withstand current of isolator and earth switch	kAp	157.5 kAp	125 kAp
9	Temperature rise over design ambient temperature	-	-	-
10	Operating mechanism of isolator/earth switch		A.C. Motor operated	A.C. Motor operated
11	Max. Operating time	secs	20 secs or less	12 secs or less
12	Rated Insulation levels			

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a)	Full wave impulse Withstand voltage (1.2/50 microsec.)			
i)	between line terminals and ground	kVp	±1425	±1050
ii)	between terminals with isolator open	kVp	±1425 kVp impulse on one terminal and 240 kVp power frequency voltage of opposite polarity on other terminal	±1200
b)	Switching impulse Withstand voltage (250/2500 micro- second) dry and wet			
i)	between line terminals and ground	kV peak	± 1050	-NA
ii)	between terminals with Isolator open	kV peak	900 kVp impulse on one terminal and 345 kVp power frequency voltage of opposite polarity on other Terminal	-NA
c)	One minute power frequency dry withstand voltage			
i)	between line terminals and ground	kV rms	520	460
ii)	between terminals with isolator open	kV rms	610	530
13	Minimum Corona extinction voltage with Isolator in all positions	kV rms	320	156

14	Max. radio interference Voltage for frequency between0.5 MHz and 2 MHz in all positions	Micro volts	500 at 320 kVrms	500 at 156 kVrms
15	Seismic acceleration		As per	As per
			IS:1893	IS:1893
16	Thermal Rating of Auxiliary Contacts	A	10 A at 220V DC	10 A at 220V DC
17	Breaking Capacity of auxiliary contacts		2 A DC with circuit time constant not less than 20 ms	2 A DC with circuit time constant not less than 20 ms
18	System neutral earthing		Effectively Earthed	Effectively Earthed

2.10 Current Transformers (AIS)

Current Transformers shall comply with IEC 61869. All ratios shall be obtained by secondary taps. Generally, Current Transformers (CT) for 400kV & 220 kV shall have six cores (four for protection and two for metering). The burden and knee point voltage shall be in accordance with the requirements of the system including possible feeds for telemetry. Accuracy class for protection core shall be PS and for metering core it shall be 0.2S. The rated burden of cores shall be closer to the maximum burden requirement of metering & protection system (not more than 20VA for metering core) for better sensitivity and accuracy. The instrument security factor shall be less than 5 for CTs upto 400 kV voltage class. All the type test shall be done as per relevant IEC/IS standard. And validity of Type test report shall confirm to CEA guidelines.

The Technical Particulars / Parameters of Current Transformers:

Sl. No.	Description	400kV system	220kV system
1	Rated voltage, Um (kVrms)	420	245
2	Rated frequency (Hz)	50	50
3	No. of Poles	1	1
4	Design ambient temperature (°C)	50	50

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5	Rated Primary Current (A)	• 3000-2000/1A • 2000-1000-500/1A	(i) 1600-800/1A (ii) 3000-2000/1A
6	Rated extended primary Current	125%	125%
7	Rated short time thermal withstand current (kA)	63 for 1 sec	50 for 1 sec
8	Rated dynamic current	157.5 kAp	125 kAp
i)	between line terminals and ground (kVpeak)	±1425	±1050
i)	between line terminals and ground (kVpeak)	± 1050	-NA-
i)	between line terminals and ground (kVrms)	630 (dry only)	460
9	No. of Cores	6 (4 nos. for Protection & 2 nos. for metering)	6 (4 nos. for Protection & 2 nos. for metering)

2.11 Capacitor Voltage Transformers (CVT)/Potential Transformers (PT)

Capacitive Voltage transformers shall comply to IEC-61869. These shall have three secondaries out of which two shall be used for protection and one for metering. Accuracy class for protection cores shall be 3P and for metering core shall be 0.2. The voltage transformers on lines shall be suitable for Carrier Coupling. The Capacitance of CVT shall be 4400/8800 pF depending on PLCC requirements. The rated burden of cores shall be closer to the maximum burden requirement of metering & protection system (not more than 100 VA for metering core) for better sensitivity and accuracy. All the type test shall be done as per relevant IEC/IS standard. And validity of Type test report shall confirm to CEA guidelines.

The Technical Particulars / Parameters of Capacitor Voltage Transformers:

Sl. No.	Description	420kV CVT	245kV CVT
1	Rated primary voltage (kV rms)	420	245
2	Rated frequency (Hz)	50	50
3	No. of Poles	1	1
4	Design ambient temperature (°C)	50	50

5	System fault level (kA for 1 sec)	63 for 1 sec	50 for 1 sec
6	Standard reference range of frequencies for which the accuracy are valid	96% to 102%for protection and 99% to 101 % for measurement	
7	High frequency capacitance for entire carrier frequency range (for CVT only)	Within 80% to 150% of rated capacitance	
8	Equivalent series resistance over entire carrier frequency range (for CVT)	Less than 40 Ohms	
9	Stray capacitance and stray conductance of HF terminal over entire carrier frequency range (for CVT)	As per IEC-60358	
10	Temperature rise over design ambient temperature	As per IEC-61869	
11	Rated Insulation levels		
a)	Full wave impulse withstand voltage (1.2/50 microsec.)		
i)	Between line terminals and ground	±1425 kVp	±1050kVp
b)	Switching impulse withstand voltage (250/2500 micro-second) dry and wet		
i)	Between line terminals and ground	±1050 kVp	-NA-
c)	One minute power frequency dry withstand voltage		
i)	between line terminals and ground (kVrms)	630 (dry only)	460
d)	One minute power frequency withstand voltage between secondary terminals & earth		
i)	Between LV (HF) terminal and earth terminal (kVrms)	10kV rms for exposed terminals and 4kV rms for terminals enclosed in a weather proof box	
ii)	For secondary winding	3kVrms	
12	Max. radio interference voltage for frequency between 0.5 MHz and 2 MHz at (microvolts)	1000 at 266kV rms	1000 at 156kV rms

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13	Minimum Corona extinction voltage (kVrms)	320	176
14	Partial Discharge	As per IEC	As per IEC
15	Type	Single phase Electromagnetic or Capacitor VT	
16	No. of secondaries	3 cores	3 cores
17	Rated voltage factor	1.2 - continuous 1.5 - 30seconds	1.2 - continuous 1.5 - 30seconds
18	Phase angle error	± 10 minutes (For metering core)	± 10 minutes (For metering core)
19	Capacitance (pf) (for CVT)	8800/4400 (+10%/-5%)	8800/4400 (+10%/-5%)
20	Core details	Core-1, Core-2 & Core-3	Core-1, Core-2 & Core-3
a)	Voltage Ratio	Core-1:-(400/√3)/ (0.11/√3) Core-2:-(400/√3)/ (0.11/√3) Core-3:-(400/√3)/ (0.11/√3)	Core-1:-(220/√3)/ (0.11/√3) Core-2:-(220/√3)/ (0.11/√3) Core-3:-(220/√3)/ (0.11/√3)
b)	Application	Core-1:- Protection Core-2:- Protection Core-3:-Metering	Core-1:- Protection Core-2:- Protection Core-3:-Metering
c)	Accuracy	Core-1:-3P Core-2:-3P Core-3:- 0.2	Core-1:-3P Core-2:-3P Core-3:- 0.2
d)	Min. Output burden (VA)	Core-1:- 100VA Core-2:-100VA Core- 3:- 100VA	Core-1:- 100VA Core-2:-100VA Core- 3:- 100 VA
21	Rated Total Thermal Burden (VA)	300 VA (100 VA/winding)	
22.	Minimum Cantilever Strength	500kg	

2.12 Surge Arresters (AIS)

Station class, heavy duty gapless type Surge arresters conforming to IEC 60099-4 in general shall be provided. The rated voltage of Surge arrester and other characteristics are chosen in accordance with system requirements. Surge

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arresters shall be provided near line entrances, Transformers & Reactor so as to achieve proper insulation coordination. Porcelain/Polymer housing if provided for SA shall be fitted with pressure relief devices and diverting ports suitable for preventing shattering of Porcelain/Polymer housing provide path for the flow of rated currents in the event of arrestor failure. A leakage current monitor with surge counter shall be provided with each surge arrestor. All the type test shall be done as per relevant IEC/IS standard. And validity of Type test report shall confirm to CEA guidelines.

The Technical Particulars / Parameters of Surge Arresters:

Sl. No.	Description	Unit	420kV SA	245kV SA
1	Nominal System Operating voltage	kV, rms	400	220
2	Rated frequency	Hz	50	50
3	No. of Poles	No.	1	1
4	Design ambient Temperature	°C	50	50
5	Rated arrester voltage	kV	336	198
6	Continuous operating voltage at 50°.C	kV	390	216
7	Nominal discharge current		20 kA of 8/20 microsecond wave	10 kA of 8/20 microsecond wave
8	Discharge current at which insulation co-ordination will be done		20 kA of 8/20 microsecond wave	10 kA of 8/20 microsecond wave
9	Minimum discharge capability (referred to rated arrester Voltage) or Corresponding to minimum discharge voltage as per clause-2.0(d) whichever is higher	kJ/kV	12kJ/kV	7kJ/kV
10	Max. switching surge residual voltage	kVp	670 (at 2kA) 650 (at 500A)	500 (at 1kA)
11	Max. residual voltage at			

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i)	5kA	kVp	-	560
ii)	10kA nominal discharge current	kVp	800	480
iii)	20kA nominal discharge current	kVp	850	-
12	Cantilever Strength (for 1 minute withstand test)	kg	1000	1000

2.13 Protection & Control

The protective relaying system proposed to be provided for transmission lines, auto-transformers, reactors and bus bars to minimize the damage to the equipment in the events of faults and abnormal conditions, is dealt in this section. All main protective relays shall be numerical type with IEC 61850 (Edition-I &II, site selector) communication interface. All numerical relays shall have built in disturbance recording feature. The auto transformer protection should be provided with two no. differential relays of different make &algorithm.

The protection circuits and relays of transformer and reactor shall be electrically and physically segregated into two groups each being independent and capable of providing uninterrupted protection even in the event of one of the protection groups failing, to obtain redundancy, and to take protection systems out for maintenance while the equipment remains in service.

a) Transmission Lines Protection

400kV and 220kV lines shall have MAIN-I numerical four zones distance protection scheme with carrier aided inter-tripping feature. The fourth zone shall be the reverse zone. 400 kV and 220 kV lines shall also have MAIN-II numerical distance protection scheme like Main-I but from different make that of MAIN-I. However, Line Current Differential relay (with back up distance protection feature) as Main–I & Main-II may be considered, for short lines (line length less than 10 kM) having Fibre Optic communication link for which line differential relay have to be provided for remote end also. In case of loop in loop out of transmission lines, the existing protection scheme shall be studied and suitable up-gradation (if required) shall be carried out. The Main-I and Main-II protection relays of same make may be provided only if they are of different hardware, manufacturing platform or different principle of operation. Associated power & control cabling and integration with SAS at remote end shall be provided by respective bay owner.

All 400kV lines shall also be provided with two stages over voltage protection. Further, all 400kV & 220kV lines shall be provided with single and

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three phase auto-reclosing facility to allow reclosing of circuit breakers in case of transient faults. These lines shall also be provided with distance to fault locators to identify the location of fault on transmission lines.

Over voltage protection & distance to fault locator may be provided as in-built feature of Main-I & Main- II protection relays. Auto reclose as built in function of Bay Control Unit (BCU) is also acceptable.

The Main-I and Main-II protection relays shall be fed from separate DC sources and shall be mounted in separate panels. For 400kV and 220kV transmission lines, directional IDMT earth fault relay should be provided as standalone unit or in-built feature of Main-I and Main -II feature.

b) Auto Transformer Protection/Transformer protection:

These shall have the following protections:

(i) Numerical Differential protection (400/220/11 kV shall have two differential protection relays. The second differential relay shall be provided on IV side C&R panel to avoid congestion on HV side C&R panel. The differential relay shall have different make and algorithm.)
(ii) Numerical Restricted earth fault protection
(iii) Numerical Over-current and earth fault protection on HV & IV side
(iv) Numerical Over fluxing protection on HV & IV side
(v) Numerical Overload alarm
(vi) Neutral displacement

Further, Numerical Back-up Over-current and earth fault protection on HV & IV side of auto- transformer shall not be combined with other protective functions in the main relays and shall be independent relays. Besides these, power transformers shall also be provided with BUCHOLZ relay, protection against high oil and winding temperature and pressure relief device, OSR etc. The auto transformer protection should be provided with two no. differential relays of different make & algorithm.

Suitable monitoring, control (operation of associated circuit breaker & isolator) and protection for LT auxiliary transformer connected to tertiary winding of auto- transformer for the purpose of auxiliary supply shall be provided. The Over current and other necessary protection shall be provided for the auxiliary transformer. These protection and control may be provided as built in feature either in the bay controller to be provided for the auxiliary system or in the control & protection IEDs to be provided for autotransformer.

c) 400 kV Reactor Protection

Reactor shall be provided with the following protections:

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(i) Numerical Differential protection.
(ii) Numerical Restricted earth fault protection
(iii) Numerical Back-up impedance protection
(iv) Numeric back up – over current & Earth fault protection

Besides these, reactors shall also be provided with Buchholz relay, protection against oil and winding temperatures & pressure relief device etc.

d) Numerical Bus Bar Protection

The high speed low impedance bus bar differential protection, which is essential to minimize the damage and maintain system stability at the time of bus bar faults, shall be provided for 400kV and 220kV buses. Duplicated bus bar protection is envisaged for 400kV bus-bar protection. Bus bar protection scheme shall be such that it operates selectively for each bus and incorporate necessary features required for ensuring security. The scheme shall have the complete bus bar protection for present as well for present as well as for future bays envisaged i.e. input / output modules for future bays shall also be provided. Bus bar protection system for new substation shall be de-centralized (distributed) type. For existing substations, the existing bus bar protection shall be augmented wherever required.

e) Numerical Local Breaker Back up Protection

This shall be provided for each 400kV and 220kV breakers and will be connected to de-energize the affected stuck breaker from both sides.

2.14 Control Concept

All the EHV breakers in substation/switching stations shall be controlled and synchronized from the switchyard control room and remote control center. Each breaker would have two sets of trip circuits which would be connected to separately fused DC supplies for greater reliability. All the isolators shall have control from remote/local whereas the earth switches shall have local control only.

2.15 Substation Automation System

(a) For all the new substations, state of art Substation Automation System (SAS) conforming to IEC- 61850 (Edition-I & II site selectable) shall be provided. The distributed architecture shall be used for Substation Automation System, where the controls shall be provided through Bay control units. The Bay Control Unit is to be provided bay wise for voltage level 220 kV and above. All bay control units as well as protection units are normally

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connected through an Optical fibre high speed network. The control and monitoring of circuit breaker, dis-connector, re-setting of relays etc can be done from redundant Human Machine Interface (HMI) from the Control Room. Additionally IEC 61850 based annunciator system shall be provided for backup.

The functions of control, annunciation, disturbance recording, event logging and measurement of electrical parameters shall be integrated in the Substation Automation System.

At new substations, the Substation Automation System (SAS) shall be suitable for the operation and monitoring of the complete substation including proposed future bays/elements.

In the existing substations with a Substation Automation System (SAS), augmentation of existing SAS shall be done for bays under the present scope.

In the existing Substations where Substation automation is not provided, control functions shall be done through control panels & also interfaced to existing RTU/SCADA.

Necessary gateway and modems (as required) shall be provided to send data to RLDC/ SLDC as per their requirement and shall be provisioned with 2+2 redundancy i.e. 2 channels for Main Control Centre and 2 channels for Backup Control Centre. In order to meet this requirement, suitable redundancy at port and card level need to be ensured by the TSP to avoid any single point of failure which may lead to interruption in real-time grid operation. Accordingly, all the hardware for communication services of station as stated above shall support dual redundancy for data transmission of station to respective main and backup RLDCs. Any augmentation work at RLDC/ SLDC is in TSP's scope. However, all the configuration work at substation end required to send data to RLDC/ SLDC shall be in the scope of TSP.

(b) Time Synchronisation Equipment

Time synchronization equipment complete in all respect including antenna, cable and processing equipment required to receive time signal through GPS or from National Physical Laboratory (NPL) through INSAT shall be provided at new substations. This equipment shall be used to synchronize SAS and IEDs etc.

2.16 Substation Support facilities

Certain facilities required for operation & maintenance of substations as described below shall be provided in new substation. In existing substation, these facilities have already been provided and would be extended/

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augmented, wherever required.

2.17 AC & DC power supplies

For catering to the requirements of three phase & single phase AC supply and DC supply for various substation equipment's, the following arrangement is envisaged. However, for substation extension / augmentation, existing facilities shall be augmented as required –

i) For LT Supply at 400/220kV New Substation, one (1) no. 630kVA, 11/0.433kV Transformers shall be provided which shall be connected with 11kV bus of nearby substation and one (1) no. 1MVA, 33/0.433kV on tertiary of 400/220/33kV Auto-transformer. The maximum permissible losses shall be as per Table 6 of IS-1180.

ii) Metering arrangement with Special Energy Meters (SEMs) shall be provided by TSP at 33kV tertiary of Transformer for drawing auxiliary supply at new substation. Such SEMs may be provided by STU at the cost of the TSP. Accounting of such energy drawn by the TSP shall be done by SLDC as part of State Energy Accounting. Additionally, Active Energy Meters may be provided at the same point in the 33kV tertiary of Transformer by local SEB/DISCOM for energy accounting,

iii) 2 Sets batteries of 220V for control & protection and 2 Sets 48V batteries for PLCC/ Communication equipment shall be provided at each new Substation with at least 10 hours battery backup and extended back up as required. Each battery bank would have a float-cum- boost charger. Battery shall be of plante type.

iv) Suitable AC & DC distribution boards and associated LT Switchgear would be provided at new Substations. Sizing of LT Switchgear shall be suitable to cater the requirement for all present and future bays. AC & DC distribution boards shall have modules for all the present and future feeders as specified.

For Substation Extensions, existing facilities shall be augmented as required. For new substations following switchboards shall be considered with duplicate supply with bus coupler/ sectionalizer and duplicate outgoing feeders except for Emergency lighting distribution board which shall have only one incoming feeder:

(a) 415V Main Switch board – 1 no.
(b) AC distribution board – 1 no.
(c) Main lighting distribution board – 1no.
(d) Emergency lighting distribution board – 1no.
(e) 220 Volt DC distribution board – 2nos.
(f) 48 Volt DC distribution board – 2nos.

415V Main Switch Board & AC distribution board shall be provided with at least two incomers with one bus coupler and AC supply shall have redundancy.

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v) In new Substations, one No. 250 KVA DG set shall be provided for emergency applications.

vi) Sizing of Auxiliary system (like battery, charger, LT switchgear) may be done considering future bay requirements to avoid replacement in future with higher sizes.

2.18 Fire Fighting System

Fire-fighting system in general conforms to fire insurance regulations of India. The fire-fighting system is proposed with both AC motor & diesel engine driven pump house in a fire fighting pump house building along with water storage tank of adequate capacity and oil soak pit of adequate capacity in line with Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022 to drain transformer oil in case of fire or otherwise. Automatic heat actuated emulsifying system to be provided for fire protection of Transformers. However, Nitrogen Injection Fire Protection System (NIFPS) shall be required for 400 kV and 220 kV Class Transformers. In addition, for alarm system based on heat/smoke detectors are proposed to be installed at sensitive points in a substation e.g. Cable Vault, Control Room building and other buildings etc. Further, adequate water hydrants and portable fire extinguishers shall be provided in the substations. The main header of firefighting system shall be suitable for extension to bays covered under the future scope; necessary piping interface in this regard shall be provided.Optical Beam type heat detection for GIS hall fire protection system shall be provided for all the GIS halls. All fire protection system shall also comply with the requirement of CEA (Measures Relating to Safety & Electric Supply) regulations.

2.19 Oil evacuating, filtering, testing & filling apparatus

To monitor the quality of oil for satisfactory performance of transformers, shunt reactors and for periodical maintenance necessary oil evacuating, filtering, testing and filling apparatus would be provided at new substations. Oil tanks of adequate capacities for storage of transformer oil would be provided.

2.20 Illumination

Normal & emergency AC & DC illumination shall be provided adequately in the control room & other buildings of the substation. The switchyard shall also be provided with adequate illumination.
The entire control room building, fire-fighting pump house, other buildings (if any) and switchyard shall be done by LED based low power consumption luminaries.

2.21 Control Room & GIS Building

Substation control room shall be provided to house substation work station for

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station level control (SAS) along with its peripheral and recording equipment's, AC & DC distribution boards, DC batteries & associated battery chargers, Fire Protection panels, Telecommunication panels & other panels as per present requirements. Air conditioning shall be provided in the building as functional requirements. Main cable trenches from the control room shall have adequate space provision for laying of cables from control room for all the future bays also. Modular multidiamter cable sealing system which is waterproof, fire proof, rodent proof wherever the control cable/Power cable/Instrumentation cable enter or leave the control room, shall be provided.

2.22 PT Distribution Scheme

A suitable PT distribution scheme for 400kV & 220 kV has to be provided by TSP. TSP may visit the existing Sub-Stations in order to familiarize themselves with the existing system. The PT distribution board must be suitable for distributing the main bus PTs to all the feeder/transformers. The Potential transformers shall comply with the relevant codes/standards. The number of secondary cores, accuracy class and burden shall be in accordance with the requirements of the protection and metering system. Rated burden shall be nearest to the burden computed; however it shall not exceed 100 VA. The accuracy class for metering core shall be equal to or better than the accuracy class of the meter specified in the Central Electricity Authority (Installation and Operation of Meters) Regulations.

2.23 Phasor Measurement Unit (PMU)

The substations are provided with CTs on each bay of the switchyard and CVTs/PTs in each transmission line bay and on each bus. The CTs have one metering core and four protection cores. The CVTs are provided with three cores for metering/protection. The offered Phasor Measurement Unit (PMU) shall be connected to either of these CT and CVT cores. PMUs shall be suitable for measurement on both the cores (Meter & Protection).
The PMUs to be installed at the Substations / Power stations, shall communicate to the existing Phasor Data Concentrator (PDC) installed at SLDC as per IEEE C37.118.1-2011, IEEE C37.118.2-2011 & C37.118.1a-2014 standard or IEC/IEEE 60255-118-1:2018 Standard with all amendments. PMU complying IEC/IEEE 60255-118-1:2018 Standard shall be preferred. The PMU shall be capable of reporting with its full features to the existing PDC installed at SLDC under the Unified Real Time Dynamic State Monitoring (URTDSM) Project. The PMU's are to be provided for each feeder bays and transformers in 400kV substations and the data is to be transferred through single channel to SLDC.

3.0 GENERAL FACILITIES

Following facilities shall be provided:

- Substation Gantry/Towers are envisaged for present scope of bays only.

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However, for adjacent future bay, gantry/towers shall be designed for extension (considering Quad conductor for 400kV future lines, Single/Double conductor for 220kV future lines) wherever required.

- The sub-station shall be confirming to the requirement of CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations 2022, as amended from time to time.
- In addition, the scope for development of communication system at the Substations & Transmissions lines is in the scope of TSP. The communication equipment at both ends of the transmission line terminating at KPTCL's substation, along with its O&M, shall be in the scope of the TSP. For all the new substations, PLCC, Substation Automation System (SAS) & Time synchronization equipment, shall be provided by the TSP as per guidelines & amendments thereof.

- Bay extension works at existing substation shall be executed by TSP in accordance with the requirements/provisions mentioned above. However, interface points shall be considered keeping in view the existing design/arrangement at the substation.

- TSP has to arrange for construction power and water on its own.

- Space for storage of O&M spares shall be arranged by TSP on its own.

- Security compound using Solid Block Masonry/ Burnt Brick Masonry with steel fabrication and barbed wire fencing shall be constructed around the switchyard area. For vacant/ unused land, boundary compound using Solid Block Masonry/ Burnt Brick Masonry shall be constructed. Wherever there is a demarcation of switchyard and vacant land, chain link security fencing shall be constructed along that line. The minimum height of the boundary wall shall be of 1.8 m from finished ground level (FGL).

- All electrical equipment shall be installed above the Highest Flood Level (HFL) and where such equipment is not possible to be installed above Highest Flood Level, it shall be ensured that there is no seepage or leakage or logging of water.

EXTENSION OF EXISTING SUBSTATION

The following drawings/details of existing substation are attached with the RFP documents for further engineering by the bidder.

Sl. No.	Drawing Title	Drawing No./Details	Rev. No.
A.	**220kV Ekarajapura substation**		
1.0	Single Line Diagram	KPTCL/TECH/SS-220/HKT-1/R2	

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2.0	Layout Plan	KPTCL/TECH/SS-220/BNK-4/R2	
3.0	Cross Section	KPTCL/TECH/SS-220/BNK-5/R2	
4.0	Earthmat Layout	SEE/R&D/F4 (1)	
B.	**220kV Sarjapura substation**		
1.0	Single Line Diagram	KPTCL/TECH/SS-220/SJP-1	
2.0	Layout Plan	KPTCL/TECH/SS-220/SJP-4	
3.0	Cross Section	KPTCL/TECH/SS-220/SJP-5	
4.0	Earthmat Layout	SEE/R&D/F9(8)	
C.	**PGCIL Kolar S/s**		
1.0	Single Line Diagram	**PGCIL/01**	
2.0	Layout Plan	**CG/973/003**	
3.0	Cross Section	**CG/973/072**	
4.0	Earthing Layout	**CG/973/007**	
5.0	Bus Bar Protection layout	**3100137898 , IN-56323017**	
6.0	Control room layout	**CG/973/101**	
7.0	SLD CCTV	**PGCIL/olar/02**	
8.0	HVAC COMMUNICATION ARCHITECTURE	**PGCIL/Kolar/03**	

Note: The existing drawings provided above and in subsequent amendments to the RFP are as received from the developer of existing substation and provided only for reference. Bidders shall follow the RFP for scope of work. Actual site conditions may be different due to other schemes being executed or subsequent revisions by the developer. Therefore, Bidders are advised to visit the substation sites and acquaint themselves with the actual site conditions, layout, topography, infrastructure such as the requirement of roads, cable trench, drainage, boundary etc. and also the design philosophy.

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Details of existing substation								
S.no	**From**	**To**	**Capacity available in LT transformer**	**Spare feeder in ACDB**	**Spare feeder in DCDB**	**Battery capacity**	**Availability of Busbar protection**	**Availability of fire hydrant system**
1	Prop.400/220 kV Doddathag alli S/s	Ex. 220 kV Ekrajapura S/s	Available	ACDB with 1 I/C and 5 feeders required	Available	Available		
2		Ex. 220 kV Sarjapura S/s	Available	ACDB with 1 I/C and 5 feeders required	DCDB with 2 I/C and 6 feeders required	Available	Available	NA
3		Kolar S/s	Yes	Yes	Yes	500 Ah	Yes	Not available nearby to be extended from ICT -2 which is 300 m away (approx.) HVWS Pumps capacity increase may be required

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TECHNICAL SPECIFICATION FOR SF6 GAS INSULATED METAL ENCLOSED SWITCHGEAR (GIS)

1.0 GENERAL CHARACTERISTICS

The SF6 gas insulated metal enclosed switchgear shall be totally safe against inadvertent touch of any of it's live constituent parts. It should be designed for indoor/outdoor (as specified) application with meteorological conditions at site as per Section Project. All parts of the switchgear should be single phase enclosed for 400 kV and single phase/three phase enclosed for 220 kV.

The arrangement of gas sections or compartments shall be such as to facilitate future extension of any make on either end without any drilling, cutting or welding on the existing equipment. To add an equipment, it shall not be necessary to move or dislocate the existing switchgear bays. As the 400/220kV GIS is likely to be extended in future on either side, the contractor shall make available during detailed engineering stage, all details such as cross section, gas pressure, extension conductor piece to extend existing bus bar and all required material etc. for design of adopter in future for extension of GIS. GIS must be complete in all respects for future extension and there should be no requirement of any component/material of GIS from the present supplier at the time of future extension by another GIS manufacturer. The design should be such that all parts subjected to wear and tear are easily accessible for maintenance purposes. The equipment offered shall be protected against all types of voltage surges and any equipment necessary to satisfy this requirement shall be deemed to be included. The required overall parameters of GIS are as follows :-

Sl. No.	Technical particulars	400 kV System	220 kV System
a	Rated Voltage	420 kV (rms)	245 kV (rms)
b	Rated frequency	50 HZ	50 HZ
c	Grounding	Effectively earthed	Effectively earthed
d	Rated power frequency withstand Voltage (1min) line to earth	650 kV (rms)	460 kV (rms)
e	Impulse withstand BIL (1.2/50/mic. Sec) Line to earth	±1425 kVp	±1050 kVp
f	Switching impulse voltage (250/2500 mic.-sec)	1050 kVp	-
g	Rated short time withstand current (1 sec)	63/50/ 40 kA (rms) (As applicable)	50/ 40 kA (rms) (As applicable)
h	Rated peak withstand current	157.5/125/100 kA (peak) (as applicable)	125/100 kA(peak) (as applicable)
i	Guaranteed maximum gas losses for complete installation as well	As per IEC-62271-203	As per IEC- 62271-203

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Sl. No.	Technical particulars	400 kV System	220 kV System
	as for all individual sections in %		
j	Rated current normal/ at site (at 50 degree C design ambient temperature)	As per schedule of requirement	As per schedule of requirement
k	Seismic level	Zone – II as per IS-1893, Year-2002	Zone – II as per IS-1893, Year-2002

The metal-enclosed gas insulated switchgear, including the operating devices, accessories and auxiliary equipment forming integral part thereof, shall be designed, manufactured, assembled and tested in accordance with the IEC-62271-203 publications including their parts and supplements as amended or revised to date.

2.0 REFERENCE STANDARDS

The metal-enclosed gas-insulated switchgear, including the operating devices, accessories and auxiliary equipment forming integral part thereof, shall be designed, manufactured, assembled and tested in accordance with the following International Electro-technical Commission (IEC) Publications including their parts and supplements as amended or revised to date:

IEC 62271-203	Gas Insulated metal-enclosed switchgear for rated voltages above 52KV
IEC 60376	New sulphur hexafluoride
IEC 62271-	100 High voltage alternating current Circuit breakers
IEC 62271-1	High voltage Switchgear and control-gear standards – common specifications
IEC 62271-102	Alternating current disconnectors(isolators) and earthing switches
IEC 61128	Alternating current disconnectors. Bus-transfer current switching by disconnectors.
IEC 61129	Alternating current earthing switches. Induced current switching
IEC 61869-2/1	Current transformers
IEC 61869-3/1	Voltage transformers
IEC 60137	Bushings for alternating voltages above 1000 V
IEC 62271-209	Cable connections for gas-insulated metal enclosed switchgear for rated voltage above 52kV
IEC 60480	Guide to checking of sulphur hexafluoride taken from electrical equipment
IEC 60099 -1/4	Non-linear resistor type arresters for AC systems

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IEC 60439	Factory-built assemblies of low-voltage switchgear and control Gear.
IEC 62271-101	High-voltage Switchgear & control gear – synthetic test.
IEEE 80 (2000)	IEEE Guide for Safety in AC Substation grounding.
CIGRE-44	Earthing of GIS- an application guide. (Electra no.151,Dec'93).
IEC 61639	Direct connection between Power Transformers and gas insulated metal enclosed switchgear for rated voltage 72.5 kV and above.

The components and devices which are not covered by the above standards shall conform to, and comply with, the latest applicable standards, rules, codes and regulations of the internationally recognized standardizing bodies and professional societies as may be approved by the Employer. The manufacturer shall list all applicable standards, codes etc. and provide copies thereof for necessary approval.

In case the requirements laid down herein differ from those given in above standard in any aspect the switchgear shall comply with the requirements indicated herein in regard thereto.

3.0 DEFINITIONS

3.1 Assembly

Assembly refers to the entire completed GIS equipment furnished under contract.

3.2 Bay

Bay refers to the area occupied by one Circuit Breaker and associated equipments used to protect one line/transformer/Reactor/bus coupler in double bus scheme/one and half breaker scheme and which comprises of atleast one circuit breaker, two disconnectors & 3 Nos. of single phase CT's/bushing CT's.

3.3 Compartment

When used in conjunction with GIS equipment, compartment refers to a gas tight volume bounded by enclosure walls and gas tight isolating barriers.

3.4 Enclosure

When used in conjunction with GIS equipment, enclosure refers to the grounded metal housing or shell which contains and protects internal Power system equipment (breaker, disconnecting switch, grounding switch, voltage transformer, current transformer surge arresters, interconnecting bus etc.)

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3.5 Manual Operations

Manual operation means operation by hand without using any other source of Power.

3.6 Module

When used in conjunction with GIS equipment, module refers to a portion of that equipment. Each module includes its own enclosure. A module can contain more than one piece of equipment, for example, a module can contain a disconnecting switch and a grounding switch.

3.7 Reservoir

When used in conjunction with GIS equipment reservoir refers to a larger gastight volume.

4.0 GENERAL DESIGN AND SAFETY REQUIREMENT

4.1 The GIS assembly shall consist of separate modular compartments e,g Circuit Breaker compartment, Bus bar compartment filled with SF6 Gas and separated by gas tight partitions so as to minimize risk to human life, allow ease of maintenance and limit the effects of gas leaks failures & internal arcs etc. These compartments shall be such that maintenance on one feeder may be performed without de-energising the adjacent feeders. These compartments shall be designed to minimize the risk of damage to adjacent sections and protection of personnel in the event of a failure occurring within the compartments. Rupture diaphragms with suitable deflectors shall be provided to prevent uncontrolled bursting pressures developing within the enclosures under worst operating conditions, thus providing controlled pressure relief in the affected compartment.

4.2 The workmanship shall be of the highest quality and shall conform to the latest modern practices for the manufacture of high technology machinery and electrical switchgear.

4.3. The switchgear, which shall be of modular design, shall have complete phase isolation. The conductors and the live parts shall be mounted on high graded epoxy resin insulators. These insulators shall be designed to have high structural strength and electrical dielectric properties and shall be free of any voids and free of partial discharge at a voltage which is atleast 5 % greater than the rated voltage .They should be designed to have high structural and dielectric strength properties and shall be shaped so as to provide uniform field distribution and to minimize the effects of particle deposition either from migration of foreign particles within the enclosures or from the by-products of SF6 breakdown under arcing conditions.

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4.4. Gas barrier insulators and support insulators shall have the same basis of design. The support insulators shall have holes on both sides for proper flow of gas.

4.5. Gas barrier insulators shall be provided so as to divide the GIS into separate compartments. They shall be suitably located in order to minimize disturbance in case of leakage or dismantling. They shall be designed to withstand any internal fault thereby keeping an internal arc inside the faulty compartment. Due to safety requirement for working on this pressurized equipment, whenever the pressure of the adjacent gas compartment is reduced, it should be ensured by the bidder that adjacent compartment would remain in service and also isolate/earth the gas compartments which is not at minimum operating pressure. The gas tight barriers shall be clearly marked on the outside of the enclosures. The service continuity of GIS shall confirm to Annexure-F of IEC :62271-203.

4.6. The material and thickness of the enclosures shall be such as to withstand an internal flash over without burn through for a period as specified in IEC at rated short time withstand current. The material shall be such that it has no effect of environment as well as from the by-products of SF6 breakdown under arcing condition.

4.7. Each section shall have plug- in or easily removable connection pieces to allow for easy replacement of any component with the minimum of disturbance to the remainder of the equipment. Inspection windows shall be provided for disconnector and earth switches.

4.8. The material used for manufacturing the switchgear equipment shall be of the type, composition and have physical properties best suited to their particular purposes and in accordance with the latest engineering practices. All the conductors shall be fabricated of aluminum/ copper tubes of cross sectional area suitable to meet the normal and short circuit current rating requirements. The finish of the conductors shall be smooth so as to prevent any electrical discharge. The conductor ends shall be silver plated and fitted into finger contacts or tulip contacts. The contacts shall be of sliding type to allow the conductors to expand or contract axially due to temperature variation without imposing any mechanical stress on supporting insulators.

4.9. Each pressure filled enclosure shall be designed and fabricated to comply with the requirements of the applicable pressure vessel codes and based on the design temperature and design pressures as defined in IEC-62271-203.

4.10. The manufacturer shall guarantee that the pressure loss within each individual gas-filled compartment shall not be more than half percent (0.5%) per year.

4.11. Each gas-filled compartment shall be equipped with static filters, density switches, filling valve and safety diaphragm. The filters shall be capable of absorbing any water vapour which may penetrate into the enclosures as well as the by-products of SF6 during interruption. Each gas compartment shall be

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fitted with separate non-return valve connectors for evacuating & filling the gas and checking the gas pressure etc.

4.12. The switchgear line-up when installed and operating under the ambient conditions shall perform satisfactorily and safely under all normal and fault conditions. Even repeated operations up to the permissible servicing intervals under 100% rated and fault conditions shall not diminish the performance or significantly shorten the useful life of the switchgear. Any fault caused by external reasons shall be positively confined to the originating compartment and shall not spread to other parts of the switchgear.

4.13. The thermal rating of all current carrying parts shall be minimum for one sec. for the rated symmetrical short-circuit current.

4.14. The switchgear shall be of the free standing, self-supporting with easy accessibility to all the parts during installation & maintenance with all high-voltage equipment installed inside gas-insulated metallic and earthed enclosures, suitably sub-divided into individual arc and gas-proof compartments preferably for:

a) Bus bars

b) Intermediate compartment

c) Circuit breakers

d) Line disconnectors

e) Voltage Transformers

f) Gas Insulated bus duct section between GIS and XLPE cable/Overhead Conductor.

g) Gas Insulated bus section between GIS & Oil filled Transformer/ Reactor

The bus enclosure should be sectionalized in a manner that maintenance work on any bus disconnector (when bus and bus disconnector are enclosed in a single enclosure) can be carried out by isolating and evacuating the small effected section and not the entire bus. The design of GIS shall be such that in case a circuit breaker module of a feeder is removed for maintenance, both busbars shall remain in service. For achieving the above requirements, adequate number of intermediate compartments, if required, shall be provided to ensure equipment and operating personnel's safety. The service continuity of GIS shall confirm to Annexure-F of IEC :62271-203.

4.15. The arrangement of the individual switchgear bays shall be such so as to achieve optimum space-saving, neat and logical arrangement and adequate accessibility to all external components.

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4.16. The layout of the substation equipment ,busbars and switchgear bays shall preferably be based on the principle of _ phase grouping _ . Switchgear layout based on the _ mixed phases _ principle shall not be accepted without mutual agreement between supplier and owner. The arrangement of the equipment offered must provide adequate access for operation, testing and maintenance.

4.17. LOCAL CONTROL CUBICLE (LCC)

4.17.1. Functions

4.17.1.1 Each circuit-breaker bay shall be provided with a local control cubicle containing local control switches and a mimic diagram for the operation and semaphore/indicating lamp for status indication of the circuit-breaker and all associated isolators and earth switches together with selector switches to prevent local and remote and supervisory controls being in operation simultaneously.

4.17.1.2. Status indications in the LCC shall be semaphore type or LED type.

4.17.1.3. Closing of the circuit- breaker from the local control unit shall only be available when the breaker is isolated for maintenance purposes. Circuit-breaker control position selector, operating control switch and electrical emergency trip push button shall be installed in the Local Control Cubicle. Circuit-breaker control from this position will be used under Technical Specification Gas Insulated Switchgear Page 37 of 80 Rev 05 (April 2018) maintenance and emergency conditions only. The emergency trip push buttons shall be properly shrouded.

4.17.1.4. If Disconnector or earth switch is not in the fully open or closed position a "Control Circuit Faulty" alarm shall be initiated, and electrical operation shall be blocked.

4.17.1.5. 20% spare terminals shall be provided in each LCC apart from terminals provided for the termination and interconnection of all cabling associated with remote and supervisory control, alarms, indications, protection and main power supply etc.

4.17.1.6. Where plugs and sockets connect control cabling between the local control cubicle and the switchgear these shall not be interchanged. In plug in connector type cable arrangement, min 2 cores of the cable with connected condition on both side up to the TB to be left unused as spare.

4.17.1.7. Hydraulic/pneumatic and SF6 auxiliary equipment necessary for the correct functioning of the circuit breaker, isolators and earth switches shall be located in a separate cubicle compartment.

4.17.1.8. LCC shall be suitable for remote operation from substation automation system (SAS). Each gas tight compartment shall be monitored individually per phase basis through SAS

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4.17.2. Constructional features

4.17.2.1. Local Control cubicle shall be either mounted on the GIS with front access or free standing, floor mounting type. It shall comprise structural frames completely enclosed with specially selected smooth finished, cold rolled sheet steel of thickness not less than 3 mm for weight bearing members of the panels such as base frame, front sheet and door frames, and 2.0mm for sides, door, top and bottom portions. There shall be sufficient reinforcement to provide level transportation and installation. Alternatively folded sheet panels of adequate thickness and strength is also acceptable.

4.17.2.2. Access to all compartments shall be provided by doors. All fastenings shall be integral with the panel or door and provision made for locking. Cubicles shall be well ventilated through vermin-proof louvers (if required) having anti insect screen. All doors shall be gasketed all around with suitably profiled Neoprene/EPDM/PU gaskets conforming to the provision of IS 11149. However, XLPE gaskets can also be used for fixing protective glass doors.

4.17.2.3. For LCC panel of each feeder bay (i.e. line, transformer, and reactor etc.), Bus Coupler bay and Bus Sectionalizer bay, separate AC/DC supply for power circuit of GIS switchgear shall be provided, fed directly from ACDB/DCDB. The control DC supply (for control, interlocking, signaling) shall be tapped from respective relay & protection panel. For LCC panel illumination and heating purpose Loop in Loop out AC Supply can be provided.

4.17.2.4. Each panel shall be provided with necessary arrangements for receiving, distributing and isolating of DC and AC supplies for various control, signaling, lighting and space heater circuits. The incoming and sub-circuits shall be separately provided with Fuses/MCBs. All fuses shall be HRC cartridge type conforming to IS: 13703 mounted on plug-in type fuse Technical Specification Gas Insulated Switchgear Page 38 of 80 Rev 05 (April 2018) bases. The short time fuse rating of Fuses shall be not less than 9 KA. Fuse carrier base shall have imprints of the fuse 'rating' and 'voltage'.

4.17.2.5. Each LCC Panel shall be provided with the following

1. **Plug Point**: 240V, Single phase 50Hz, AC socket with switch suitable to accept 5/15 Amps pin round standard Indian plug, shall be provided in the interior of each cubicle with ON-OFF switch.

2. **Interior Lighting**: Each panel shall be provided with a door-operated LED lighting fixture rated for 240 Volts, single phase, 50 Hz supply for the interior illumination of the panel controlled by the respective panel door switch.

3. **Space Heater**: Each panel shall be provided with a thermostatically connected space heater rated for 240V, single phase, 50 Hz AC supply for the internal heating of the panel to prevent condensation of moisture. The fittings shall be complete with switch unit.

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4.17.2.6. Operating mechanisms, auxiliary switches and associated relays, control switches, control cable terminations, and other ancillary equipment shall be accommodated in sheet steel vermin proof cubicles.

4.17.2.7. The arrangement of equipment within cubicles shall be such that access for maintenance or removal of any item shall be possible with the minimum disturbance of associated apparatus. All the control switches shall be internal i.e. installed behind a lockable glass door, that allows a complete view of the annunciator and mimic diagram when the LCC door is closed. Necessary protection shall be provided to avoid inadvertent operation of control switches.

4.17.2.8. An interlocking scheme shall be provided that takes into account the following basic requirements.

i. To safeguard maintenance personnel who may be working on one section of the equipment with other sections live.

ii. prevent incorrect switching sequences that could lead to a hazardous situation to plant, equipment and personnel.

4.17.2.9. Electrical bolt interlocks shall be energized only when the operating handle of the mechanism is brought to the working position. Visible indication shall be provided to show whether the mechanism is locked or free. Means, normally padlocked/handle lock, shall be provided whereby the bolt can be operated in the emergency of a failure of interlock supplies.

4.17.2.10. Where key interlocking is employed tripping of the circuit breaker shall not occur if any attempt is made to remove the trapped key from the mechanism. Any local emergency tripping device shall be kept separate and distinct from the key interlocking.

4.17.2.11. Disconnecting switches shall be so interlocked that they cannot be operated unless the associated circuit-breaker is open except that where double bus bar arrangements are specified, on-load transfer of feeder circuits from one bus bar to another shall be made Technical Specification Gas Insulated Switchgear Page 39 of 80 Rev 05 (April 2018) possible by interlocks which ensure that the associated bus coupler and its isolators are closed.

4.17.2.12. Bus coupler circuit breaker shall be interlocked so that it shall not be possible to open a bus coupler circuit breaker while on load change over on that side of the breaker is in progress.-

4.17.2.13. All isolating devices shall be interlocked with associated circuit-breakers and isolators in the same station so that it shall not be possible to make or break current on an isolating device unless a parallel circuit in that station is already closed.

4.17.3 Cabling between LCC Panel and GIS equipment

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4.17.3.1. The unarmored screen cable shall be of 1.1kV grade, multi core, annealed copper conductor, Tinned copper braided screen (approx. 85% coverage).

4.17.3.2. The core insulation and outer sheath of cable shall be of halogen-free special polymer.

4.17.3.3. The cable shall be flame-retardant, flexible, abrasion-and wear-resistant.

4.17.3.4. The size of core shall not be less than 2.5 sq. mm for instrument transformers and 1.5 sq.mm for other control cable.

4.17.3.5. Prefabricated cables with heavy duty multi-point plug-in connections on GIS end shall be provided.

4.17.3.6. All instrument transformer connections shall be hard wired to terminal block via ring type connection. The LCC panel as a separate item may be considered if the bidder desires to supply from the manufacturer other than GIS supplier. The make of LCC panel shall be KPTCL approved C&R panel vendors make only. Also, the interfacing of LCC panel with original GIS module in respect of schemes, TB nos, Ferrule nos etc., is in the scope of Bidder

The supply of power and control cables and cabling from GIS module up to Local Control Panels shall be in GIS module supplier/BIDDER's scope.

4.18. All the elements shall be accessible without removing support structures for routine inspections and possible repairs. The removal of individual enclosure parts, or entire breaker bays shall be possible without disturbing the enclosures of neighboring bays.

4.19. It should be impossible to unwillingly touch live parts of the switchgear or to perform operations that lead to arcing faults without the use of tools or brute force.

4.20. In case of any repair or maintenance on one busbar disconnectors, the other busbar should be live and in service.

4.21. All interlocks that prevent potentially dangerous mal-operations, shall be constructed such that they can not be operated easily, i.e. the operator must use tools or brute force to over-ride them.

4.22. In general the contours of energized metal parts of the GIS and any other accessory shall be such, so as to eliminate areas or points of high electrostatic flux concentrations. The surfaces shall be smooth with no projection or irregularities which may cause visible corona. No corona shall be visible in complete darkness which the equipment is subjected to specified test voltage. There shall be no radio interference from the energized switchgear at rated voltage.

4.23. The enclosure shall be of continuous design and shall meet the requirement as specified in clause no. 10 (special considerations for GIS) of IEEE- 80,

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Year- 2000 . The enclosure shall be sized for carrying induced current equal to the rated current of the Bus. The conductor and the enclosure shall form the concentric pair with effective shielding of the field internal to the enclosure.

4.24. The fabricated metal enclosures shall be of Aluminium alloy having high resistance to corrosion, low electrical loses and negligible magnetic losses. All joint surfaces shall be machined and all castings shall be spot faced for all bolt heads or nuts and washers. All screws, bolts, studs and nuts shall conform to metric system.

4.25. The breaker enclosure shall have provision for easy withdrawal of the interrupter assemblies. The removed interrupter assembly must be easily and safely accessible for inspection and possible repairs.

4.26. The enclosure shall be designed to practically eliminate the external electromagnetic field and thereby electrodynamic stresses even under short circuit conditions.

4.27. The elbows, bends, cross and T-sections of interconnections shall include the insulators bearing the conductor when the direction changes take place in order to ensure that live parts remain perfectly centered and the electrical field is not increased at such points.

4.28. The Average Intensity of electromagnetic field shall not be more than 50 micro –Tesla on the surface of the enclosure. The contractor shall furnish all calculations and documents in support of the above during detailed engineering.

4.29. The Bidder shall furnish the following information regarding the loosely distributed metallic particles within the GIS encapsulation.

a) Calculations of critical field strength for specific particles of defined mass and geometry.

b) The methodology and all the equipment for electrical partial discharge (PD) detection including that mentioned in the specification else-where.

4.30. The switchgear shall have provision for connection with ground mat risers. This provision shall consist of grounding pads to be connected to the ground mat riser in the vicinity of the equipment.

4.31. The ladders and walkways shall be provided wherever necessary for access to the equipment. A portable ladder with adjustable height may also be supplied to access to the equipment.

4.32. Wherever required, the heaters shall be provided for the equipment in order to ensure the proper functioning of the switchgear at specified ambient temperatures. The heaters shall be rated for 240V AC supply and shall be complete with thermostat, control switches and fuses, connected as a balanced 3-phsase. 4-wire load. The possibility of using heaters without

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thermostats in order to achieve the higher reliability may be examined by the bidder and accordingly included in the offer but it shall be ensured by the bidder that the temperature rise of different enclosures where heating is provided should be within safe limits as per relevant standards. One copy of the relevant extract of standard to which the above arrangement conforms along with cost reduction in offer. If any, shall also be furnished along with the offer. The heaters shall be so arranged and protected as to create no hazard to adjacent equipment from the heat produced.

4.33. The enclosure & support structure shall be designed that a mechanic 1780 mm in height and 80 Kg in weight is able to climb on the equipment for maintenance.

4.34. The sealing provided between flanges of two modules / enclosures shall be such that long term tightness is achieved.

4.35. Alarm circuit shall not respond to faults for momentary conditions. The following indications including those required elsewhere in the specifications shall be generally provided in the alarm and indication circuits.

4.35.1. Gas Insulating System:

a) Loss of Gas Density.

b) Loss of Heater power(if required)

c) Any other alarm necessary to indicate deterioration of the gas insulating system.

4.35.2. Operating System:

a) Low operating pressure.

b) Loss of Heater power.

c) Loss of operating power.

d) Loss of control.

e) Pole Disordance.

4.36. The equipment will be operated under the following ambient conditions:

a) The ambient temperature varies between 0 degree-C and 50 degree-C. However, for design purposes, ambient temperature should be considered as 50 degree-C.

b) The humidity will be about 95% (indoors)

c) The elevation is less than 1000 metres.

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4.37. Temperature rise of current carrying parts shall be limited to the values stipulated in IEC-62271-1, under rated current and the climatic conditions at site. The temperature rise for accessible enclosure shall not exceed 20 degree C above the ambient temperature of 50 degree C. In the case of enclosures, which are accessible but need not be touched during normal operation, the temperature rise limit may be permitted upto 30 degree C above the ambient of 500 C. These conditions shall be taken into account by the supplier in the design of the equipment.

5.

5.1 **Type tests** The offered 400/220kV GIS equipments shall conform to the type tests as per IEC-62271-203.

The type tests certificates should not be older than Ten (10) years as on the last date of submission of bid.

a) **For equipments manufactured in India:**

i. Type tests on indigenous equipment for which testing facility is available in India, should have been conducted in any independent laboratories approved by Government or accredited by National accreditation body of the country like Central Power Research Institute (CPRI), Electrical Research and Development Association (ERDA), etc.

ii. Type tests on indigenous equipment, for which testing facility is not available in India, should have been conducted in a laboratory of foreign country accredited by National accreditation body of that country.

iii. The type tests conducted in-house by manufacturers shall also be acceptable provided the lab (manufacturer's) is accredited by National accreditation body of the country and the tests have been witnessed by a representative of NABL accredited Independent laboratory/Power utility.

b) **For equipments manufactured Abroad:**

i. Type tests on imported equipment should have been conducted in an Indian Laboratory or foreign laboratory accredited by National accreditation body of respective country.

ii. Type tests conducted in-house by manufacturers shall also be acceptable provided the laboratory is accredited by National accreditation body of the country and the tests have been witnessed by a representative of accreditation body / Power utility.

Contractor shall submit type test reports for the following type tests & additional type tests.

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Sl. No.	Description of the Type Test for 400kV and 220kV GIS
1	Tests to verify the insulation level of the equipment and dielectric test on auxiliary circuits
2	Tests to prove the temperature rise of any part of the equipment and measurement of the resistance of the main circuit
3	Tests to prove the ability of the main and Earthing circuits to carry the rated peak and rated short time withstand current.
4	Tests to verify the making and breaking capacity of the included switching devices.
5	Tests to prove the satisfactory operation of the included switching devices
6	Tests to prove the strength of the enclosures
7	Gas tightness tests
8	Tests on partitions
9	Tests to prove the satisfactory operation at limit temperatures
10	Tests to assess the effects of arcing due to internal fault
11	Verification of the degree of protection of the enclosure
12	Tests to prove performance under thermal cycling and gas tightness tests on insulators
13	Additional tests on auxiliary and control circuits
14	Tests to prove the radio interference voltage (RIV) level (if applicable)
15	Electromagnetic Compatibility Test (EMC)
16	Reactor current switching test.
17	Test to demonstrate the Power frequency withstand capability of breaker in open condition at lock out pressure [ref clause No. 11.4(vi)]

The test reports of the above type tests for GIS as well as all type tests on 400kV SF6/ Air bushing as per IEC 60137 shall be submitted for approval as per section-GTR of Technical specification.

5.2: Routine Tests:

a) Routine tests shall be made either in the course of component assembly and / or on the complete shipping unit assembly.
The following routine tests shall be performed as per IEC 62271-203 at the factory on every unit following its manufacture:

i. Dielectric test on the main circuit.
ii. Tests on auxiliary and control circuits
iii. Measurement of the resistance of the main circuit.
iv. Tightness test.
v. Design and visual checks.
vi. Pressure tests of enclosures.
vii. Mechanical operation tests.
viii. Tests on auxiliary circuits, equipment and interlocks in the control mechanism.
ix. Pressure test on partitions.

Note: Tests on transport units.

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GIS modules or components shall be assembled in the factory to transport units. The size of the transport units shall be defined by engineering and shall be as large as practical for shipment to the site and handling during installation. On assembly units without support or barrier insulator dielectric tests are not necessary.

5.3 KPTCL may insist for conducting all or some of the routine tests at the factory premises during inspection of the GIS module by KPTCL Engineers.

5.4 Tests after installation on site:

After the switchgear has been completely installed on site & filled with SF6 gas, the complete assembly shall be subjected to the following site test as per IEC: 62271-203.

a) Dielectric tests on the main circuit.
b) Dielectric tests on auxiliary circuit.
c) Measurement of the resistance of the main circuit.
d) Gas tightness tests.
e) Checks and verifications.
f) Gas quality verifications.
g) ON SITE HV TESTINGS.

6. Bellows or Compensating Units :-

Adequate provision shall be made to allow for the thermal expansion of the conductors and of differential thermal expansion between the conductors and the enclosures. The bellows shall be metallic (preferably of stainless steel) of following types or other suitable equivalent arrangement shall be provided wherever necessary.

1. Lateral / Vertical mounting units: These shall be inserted, as required, between sections of busbars, on transformer, shunt reactor and XLPE cable etc. Lateral mounting shall be made possible by a sliding section of enclosure and tubular conductors.
2. Axial compensators : These shall be provided to accommodate changes in length of busbars due to temperature variations.
3. Parallel compensators: These shall be provided to accommodate large linear expansions and angle tolerances.
4. Tolerance compensators: These shall be provided for taking up manufacturing, site assembly and foundation tolerances.
5. Vibration compensators: These bellow compensators shall be provided for absorbing vibrations caused by the transformers and shunt reactors when connected to SF6 switchgear by oil- SF6 bushings.
6. The electrical connections across the bellows or compensating units shall be made by means of suitable connectors.

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7. INDICATION AND VERIFICATION OF SWITCH POSITIONS

Indicators shall be provided on all circuit breakers, isolators and earth-switches, which shall clearly show whether the switches are open or closed. The indicators shall be mechanically coupled directly to the main contact operating drive rod or linkages and shall be mounted in a position where they are clearly visible from the floor or the platform in the vicinity of the equipment. Windows shall also be provided with all isolators and earth switches so that the switch contact positions can be verified by direct visual inspection.

8. PRESSURE RELIEF:-

Pressure relief devices shall be provided in the gas sections to protect the main gas enclosures from damage or distortion during the occurrence of abnormal pressure increase or shock waves generated by internal electrical fault arcs (preferably in downward direction). Pressure relief shall be achieved either by means of diaphragms or plugs venting directly into the atmosphere in a controlled direction. If the pressure relief devices vent directly into the atmosphere, suitable guards and deflectors shall be provided. Contractor shall submit to the owner the detailed criteria/ design regarding location of pressure relief devices/rupture diaphragms.

9. PRESSURE VESSEL REQUIREMENTS

The enclosure shall be designed for the mechanical and thermal loads to which it is subjected in service. The enclosure shall be manufactured and tested according to the pressure vessel code (ASME/CENELEC code for pressure Vessel) Each enclosure has to be tested as a routine test at 1.5 time the design pressure for one minute. The bursting strength of Aluminium castings has to be at least 5 times the design pressure. A bursting pressure test shall be carried out at 5 times the design pressure as a type test on each type of enclosure.

10. EARTHING:

10.1 The MANUFACTURER shall provide a "Main Ground Bus Earth mat", rated 63kA/50kA for 3 sec (as required)., to which all intentionally earthed parts of the assembly must be connected.

10.2 It shall be the responsibility of the VENDOR to provide a sufficient number of earth points so that dangerous voltages are not induced in the enclosure by the fault currents circulating in the inner conductor.

10.3 Earthing pads shall be provided for at-least two paths to earth from the "Main Earth Bus" or each metallic enclosure and auxiliary equipment designated for connection to the station earth grid. The VENDOR shall provide data to assure that the connections from the "Main Earth Bus" to the station earth will not interfere with required enclosure current paths or any operational feature of the assembly. A copper earth bar, located near the control cable entrances of all main and auxiliary equipment, shall be provided for the purpose of terminating

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the shield of each control cable.

10.4 Provision shall be made for future extension and/or connection to earth buses of other interconnecting switchgear.

10.5 The BIDDER shall be responsible for supplying all earthing materials required for bonding all the equipment and steel work included in this contract to the main station earth mat also to be provided by the BIDDER.

10.6 The design of the earth system and connection to the switchgear equipment shall also be compatible with the circulating currents that are present in the switchgear metal cladding. On the design of the earth mat mesh, the VENDOR shall provide full details of the circulating currents expected to flow in the earth mat system.

10.7 Every section of the SF6 switchgear equipment including all panels, cubicles, kiosks and boxes shall be solidly bonded to the earthing system.

10.8 Earth switches, voltage transformers, panels and kiosks, shall be bonded to the earthing system as specified in the relevant previous clauses.

10.9 All steelwork, access decking and gangways, handrails, etc., shall also be effectively bonded to the earthing system.

10.10 The design of the earthing system along with the station earth mat shall be such as to ensure the safety and protection of all operating and maintenance personnel under all normal and fault conditions. Detailed earthing drawings shall be prepared for the complete installation which shall be provided under this contract and submitted to the PURCHASER for approval.

10.11 The enclosure of the equipment and support structure of GIS shall be earthed in such a way that the following conditions are obtained:

a) The touch potential at any part of the enclosure is less than 65 V.
b) The induced current during normal operation is prevented from entering the earthing grid.

10.12 GIS Module earth mat has to be provided by the bidder for which detailed calculation and drawings to be furnished.

10.13 GROUNDING

The grounding system shall be designed and provided as per IEEE-80-2000 and CIGRE-44 to protect operating staff against any hazardous touch voltages and electro-magnetic interferences. The GIS supplier shall define clearly what constitutes the main grounding bus of the GIS. The GIS supplier must supply the entire material for grounding bus of GIS viz conductor, clamps, joints, operating and safety platforms etc. The GIS supplier is also required to supply all the earthing conductors and associated hardware material for the following:

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1) Connecting all GIS equipment, bus ducts, enclosures, control cabinets, supporting structure etc. to the ground bus of GIS.

2). The enclosure of the GIS may be grounded at several points so that there shall be grounded cage around all the live parts. A minimum of two nos. of grounding connections should be provided for each of circuit breaker, transformer terminals, cable terminals, surge arrestors, earth switches and at each end of the bus bars. The grounding continuity between each enclosure shall be effectively interconnected with Cu/ Al bonds of suitable size to bridge the flanges. In case the bidder does not offer external bonding, the bidder shall demonstrate that the connectivity offered by them between each enclosure is effective and does not require external bonding. Further similar design should have been in service. Subassembly to subassembly bonding shall be provided to provide gap & safe voltage gradients between all intentionally grounded parts of the GIS assembly & between those parts and the main grounding bus of the GIS.

Each marshalling box, local control panel, power and control cable sheaths and other non current carrying metallic structures shall be connected to the grounding system of GIS via connections that are separated from GIS enclosures. The grounding connector shall be of sufficient mechanical strength to withstand electromagnetic forces as well as capable of carrying the anticipated maximum fault current without overheating. At least two grounding paths shall be provided to connect each point to the main grounding bus. Necessary precautions should be under taken to prevent excessive currents from being induced into adjacent frames, structures of reinforcing steel and to avoid establishment of current loops via other station equipment.

All flexible bonding leads shall be tinned copper. All connectors, for attaching flexible bonding leads to grounding conductors and grounding conductors to support structures shall be tinned bronze with stainless steel or tinned bronze hardware.

The contractor shall provide suitable measure to mitigate transient enclosure voltage caused by high frequency currents caused by lightning strikes, operation of surge arrestor, ph./ earth fault and discharges between contacts during switching operation. The grounding system shall ensure safe touch & step voltages in all the enclosures. The contractor shall provide suitable barrier of non-linear resistor/ counter discontinued SF6/ Air termination, SF6/ Transformer or Reactor termination, SF6/ HV cable bushing etc. to mitigate transient enclosure voltage

11. CIRCUIT BREAKERS

11.1 General

SF6 gas insulated metal enclosed circuit breakers shall comply with the latest revisions of IEC- 62271-100 & relevant IEC except to the extent explicitly modified in the specification and shall meet with requirements specified. Circuit

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breakers shall be equipped with the operating mechanism. Circuit breakers shall be of single pressure type. Complete circuit breaker with all necessary items for successful operation shall be supplied. The circuit breakers shall be designed for high speed single and three phase reclosing with an operating sequence and timing as specified.

11.2. Duty Requirements

Circuit breaker shall be C2 - M2 class as per IEC 62271-100. Circuit breaker shall meet the duty requirements for any type of fault or fault location also for line charging and dropping when used on 400/220 kV effectively grounded system, with transmission lines of lengths and characteristics as indicated in Section Project and perform make and break operations as per the stipulated duty cycles satisfactorily.

11.3 Pre Insertion Resister

400 kV circuit breakers for line bay shall be provided with single step pre insertion closing resistors (wherever the requirement of PIR is explicitly specified so) to limit the switching surges to a value of less than 2.3 p.u. The value of the pre-insertion resistor and the duration of pre-insertion time shall be as given in clause 10.7.3 of this chapter. The resistor shall have thermal rating for the following duties :

i) TERMINAL FAULT

Close .... 1 Min ..... Open ..... Close open 2 min ..... close ..... 1 Min ..... open close open.

ii) RECLOSING AGAINST TRAPPED CHARGES

Duty same as under (i) above. The first, third and fourth closures are to be on de-energised line while second closing is to be made with lines against trapped charge of 1.2 p.u. (Based on 1 pu = 653kV) of opposite polarity.

iii) OUT OF PHASE CLOSING

One closing operation under phase opposition that is with twice the voltage across the terminals.

iv) No allowance shall be made for heat dissipation of resistor during time interval between successive closing operations. The resistors and resistor supports shall perform all these duties without deterioration. Calculations and test reports of resistors proving thermal rating for duties specified above shall be furnished along with the bid. The calculations shall take care of adverse tolerance on resistance values and time settings.

11.4. The circuit breaker shall be capable of:

i) Interrupting the steady and transient magnetizing current corresponding to 400

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kV/220 kV class transformers of 500MVA ratings on both 400 kV & 220 kV side.

ii) Interrupting line/cable charging current as per IEC without re-strikes and without use of opening resistors.

iii) Clearing short line fault (Kilometric faults) with source impedance behind the bus equivalent to symmetrical fault current specified.

iv) Breaking 25% the rated fault current at twice the rated voltage under phase opposition condition.

v) The breaker shall satisfactorily withstand the high stresses imposed on them during fault clearing, load rejection and re-energisation of lines with trapped charges.

vi) Withstanding all dielectric stresses imposed on it in open condition at lock out pressure continuously (ie., 2 p.u. across the breaker continuously, for validation of which a power frequency dielectric withstand test conducted for a duration of at least 15 minutes is acceptable).

vii) 400 kV breakers shall be able to switch in and out the 400 kV shunt reactor for any value from 50 MVAR up to 80 MVAR without giving rise to overvoltage more than 2.3 p.u. Laboratory test and or field test reports in support of the same shall be furnished along with the bid.

11.5 Controlled Switching Requirements:

The circuit Breaker shall be equipped with controlled switching with consequent optimization of switching behavior when used in switching of 400kV Bus reactor & switchable Line reactor. The controller shall be provided in Main & Tie circuit breakers of Bus reactors.

The controlling relay shall also record and monitor the switching operations and make adjustments to the switching instants to optimize the switching behavior as necessary. It shall provide self diagnostic facilities, signaling of alarms and enable downloading of data captured from the switching events.

11.5.1 Technical Requirement for controlled switching device:

1. The controller shall be designed to operate at the correctly and satisfactorily with the excursion of auxiliary A/C & DC voltages and frequency as specified in section – GTR.

2. The controller shall meet the requirements of IEC-60255-4 Appendix 'E' class III regarding HF disturbance test and fast transient test shall be as per IEC-61000-4 level III and insulation test as per 60255-5.

3. The controller shall have functions for switching ON & OFF the circuit breakers.

4. The controller shall get command to operate the breakers manually or through

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auto reclose relay at random. The controller shall be able to analyze the current and voltage waves available through the signals from secondaries of CTs & CVTs for the purpose of calculation of optimum moment of the switching the circuit breaker and issue command to circuit breaker to operate.

5. The controller shall also have an adaptive control feature to consider the next operating time of the breaker in calculation of optimum time of issuing the switching command. In calculation of next operating time of the breaker the controller must consider all factors that may affect the operating time of the breaker such as, but not limited to, ambient temperature, hydraulic/pneumatic pressure of the operating mechanism, control voltage variation, SF6 gas density variations etc. Schematic drawing for this purpose shall be provided by the contractor. The accuracy of the operating time estimation by the controller shall be better than + 0.5ms.

6. The controller should have display facility at the front for the settings and measured values.

7. The controller should be PC compatible for the setting of various parameters and down loading of the settings and measured values date time of witching etc. Window based software for this purpose shall be supplied by the contractor to be used on the owner's PC.

8. The controller shall have self-monitoring facility.

9. The controller shall be suitable for current input of 1 amp from the secondary of the CTs and 110V (ph to ph) from the CVTs. The controller shall also take care of transient and dynamic state values of the current from the secondary of the CTs and CVTs.

10. The controller shall have time setting resolution of 0.1ms or better

11. The controller shall have sufficient number of output/input potential free contacts for connecting the monitoring equipment and annunciation system available in the control room. Necessary details shall be worked out during engineering the scheme.

11.6 Total Break Time

The total break time shall not be exceeded under any of the following duties :

i) Test duties T10,T30,T60,T100 (with TRV as per IEC- 62271-100)

ii) Short line fault L90, L75 (with TRV as per IEC-62271-100)

iii) The Bidder may please note that total break time of the breaker shall not be exceeded under any duty conditions specified such as with the combined variation of the trip coil voltage (70-110%), pneumatic/hydraulic pressure and SF6 gas pressure etc. While furnishing the proof for the total break time of complete circuit breaker, the bidder may specifically bring out the effect of non

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simultaneity between poles and show how it is covered in the total break time. The values guaranteed shall be supported with the type test reports.

11.7. CONSTRUCTIONAL FEATURES

The features and constructional details of breakers shall be in accordance with requirements stated hereunder:

11.7.1. Contacts

All making and breaking contacts' shall be sealed and free from atmospheric effects. Contacts shall be designed to have adequate thermal and current carrying capacity for the duty specified and to have a life expectancy so that frequent replacement due to excessive burning will not be necessary. Provision shall be made for rapid dissipation of heat generated by the arc on opening.

11.7.2. Any device provided for voltage grading to damp oscillations or, to prevent re-strike prior to the complete interruption of the circuit or to limit over voltage on closing, shall have a life expectancy comparable of that of the breaker as a whole.

11.7.3. Breakers shall be so designed that when operated within their specified rating, the temperature of each part will be limited to values consistent with a long life for the material used. The temperature rise shall not exceed that indicated in IEC-62271-100 under specified ambient conditions.

11.7.4. The gap between the open contacts shall be such that it can withstand atleast the rated phase to ground voltage for eight hours at zero pressure above atmospheric level of SF6 gas due to its leakage. The breaker should be able to withstand all dielectric stresses imposed on it in open condition at lockout pressure continuously (i.e. 2 pu. power frequency voltage across the breaker continuously)

11.7.5. In the interrupter assembly there shall be an adsorbing product box to minimize the effect of SF6 decomposition products and moisture. The material used in the construction of the circuit breakers shall be such as to be fully compatible with SF6 gas decomposition products.

11.7.6. Provisions shall be made for attaching an operational analyzer to record travel, speed and making measurement of operating timings etc. after installation at site.

11.8. OPERATING MECHANISM

11.8.1. General Requirements:

a) Circuit breaker shall be operated by spring charged mechanism or electro hydraulic mechanism or a combination of these. The mechanism shall be housed in a dust proof cabinet and shall have IP : 42 degree of protection.

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b) The operating mechanism shall be strong, rigid, not subject to rebound or to critical adjustments at site and shall be readily accessible for maintenance.

c) The operating mechanism shall be suitable for high speed reclosing and other duties specified. During reclosing the breaker contacts shall close fully and then open. The mechanism shall be antipumping and trip free (as per IEC definition) under every method of closing.

d) The mechanism shall be such that the failure of any auxiliary spring will not prevent tripping and will not cause trip or closing operation of the power operating devices.

e) A mechanical indicator shall be provided to show open and close position of the breaker. It shall be located in a position where it will be visible to a man standing on the ground level with the mechanism housing closed. An operation counter shall also be provided in the central control cabinet/operating Mechanism.

f) Working parts of the mechanism shall be of corrosion resisting material, bearings which require grease shall be equipped with pressure type grease fittings. Bearing pin, bolts, nuts and other parts shall be adequately pinned or locked to prevent loosening or changing adjustment with repeated operation of the breaker.

g) The bidder shall furnish detailed operation and maintenance manual of the mechanism alongwith the operation manual for the circuit breaker.

11.8.2. Control

a) The close and trip circuits shall be designed to permit use of momentary-contact switches and push buttons.

b) Each breaker pole shall be provided with two (2) independent tripping circuits, valves, pressure switches, and coils each connected to a different set of protective relays.

c) The breaker shall normally be operated by remote electrical control. Electrical tripping shall be performed by shunt trip coils. However, provisions shall be made for local electrical control. For this purpose a local/remote selector switch and close and trip control switch/push buttons shall be provided in the breaker central control cabinet.

d) The trip coil shall be suitable for trip circuit supervision during both open and close position of breaker.

e) Closing coil and associated circuits shall operate correctly at all values of voltage between 85% and 110% of the rated voltage. Shunt trip and associated circuits shall operate correctly under all operating conditions of the circuit breaker upto the rated breaking capacity of the circuit breaker and at all values of supply voltage between 70% and 110% of rated voltage. If additional

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elements are introduced in the trip coil circuit their successful operation and reliability for similar applications on circuit breakers shall be clearly brought out in the additional information schedules. In the absence of adequate details the offer is likely to be rejected.

f) Densimeter contacts and pressure switch contacts shall be suitable for direct use as permissives in closing and tripping circuits. Separate contacts have to be used for each of tripping and closing circuits. If contacts are not suitably rated and multiplying relays are used then fail safe logic/schemes are to be employed. DC supplies for all auxiliary circuit shall be monitored and for remote annunciations and operation lockout in case of dc failures.

g) The auxiliary switch of the breaker shall be positively driven by the breaker operating rod.

11.8.3. Spring operated Mechanism

a) Spring operated mechanism shall be complete with motor in accordance with Section GTR. Opening spring and closing spring with limit switch for automatic charging and other necessary accessories to make the mechanism a complete operating unit shall also be provided.

b) As long as power is available to the motor, a continuous sequence of the closing and opening operations shall be possible. The motor shall have adequate thermal rating for this duty.

c) After failure of power supply to the motor one close open operation shall be possible with the energy contained in the operating mechanism.

d) Breaker operation shall be independent of the motor which shall be used solely for compressing the closing spring. Facility for manual charging of the closing spring shall also be provided. The motor rating shall be such that it required preferably not more than 60 seconds for full charging of the closing spring.

e) Closing action of circuit breaker shall compress the opening spring ready for tripping.

f) When closing springs are discharged after closing a breaker, closing springs shall automatically be charged for the next operation and an indication of this shall be provided in the local and remote control cabinet.

g) Provisions shall be made to prevent a closing operation of the breaker when the spring is in the partial charged condition.

h) Mechanical interlocks shall be provided in the operating mechanism to prevent discharging of closing springs when the breaker is in the closed position.

i) The spring operating mechanism shall have adequate energy stored in the operating spring to close and latch the circuit breaker against the rated making current and also to provide the required energy for the tripping mechanism in

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case the tripping energy is derived from the operating mechanism.

11.8.4. Hydraulically Operated Mechanism :

a) Hydraulically operated mechanism shall comprise of operating unit with power cylinder, control valves, high and low pressure reservoir, motor etc.

b) The hydraulic oil used shall be fully compatible for the temperature range to be encountered during operation.

c) The oil pressure switch controlling the oil pump and pressure in the high pressure reservoir shall have adequate no. of spare contacts, for continuous monitoring of low pressure, high pressure etc. at switchyard control room.

d) The mechanism shall be suitable for at-least two close open operations after failure of AC supply to the motor starting at pressure equal to the lowest pressure of auto reclose duty plus pressure drop for one close open operation.

e) The mechanism shall be capable of operating the circuit breaker correctly and performing the duty cycle specified under all conditions with the pressure of hydraulic operated fluid in the operating mechanism at the lowest permissible pressure before make up.

f) Trip lockout shall be provided to prevent operations of the circuit breaker below the minimum specified hydraulic pressure. Alarm contacts for lost of Nitrogen shall also be provided.

g) All hydraulic joints shall have no oil leakage under the site conditions and joints shall be tested at factory against oil leakage.

11.9. ADDITIONAL DATA TO BE FURNISHED ALONGWITH THE OFFER:

a) Drawing showing contacts in close, arc initiation, full arcing, arc extinction and open position.

b) Data on capabilities of circuit breakers in terms of time and number of operations at duties ranging from 100 fault currents to load currents of the lowest possible value without requiring any maintenance or checks.

c) Curves supported by test data indicating the opening time under close open operation with combined variation of trip coil voltage and hydraulic pressure.

11.10. TESTS

11.10.1. In accordance with the requirements stipulated under Section GTR the circuit breaker along with its operating mechanism shall conform to the type tests as per IEC-62271-100.

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11.10.2. Routine Tests

Routine tests as per IEC : 62271-100 shall be performed on all circuit breakers. In addition to the mechanical and electrical tests specified by IEC, the following shall also be performed. Speed curves for each breaker shall be obtained with the help of a suitable operation analyzer to determine the breaker contact movement during opening, closing, auto-reclosing and trip free operation under normal as well as limiting operating conditions (control voltage, pneumatic pressure etc.). The tests shall show the speed of contacts directly at various stages of operation, travel of contacts, opening time, closing time, shortest time between separation and meeting of contacts at break make operation etc. This test shall also be performed at site for which the necessary operation analyzer alongwith necessary transducers, cables, console etc. shall be furnished as mandatory maintenance equipment.

11.10.3 TECHNICAL PARAMETERS:

400 kV CIRCUIT BREAKER:

a)	Rated voltage kV (rms)	420
b)	Rated frequency (Hz)	50
c)	No. of poles	3
d)	Type of circuit breaker	SF6 insulated.
e)	Rated continuous current (A) at an ambient temperature of 50^0C	3150/4000 A (for line, transformer & Reactor, bus coupler bay breaker)
f)	Rated short circuit capacity	63kA/50kA with percentage of DC component as per IEC-62271-100 corresponding to minimum opening conditions as specified
g)	Symmetrical interrupting capability kA (rms)	63kA/50kA
h)	Rated short circuit making current kAp	157.5kA/125kA
i)	Short time current carrying capability for Three second kA (rms)	63kA/50kA
j)	Rated line charging interrupting current at 90 degree leading power factor angle (A rms)	As per IEC
	(The breaker shall be able to interrupt the rated line charging current with test voltage immediately before opening equal to the product of U/√3	

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	and 1.4 as per IEC-62271-100	
k)	First pole to clear factor	1.3
l)	Rated break time as IEC (ms)	40
m)	Total break time (ms)	45
n)	Total closing time (ms)	Not more than 150
o)	Rated operating duty cycle	O-0.3s –CO-3 min-CO
p)	Reclosing	Single phase & Three phase auto reclosing.
q)	Pre-insertion resistor requirement (If required) 1). Rating (ohms) 2). Minimum pre-insertion Times (ms) 3). Opening of PIR contacts	 400 8 a) PIR contacts should open immediately after closing of main contacts. b) Atleast 5 ms before opening of main contacts at rated air/gas pressure, where the PIR contact remain closed.
r)	Rated insulation levels Full wave impulse withstand (1.2x50micro sec.)	
	Between lines terminals and ground:	±1425 kVp
	Between terminals with circuit breaker open:	±1425 kVp impulse on one terminal & 240kVp of opposite polarity on the other terminal.
s)	Rated switching impulse withstand voltage (250/2500 micro-sec) Dry & wet. Between terminals with circuit breaker open:	1050kVp ±900 kVp impulse on one terminal & 345kVp of opposite polarity on the other terminal.
t)	One minute power frequency withstand voltage. • Between line • terminals and ground • Between terminals with circuit breaker open.	 650kV rms. 815kV rms.
u)	Max. radio interference voltage for frequency between 0.5 MHz and 2 MHz at 266kV(Micro volts)	1000
v)	Max. difference in the instants of closing/opening of contacts (ms) between poles.	As per IEC
w)	Trip coil and closing coil voltage	220V DC with variation as specified in Sec GTR
x)	Auxiliary contacts Auxiliary switch shall also comply with	Each circuit breaker pole shall be provided with an auxiliary switch with 20% of spare – NO & 20% spare

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	requirements as given. Independent single pole reversible contacts (from NO to NC & vice versa.	NC contacts for use in future.
y)	Rating of auxiliary contacts Breaking capacity of auxiliary contacts less than 20 ms. System neutral earthing	10A at 220V DC 2A DC with the circuit time constant of not less than 20ms. Effectively earthed.
z)	Mechanical & Electrical endurance class	M2-C2

245 kV CIRCUIT BREAKER:

a)	Rated voltage kV (rms)	245
b)	Rated frequency (Hz)	50
c)	No. of poles	3
d)	Type of circuit breaker	SF6 insulated.
e)	Rated continuous current (A) at an ambient temperature of 40^0C	1600/3000 A (3000 for bus coupler breaker)
f)	Rated short circuit capacity	50/40kA (As applicable) with percentage of DC component as per IEC-62271-100 corresponding to minimum opening conditions as specified
g)	Symmetrical interrupting capability kA (rms)	50/40 kA(As applicable)
h)	Rated short circuit making current kAp	125/100kA(As applicable)
i)	Short time current carrying capability for Three second kA (rms)	50/40 kA(As applicable)
j)	Rated line charging interrupting current at 90 degree leading power factor angle (A rms)	As per IEC
	(The breaker shall be able to interrupt the rated line charging current with test voltage immediately before opening equal to the product of U/√3 and 1.4 as per IEC-62271-100	
k)	First pole to clear factor	1.3
l)	Rated break time as IEC (ms)	60
m)	Total break time (ms)	65
n)	Total closing time (ms)	Not more than 200

o)	Rated operating duty cycle	O-0.3s –CO-3 min-CO
p)	Reclosing auto reclosing	Single phase / Three phase auto reclosing.

q)	Rated insulation levels	
	i)Full wave impulse withstand voltage (1.2x50micro sec.)	
	• Between lines terminals and ground:	±1050 kVp
	• Between terminals with circuit breaker open:	±1050 kVp
	ii)One minute power frequency withstand voltage.	
	• Between line terminals and ground	460kV rms.
	• Between terminals with circuit breaker open.	530kV rms.
r)	Max. radio interference voltage for frequency between 0.5 MHz and 2 MHz at 156kV(Micro volts)	1000
s)	Max. difference in the instants of closing/opening of contacts (ms) between poles.	As per IEC
t)	Trip coil and closing coil voltage	220V DC with variation as specified in Sec GTR
u)	Auxiliary contacts Auxiliary switch shall also comply with requirements as given. Independent single pole reversible contacts (from NO to NC & vice versa.	Each circuit breaker pole shall be provided with an auxiliary switch with 20% of spare – NO & 20% spare NC contacts for use in future.
	Rating of auxiliary contacts	10A at 220V DC
	Breaking capacity of auxiliary contacts less than 20 ms.	2A DC with the circuit time constant of not less than 20ms.
v)	System neutral earthing	Effectively earthed.
w)	Mechanical & Electrical endurance class	M2-C2

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12. DISCONNECTORS (ISOLATORS)

12.1. General

Disconnectors shall be of the single-pole, group operated type, installed in the switchgear to provide electrical isolation of the circuit breakers, the transformers, shunt reactor, double bus and transmission lines. The disconnectors shall conform to IEC- 62271-102 and shall have the following ratings as specified.

Technical Parameter

Sl. No.	Particulars	400kV	220kV
a)	Rated voltage (rms) Un	420kV	245kV
b)	Rated frequency	50Hz	5-Hz
c)	System earthing	Effectively earthed	Effectively earthed
d)	Type	SF6 insulated	SF6 insulated
e)	Rated continuous current (A) at an ambient temperature of 40^0C	3150/4000A (for line, Transformer & reactor / bus coupler / bay)	1600/3000 A (for line / bus coupler)
f)	Rated short time withstand current of isolator and earth switch	50/40kA for 1 sec. (As applicable)	50/40kA for 1 sec. (As applicable)
g)	Rated dynamic short circuit withstand current of isolator & earth switch	125/100kAp (as applicable)	125/100kAp (as applicable)
h)	Rated insulation level: One minute power frequency withstand voltage		
	To earth:	650kV rms	460kV rms
	Across isolating distance	815kV rms	530kV rms
	Rated insulation level: 1.2/50micro sec. lighting impulse withstand voltage (+ve or –ve polarity)		
	To earth:	1425kVp	1050kVp
	Across isolating distance	±1425 ±240kVp	±1200kVp
	Rated switching impulse withstand voltage (250/2500 micro. Sec.) dry & wet		
	Between line terminals & ground	±1050kVp	NA
	Between terminals with isolator open	±900kVp impulse on one terminal & 345kVp of opposite polarity on the other	NA

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Sl. No.	Particulars	400kV	220kV
		terminal	
i)	Rated mechanical terminal load	As per IEC	As per IEC
j)	No. of spare auxiliary contacts on each isolator	4 NO & 4NC	4 NO & 4NC
k)	No. of spare auxiliary contacts on each earthing switch	4 NO & 4NC	4 NO & 4NC
l)	A. Mechanical endurance class of disconnector. B. Electrical endurance class of earthing switches. i. High speed earthing switch with short circuit making capability. ii. Maintenance earthing switch	M2 (10,000) E1/E2 E0	M2 (10,000) E1/E2 E0

12.2. Construction & Design.

12.2.1. The single pole group operated disconnectors shall be operated by electric motor suitable for use on 220 v DC system and shall be equipped with a manual operating mechanism for emergency use. The motor shall be protected against over current and short circuit.

12.2.2. Disconnectors shall be suitable to switch the bus charging currents during their opening and closing and shall confirm to all test duties as per Annexure –F of IEC: 62271-102. They shall also be able to make and break rated bus transfer current at rated bus transfer voltage which appears during transfer between busbars in accordance with Annexure-B of IEC: 62271-102. The contact shielding shall also be designed to prevent restrikes and high local stresses caused by transient recovery voltages when these currents are interrupted.

12.2.3. The disconnecting switches shall be arranged in such a way that all the three phases operate simultaneously. All the parts of the operating mechanism shall be able to withstand starting torque of the motor mechanism without damage until the motor overload protection operates.

12.2.4. It shall be possible to operate the disconnecting switches manually by cranks or handwheels. The contacts shall be both mechanically and electrically disconnected during the manual operation.

12.2.5. The operating mechanisms shall be complete with all necessary linkages,

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clamps, couplings, operating rods, support brackets and grounding devices. All the bearings shall be permanently lubricated or shall be of such a type that no lubrication or maintenance is required.

12.2.6. The opening and closing of the disconnectors shall be achieved by either local or remote control. The local operation shall be by means of a two-position control switch located in the bay module control cabinet.

12.2.7. Remote control of the disconnectors from the control room shall be made by means of remote/ local transfer switch.

12.2.8. The disconnector operations shall be inter-locked electrically with the associated circuit breakers in such a way that the disconnector control is inoperative if the circuit breaker is closed.

12.2.9. Each disconnector shall be supplied with auxiliary switch having four normally open and four normally closed contacts for future use over and above those required for switchgear interlocking and automation purposes. The auxiliary switch contacts are to be continuously adjustable such that, when required, they can be adjusted to make contact before the main switch contacts.

12.2.10. The signaling of the closed position of the disconnector shall not take place unless it is certain that the movable contacts will reach a position in which the rated normal current, peak withstand current and short-time withstand current can be carried safely.

12.2.11. The signaling of the open position of the disconnector shall not take place unless the movable contacts have reached such a position that the clearance between the contacts is at least 80 percent of the rated isolating distance.

12.2.12. All auxiliary switches and auxiliary circuits shall be capable of carrying a current of at least 10 A DC continuously.

12.2.13. The auxiliary switches shall be capable of breaking at least 2 A in a 220 V DC circuit with a time constant of not less than 20 milliseconds.

12.2.14. The disconnectors and safety grounding switches shall have a mechanical key (pad locking key) and electrical inter-locks to prevent closing of the grounding switches when isolator switches are in the closed position and to prevent closing of the disconnectors when the grounding switch is in the closed position.

12.2.15. The local control of the Isolator and high-speed grounding switches from the bay module control panel should be achieved from the individual control switches with the remote/local transfer switch set to local.

12.2.16. All electrical sequence interlocks will apply in both remote and local control modes.

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12.2.17. Each disconnector shall have a clearly identifiable local, positively driven mechanical position indicator, together with position indicator on the bay module control cabinet and provisions for taking the signals to the control room. The details of the inscriptions and colouring for the indicator are given as under :

	SIGN	COLOUR
Open position	Open	Green
Closed position	Closed	Red

12.2.18. All the disconnecting switches shall have arrangement allowing easy visual inspection of the travel of the switch contacts in both open and close positions, from the outside of the enclosure.

12.2.19. The disconnecting switches shall be provided with rating plates and shall be accessible for inspection.

12.2.20. The disconnecting switches shall be capable of being padlocked in both the open and closed positions with the operating motor automatically disengaged. The padlocking device shall be suitable for a standard size lock with a 10 mm shank. The padlock must be visible and directly lock the final output shaft of the operating mechanism. Integrally mounted lock when provided shall be equipped with a unique key for such three phase group. Master key is not permitted.

12.2.21. Tests: The disconnectors & earth switch shall confirm to type tests and shall be subjected to routine test in accordance with IEC – 62271-100/102

13. SAFETY GROUNDING SWITCHES

13.1. Three-pole, group operated, safety grounding switches shall be operated by electric motor for use on 220 V DC ungrounded system and shall be equipped with a manual operating mechanism for emergency use. The motor shall be protected against over-current and short circuit.

13.2. Each safety grounding switch shall be electrically interlocked with its associated disconnector and circuit breaker such that it can only be closed if both the current breaker and disconnector are in open position. Safety grounding switch shall also be mechanically key interlocked with its associated disconnector.

13.3. Each safety grounding switch shall have clearly identifiable local positive driven mechanical indicator together with position indicator on the bay module control cabinet and provision for taking the signal to Control room.

13.4. The details of the inscription and colouring for the indicator are given as under :

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	SIGN	COLOUR
Open position	Open	Green
Closed position	Closed	Red

13.5. Interlocks shall be provided so that manual operation of the switches or insertion of the manual operating device will disable the electrical control circuits.

13.6. Each ground switch shall be fitted with auxiliary switches having four normally open and four normally closed contacts for use by others over and above those required for local interlocking and position indication purposes.

13.7. Provision shall be made for padlocking the ground switches in either the open or closed position.

13.8. All portions of the grounding switch and operating mechanism required for grounding shall be connected together utilizing flexible copper conductors having a minimum cross-sectional area of 100 sq. mm.

13.9. The main grounding connections on each grounding switch shall be rated to carry the full short circuit rating of the switch for 1 sec. and shall be equipped with a silver- plated terminal connector suitable for steel strap of adequate rating for connection to the grounding grid.

13.10. The safety grounding switches shall conform to the requirements of IEC-62271- 102

13.11. Mechanical position indication shall be provided locally at each switch and remotely at each bay module control cabinet/ substation automation system.

14. HIGH SPEED MAKE PROOF GROUNDING SWITCHES:

Grounding switches located at the beginning of the line feeder bay modules shall be of the high speed, make proof type and will be used to discharge the respective charging currents, in addition to their safety grounding function. These grounding switches shall be capable of interrupting the inductive currents and to withstand the associated TRV.

Single phase switches shall be provided with operating mechanism suitable for operation from a 220V DC.

The switches shall be fitted with a stored energy closing system to provide fault making capacity.

The short circuit making current rating of each ground switch shall be at least equal to its peak withstand current rating of 125/100 kA (As applicable). The switches shall have inductive/ capacitive current switching capacity as per

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IEC-62271-102.

Each high speed make proof grounding switch shall have clearly identifiable local positive driven mechanical indicator together with position

indicator on the bay module control cabinet and provision for taking the signal Control Room.

The details of the inscription and colouring for the indicator shall be as under:-

	SIGN	COLOUR
OPEN POSITION	Open	Green
CLOSED POSITION	Closed	Red

High speed ground switch operation should be possible locally from the bay module control cabinet, or remotely from the control room in conjunction with opening of the associated disconnector.

These high speed grounding switches shall be electrically interlocked with their associated circuit breakers and disconnectors so that the grounding switches can not be closed if the circuit breakers and disconnectors are closed.

Interlocks shall be provided so that the insertion of the manual operating devices will disable the electrical control circuits.

Each high speed ground switch shall be fitted with auxiliary switches having four NO & four NC auxiliary contacts for use by others, over and above these required for local interlocking and position indication. All contacts shall be wired to terminal blocks in the local bay control cabinet. Provision shall be made for padlocking the ground switches in their open or closed position.

All portion of the grounding switches and operating mechanism required for connection to ground shall be connected together utilizing copper conductor having minimum cross-sectional area of 100 sq. mm.

The main grounding connection on each grounding switch shall be rated to carry the peak withstand current rating of the switch for 1 sec. and shall be equipped with a silver plated terminal connector suitable for steel strap of adequate design for connection to the grounding grid.

The high speed make proof grounding switches shall confirm to the requirements of IEC-62271-102.

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15. INSTRUMENT TRANSFORMERS

15.1. Instrument Transformers

15.1.1. Current Transformers

a) General :

i) The current transformers and accessories shall conform to IEC : 61869-2/1 and other relevant standards except to the extent explicitly modified in the specification.

ii) The particulars of the various cores may change within reasonable limits as per the requirements of protection relay supplier. The manufacturer is required to have these values confirmed from the purchaser before proceeding with design of the cores. The other characteristics of CTs shall be as given in TECHNICAL PARAMETER of Current Transformer.

b) Ratios and Characteristics

The number, rating, ratios, accuracy class, etc. for the individual current transformers secondary cores shall be in accordance with Table-IA & 1B Where multi-ratio current transformers are required the various ratios shall be obtained by changing the effective number of turns on the secondary winding.

c) Rating and Diagram Plates

Rating and diagram plates shall be as specified in the IEC specification incorporating the year of manufacture. The rated extended current rating voltage and rated thermal current shall also be marked on the name plate.

The diagram plates shall show the terminal markings and the relative physical arrangement of the current transformer cores with respect to the primary terminals (P1 & P2).

The position of each primary terminal in the current transformer SF6 gas section shall be clearly marked by two plates fixed to the enclosure at each end of the current transformer.

d) Constructional Details:

a) The current transformers incorporated into the GIS will be used for protective relaying and metering and shall be of metal- enclosed type. All the current transformers shall have effective electromagnetic shields to protect against high frequency transients.

b) Each current transformer shall be equipped with a marshalling box with terminals for the secondary circuits, which are connected to the local control cubicle. The star/ delta configuration and the inter connection to the line protection panels will be done at the CT terminal block located in the local

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control cubicle.

c) Current transformers guaranteed burdens and accuracy class are to be intended as simultaneous for all cores.

d) The rated extended primary current shall be 150% at highest ratio and 200% at ratios other than highest ratios.

e) The instrument security factor at all ratios shall be less than five (5) for metering core. If any auxiliary CTs/reactor are used in the current transformers then all parameters specified shall have to be met treating auxiliary CTs as an integral part of the current transformer. The auxiliary CTs/reactor shall preferably built in construction of the CTs.

f) The wiring diagram, for the interconnections of the three single phase CTs shall be provided inside the marshalling box.

g) The current transformers shall be suitable for high speed auto-reclosing.

i) Provisions shall be made for primary injection testing either within CT or outside.

ii) Electromagnetic shields to be provided against high frequency transients typically 1-30 Hz.

15.1.2. VOLTAGE TRANSFORMERS

a) General

The voltage transformers shall conform to IEC- 61869-3/1 and other relevant standards except to the extent explicitly modified in the specification. Voltage transformers shall be of the electromagnetic type with SF6 gas insulation. The earth end of the high voltage winding and the ends of the secondary winding shall be brought out in the terminal box. However, for 400 kV on the lines outdoor type Capacitive Voltage Transformers suitable for carrier coupling shall be provided.

b) Ratios and Characteristics

The rating, ratio, accuracy class, connection etc. for the voltage transformers shall be in accordance with Table II-A and Table II-B.

c) Rating and diagram plates

Rating and diagram plate shall be provided complying with the requirements of the IEC specification incorporating the year of manufacture and including turns ratio, voltage ratio, burden, connection diagram etc.

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d) Secondary Terminals, Earthing and Fuses

The beginning and end of each secondary winding shall be wired to suitable terminals accommodated in a terminal box mounted directly on the voltage transformer section of the SF6 switchgear. All terminals shall be stamped or otherwise marked to correspond with the marking on the diagram plate. Provision shall be made for earthing of the secondary windings inside the terminal box.

e) The transformer shall be able to sustain full line to line voltage without saturation of transformer.

The accuracy class will be at maximum tap.

f) Constructional Details of Voltage Transformers :

a) The voltage transformers shall be located in a separate bay module on the bus and will be connected phase- to ground and shall be used for protection, metering and synchronization.

b) The voltage transformers shall be of inductive type, nonresistant and shall be contained in their own-SF6 compartment, separated from other parts of installation. The voltage transformers shall be effectively shielded against high frequency electromagnetic transients. The voltage transformers shall have three secondary windings

c) Voltage transformers secondaries shall be protected by HRC cartridge type fuses/MCB for all the windings. In addition fuses shall be provided for the protection and metering windings for fuse monitoring scheme. The secondary terminals of the VT's shall be terminated to the stud type non-disconnecting terminal blocks in the secondary boxes via the fuse/MCB.

d) The voltage transformer should be thermally and dielectrically safe when the secondary terminals are loaded with the guaranteed thermal burdens.

e) The accuracy of 0.2 on secondary III should be maintained through out the entire burden range upto 100 VA on all the three windings without any adjustments during operation.

f) The diagram for the interconnection of the VTs shall be provided inside the marshalling box.

15.1.3. TESTS:

Current and voltage transformers shall conform to type tests and shall be subjected to routine test in accordance with IEC.

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15.1.4 TECHNICAL PARAMETERS

15.1.4.1 Current Transformers

Sl. No.	Particulars	400kV	220kV
a	Rated Voltage Un	420 kV (rms)	245 kV (rms)
b	Rated frequency	50hZ	50hZ
c	System neutral earthing	Effectively earthed	Effectively earthed
d	Rated short time thermal current	50kAp. for 1 second.	50/40 kAp. (as applicable) for 1 second.
e	Rated dynamic current	125 kAp. for 1 second	125/100 kAp. (As applicable) for 1 second
f	Rated insulation levels 1) 1.2/50 micro second impulse voltage 2) 1 minute power frequency withstand voltage 3) 250/2500micro second switching impulse voltage (Dry & wet)	 ± 1425 kVp 650 kV (ram) 1050kVp	 ± 1050 kVp 460kv (rms)
g	Maximum temperature rise over an ambient temperature of 40^0C	As per IEC 61869-2/1	As per IEC 61869-2/1
h	Radio interference voltage at 1.1Un/√3 and frequency range 0.5 to 2 MHz	1000 microvolts	1000 microvolts
i	One minute power frequency withstand voltage between secondary terminal and earth	3kV (rms)	3kV (rms)
j	Partial discharge level	10 pico coulombs	10 pico coulombs

15.1.4.2 Voltage Transformers

Sl. No.	Particulars	400kV	220kV
a	Rated System Voltage Un	420 kV (rms)	245 kV (rms)
b	Rated frequency	50hZ	50hZ
c	System neutral earthing	Effectively earthed	Effectively earthed
d	System fault level	50 kAp. for 1 second.	50/40 kAp. (as applicable) for 1 second.

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e	Rated insulation levels 1) 1.2/50 micro second impulse voltage 2) 1 minute power frequency withstand voltage 3) 250/2500micro second switching impulse voltage (Dry & wet)	± 1425 kVp 650 kV (ram) 1050kVp for 400kV system	± 1050 kVp 460kv (rms)
f	One minute power frequency withstand voltage for secondary winding	3KV(rms)	3kV (rms)
g	Radio interference voltage at 1.1Un/√3 and frequency range 0.5 to 2 MHz	1000 microvolts	1000 microvolts
h	Rated total thermal burden	400VA	400VA
i	Partial discharge level	10 pico couloms	10 pico couloms

16 OUTDOOR BUSHINGS :

A. General

Outdoor bushings, for the connection of conventional external conductors to the SF6 metal enclosed switchgear, shall be provided where specified and shall conform to the requirements given in GTR. The dimensional and clearance requirements for the metal enclosure will be the responsibility of the manufacturer and their dimensions must be coordinated with the switchgear. Bushings shall generally be in accordance with the requirements of IEC publication 60137 as applicable.

B. Insulation levels and creepage distances

All bushings shall have an impulse and power frequency withstand level that is greater than or equal to the levels specified for GIS. The creepage distance over the external surface of outdoor bushings shall not be less than 25 mm/kV.

C. Bushing types and fitting

Condenser type bushings will be preferred but alternative types can also be considered. Liquid filled bushings shall be provided with liquid level gauges clearly visible from ground level, preferably of the direct reading prismatic type or the magnetic type. Other types of liquid level gauges will only be accepted if specifically approved.

D. Mechanical forces on bushing terminals

Outdoor bushings must be capable of withstanding cantilever forces due to

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weight of busduct and short circuit forces. Design calculations in support of the cantilever strength chosen shall be submitted for owners review and approval.

E. The major parameters of the bushings shall be as follows:-

i	Rated Voltage (kv)	420 kV	245 kV
ii	Rated current (Amp)	3150/2000 (as applicable)	1600
iii	Lightning impulse withstand voltage (kVp)	1425	1050
iv	Switching impulse withstand voltage (kVp)	1050	-
v	One minute power frequency withstand voltage kV (rms)	650	460
vi	Minimum total creepage distances (mm)	10500	6125

17 Surge Arrestors

The surge arrestors shall confirm in general to latest IEC –60099-4.

17.1 INSULATION CO-ORDINATION AND SELECTION OF SURGE ARRESTOR

The contractor shall be fully responsible for complete insulation co-ordination of switchyard including GIS. Contractor shall carry out detailed studies and design calculations to evolve the required parameters locations, energy capability etc. of surge arrestors such that adequate protective margin is available between peak impulse, surge and power frequency discharge voltages and BIL of the protected requirement. The locations of surge arrestors shown in single line diagram is indicative only. If the bidders feels that at some more locations the surge arrestors are required to be provided the same should also be included in the offer.

The contractor shall perform all necessary studies. The report shall detail the limits of all equipment parameters which could affect the insulation co-ordination .The report shall also detail the characteristics of the surge arrestor and shall demonstrate that the selected arrestor's protective and withstand levels, discharge and coordinating currents, and arrestor ratings and comply with the requirement of this specification.

The contractor shall also consider in the studies the open circuit breaker condition, fast transients generated by slow operation of disconnecting switches. The study report and design calculations shall be submitted for Owner's approval.

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17.2 Duty requirements

a) The surge arrester shall be of heavy duty station class and gapless (Metal oxide) type without any series or shunt gaps.

b) The surge arresters shall be capable of discharging over-voltages occurring during switching of unloaded transformers, reactors and long lines.

c) 420 kV class Surge arresters shall be capable of discharging of severe re-energisation switching surges on a 400 kV, 450 Km long line with surge impedance of 300 ohms and capacitance of 12 nF/Km and over voltage factor of 2.3 p.u

d) 420 kV class arrester shall be capable of discharging energy equivalent to class 4 of IEC for a 420 kV system on two successive operation followed immediately by 50 HZ energisation with a sequential voltage profile as specified below:

705 kVp for 3 peaks

580 kVp for 0.1 Sec.

565 kVp for 1 Sec.

550 kVp for 10 Secs.

e) 245 kV class arrester shall be capable of discharging energy equivalent to class 3 of IEC for 245 kV system on two successive operations.

f) The reference current of the arresters shall be high enough to eliminate the influence of grading and stray capacitance on the measured reference voltage.

g) The surge arresters are being provided to protect the followings whose insulation levels are indicated in the table given below:-

Equipment to be protected	**Lightning impulse (kVp) for 420kV system**	**Switching serge (kVp) for 420kV system**	**Lightning impulse (kVp) for 245kV system**
Power transformer	± 1300	± 1050	± 950
Instrument transformer	± 1425	± 1050	± 1050
Reactor	± 1300	± 1050	-
CB/Isolator phase to ground	± 1425	± 1050	± 1050
Across open contacts	± 1425 (±240)	± 900 (± 345)	± 1200

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17.3 Constructional Features

The nonlinear blocks shall be of infered metal oxide material. These shall be provided in such a way as to obtain robust construction, with excellent mechanical and electrical properties even after repeated operations. The arrestor enclosure shall be vertically or horizontally mounted to suit the layout of the switchgear as suggested by the manufacturer and shall be fitted with a discharge counter located in an easily accessible position. The main grounding connection from the surge arrestor to the earth shall be provided by the bidder. The size of the connecting conductor shall be such that all the energy is dissipated to the ground without getting overheated.

17.4 Tests

In accordance with the requirements stipulated the surge arrestors shall conform to type tests and shall be subjected to routine and acceptance tests in accordance with IEC document. Each metaloxide block shall be tested for the guaranteed specific energy capability in addition to the routine/acceptance test as per IEC-60099.

17.5 Test on Surge Monitors :

The Surge monitors shall also be connected in series with the test specimens during residual voltage and current impulse withstand tests to verify efficacy of the same. Additional routine/functional tests with one 100A and 10 kA current impulse, (8/20 micro sec.) shall also be performed on the surge monitor.

17.6 Parameters

Following are the parameters for 400kV and 220 kV system generally adopted by Owner for their installations. These parameters are indicative and not binding. The actual parameters required for the installation shall be evolved by contractor.

420KV & 220KV CLASS SURGE ARRESTOR

Sl. No.	Particulars	400kV	220kV
a)	Rated System Voltage	420 kV	245 kV
b)	System neutral earthing	Effectively earthed	Effectively earthed
c)	Rated arrester voltage	390kV	216kV
d)	Nominal discharge current	10kA of 8/20 micro second wave	10kA of 8/20 micro second wave
e)	Rated frequency	50Hz	50Hz
f)	Minimum discharge capability voltage corresponding to minimum discharge	8 KJ/kV or corresponding to Cl. 3.4.1 (d) to rated	5KJ/kV (referred to rated arrestor)

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	characteristics	arrestor voltage and at minimum discharge characteristics whichever is higher.	
g)	Continuous operating voltage at 50^0C	303kV	168kV
h)	Min. switching serge residual voltage (1kA) Max. switching serge residual voltage (1kA)	730kVp 780kVp	- 500kVp
i)	Max. residual voltage at (i). 5kA (ii). 10kA nominal discharge current iii). 20kA nominal discharge current	 - 900kVp 975kVp	 560kVp 600kVp -
j)	Long duration discharge class	4	3
k)	High current short duration test value (4/10 micro sec. wave)	100kAp	100kAp
l)	Current for pressure relief test	40kA rms	40kA rms
m)	Prospective symmetrical fault current	40kA rms for 0.2 Sec.	40kA rms for 0.2 Sec.
n)	Pressure relief class	A	A
o)	RIV at 1.1Un/√3 kV rms (micro volts)	Less than 500	Less than 500
p)	Partial discharge at 1.05 COV	Not more than 50	Not more than 50
q)	Reference ambient temp.	50^0C	50^0C

18. 400 kV & 220 kV GIS BUILDING (If applicable):

a) The buildings shall house 400 KV and 220 KV Gas Insulated Switchgear (GIS) separately and other associated equipments inside in each of the GIS building.

b) The bidder shall submit the design & construction proposal of the building along with necessary information, data, and drawings in the techno-commercial bid according to the complete requirements.

b) The dimensions for 400 KV & 220 KV GIS building is indicated in the enclosed layout plan. The dimension given is for reference only and may vary according to requirement of the equipment to be installed inside. The bidder shall finalize the dimensions according to the equipment offered by them providing enough space & access for erection, operation and maintenance. The dimensions indicated in the tender drawing is only indicative and minimum required. (Refer Annexure V of projects).

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19. Seismic Design Criteria:

The equipment shall be designed for operation in seismic zone for earthquake resistance. The seismic loads are due to the horizontal and vertical acceleration which may be assumed to act non concurrently. Seismic level Zone- II as per new IS- 1893, latest edition has to be considered for the design of equipment. The seismic loads shall be equal to static loads corresponding to the weight of the parts multiplied by the acceleration. The equipments along with its parts shall be strong enough and sufficiently well connected to resist total operating stresses resulting from the forces in normal operation but in case of abnormal condition shall also resist with forces superimposed due to earthquakes. The copies of type test reports for similar rated equipment, if tested earlier, should be furnished along with the tender. If the equipment has not been type tested earlier, design calculations of simulated parameters should be furnished along with the offer.

To prevent the movement of GIS sub assemblies i.e. various bay modules during the earthquake, suitable devices shall be provided for fixing the sub assemblies to the foundation. The contractor shall supply necessary bolts for embedding in the concrete foundation. The fixing of GIS sub assemblies to the foundation shall be designed to with-stand the seismic events. It will also be ensured that the special devices as well as bolts shall not be over stressed. The details of the devices used and the calculations for establishing the adequacy shall be furnished by the supplier and shall be subject to the purchase's approval.

20. PARTIAL DISCHARGE MONITORING SYSTEM & DEW POINT METER

Online P.D meter, Online SF6 & O2 monitoring & alarm system and Dew point meter shall be offered as per relevant schedule of BPS and shall be considered for evaluation of bid. The specifications are enclosed at Annex-A1. Contractor shall provide adequate number of UHF sensors in the offered GIS for connection to the Online PD meter & the number & location of these sensors shall be subject to approval of the purchaser.

21. QUALITY OF SF6 GAS

a) The SF6 gas insulated metal-clad switchgear shall be designed for use with SF6 gas complying with the recommendations of IEC 60376, 60376A & 60376B, at the time of the first charging with gas. All SF6 gas supplied as part of the contract shall comply with the requirements of IEC as above as a minimum & should be suitable in all respects for use in the switchgear under all operating conditions.

b) The high pressure cylinders in which SF6 gas is supplied & stored at site shall comply with the requirements of following standards & regulations :

IS : 4379 Identification of the contents of industrial gas cylinders.

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IS : 7311 Seamless high carbon steel cylinders for permanent & high pressure liquefiable gases. The cylinders shall also meet Indian Boilers Regulations. (Mandatory)

c) Test

SF6 gas shall be tested for purity, dew point, air, hydrolysable fluorides and water contents as per IEC:60376, 60376A & 60376B and test certificates shall be furnished to the owner indicating all test results as per IEC standards for each lot of SF6 gas. Further site tests for moisture, air con-tent, flash point and dielectric strength to be done during commissioning of GIS. Gas bottles should be tested for leakage during receipt at site.

d) The bidder shall indicate diagnostic test methods for checking the quality of gas in the various sections during service. The method proposed shall, as a minimum check the moisture content & the percentage of purity of the gas on annual basis.

e) The bidder shall also indicate clearly the precise procedure to be adopted by maintenance personnel for handling equipment that are exposed to the products of arcing in SF6 Gas so as to ensure that they are not affected by possible irritants of the skin and respiratory system. Recommendations shall be submitted for suitable protective clothing, method of disposal of cleaning utensils and other relevant matters.

f) The bidder shall also indicate the details and type of filters used in various gas sections, and should also submit the operating experience with such filters.

22. SF6 GAS MONITORING DEVICES AND ALARM CIRCUITS:-

22.1 Dial type temperature compensated gas density or density monitoring devices with associated pressure gauge will be provided. The devices shall provide continuous & automatic monitoring of the state of the gas & a separate device shall be provided for each gas compartment so that each compartment can be monitored simultaneously as follows:-

1) Compartments except circuit breaker

a) Gas Refill level

This will be used to annunciate the need for the gas refilling. The contractor shall provide a contact for remote indication.

b) 'Zone Trip' level

This is the minimum level at which the manufacturer will guarantee the insulation rating of the assembly. Contacts shall be in accordance with requirement.

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2) **Circuit Breaker**

a) **'Gas Refill' level**

This will be used to annunciate the need for gas refilling. The contractor shall provide contact for remote indication.

b) **'Breaker Block' level**

This is the minimum gas density at which the manufacturer will guarantee the rated fault interrupting capability of the breaker. At this level the breaker block contact shall operate & the trip-ping & closing circuit shall be blocked.

c) **'Zone Trip' level**

This is the minimum level at which the manufacturer will guarantee the insulation rating of the assembly. Contacts shall be in accordance with requirement. The bidder should furnish temperature v/s pressure curves for each setting of density monitor along with details of the monitoring device. It shall be possible to test all gas monitoring relays/devices without de-energizing the primary equipment & without reducing pressure in the main section. Plugs & sockets shall be used for test purposes. It shall also damp the pressure pulsation while filling the gas in service, so that flickering of the pressure switch contacts does not take place.

3)

a. The gas density and pressure sensitive devices, together with all relays supplied by the manufacturer for use in protection, shall be approved by the PURCHASER. It shall be possible to test all gas monitoring relays without de-energizing the primary equipment and without reducing pressure in the main section. Disconnecting type plugs and sockets shall be used for test purposes; the pressure/density device shall be suitable for connecting to the male portion of the plug.

b. Two potential free electrical contacts shall be provided with each and every alarm condition. These are to be grouped together and wired to the cable termination blocks in the local control panels to give remote alarm indications/annunciation's the remote panels. The BIDDER will be advised of the grouping required after the contract has been placed. Provision shall be made for display of gas pressure of all individual gas compartment in the remote panel/HMI. The density monitor shall be provided with necessary signal Transmitter (mA) for display of actual gas pressure in the remote HMI.

c. BIDDER shall advise if the breakers are suitable for breaking the load current even if SF-6 gas pressure has reduced to atmospheric pressure.

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22.2

a) Gas Leakage

The maximum gas leakage shall not exceed 0.5% (half percent) per year for the whole equipment and for any individual gas compartment separately.

b) Gas Supply

The contractor shall include the supply of all SF6 gas necessary for filing & putting into operation the complete switchgear installation being supplied. In addition, 20% of total gas requirement shall be supplied in separate cylinders as spare requirement, over & above the requirement of gas for successful commissioning. Pl. refer list of mandatory spares in this connection.

23. GAS FILLING AND EVACUATING PLANT

All the plant necessary for filling and evacuating the SF6 gas in the switchgear shall be supplied with the contract to enable any maintenance work to be carried out. This shall include all the necessary gas cylinders for temporarily storing the evacuated SF6 gas. The capacity of the temporary storage facilities shall at least be sufficient for storing the maximum quantity of gas that could be removed when carrying out maintenance or repair work on the switchgear and associate equipment of at least one complete bay. Where any item of the filling and evacuating plant is of such a weight that it cannot easily be carried by maintenance personnel, it shall be provided with lifting hooks for lifting and moving with the overhead cranes. The capacity of evacuation plant will be as under :

Vacuum Pump: 40 M^3/Hour(Nominal suction pressure)

Compressor: 15 M^3/Hour(Delivery)

The evacuation equipment shall be provided with all the necessary pipes, couplings, flexible tubes and valves for coupling up to the switchgear for filling or evacuating all the gases. The gas compartments shall preferably be fitted with permanent non-return valves through which the gas is pumped into or evacuated form the compartments. Details of the filling and evacuating plant that will be supplied, as well as the description of the filling and evacuating procedures shall be provided along with the bid.

24. SF6 GIS to XLPE Cable Termination (If Applicable):

The 220 kV underground cables are to be connected to 220 kV GIS by the interfacing of XLPE cable sealing end to GIS Cable termination enclosure for making connection 1C x 1000 sq mm (As applicable) XLPE cable. Cable termination kit shall be supplied by cable supplier. The ducts and the casing shall be suitable for the requirements for which it is designed. This interface section shall be designed in a manner which will allow ease of operation and maintenance.

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The SF6 GIS to XLPE cable termination shall conform to IEC-62271-209(latest edition).

The provision shall be made for a removable link. The gap created when the link is removed should have sufficient electric strength to withstand the switchgear high voltage site tests. The bidder may suggest alternative arrangements to meet these requirements. The corona rings/stress shields for the control of electrical field in the vicinity of the isolation gap shall be provided by the GIS manufacturer.

All supporting structures for the SF6 bus-duct connections between the XLPE cable sealing ends and the GIS shall be supplied by the supplier. The supplier may specify alternative connecting & supporting arrangements for approval of the purchaser.

The opening for access shall be provided in each phase terminal enclosures as necessary to permit removal of connectors to isolate the XLPE cables to allow carrying out the insulation tests. The typical arrangement drawing of interconnecting bus-duct from GIS bay module to XLPE cable termination end shall be submitted along with offer.

25. Electric Overhead Crane (If applicable):

One EOT Crane each for 400kV & 220kV GIS hall of suitable capacity shall be provided for erection & maintenance of largest GIS component/assembly. The crane shall consist of all special requirements for erection & maintenance of GIS equipments.

The crane shall be possible to be operated through the cable & through the pendant control or through remote control device, which shall be easily accessible from the floor of GIS building.

26. The crane for 400kV GIS hall shall have capacity of minimum 6T safe working load & minimum height of crane shall be 9.0 meters or as per actual requirement whichever is higher.

The crane for 220kV GIS hall shall have capacity of minimum 5T sage working load & minimum height of crane shall be 8.0 meters or as per actual requirement whichever is higher EOT Crane shall be provided with Double Girder type.

27. TRANSFORMER / REACTOR TERMINATION MODULE (If applicable):-

The transformer/reactor termination module enables a direct transition from the SF6 gas insulation to the bushing of an oil-insulated transformer/reactor. For this purpose, the transformer/reactor bushing must be oil-tight, gas-tight and pressure resistant. Any temperature related movement and irregular setting of the switchgear's or transformer's/reactor's foundations are absorbed by the expansion fittings.

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OR

The oil filled transformers and reactors are as shown in the sub-station SLD. The oil to air bushings of the 400/220/33kV autotransformers and 400kV reactors shall be supplied by the respective supplier's and the same shall be connected to the SF6 ducts through air to SF6 bushings to be provided under present scope.

28. PAINTING OF ENCLOSURE:-

All enclosures shall be painted externally as per manufacturer's painting procedure. The painting procedures as followed shall be enclosed with the bid.

29. HEATERS

Wherever required, heaters shall be provided to prevent moisture condensation. Heaters are not allowed in side the main circuit.

30. IDENTIFICATION & RATING PLATE

i) Each bay shall have a nameplate showing

a) A listing of the basic equipment from air entrance bushing to air entrance bushing such as a breaker, disconnectors grounding switches, current transformers, voltage transformers, and bushings).

b) A schematic diagram indicating their relative locations.

c) KPTCL Contract Number.

ii) Each module will have its own Identification & rating plate.

The rating plate marking for each individual equipments like circuit breaker, disconnectors grounding switches, current transformer, voltage transformers, surge arrester etc shall be as per their relevant IEC.

31. TRANSPORTATION OF EQUIPMENT TO SITE.

The contractor shall be responsible for the loading, transport, handling and offloading of all equipment and materials from the place of manufacture or supply to site. The contractor shall be responsible to select and verify the route, mode of transportation and make all necessary arrangement with the appropriate authorities as well as determining any transport restrictions and regulations imposed by the government and other local authorities .All transport packages containing critical units viz Circuit breakers, disconnectors, earth switches, surge arrestors and bus sections exceeding 3 metres length shall be provided with sufficient number of electronic impact recorders (on returnable basis) during transportation to measure the magnitude and duration of the impact in all three directions. The acceptance criteria and limits of impact in all three directions which can be withstood by the equipment

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during transportation and handling shall be submitted by the contractor during detailed engineering. The recording shall commence in the factory and must continue till the units reach site. The data of electronic impact recorders shall be downloaded at site and a soft copy of it shall be handed over to Engineer – in –charge. Further, within three weeks the contractor shall communicate the interpretation of the data.

32. PACKING, STORAGE AND UNPACKING.

All the equipment shall be carefully packed for transport by sea, rail and road in such a manner that it is protected against the climatic conditions and the variations in such conditions that will be encountered enroute from the manufacturer's works to the site.

The SF6 metalclad equipment shall be shipped in the largest factory assembled units that the transport and loading limitations and handling facilities on site will allow to reduce the erection and installation work on site to a minimum. Where possible all items of equipment or factory assembled units shall be boxed in substantial crates or containers to facilitate handling in a safe and secure manner. Should the units be considered too large for packing in crates, they shall be suitably lagged and protected to prevent damage to any part, particularly small projections, during transport and handling. Special lugs or protective supports shall be provided for lifting to prevent slings and other lifting equipment from causing damage. Each crate, container or shipping unit shall be marked clearly on the outside to show where the weight is bearing and the correct position for the slings.

Each individual piece to be shipped, whether crate, container or large unit, shall be marked with a notation of the part or parts contained therein.

Special precautions shall be taken to protect any parts containing electrical insulation against the ingress of moisture. This applies particularly to the metalclad equipment of which each gas section shall be sealed and pressurized prior to shipping. Either dry nitrogen/air or dry SF6 gas shall be used and the pressure shall be such as to ensure that, allowing for reasonable leakage, it will always be greater than the atmospheric pressure for all variations in ambient temperature and the atmospheric pressure encountered during shipment to site and calculating the pressure to which the sections shall be filled to ensure positive pressure at all times during shipment. The type of gas, the maximum pressure to which sections will be filled prior to shipment and the minimum allowable pressure during shipment shall be advised prior to dispatch.

All banking plates, caps, seals, etc., necessary for sealing the gas sections during shipment to site shall be provided as part of the contract and shall remain the property of KPTCL. If considered necessary, blanking plates or other sealing devices shall be provided with facilities for measuring the gas pressure and recharging at any time during the transport period. Any seals, gaskets, 'O' rings, etc. that may be used as part of the arrangement for sealing

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off gas sections for shipment of site, shall not be used in the final installation of the equipment at site. Identification serial numbers shall be stamped into the blanking plates, etc., and on the switchgear equipment to which they are fitted so that they can easily be identified and refitted should it ever be necessary to ship sections of the switchgear back to the manufacturer's works for repair.

Valves and other gas couplings associated with the switchgear gas systems shall be adequately protected against damage from any bumps or physical blows. They shall also be capped to prevent ingress of dirt or moisture or damage to any coupling, pipes, threads or special fittings. Any explosion vents and other pressure relief devices, shall be suitably sealed and protected to prevent accidental exposure of the sealed sections during shipment to site.

For bus ducts involving male and female joints of the current carrying conductor, the same shall be transported in disassembled condition to avoid any damage during transit. All bright parts liable to rust shall receive a coat of anti rusting composition and shall be suitably protected.

The contractor will be able to use the available storage areas at site.

The contractor shall ensure that during the period between arrival at site and erection, all materials and parts of the contract work are suitably stored in such approved manner as to prevent damage by weather, corrosion, insects, vermin or fungoral growth. The scope of providing the necessary protection, storing off the ground, as required etc. is included in the works to be performed by the contractor.

The equipment shall only be unpacked or removed from the containers immediately prior to being installed. They shall not be left lying unnecessarily in open crates or containers. Special precautions shall be taken when gas sections which have been sealed and pressurized for shipping are opened up to reduce the ingress of dirt and atmospheric moisture to a minimum. Whenever possible this shall only be done immediately prior to installation and if any section is to be left outside for any length of time after being opened, it shall be resealed and pressurized with either dry nitrogen/air or SF6 gas until required.

TABLE-IA-I
Requirements for 420kV Current Transformer
(For Line and Bus coupler feeder)

No. of cores	Core no.	Application	Current ratio	Output Burden(VA)	Accuracy class	Min. knee point voltage Vk	Max. CT sec. wdg. Resistance(ohm)	Max. excitation current at Vk(in mA)	Remarks
5	1	BUS DIFF	3000-	-	PS	3000	15/10/5	20 on	

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			2000-1000/1			/ 2000 / 1000		3000/1 tap 30 on 2000/1 tap 60 on 1000/1 tap	
	2	BUS DIFF	3000-2000-1000/1	-	PS	2000 / 2000 / 1000	15/10/5	20 on 3000/1 tap 30 on 2000/1 tap 60 on 1000/1 tap	
	3	METERING	3000-2000-1000/1	20 20 20	0.2S 0.2S 0.2S	-	-	-	
	4	BACKUP/LINE PRTN	3000-2000-1000/1	-	PS	3000 2000 1000	15/10/5	20 on 3000/1 tap 30 on 2000/1 tap 60 on 1000/1 tap	
	5	LINE PRTN	3000-2000-1000/1	-	PS	3000 2000 1000	15/10/5	20 on 3000/1 tap 30 on 2000/1 tap 60 on 1000/1 tap	

All relaying CTs shall be of accuracy class PS as per IS: 2705/IEC-61869-2/1

TABLE-IA-II
Requirements for 420kV Current Transformer
(For Transformer and Reactor feeder)

No. of cores	Core no.	Application	Current ratio	Output Burden(VA)	Accuracy class	Min. knee point volta	Max. CT sec. wdg. Resistance(ohm)	Max. excitation current	Remarks

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						ge Vk		**at Vk(in mA)**	
5	1	BUS DIFF	2000-1000/1	-	-	2000/1000	10/5	30 on 2000/1 tap 60 on 1000/1 tap	
	2	BUS DIFF	2000-1000/1	-	-	2000/1000	10/5	30 on 2000/1 tap 60 on 1000/1 tap	
	3	METERING	2000-1000-500/-	20 20 20	0.2S 0.2S 0.2S	-	-	-	
	4	TRANS/Reactor BACKUP	– 2000-1000-500/1	-	-	2000 1000 500	10/5/2.5	30 on 2000/1 tap 60 on 1000/1 tap 120 on 500/1 tap	
	5	TRANS/Reactor DIFF	2000-1000-500/1	-	-	2000 1000 500	10/5/2.5	30 on 2000/1 tap 60 on 1000/1 tap 120 on 500/1 tap	

All relaying CTs shall be of accuracy class PS as per IS: 2705/IEC 61869-2/

TABLE-IB
Requirements for 245kV Current Transformer

No. of	**Core**	**Application**	**Current**	**Output Burden(**	**Accuracy**	**Min. knee**	**Max. CT sec. wdg.**	**Max. excitati**	**Remarks**

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cOr es	no.		ratio	VA)	class	point voltag e Vk	Resistance(ohm)	on current at Vk(in mA)	
5	1	BUS DIFF CHECK	1600-800/1	-	-	1600/800	8/4	25 on 1600/1 tap 50 on 800/1 tap	
	2	BUS DIFF MAIN	1600-800/1	-	-	1600/800	8/4	25 on 1600/1 tap 50 on 800/1 tap	
	3	METERING	1600-800/1	20	0.2S	-	-	-	
	4	TRANS BACKUP/ LINE PRTN	1600-800/1	-	-	1600/800	8/4	25 on 1600/1 tap 50 on 800/1 tap	
	5	TRANS DIFF /LINE PRTN	1600-800/1	-	-	1600/800	8/4	25 on 1600/1 tap 50 on 800/1 tap	

All relaying CTs shall be of accuracy class PS as per IS: 2705/IEC 61869-2/1

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TABLE-IIA
Requirements of Voltage Transformer

Sl. No.	Particulars	400kV			220kV		
1	Rated primary voltage	420/√3 kV			245/√3 kV		
2	Type	Electro magnetic, or single phase capacitor VT			Electro magnetic		
3	No. of secondaries	3			3		
4	Rated voltage factor	1.2 continuous 1.5 – 30 seconds			1.2 continuous 1.5 – 30 seconds		
5	Phase angle error	± 20 minutes			± 20 minutes		
		Sec I	**Sec II**	**Sec III**	**Sec I**	**Sec II**	**Sec III**
6	Rated voltage (V)	110/√3	110/√3	110/√3	110/√3	110/√3	110/√3
7	Application	Protection	Protection	Metering	Protection	Protection	Metering
8	Accuracy	3P	3P	0.2	3P	3P	0.2
9	Output burden (VA) (Minimum)	50	50	50	50	50	50

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Annexure-A1

TESTING & MAINTENACE EQUIPMENT

Testing & Maintenance equipment shall be offered, as per relevant schedule of BPS.

1. **SF6 Gas leakage detector.**

The detector shall be portable, battery operated, hand held type and having a minimum SF6 gas leakage sensitivity of 5gm/year. The sensor shall be connected through a flexible wand for easy accessibility to joints, seals and couplings in GIS equipment and provided with a protection filter. The equipment shall have on/off switch & suitable indicating lamps/LEDs, variable pitch audible signal for leakage indication. The equipment shall have automatic zeroing of background signals suitable for detecting SF6 gas leakage in charged switchyard. The test kit shall be compatible for EMI/EMC environment as per IEC 1000.

2. **Gas filling and evacuating plant: (Gas Processing unit)**

a. The plant necessary for filling and evacuating the SF6 gas in the switchgear shall be supplied to enable any maintenance work to be carried out. This shall include all the necessary gas cylinders for temporarily storing the evacuated SF6 gas. The capacity of the temporary storage facilities shall at least be sufficient for storing the maximum quantity of gas that could be removed from at least one phase of one complete bay (switchgear and associated equipment).

b. Where any item of the filling and evacuating plant is of such a weight that it cannot easily be carried by maintenance personnel, it shall be provided with lifting hooks for lifting and moving with the overhead cranes.

c. The minimum capacity parameters of evacuation plant will be as under:

Oil Free Suction (Recovery) Pump: 30 M3/Hour

Compressor (Two Stages): 15 M3/Hour

Oil Free Vacuum Pump: 100 M3/Hour

d. The evacuation equipment shall be provided with all the necessary pipes, couplings, flexible tubes and valves for coupling up to the switchgear for filling or evacuating all the gases. Details of the filling and evacuating plant that will be supplied, as well as the description of the filling and evacuating procedures shall be furnished.

Online Partial Discharge Monitoring System (Applicable for 400kV GIS substation –Both on 400kV side & 220kV side)

GIS equipment shall be designed so as to minimize partial discharge or other electrical discharge. A state-of-the art Partial Discharge Monitoring system shall be provided to monitor the entire GIS installation.

An on-line continuous Partial Discharge Monitoring (PDM) system shall be designed to provide an automatic facility for the simultaneous collection of PD data at multiple points on the GIS & its associated GIB ducts and Voltage Transformers adopting UHF technique. The data stored shall provide a historical record of the progress of PD sources and shall identify the areas of maximum activity.

On-line continuous Partial Discharge Monitoring (PDM) system shall be capable for measuring PD in charged GIS environment as EHV which shall have bandwidth in order of 100 MHz–2GHz with possibility to select a wide range of intermediate bandwidths for best measurement results. The principle of operation shall be based on UHF principle of detection.

The scope shall cover Engineering, supply, installation, testing and commissioning of partial discharge continuous monitoring system, with all necessary auxiliaries and accessories to make a complete system as per technical specification, including site demonstration of successful operation. Any items/accessories necessary to make the system fully functional for the trouble free online PD monitoring of complete GIS installation shall be considered as included in the scope.

The PDM system shall be provided with all its hardware and software, with readily interfacing to the UHF PD couplers installed in the GIS of present bays and future bays as shown in SLD plus 20% additional as extra. Details of this shall be submitted during engineering stage for approval.

The integration of UHF PD coupler in future GIS bays shall be done in respective package. The number of UHF PD coupler for future bays shall be decided based on GIS layout finalized under present scope (considering present GIS equipment with future provision)

The PD Monitoring PC Work Station shall be housed in a lockable cabinet with duplicate keys and shall be located in the control room of the GIS substation. Workstation PCs shall be pre-loaded with all necessary Hardware & Software. The PCs shall have each Combo drive & Retrievable disk drive (1 TB), Ethernet port 100Mbps, printer. The workstation PC shall be powered by suitable dedicated UPS and same is included in the present scope.

Design of on-line PDM System

1. The technical proposal for PDM system along with detailed design documentation shall be submitted for EMPLOYER'S approval during engineering stage.

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2. To guarantee that sufficient coverage is available for complete GIS installation to monitor PD activity all design details shall be submitted as part of the above for review.

3. The sensitivity of the offered system shall be in accordance with CIGRE Document No. 654 that will be verified as part of site sensitivity tests.

4. UHF attenuation data of GIS shall be submitted for the switching devices, spacers, bends etc.

5. The signal attenuation level of co-axial cable per meter length and justification for the length of cable connection between the couplers and detector units shall be furnished.

6. The overall sensitivity of PD detection system shall take into account the spacing between couplers and the associated cabling, filters, amplifiers, etc.

7. The Sub-station GIS layout as a separate drawing indicating position of spacers, spread over of PD sensors with distance, sensor identification, the detector unit identification etc. shall be submitted during engineering stage for approval.

8. The PD sensors shall be identified / coordinated with the corresponding detector unit etc. with proper identification labeling and indicated in the substation PDM SLD.

9. Internal arrangement/wiring diagram is to be submitted for detector units/control cabinet etc. All internal items are to be identified / labeled to facilitate troubleshooting.

10. Supply requirement (AC & DC) to be specified for the complete monitoring system.

11. Power supply to PDM PC shall have protection against surges, overload and short circuit. A dedicated on-line UPS system shall also be provided as a backup during supply interruption, to ensure trouble-free & reliable running of the PDM System for a minimum of 15 minutes duration. Ratings of UPS shall be proposed for the approval of EMPLOYER'S. The UPS shall have enough capacity to initiate a 'safe' shut down of the PDM PC and the peripherals after this 15-minute period if normal supply fails to resume. The PDM PCs shall restart automatically on resumption of normal supply. The UPS shall not generate spikes during changeover of supply. UPS shall automatically give indication / alarm when it requires battery replacement. Potential Free Contacts shall be generated to signal these events. These contacts shall be wired out to Annunciation / Monitoring systems. Alternately, inverter of suitable capacity is also acceptable. Critical Process and Status alarms of the PDM system shall be displayed.

12. PDM System shall be provided with a user security for accessing the system with a log-on and password entry procedure. The user levels shall be defined as a Master User and other users for the modification of system, update, and entry of parameters or manual operation. System shall be able to generate 3D point on wave pattern whenever any PD activity detected by the system. System shall be able to give online 3D point on wave pattern, online PRPD (phase resolved PD) and online short time trend etc. System shall be able to generate the all the logs related to system fault, system access, PD event, and any changes in system setting etc.

13. Method of electrical isolation/protection provided between PD sensor and detector circuitry in case of flashover/high potential stress inside GIS should be furnished.

14. The selected mode of propagation of PD signal (electromagnetic wave) inside GIS for the design of sensors shall be furnished.

15. The protection available for electronics against transient over voltages caused by switching operations shall be furnished.

16. The capacity of each detector unit to be specified to accommodate as many numbers of PD sensors signal.

17. The applicable standards to meet IEC & IEEE requirements for electromagnetic compatibility shall be specified. The offered system should have been tested for the same for working in a 400kV & above substation environment. The necessary documentation has to be submitted in this regard.

18. Guaranteed technical particulars & data sheet for various components used in the system shall be submitted.

Calibration: The UHF Couplers have to be first calibrated as per CIGRE procedure TF 15/330305 as part of factory acceptance tests to guarantee detection sensitivity of 5pC or better. The GIS of same design shall be used as test specimen during the coupler calibration. The pulse injection level determined through above factory calibration tests shall only be used as reference for site sensitivity checks during commissioning of PDM system.

The data sheet/frequency response characteristics shall be submitted for reference.

Every Day Use & Maintenance: The system shall be designed suitable for an unmanned s/s and operate automatically. The system shall generate alarms if suspected partial discharge activity is noticed or the system itself is in failure, thereby eliminating the necessity of periodic system access by the user and one such alarm shall be connected to Substation automation system (SAS). The alarms shall be configured coupler wise.

Computers and Peripherals: The PC operating system shall be the latest version of MS Windows. It should be suitable for continuous process application and should have been tested for the same. The hardware configuration of PC should be the latest available in the market of industrial type subject to EMPLOYER'S / Engineer approval. For storing the historical PD database, sufficient storage facility in the form of hard disc and retrievable hard disk drive of 1TB as specified shall be available in the substation. The PC monitor shall be 21" LCD type of reputed make.

Filtering Facility: The filtering facility has to be provided in order to distinguish real PD from internal/external noise such as switching operations, self-test signal, radio, communication signal etc. The PDM system itself shall be able to discriminate the noise from real PD. The exposed gas barriers of the GIS shall be shielded effectively against noise interference & tested. The gas barrier shields/belts shall be suitable for outdoor use also & able to withstand high ambient temperature. Site measurements have to be performed after installation of the PDM system in order to identify the various sources of external noise to incorporate the same in the filtering facility. This filtering will preferably be through software by band pass, which can be manually activated (as an option) to filter out noise signals in the trend plot display. If hardware filtering is employed then adequate measures have to be taken to avoid masking of other signals, which may lie in the same frequency range. The method adopted for the above shall be specified taking into account the sensitivity requirement of PDM system as per CIGRE document. The noise filters shall be selectable individually coupler-wise.

Self-Test (Diagnostic) Facility: Built-in self-checking facility shall be incorporated in the control system which will continuously verify the correct operation of the whole monitoring system with the simulated PD signal viz. checking of the sensitivity of individual detector units, response of PD sensors in addition to the checking of the system functioning. The periodicity of such self-check operation shall be specified. In case of system failure this shall trigger an alarm for communication to SAS. External check facility: Propose the arrangement/device available for externally checking the healthiness of PD sensors by pulse injection in addition to built-in monitoring facility.

Detector Units: The sensitivity of each detector unit shall be furnished. The sensitivity level of individual detector units shall be selectable depending on the site background noise level.

Trend Plot: The trend plot facility shall be available with the update period of hourly/daily/weekly/monthly/yearly. It shall be possible to view the historical trends for the complete archived data accumulated over several years.

PD Monitoring modes: There shall be two different modes of system operation viz. a dedicated Continuous PD Monitoring mode for the normal

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day today operation of the system & a dedicated HV commissioning test mode which is exclusively for PD monitoring during HV commissioning test. The HV commissioning mode shall also operate as an independent feature.

In the HV Commissioning mode the real time display shall be possible for a minimum of two complete bays with associated bus bars and at with one second update period. The HV test software shall automatically record the HV voltage information along with PD so as to check PD inception & extinction voltages precisely. The complete HV & PD data recorded during HV test shall be possible to be reviewed in replay mode after the HV test.

Alarm Facility: The PDM system shall generate alarm when action is required; viz. a) PD alarm (abnormal PD activity indicating a risk of failure) & b) PD system fail alarm to be connected to SAS.

Real Time Display: The PDM system should have the facility of Real Time display, which will give an instant indication of PD activity coupler wise, with one-second-update period. The PDM system shall be able to capture the PD data triggered by associated switching operations of CBs & isolators.

Schematics: The PDM system should have GIS schemes bay-wise incorporating PD sensor identification and location along with spacer location. The sectional view of typical bay arrangement of GIS showing active parts shall also be included as part of the PDM software.

Print Option/Facility: PDM system should have the option/facility of printing all trend plots/reports/POW patterns/displays, etc. Laser Colour printer shall be provided for this purpose at substation.

Data Archives: This is to provide access to historical data and file storage with date and time stamp. Sufficient storage facility shall be available to review historical data updated for the lifetime of switchgear. The substation & headquarters PCs shall have a backup device in the form of a retrievable disk drive of 1TB capacity for this purpose.

PD Fault Identification & Location/Pattern Recognition/Predictive Maintenance

Diagnostic Software: In order to interpret various types of PD defects, intelligent diagnostics software (expert system) shall be built- in as part of the PDM software capability. This is mainly to reduce the dependence on PD specialist. The bidder shall also make available typical point-on-wave patters as library pictures to train the user.

Software Updates: It shall be possible to upgrade / update the system software throughout the lifetime of the system with the ongoing development / refinement in PD technology.

Fault investigation : In case of any indication of suspected PD activity by the on line system, further investigation has to be carried out by the contractor for the PD defect identification and location during the warranty period

Special Tools / equipment, Spare Parts, software packages

Special Tools: Special tools for cutting and crimping of coaxial cable with 'N Connectors' shall be supplied.

Spare parts: The contractor has to supply critical spares with replacement procedure for the trouble free operation of the system during its expected lifetime as part of the contract. A detailed list shall be included in the tender and also submitted for EMPLOYER'S approval during the detailed engineering stage.

Software Packages: The complete software package shall be supplied as part of a back-up facility in the form of DVD/CDs viz. Windows operating system with end user license, PDM Software including HV Test, Drivers for modems etc., software for remote access, printer etc. The list shall be submitted for reference.

Pulse generator for UHF sensor sensitivity test shall also be supplied as a standard accessory.

Operation & Maintenance Manual :A complete O&M manual covering all aspects of trouble shooting of PDM system in six sets in original shall be provided & also in CD's. For diagram references colour pictures shall be provided. A step-by-step procedure for spare parts replacement shall also be included.

Factory / Site Test Formats: The factory & site tests format to be submitted for approval. The format shall cover all possible tests to confirm healthiness of the system and to record the test values.

List of References: The bidder shall provide a reference list of PD monitoring system,

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TECHNICAL SPECIFICATIONS FOR ONLINE SF6 and O2 MONITORING & ALARM SYSTEM

1. General

The online SF6 & O2 gas monitoring and alarm system shall be used for detecting hazardous SF6 gas built-up in enclosed areas such as GIS switchgear rooms, cable trenches and other rooms used to store SF6.

The gas build up in enclosed spaces can be as a result of slow gas leakage from switchgear caused by damage or corrosion of switchgear seals or pressure housings, in service, or during maintenance, leakage of gas filling valves or due to emergency venting of gas due to internal pressure rise in the equipment during a fault.

It shall be suitable for indoor EHV switchgear rooms.

Pure SF6 gas is colourless, odourless, non-flammable, inert gas. At room temperature the density is more than five times that of air.

In switchgear, SF6 acts as both insulation and an arcing media. During arcing and partial discharge events, under the influence of high temperature and other factors, SF6 gas will be decomposed. Decomposition can produce highly toxic products, such as SF4, S2F2, SOF2, HF, SO2, etc. if these are inhaled, they can cause pulmonary oedema and dizziness, coma and even death.

In the relatively closed interior of a switch room, due to poor air circulation, SF6 decomposition and deposition in the room can reach harmful level during emergency conditions.

When leaking SF6 gas accumulates at lower levels in a switch room or adjoining cable trenches (due to its density) caused by a major accident, it can displaced enough O2 to result in local hypoxia, asphyxiation.

The principle of operation shall be based on infrared laser absorption spectroscopy detector principle.

The system components are as follows:

(1). Host computer: Real time display of various parameter and integrated analyzer for calculation of all monitored parameters and alarms thresholds. SCADA alarm and data transmission and control of forced ventilation fans, local alarms, lights etc.

(2). SF6 gas laser detector: Four Gas Laser Detector Unit containing the laser absorption spectroscopy module that analyses the sampled gas for

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analysis from up to four (4) Collector Units. The obtained data is uploaded to the host through an RS 485 connection.

(3). Collector: Collector for sampling and associated gas particle filtration pre-treatment. These are to be installed at the LOWEST place in the monitored area. (SF6 gas sinks to low spot).

(4). Infrared proximity switch: Entry of persons into the GIS area automatically starts the fan and voice prompts.

(5). The Box (Cabinet) is located in the control or relay room to control the fan start and stop and provide power to each device.

(6). Sound and light alarm devices: If SF6 or O2 set value is exceeded, an alarm sounds to alert staff.

System Installation:

Site survey

1. If possible a site survey must be carried out and any special considerations identified and marked up on user-supplied drawings. Based on this, it should be possible to select the installation locations for sensors and the other parts.

2. The collector must be placed in sets of four (4) units so that they can connect to their allocated Four Gas Laser Detector Unit.

3. The Host Controller should be placed in an area where there is access to input power, output telecommunication lines, fan control and alarm lines.

System features:

1. Real-time display functions of various parameters.

2. Environmental SF6 gas content detection.

3. Environmental O2 content detection.

4. Environmental temperature and humidity detection.

5. Alarm when SF6 gas content exceeded allowable threshold.

6. Hypoxia alarm (i.e. Low O2 level).

7. Temperature exceeded alarm and start conditioning function.

8. Excessive humidity alarm and control of the dehumidifier function.

9. Excessive levels of hypoxial or SF6,

10. Control of exhaust air ventilation function.
11. Log query capabilities.
12. Voice prompts.
13. Sound and light alarm.
14. Last exhaust display.
15. Intelligent screen saver function.
16. Remote data transmission capabilities.

Technical Parameters:

- SF6 gas concentration alarm: 0~2000 X 10-6(v/v)
- SF6 gas detection sensitivity: ± 2% (laser type)
- ± 5% set value (electrochemical transmitters)
- Detect oxygen concentration: 0~25U% (with digital display)
- Oxygen concentration alarm threshold: Adjustable
- Oxygen measurement accuracy: <0.5%(0.4%, O2 when 21%)
- Temperature display range : -25~99° C
- Temperature measurement accuracy : <0.5%
- Temperature alarm thresholds: Adustable
- Humidity display range : 0~99% RH
- Humidity measurement accuracy: <3%
- Input Voltage 176 ~ 265V AC
- Alarm output points: 5A
- Fan output points: 5A
- Fan output contacts Power : 380V AC 40A
- Fan ventilation time setting : 15Min / second (adjustable)
- Data recording time : 2 years, the PC mass storage

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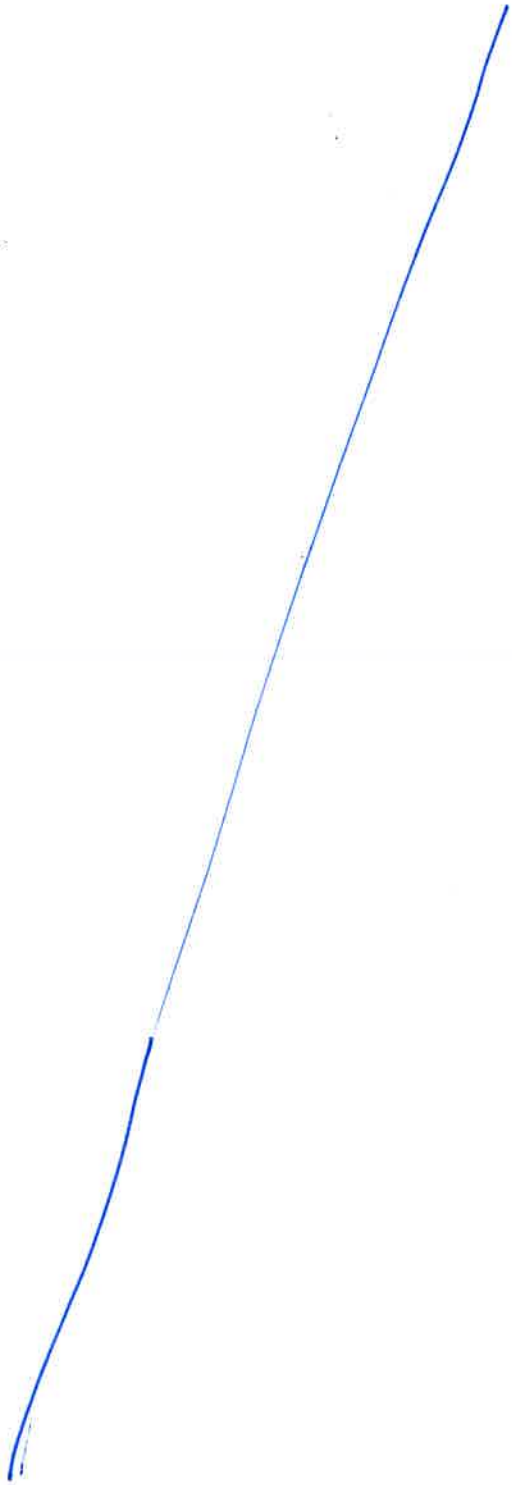
- Communication: RS-485 standard protocol

Environmental operational requirements:

- Temperature: Operating temperature – 25° C -+85° C
- Humidity: less than 95% RH



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TECHNICAL SPECIFICATIONS FOR SUPPLY, LAYING, TESTING & COMMISSIONING OF 1200 Sq.mm., 220 KV XLPE INSULATED UNDERGROUND CABLE

1.00.0 SCOPE:

1.01.0 This specification provides for the establishment of an underground cable transmission scheme on total turnkey basis which includes the design, manufacture, inspection and testing before despatch, packing and delivery F.O.R. (destination) of 220 KV, 1200 Sq.mm, Single Core XLPE Insulated lead sheathed cable and accessories under the supply portion and laying, including obtaining permission for road cutting from Bruhath Bengaluru Mahanagara Palike (BBMP), Local Administrative Authorities and other agencies for execution of work, handling and installation of materials required in laying, site testing and commissioning under the erection portion.

1.01.1 SITE:

The site is located in Bengaluru, Karnataka State, India.

Route: Please refer the enclosed drawing for the tentative route plan of the cable.

1.02.0 SCOPE OF WORKS

The scope of work includes:

1.02.1 Surveying of the proposed cable route including digging and closing of trial pits, preparation of requisite drawings and finalizing the cable route in consultation withthe owner's representative.
NOTE: In the expected cable route, ground structure may change from one point to another, and in some places like Railway Crossing , Major Road Crossing, the local environment is especially bad which may lead to unexpected accelerated ageing of insulation and would limit the life expectancy of the cable itself. The successful bidder has to execute works by taking all the necessary precautions so as to get 950 **Amps** of current flow in the cable per circuit (Refer clause No. 4.00 (B)(i)(10)(i) & (ii)).

Even after considering all the derating factors for laying cable in those locations, the minimum continuous current shall be 950 **Amps** per circuit.

1.02.2 Testing and evaluation of the soil resistivity, soil thermal resistivity, pH value, of thesoil along the cable route, and based on the data, recommend the final system design.

a) Perform a through route soil thermal resistivity survey by in-situ testing along the entire cable route.

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b) Conduct a detailed analysis of soils / strata encountered along the route for the thermal performance under specified cable loading.

c) Specify a suitable thermal backfill so that the soil thermal resistivity does not exceed 120^0C cm/watt, to encapsulate the cables to prevent thermal run away of cable.

d) Design of optimum cable trench including RCC ducts and optimum backfill dimension.

e) Formulation of thermal backfill, quality control and supervision during backfill.

f) Obtaining Road cutting permission from Bruhath Bangalore MahanagaraPalike (BBMP), Local Administrative Authorities and any other permissions from other utilities.

1.02.3 Design the method of installation of U.G. Cables, cable laying, excavation and back- filling of cable trench, supply and installation of associated materials like sand, bricks, warning tape, protective slabs, pipes, ducts, civil works etc.

1.02.4 Design, manufacture, testing at works / test house, supply, storage, installation, testing and commissioning of 220 kV cables with all associated materials and accessories.

1.02.5 Design, supply erection, testing and commissioning of

a) Surge Voltage limiters

b) Grounding Switches.

c) Link boxes with Links and with/without SVL

1.02.6 Design for the installation, supply of materials and construction of cable ducts, supports for cable crossings of storm water/sewerage drains wherever required. Design, supply of materials and laying of pipes/construction of cable ducts for railway crossing and road crossing wherever required.

1.02.7 Supply, installation, testing and commissioning of

a) Normal straight through joints for Normal bonding/ Cross bonding of cables.

b) Outdoor cable terminations.

1.02.8 Design, supply and erection of structures for mounting / supporting cable with terminations.

1.02.9 Supply of recommended essential spare parts.

1.02.10 Supply of tools and tackles.

1.02.11 Furnishing all relevant drawings, data and instruction manuals.

1.02.12 Supply of all consumable items, like cable end sealing caps for cable during transport and jointing and all others associated sundry materials.

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1.03.0 SCOPE OF SERVICES:

1.03.1 The Scope of the services includes supply, installation, laying erection and commissioning of the cable system on total turnkey basis. The scope shall include but not limited to the following.

1.03.2 Complete checking, monitoring, storing of the materials at the site, and co- ordination of work.

1.03.3 Finalize procedure of installation and erection in consultation with owner.

1.03.4 Regular supervision and following up of erection / installation work

1.03.5 Testing and commissioning the system / equipments for successful commercial operation.

1.04.0 The cables and its accessories shall conform in all respects to high standards of engineering, design, workmanship and latest revisions of relevant standards at the time of offer / erection and the owner shall have the power to reject any work or material, which in owner's judgement is not in full accordance therewith.

1.05.0 All the volumes of this bid documents along with amendments thereof be read and interpreted together. However, in case of a contradiction between the "Technical Specification (Vol. II)" (i.e., this volume) and any other volume, the provisions of this volume will prevail.

1.06.0 It is not intent to specify completely all the details of Design and construction of cable and accessories. However, the cable and accessories shall conform in all respects to the high standard of engineering design and workmanship and shall be capable of performing continuous commercial operation up to the suppliers guarantee period in a manner acceptable to the Owner who will interpret the meanings of drawings and specifications and shall have power to reject any work or material, which in Owner judgment, is not in accordance therewith. The cable offered shall be complete with all the components necessary for its effective and trouble free operation. Such components shall be deemed to be within the scope of the bidder irrespective of whether they are specifically brought out in this specification and/or in the commercial document or not.

NOTE:

1. The scope shall cover supply of all required equipments, accessories, spares and jointing kits and tools and plant, competent supervision and consumables. All other matching materials required (whether specifically mentioned or not) for complete installation, testing and commissioning of the system shall also be covered.

2. After completion of laying and back filling the road shall be restored as per specification of BBMP and applicable local Authorities. Specification of the same is enclosed.

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1.07.0 QUANTITIES:

The quantities, length of cable, number of accessories and other materials indicated in the bid proposals are solely for the purpose of bid evaluation. The successful bidder after detailed route survey shall estimate the actual quantities and take up manufacture and procurement action for materials after approval of the Owner.

2.00.0 STANDARDS:

2.01.0 The construction of the cable shall generally conform to IS 7098 (Part-3) and IEC 62067 with exception to the specific requirements of these specifications and tests as per **IEC-62067**. Except to the extent mentioned in the specification, the cables and the accessories shall conform to the latest editions and amendments of the standards listed hereunder wherever applicable.

IEC-60050	Electro Technical vocabulary.
IEC-60060	High Voltage Test Techniques.
IEC-60093	Recommended tests for volume and resistivity of electrical insulating materials.
IEEE-48	Test procedures and requirement for AC cable terminations 2.5 to 765kV
IEC-60122	Recommended method for determining the comparative tracking index of solid insulating materials under moist condition.
IEC-60183	Guide to selection of high voltage cables.
IEC-60216	Guide for the determination of thermal endurance properties of electrical insulating materials.
IEC-60228	Conductors of insulated cables.
IEC-60228-A	(First supplement) Guide to the dimensional limits of circular conductors.
IEC-60229	Test on cable over sheaths which have a special protective function and are applied by extrusion.

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IEC-60230	Impulse test on cables and their accessories.
IEC-60243	Recommended method of tests for electrical strength of solid insulating materials.
IEC-60250	Recommended method for determination of permittivity, dielectric dissipation factor of electrical insulation materials at power, audio frequencies.
IEC-60270	Partial Discharge measurements
IEC-60287	Calculation of continuous current rating of cables, 100% load factor.
IEC-60540	Test methods for insulation and sheaths of electric cables and cores.
IEC-60811	Common test methods for insulating and sheathing materials of electric cables. (Applicable parts / sections of different editions)
IEC-60840	***Applicable clauses only*** Power cable with extruded insulation for voltages above 30kV (Um=36kV) up to 150 (Um=170Kv). Test methods & requirements.

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IEC-60853	Calculation of cyclic & emergency current rating of the cable.
IEC-60885-2	Electrical test methods for electric cables, part-2: Partial discharge tests.
IEC-60885-3	Electrical test methods for electric cables part-3 Test methods for partial discharge measurement on lengths of extruded power cables.
IEC-62067	Power cable with extruded insulation and their accessories for rated voltage above 150 kV – Test Methods & requirements.
IEC-60949	Calculation of thermally permissible short circuit currents, taking into account non-adiabatic heating effects.
IS-3043	Code of practice for earthing
IS-1255	Code of practice for laying of power cables.
IS-1885	Electro Technical vocabulary applicable parts.
IS-5216	Guide for safety procedures and practices in electrical works
IS-5831	PVC insulation and sheath of electric cables.
IS 7098 (Part 3)-93	Cross-linked polyethylene insulated, thermoplastic sheathed cables 66kV to 220kV.
IS-8130	Conductors for insulated cables and flexiblecords.
IS-10810	Method of test for cables: Applicable parts.
IEC-62271-209	Cable Connection for gas insulated metalenclosed switch gear for rated voltage above 52kV.
Indian Electricity Act	- 2003

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\Indian Electricity Rules, 1956 (Or its Latest Amendments).

NOTE: i) For the purpose of this specification all technical terms used hereinafter shallhave the meaning as per relevant IEC/IS specification.

2.02.0 The Standards mentioned above are available from:

Standard	Name & Address
IS	Bureau of Indian Standards, ManakBhavan, 9, BahadurshahZafarMarg, New Delhi – 110 001, INDIA.
IEC	International Electro-Technical Commission, Bureau Central De 1a commission, Electro Technique Internationale, 3, Rue De Verembe,P.O. Box 131 CH - 1211 Geneva 20 – Switzerland.

2.03.0 Cables/Cable accessories satisfying the quality requirements of other National/International standards, which ensure equal or better quality than the standards mentioned above shall also be acceptable. Where the equipment offered by the bidder conforms to other standards, salient points of difference between the standards preferred and the specified standards shall be clearly brought out in the offer. Four (4) copies of the reference standards in English language shall be furnished along with the offer.

3.00.0 SYSTEM DATA:

a) Rated voltage:

The cable defined in this specification have the following rated voltage:

Uo/U (Um) = 127/220 (245) kV

"Uo" is the r.m.s. rated voltage at power frequency, between the conductor and the earth or the metallic sheath:

Uo = 127 kV

U is the r.m.s. rated voltage at power frequency, between two phase conductors:
U = 220 kV

"Um" is the maximum r.m.s. voltage at power frequency, between two conductors for which the cable and its accessories are to be designed:

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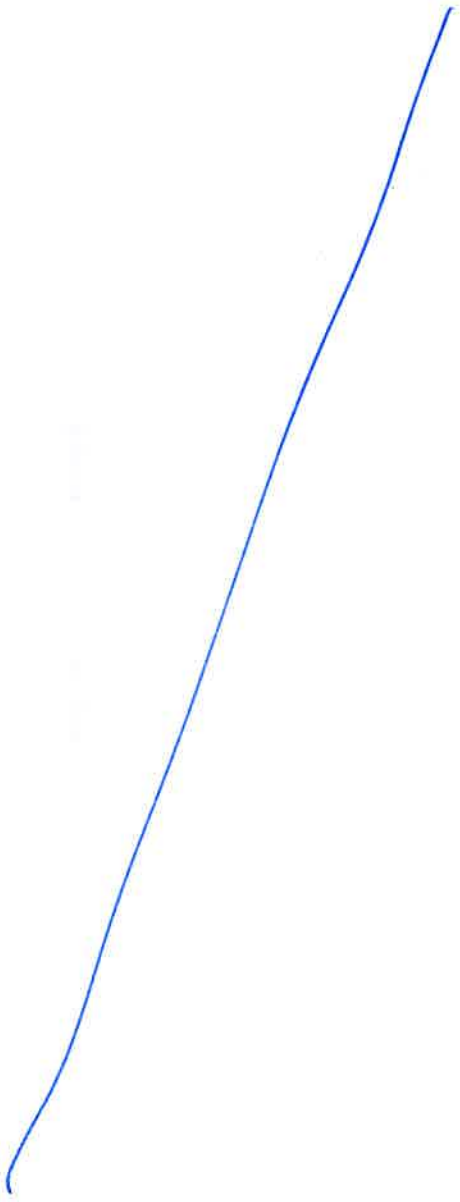
Um = 245 kV

b) Operating Conditions:

1. Nominal rated voltage (KV rms)	–	220 KV
2. Highest system voltage (kV rms)	–	245 KV
3. Number of phases	–	3



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4.	System frequency (Hz)	–	50 ± 3%
5.	Impulse withstand voltage 1.2/50 micro seconds wave of positive/negative polarity (kVp)	–	1050
6.	Power frequency withstand voltage (kV rms)	–	460
7.	System earthing	–	Effectively Earthed (Solidly grounded)
8.	Maximum fault level & its duration	–	50KA for 1 Sec
9.	Dynamic withstand capability	–	125 KA
10.	Total Relay & Breaker operating time (Milli seconds)	–	90-120

4.00.0 A. CLIMATIC CONDITIONS:

1.	Ambient air temperature	–	Min 5^0C
		–	Max 50^0C
2.	Average daily ambient air temperature	–	30^0C
3.	Relative humidity	–	10–100%
4.	Ground temperature at a depth of 1500 mm	–	30^0C
5.	Altitude above Mean Sea Level (M)	–	1000
6.	Average Rainfall (mm)/annum	–	1000
7.	Ceraunic level (days/year)	–	40–50
8.	Seismic level (horizontal acceleration)	–	0.3 g

B. OPERATING CONDITIONS:

i. CABLES:

1. Method of installation – Directly buried in ground/RCC cable duct

2.	No. of Circuit	–	Single
3.	Depth of laying (average)	–	1500 mm from the center of cable arrangement
4.	Soil Condition	–	Dry Heterogeneous garden Soil
5.	Thermal Resistivity of soil (assumed) Deg. C-cm/watt	–	120 to 150

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Bidder shall furnish the current rating of 1200 Sq.mm cable at Thermal resistivity of soil at 120^0C Cm/watt and 150^0C-Cm/watt. However thesuccessful bidder has to measure the soil thermal resistivity along the cable route and the cable has to be designed suitably.

6. Formation – Trefoil Touching
7. Spacing between two circuits (if applicable) – 800 mm (for 2 Circuits)
8. Sheath Bonding – Cross bonding.

Bidder shall recommend the type of bonding to be adopted with detailed calculation of sheath voltage, sheath current and current rating.

9. No. of cores – Single
10. Conductor size – 1200 Sq.mm
11. Rated continuous current (minimum)
    i. In Air – 1150 Amps.
    ii. In ground – 950 Amps. (after considering all derating factors)
11. Conductor material – Annealed Copper

ii. TERMINATIONS:

1) Installation – Outdoor type/GIS module Plugin Type in conformity with IEC 62271-209.
2) Atmosphere – Polluted.
3) Switchgear - SF6 Circuit breaker (AIS/GIS)
4) Clearance (air) ph-ph – 3650 mm
   at 220kV (phase voltage) ph-earth – 3350 mm

5.00.0 TECHNICAL PARAMETERS OF CABLE:

TYPE OF CABLE:

127/220 kV single core, stranded, annealed, copper conductor, segmental compacted, circular (Miliken), XLPE insulated, lead sheath, copper wire screen, High Density Polyethylene outer sheathed cable (please see details under construction of cable).

The tests shall be as per IEC-62067 with latest amendments.

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Voltage grade	–	127/220 (kV rms)
Max. operating conductor temperature	–	90^0C
Max. conductor temperature under short Circuit for 1 sec.	–	250^0C

5.01.0 CONSTRUCTION OF THE CABLE:

Construction : 127/220 kV (Earthed), single core 1200 Sq.mm stranded, annealed, copper conductor, segmental, compacted, circular (Milliken), conductor screen, cross linked polyethyline (XLPE) insulation, core screen, semi-conducting water swellable layer, lead alloy 'E' sheathed, semi-conducting bedding tapes, helically applied plain round copper wire screen, plain copper tape in open helix, water swellable tape with overall extruded High Density Polythylene sheath coated with graphite.

Conductor : Plain, annealed, high conductivity copper wires stranded, segmental conductor (Milliken).

Conductor screen : Extruded semi-conducting layer.

Insulation : Dry cured cross linked polyethyline.

Nominal thickness 24.00 mm (min)
In any particular point, the thickness may differ from the nominal thickness, however, the measured thickness shall stay within the following limits.
Minimum thickness: $t_{(min)} \geq 0.9\ t_{(nom)}$
And

$$\frac{t_{max} - t_{min}}{t_{max}} \leq 0.10$$

Where tmax, tmin and tnom are respectively the

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minimum, maximum & nominal thickness.
The thickness of insulation mentioned is indicative only. However, the thickness of insulation shall be such that the maximum value of electric stress at the insulation screen shall be 4kV/mm, as indicated elsewhere in the specification.

Core/insulation Screen	Extruded semi-conducting layer
Longitudinal Water barrier	Semi-conducting water swellable tape/s.
Radial Moisture Barrier	Extruded lead alloy 'E'. (Nominal thickness not less than 3.0 mm) The minimum thickness of the metallic sheath shall not fall below the nominal thickness by more than 0.1 mm + 5.0% of the nominal thickness. $t_{min} \geq 0.95 t_{nom} - 0.1$
Bedding	Semi-conducting tape/s.
Armour/Screen	Helically applied non-magnetic plain copper wires.
Contact tape	Annealed plain copper tape in open helix.
Water swellable tape	Non-conducting water swellable tape.
Outer sheath	Extruded High Density Polyethylene type ST 7 (black), antitermite treated. Extruded outer conducting layer coated with graphite. Nominal thickness 3.5 mm

6.00.0 GENERAL TECHNICAL REQUIREMENTS OF THE CABLE:

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The size of the conductors of the cable shall be sufficient to carry continuously 950 **Amps** continuously without exceeding a maximum temperature of **90^0C** under site conditions followed by a 20% overload for three hours without exceeding a maximum temperature of **130^0C for emergency overload** under site conditions. The OWNER estimates that a cross section of 1200 sq.mm Compacted Segmental Circular Milliken conductor wouldbe adequate to carry the stipulated load current.

The conductor size shall be based on loading of the circuit under the conditions indicated in Clause-3.00.00 & 4.00.00 above.

6.01.0 INSULATION CURING:

Dry curing process should be adopted in cross-linking the insulation.

6.02.0 TRIPLE EXTRUSION:

The conductor, screen, insulation and insulation screen shall be extruded in single process. The extrusion process shall be by **VCV method**. The same shall be confirmed in the GTP.

The Cross linked polyethylene insulated (XLPE) cable (Dry cured) shall be manufactured in accordance with the internationally accepted standard and also conform to the requirements of IEC: 62067 for rated voltages from 150KV to 500KV.

6.03.0 DESIGN STRESS AND INSULATION THICKNESS:

The recommended typical design stress values for insulation thickness are:

Design stress a.c.	:	**10 kV/mm**
Design stress impulse	:	**40 kV/mm**

The higher of the two values of the insulation thickness will be adopted but not less than the nominal value of 24.00 mm.

6.04.0 DIELECTRIC STRESSES:

The 220 kV cables shall be designed for continuous operation at a maximum line to earth system voltage of 127 kV. The maximum dielectric stress at the conductor screen and insulation screen shall not exceed the following:

For 1200 Sq.mm

a)	At conductor screen	**8 KV/mm**
b)	At the insulation screen	**4 kV/mm**

The dielectric stress at 127 kV shall be furnished by the bidder with calculation sheet.

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6.05.0 The cable shall be designed to have a minimum useful life of not less than fifty years. The cable manufacturer should submit a graph showing the breakdown voltage with respect to time for the XLPE insulation compound used. In addition the type of XLPE semi-conducting compound used should be indicated i.e., whether supersmooth and purity level.

6.06.0 Each cable length shall be provided with a pulling socket, pulling eye, which shall be fitted to pulling end to withstand the maximum pulling force.

6.07.0 Copper wire screening shall be preferably before the lead sheath to ensure specific water tightness of cable both transversely and longitudinally. However other types of placement of the copper wire screening is also acceptable if it meets the overall technical requirements. The same shall be established by way of Type Test Reports conducted on such cables. The bidder shall indicate any specific construction features, which will be provided to ensure specific water tightness of cable both transversely and longitudinally.

6.08.0 **CURRENT RATING:**

The bidder shall furnish the continuous current ratings in ground, in air, in pipes and in ducts at the maximum conductor temperature of 90^0C with reference to the ambient site conditions on the guidelines of IEC 60287. Any additional data, other than furnished under climatic conditions and operating conditions may be suitably assumed. However,the same shall be furnished in GTP for reference. The ratings shall be for Trefoil touching formation when the sheaths are single point bonded and both ends bonded or cross bonded (without exceeding the stipulated sheath voltage of **65 volts** or undue highcirculating currents).
The current ratings shall be for single circuit/double circuit in operation.The bidder shall also furnish technical information on:

i) Derating factors for various types of installation conditions in trefoil and flat(viz., depth of laying, varying ground temperatures, cables in ducts / pipes,cable spacings, circuit spacings, varying soil thermal resistivities etc.) shall be furnished by the bidder for the following conditions:

(a) Proximity to other 220 kV cables.
- Variation of number of cables (max. 12 in number).
- Variation in spacing.
- Variation in loading of the cables (80% to 100%).

(b) Variation in depth of water table.
(c) Depth of laying cables in trenches and cable ducts.
(d) Depth of **Stabilised Thermal Backfill (STB)** below and above laid cables.
(e) Width of trench on either side of the cables in which **STB** will be put.
(f) Variation in STB effective thermal resistivity.
(g) Variation in soil thermal resistivity.

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(h) Laying of cables in long lengths of HDPE pipe, 19 mm thick – Variation due to size and thickness of pipe and open space available in pipe – BIDDER shall suggest methods to improve the ratings.

ii) **Short Time Current Loading:**

The current loading permissible for a defined period of short time operation,over the cyclic load as under.

Cyclic loading over a 24 hour period.

2100	to	0600 Hours	(9 Hours)	**50%**
0600	to	0900 Hours	(3 Hours)	120%
0900	to	1800 Hours	(9 Hours)	**100%**
1800	to	2100 Hours	(3 Hours)	120%

Furnish short time loading for the following conditions.

i) Only one circuit is live.
ii) When both circuits are live.

When cables are laid in trefoil touching formation.
i) Single point bonded.
ii) Both end bonded.
iii) Cross bonded.

The bidders should furnish GA drawing/other details with supporting calculations on charging current, capacitance, inductance, losses, sheath voltages, sheath currents, surge impedance, sequence impedance and screen factors, detailed drawings etc., along with the bidding documents.

6.08.1 MECHANICAL CHARACTERISTICS OF CABLE:

The cable shall withstand the electromechanical forces due to peak short circuit currents of **125KA** and shall withstand the stresses of thermal expansion in the insulation due to faults. The cable shall withstand the mechanical stresses during installation.

6.09.0 TEMPERATURE RISE:

The maximum conductor temperature shall not exceed 90^0C during continuous operation at full rated current at 220 kV followed by 20% overload for three hours, maximum temperature not exceeding 130^0C. The temperature after a short circuit for one second shall not exceed 250^0C, with initial conductor temperature of 90^0C.

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6.10.0 EMERGENCY LOADING:

The BIDDER shall indicate the maximum percentage overload current that the cable can carry and its duration when operating initially at a conductor temperature of 90^0C and the permissible final conductor temperature after overload. The totalperiod during the lifetime of the cable when it shall be subjected to emergency loading without affecting the expected life of the cable shall also be indicated.

6.11.0 CYCLIC RATING:

The BIDDER shall also indicate the percentage overload current that the cable can carry and its duration, without the conductor temperature exceeding 90^0C due to thetime lag in conductor temperature change on account of the change in thermal characteristics of the mass of the soil surrounding the cable.

6.12.0 CABLE MATERIAL:

a) Conductor:

Plain annealed high conductivity copper wires, stranded, segmental conductor while conforming to IEC-60228. The Copper used for the conductor shall be of highest purity. The minimum number of wires and conductors and DC resistance of conductor shall be as per IEC-60228.

b) Conductor Screen:

The conductor screen shall be provided over the conductor by extrusion of semi- conducting compound or by a combination of semi-conducting tape/s and extruded semi-conducting compound. The minimum thickness, excluding tape/s shall be 1.5 mm.

c) Insulation:

Cross-linked polyethylene insulation by dry curing process shall be provided over the conductor screen. The nominal thickness of 24.00 mm and subject to tolerance asper IEC-62067, Clause 10.6.2.

The insulation shall be of high quality, and shall be as far as possible free from contaminants, moisture and voids. The size of voids and contaminants shall be within limits of recognized National/IEC Standards.

The insulation shall be suitable for operation in wet or dry locations at

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conductor temperature not exceeding 90^{0}C for normal operation, 130^{0}C for emergency over load of short duration, and 250^{0}C for short circuit conditions.

d) **Insulation Screen:**

Shall be by extruded semi conducting compound and of minimum thickness 1.0 mm.The semi conducting screens shall be suitable for the operating temperatures of the cable and compatible with the insulation.

e) **Moisture Barrier (Longitudinal):**

This shall be semi-conducting synthetic non-woven tape with suitable swellable absorbent for longitudinal water sealing covering the whole surface area of the non- metallic part of insulation screening. This barrier shall restrict longitudinal water penetration under the metallic sheath. The nominal thickness of water blocking tape shall not be less than 0.3 mm.

f) **Metal Sheath/Moisture Barrier (Radial):**

Shall be extruded lead alloy 'E' sheath.

The nominal thickness of lead alloy sheath shall be 3.0 mm and shall meet the Electrical and Mechanical properties as per standards. The minimum thickness shallbe as per IEC-62067 (Clause 10.7.1).

g) **Bedding Tapes:**

Suitable semiconducting bedding tapes shall be used under metallic screen of approximate thickness 0.3 mm.

h) **Metallic Screen (Armour):**

The metallic screen shall be of non-magnetic plain copper round wires, helically applied over the semiconducting bedding tape/s.

A binder tape of suitable material/annealed plain copper shall be applied in the form of an open helix, over the metallic screen.

Note: Requirement of Metallic Sheath/Screen:

The metallic screen can be before or after the lead sheath. However, it shall be as perthe manufacturer's type tested design.

The cross section of the metallic sheath that is lead sheath in combination with plain copper round wire screen shall be designed to meet the following requirements:

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i) Sustaining the system short circuit rating of **50 KA** for 1 Sec.The temperature of metallic sheath at the time of short circuit (cable operatingat maximum conductor temperature) shall be indicated in the short circuit calculations of the design of metallic screen/lead sheath.

ii) Ensuring mechanical protection of the cable.

iii) Ensuring radial water tightness of the cable.

Note: Test report ensuring the above compliance has to be submitted by the bidder along with the bid.

i) **Outer Sheath:**

The outer sheath shall be extruded Black colour High Density Polyethylene, type ST 7 conforming to requirement of IEC. The High Density Polyethylene compound usedshall be brand new from a reputed manufacturer and in no case shall recycled material be used.
The outer sheath shall be designed for protection against termite and rodent attacks by adding suitable additives to HDPE compound and such additives shall be harmless to operating personnel. The minimum thickness of outer sheath shall be 3.5mm.

j) **Coating:**

A hard baked on layer of graphite shall be applied over the sheath as outer electrode for testing the sheath.

6.13.0 IDENTIFICATION:

The following information shall be embossed on the outer sheath of the cable continuously repeated throughout the length of the cable.

i) Brand Name of Manufacturer:
ii) Year of Manufacture:
iii) Voltage rating / conductor cross section: 220,000V/1200 Sq.mm
iv) K.P.T.C.L.
v) XLPE

7.00.0 CABLE ACCESSORIES:

7.01.0 GENERAL:

Following are the accessories required.

(a) Straight through normal as well as cross bonded joints suitable for directly

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buriedin ground conditions/RCC Cable Ducts.

(b) Outdoor type cable end terminations/GIS module plugin type.

The above accessories shall be suitable for the 127/220 kV, single core 1200 Sq.mm copper conductor lead sheathed cable. The detailed cable construction is given in these specifications under clause 5.01.00

7.02.0 TECHNICAL REQUIREMENTS:

The accessories should be compatible with the size of the conductor, the insulation and the voltage class of the cable. The components of the accessory shall not be affected by contact with the component materials of cable, and shall not corrode anymetal, which they come in contact. The accessory, in the assembled condition, shall be capable of operating under the normal and fault temperature conditions of the cable.

The cable accessories should be procured only from reputed manufactures & type test reports shall be submitted along with the bid.

7.02.1 CABLE JOINT:

The Cable joints shall be suitable for 220 kV Single Core, 1200 Sq.mm copper conductor, lead sheathed XLPE cable and conforming to relevant IEC specification.

The joints shall be suitable for size of the conductor, the insulation, voltage and current ratings of the cable. The required service conditions are horizontal installation, directly buried in earth, laid in RCC cable duct and intermittently or continuously submerged in water.
The BIDDER shall quote for the required quantity of prefabricated type Cable joints which shall comprise of a Factory Tested One Piece Pre Moulded Silicone Rubber joint body moulded from a special Silicone Rubber formulation to provide perfect compression force for optimized electrical performance and afford very simple, reliable, consistent installation. Conductor Jointing should be either with mechanical connectors or a proven crimping technique. Outer mechanical protection with integrated moisture protection must be provided and the manufacturer must provide a detailed description of this. Solderless Jointing technique for the lead sheath and copper wire screen must be provided. Further, the straight through joint shall be able to

(i) Provide a seal against the entrance of moisture or external environment.
(ii) The assembled joint should be resistant to corrosive agents present in the soil, should be mechanically strong to withstand pressure, bending, pulling fatigue. The joint should withstand temperature variations under normal load and fault conditions.

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7.02.2 OUTDOOR CABLE END TERMINATION:

The cable end terminations shall be outdoor type suitable for 220 kV SC, 1200 Sq.mm copper conductor, lead sheathed XLPE cable and shall be designed to perform under severe environmental conditions and also conform to the relevant IEC Specifications.

The outdoor termination should have a pre moulded silicone rubber stress cone to provide the electrical stress control function at the end of screen/shield and should be easily applied without tools It should avoid partial discharges and surface corona under severe service conditions. The cone should be placed on the cable terminated within a pressure tight composite housing made of glass fibre reinforced resin tube with silicone rubber sheds moulded to the tube. The interface between the stress cone, cable insulation and inner housing must be filled with a silicone oil poured from the top. No heating of the silicone oil prior to pouring should be required. It should seal any ingress of atmospheric elements. A flexible double sealing system which is installer friendly must be provided to provide protection against environmental influences. An oil resistant barrier must be provided over the conductor to prevent any oil migration the total creepage distance shall not be less than 6125 mm.

The outdoor termination shall be suitable for the insulation, voltage, conductor size and current rating of the cable.

The sealing ends shall conform to the latest International Standards and shall be of thoroughly proven design. The outdoor type sealing ends shall be suitable for installation in polluted atmosphere referred to in clause 4.00.00 and shall be completely weather proof. Each outdoor type-sealing end shall be supplied complete with four mounting plate insulators to insulate the sealing end from the supporting structures and to control the sheath current. All metallic fittings must be made of corrosion resistant aluminium alloy. Terminal connectors and bimetallic clamps shallalso be supplied. Each sealing end shall be provided with consumable materials suchas wipes and solvent for cleaning. A Cable Gland for the shield connection and lead sheath connection must be provided and this should be sealed from the external environment with a heat shrinkable sleeve. The power cable leading to sealing end shall be provided with proper sunshield cover.

The material for the housing of the termination should be resistant to tracking, ultra violet radiation (U.V. Exposure) weathering and should have stable hydrophobic properties.

The bidder shall provide necessary arrangement to limit flow of current in the structure supporting the sealing end.

The sealing ends shall withstand the power frequency, impulse and cable testing voltage after installation as specified.

The cable and accessories shall withstand all thermal and mechanical stresses under steady state and transient operating conditions.

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7.03.0 TECHNICAL ASSISTANCE/TRAINING:

The successful bidder shall arrange with the suppliers of cable joints and / or terminations, the technical assistance in jointing / terminating the cable during installation at the site. The successful bidder shall arrange to train the owner's personnel in jointing and terminating techniques during the installation.

7.04.0 LINK BOXES:

7.04.1 Link Boxes along the run of the 220 kV Cable:

a) Link boxes for grounding of the sheaths of single core cables along the run of the cables shall be made of cast iron/aluminium alloy/stainless steel, suitable for direct burial in the same ground conditions as the cable with anti-rust protection suitable for completely underground installation and for operation when immersed in water. The link box shall conform to IP-66 degree of protection for which the test reports shall be furnished.
The bidder shall furnish a copy of type tests certificates for the link box offered as per the specification from any of the laboratories indicated in Cl.No. 10.02.10 or any other NABL Accredited Laboratories.
The design of the box must include a top Lid, which can be lifted vertically. BIDDER to submit the detailed drawing of these boxes along with the Bid. These Link Boxes shall be easily accessible from road surface in case of installation in joint pit. The box shall ensure complete water tightness.

b) These Link Boxes shall be suitable for terminating the cable sheaths on either sideof joint bays based on cable route for cross bonding at the box as well as for earthing at recommended locations.

c) All accessories such as copper terminals, cable lugs, connecting links, disconnecting links, washers, gaskets, mounting arrangements, etc., shall be provided to make the system complete.

d) The cross bonding link box shall be designed to be completely water proof and capable of immersion in water.

e) The cable leads from sheath to link box, capable of withstanding 10 kV DC and cable leads from link box to earth shall also be in BIDDER's scope of supply. The BIDDER shall quote for the type of cable leads for the cross bonding system as per the following design:

Concentric bonding leads of suitable size corresponding to three-(3) nos. co-axialcable entries to the cross bonding box.
Non–linear resistor type surge divertors of metal oxide type, wherever required, shall be provided in the link box by the BIDDER.

f) The BIDDER may quote for link boxes of suitable design in which the surge voltage

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limiters (SVLs) do not need to be disconnected when a routine 10 kV DC test on the cable outersheath is performed.

7.04.2 Link boxes at the circuit end:

The lead sheath shall be grounded through suitable disconnecting links at the base of sealing ends. The BIDDER shall clearly indicate whether the links are to be grounded directly or through SVLs (non-linear resistors). The links shall be housed in a weather proof, outdoor, galvanised sheet steel box or cast iron or aluminium alloy box with mounting brackets and provided with 'O' Ring gasketted door. The cable leads from the sheath to the link box, capable of withstanding 10 kV DC & cable leads from link box to earth shall form a part of the scope of supply of the BIDDER. The Bidder shall quote for the same.

7.04.3 Cross Bonding of cable sheath:

The BIDDER shall give his recommendations regarding cross bonding of cable sheaths for the flat formation of single core cables. The BIDDER shall clearly indicate the numberof joints to be directly earthed and those to be earthed through zinc oxide (ZnO), non- linear resistors (sheath voltage limiters). The offer may indicate a suitable design whereby ZnO resistors need not be disconnected while conducting routine DC test on the over sheath.

The sheath standing voltage to earth for rated cable current shall not be in excess of 65 V RMS.

The sheath voltage, during an external three phase, symmetrical through fault as specified, should not be in excess of 3.3 KV for 3 sec.

The BIDDER shall indicate the arrangement considered by him in his proposal to meet the above requirements with suitable non-linear resistors, if required, to limit the sheath voltage.

Detailed calculations for sheath voltages as per recommended bonding methods shall be furnished along with the bid.

The BIDDER shall indicate permissible variation in the lengths of the 3 minor sections of a major section, which will not affect the efficacy of the cross bonding.

The BIDDER shall confirm that the cable can be continued in service in the event of a sheath fault and shall indicate the de-rating of the cable in case of an earth on the sheath at the link box earthed through SVLs.

Transposition of cables:

The BIDDER shall indicate and provide arrangement for transposition of cables if necessary along with cross bonding. The Details of the same shall be furnished along with the bids.

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7.04.4 VOID

7.04.5 VOID

7.04.6 Partial Discharge (PD) Measurement System: VOID

7.05.0 DTS (Distributed Temperature Sensor) with RTTR: void

7.06.0 SHEATH BONDING CABLE AND EARTHING CABLE:

The sheath bonding cable shall be co-axial cable 6.6 kV and above grade with 400/400 Sq.mm (conductor/concentric conductor) stranded Copper conductor PVC insulated wire armoured and PVC sheathed. The earthing cable shall be 3.3kV & above grade with 400Sq.mm stranded copper conductor PVC insulated & PVC sheathed. However, the rating and the size of sheath bonding cable and earthing cable mentioned are indicative and minimum values. The bidder may quote the actual rating and size of cable offered, to meet the requirement.

7.07.0 PIPE EARTH STATIONS:

The earthing shall be as per provisions of IS:3043, Code of practice for earthing and as per IE rules:1956 Or its Latest Amendments.

8.00.0 ELECTROLYSIS AND CORROSION:

The cable serving shall be designed such that the cable sheath and armouring are protected from electrolysis caused by stray currents, from galvanic action and from corrosion and microbiological attack. The design of accessories shall be such that the outer metallic coverings of cable joints, sealing ends and control points can be insulated from earth along the entire route so that cathodic protection, if needed can be applied and also periodic testing of the insulating resistance of the serving can be done. A set of links shall be provided at each end of cables to connect the cable sheath and armour to the respective station grounds. The sealing ends shall be suitably insulated from their supporting structures, to permit insulation test on the cable over sheath.

9.00.0 GROUNDING SYSTEM:

The BIDDER shall indicate his recommendations regarding the type of grounding systems for the lead sheath/armour. The scope of supply shall include ground rodor ground conductor as recommended. The grounding material shall be copper.

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10.00.1 TESTS ON CABLES AND ACCESSORIES:

10.01.0 APPLICABLE STANDARDS:

The testing procedures and requirements shall conform to the latest edition of the following national and international standards, but not limited to:

a) IEC publication 60540
b) IEC publication 60228
c) IEC publication 60229
d) British Standard Specification 6622
e) IEC publication 60840 ***(only applicable Sections of the Standard)***
f) IEC publication 60230
g) IEC publication 60287

h) IEC publication 60811
i) IEC publication 60885
j) IEC publication 62067

The IEC Standards shall prevail whenever the same tests are specified in other standards.

10.02.0 TESTS:

10.02.1 The Owner is keen to procure cables of highest integrity. To provide adequate confidence to the owner for the long term reliability of the cables, the manufacturer has to carry out the prequalification tests on cables and their accessories in accordance with IEC-62067:2011.
The prequalification tests should have been conducted on complete cable system as per clause 13 of IEC-62067.
Prequalification test report shall be furnished along with the bid documents, whichis mandatory.

The prequalification tests are to determine long term reliability of a cables system. Hence it is necessary to carry out a long term accelerated ageing test. This test is to be performed as per clause no. 13.2 of IEC-62067 on the complete system comprising cables (specified in Tender) joints and termination in order to demonstrate the performance of the system.

The bidder shall enclose a detailed report of prequalification test as per clause No.13.2 of IEC-62067 along with the bid.

After qualification of these tests, regular routine, acceptance and type tests are to be conducted in any one of the approved labs as indicated in the clause 10.02.10 onthe samples and cables manufactured for the Owner.

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10.02.2 The bidder shall include the field test report of similar size and voltage class cables installed in actual service. The report shall include voltage class, size, actual voltage, actual load current data, sheath voltage, sheath/conductor temperature data and all events after installation during service of such cable till date etc.

10.02.3 Type tests shall mean those tests, which are to be carried out to prove the process of manufacture and general conformity of the material to this specification. These tests shall be carried out on samples prior to commencement of commercial production against the order. The Bidder shall indicate his schedule for carrying out these tests in the activity schedule.

10.02.4 Acceptance tests shall mean those tests, which are to be carried out on samples taken from each lot offered for pre-dispatch inspection, for the purposes of acceptance of the lot.

10.02.5 Routine Tests shall mean those tests, which are to be carried out on each strand/spool/length of the cable to check requirements, which are likely to vary during production and to demonstrate the integrity of the cables to be delivered to the customers for use.

10.02.6 Tests during manufacture shall mean those tests, which are to be carried out during the process of manufacture and end inspection by the Bidder to ensure the desired quality of the end product to be supplied by him.

10.02.7 The Standards and norms to which these tests will be carried out are mentioned elsewhere in these specifications. Where a particular test is a specific requirement of this specification, the norms and procedures of the test shall be mutually agreed to between the Bidder and the Owner in the Quality Assurance Programme.

10.02.8 For all type and acceptance tests, the acceptance values shall be the values guaranteed by the Supplier in the proforma for "Guaranteed Technical Particulars", furnished in this Specification or acceptance value specified in this specification, whichever is more stringent for that particular test.

10.02.9 All tests – routine, acceptance and type tests shall be as per IEC-62067 and its Latest Amendments.

10.02.10 The adequacy of Partial Discharge detector used for Partial Discharge tests required for drum lengths of cables under routine tests must be demonstrated by performing tests as per IEC-60885 (3) – 1988.

The bidder shall furnish a copy of type tests certificates for the cable and accessories offered as per the specification from any of the following laboratory onsimilar cable and accessories as offered for this tender in compliance with IEC:62067, CL.No.12.2: Range of Type approval. The test should have been conducted within the last 10 years as on the last date of submission of bid. No charge is payable by the owner for the type tests.

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a) For cables & accessories manufactured in India:

i. Type tests on indigenous equipment for which testing facility is available inIndia, should have been conducted in any independent laboratories approved by Government or accredited by National accreditation body of thecountry like Central Power Research Institute (CPRI), Electrical Research and Development Association (ERDA), etc.

ii. Type tests on indigenous equipment, for which testing facility is not available in India, should have been conducted in a laboratory of foreign country accredited by National accreditation body of that country.

iii. The type tests conducted in-house by manufacturers shall also be acceptablewhere the specific test facilities are not available in independent NABL accredited laboratories provided the lab (manufacturer's) is accredited by National accreditation body of the country and the tests have been witnessed by a representative of NABL accredited Independentlaboratory/Power utility.

b) For cables & accessories manufactured Abroad:

i. Type tests on imported equipment should have been conducted in an Indian laboratory or foreign laboratory accredited by National accreditation body of respective country.

ii. Type tests conducted in-house by manufacturers shall also be acceptable provided the laboratory is accredited by National accreditation body of the country and the tests have been witnessed by a representative of accreditation body/Power utility.

Following are the type test reports which are to be enclosed/uploaded in the bid.

1) Prequalification test – (Cl. 10.02.1 of specification)
2) Electrical Type tests as per – (Cl. 10.03 (1)(a) to (j) of specification).
3) Non-Electrical Type tests as per – (Cl. No. 10.03 (2) (a) to(o) of specification).
4) Special test as per- (Cl. 10.06 (a) (i) & (ii) of specification)
5) Type test for Link box- (Cl. No. 7.04.1 of specification)

10.02.11 Tests to be conducted during the supplies/after completion of supplies for acceptance of cable and accessories will be at the discretion of the Owner.

1) CABLE:

The owner will select at random a test sample of cable from the lot and subject it to **either a particular type test or** full range of type tests as per IEC-62067: 2011.

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The bidder shall prepare the sample for tests and organize testing.The type test/s will be conducted at Owner's cost. However, the bidder shall make arrangements for transportation of testsamples from manufacturing unit to the Test Laboratory indicated by owner at his cost. The applicable type test charges for only to such tests to be conducted as per owner's instructions will be payable by the Owner.(Refer Note (e) given below).If the cable fails in any of the type tests, the entire lot of cable will be rejected.

2) JOINTS & TERMINATION:

Two Terminations and one joint will be selected at random out of the supplies and subjected to **either a particular Type test or** full range of type and other tests at any reputed testing house/laboratory to IEC 62067: 2011 and tests shall be carried out accordingly.

The bidder shall prepare the sample for tests and organise testing. The type test/s will be conducted at Owner's cost.

However, the bidder shall make arrangements for transportation of test samples from manufacturing unit to the Test Laboratory indicated by owner at his cost.

The applicable type test charges for only to such tests to be conducted as per owner's instructions will be payable by the Owner.(Refer Note (e) given below).

If the sample under test i.e., cable / joint / termination fails, the entire lot of cable / joint / termination will be rejected.

3) The tests mentioned in (1) & (2) above are independent of the type test reports already furnished by the supplier.

NOTE:

(a) The waival of any type tests shall be at the sole discretion of the owner.

(b) The successful bidder/vendor shall provide the associated cable and testingmaterial for tests at his own cost.

(c) The cost towards **each** type test shall be clearly indicated **seperately** in thebid and the same will be included for bid evaluation.

(d) The owner may modify tests by including additional tests or delete certain tests at his discretion.

(e) The test charges would be paid by the owner only for such tests that are, conducted successfully in a third party lab other than manufacturer lab. If the tests are conducted at Manufacturer lab no charges would be paid for such tests. However, the bidder has to quote for such tests. And in case of failure of the test material, the entire lot of cable/joint/termination will be rejected.

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10.03.0 TYPE TESTS ON CABLE SYSTEM (CABLES & CABLE ACCESSORIES):

The following type tests comprising the electrical tests on the completed cable and the appropriate tests on the cable components shall be conducted in any of the laboratory to be approved by a in the presence of the owner's representative.

The owner may at his discretion, waive the type tests, modify the tests, request for additional tests.

1) The type tests and sequence of electrical test (as per following clauses of IEC62067) on complete cable system shall be:

   a) Bending Test on the cable (Cl.12.4.3) followed by installation of accessoriesand a partial discharge test at ambient temperature (Cl. 12.4.4)
   b) Tan Delta measurement (Cl:12.4.5)
   c) Heating cycle voltage test (Cl:12.4.7)
   d) Partial discharge test (Cl:12.4.4)
      - at ambient temperature, and
      - at high temperature.
      The tests shall be carried out after the final cycle of item (c) above or alternatively, after the lightning impulse voltage test in item (f) below.
   e) Switching impulse voltage test (required for Um ≥300kV Cl.12.4.7.1)
   f) Lightning impulse voltage test followed by a power frequency voltage test (Cl.12.4.7.2)
   g) Partial discharge tests, if not previously carried out in item (d) above
   h) Examination of the cable system with cable and accessories on completionof the above tests (Cl. 12.4.8)
   i) The resistivity of the cable semi-conducting screens (Cl. 12.4.9) shall bemeasured on a separate sample.

2) The Non Electrical type tests (as per the following clauses of IEC 62067) on cablecomponents & on completed cable shall be:

   a) Check the cable construction (Cl. 12.5.1)
   b) Tests for determining the mechanical properties of insulation before and after ageing (Cl. 12.5.2)
   c) Tests for determining the mechanical properties of oversheaths before andafter ageing (Cl. 12.5.3)
   d) Ageing tests on pieces of complete cable to check compatibility of materials (Cl. 12.5.4)
   e) Pressure test at high temperature on oversheaths (Cl. 12.5.6)
   f) Hot set test for EPR and XLPE insulations (Cl. 12.5.10)
   g) Measurement of density of HDPE insulation (Cl. 12.5.11)
   h) Measurement of carbon black content of black PE oversheaths (ST_3 and

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i) Test under fire conditions (Cl. 12.5.13)

j) Water penetration test (Cl. 12.5.14)

k) Tests on components of cables with a longitudinally applied metal type or foil, bonded to the oversheath (Cl. 12.5.15)

Note: All the applicable tests as per IEC-62067 shall be conducted for the cable requirement of this specification.

10.04.0 ROUTINE TESTS ON CABLE AND ON THE MAIN INSULATION OF PREFABRICATED ACCESSORIES:

The following tests (as per following clauses of IEC-62067) shall be carried out on each manufactured length of cable:

a) Partial discharge test (Clause 9.2).
b) Voltage test (Clause 9.3).
c) Electrical test on over sheath of the cable (Clause 9.4).
d) Conductor resistance test (Clause 10.5).

10.05.0 ACCEPTANCE TEST / SAMPLE TESTS ON CABLES:

The following tests (as per following clauses of IEC-62067) shall be carried out onsamples.

a) Conductor examination (Clause 10.4).
b) Measurement of electrical resistance of conductor and of metal screen/sheath(Clause 10.5).
c) Measurement of thickness of insulation and oversheath (Clause 10.6).
d) Measurement of thickness of metallic sheath (Clause 10.7).
e) Measurement of diameters, if required (Clause 10.8)
f) Hot set test for XLPE and EPR insulation (Clause 10.9).
g) Measurement of capacitance (Clause 10.10).
h) Lightning impulse voltage test (Clause 10.12).
i) Water penetration test, if applicable (Clause 10.13)

Note: All the applicable acceptance tests/sample tests as per IEC-62067 shall beconducted for the cable requirement of this specification.

Frequency of Acceptance Tests:

The acceptance tests shall be conducted on one drum length from each manufacturing series of the same type and size of cables, but shall be limited to notmore than 10% of the number of drum lengths, rounded to upper unity. However, water penetration test & lightning impulse test shall be on one length for the orderupto 20Kms and two lengths for more than 20kMs order.

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10.06.0 (a) SPECIAL TESTS ON CABLES:

The following are the additional special tests:

i) Short circuit test on metallic wire screen and lead sheath, in combinationat 50kA for 1 Sec with conductor temperature during the test at 90^{0}C.

ii) Test for ovality of the core.

iii) (a) The waival of type tests shall be at the sole discretion of the owner.

(b) The successful bidder/vendor shall provide the associated cable and testing material for tests at his own cost.

(c) The cost towards type tests shall be clearly indicated in the bid and will be included for bid evaluation.

(d) The owner may modify tests by including additional tests or delete certain tests at his discretion.

e) The test charges would be paid by the owner only for such tests that are conducted successfully in a third party lab other than manufacturer lab. If the tests are conducted at Manufacturer lab no charges would be paid for such tests. However, the bidder has to quote for such tests. And in case of failure of the test material, the entire lot of cable/joint/termination will be rejected

10.07.0 SPECIAL TEST ON ACCESSORIES:

10.07.1 JOINTS

Cyclic ageing test under water.

The Test shall be conducted as per IEC 62067 Annexure – G

10.07.2 OUTDOOR TERMINATION:

The outdoor termination should meet the following additional test requirements

(i) Power frequency voltage wet withstand test as per latest version of IEC-62067 standard.

(ii) Salt fog test as per IEC.

(iii) Material test (if applicable)

a) Tracking and erosion resistance

b) Thermal ageing

c) Weather resistance

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10.08.0 ADDITIONAL TESTS:

Following tests shall be carried out as per IEC-62067: 2011, Cl. No. 16.0 on the complete installation after completion of cable laying, jointing and providing all necessary accessories.

a) Insulation resistance test.
b) DC voltage test of over sheath & AC voltage test of the insulation in accordance with IEC-62067: 2011 (Cl. No. 16.2 & 16.3).
c) Site tests on non-metallic sheaths in accordance with latest version of IEC-60229.

The supplier shall also indicate any additional special test at site recommended by them to ensure satisfactory operation.

10.08.1 The Bidder shall furnish all the testing details in a compact disc (CD).

11.00.0 IDENTIFICATION:

The Cable should be identified by embossed letters in English as per Clause 6.13 of technical specification.

The accessories shall be marked with voltage class, size of cable conductor, manufacturers name or trademark, date of manufacture and relevant technical information.

12.00.0 QUALITY ASSURANCE PLAN:

a) The bidder shall invariably furnish the following information along with his offer failing which the offer shall be liable for rejection. Information shall be separately given for individual type of equipment offered.

i. Structure of the organization. The duties and responsibilities assigned to staff for ensuring quality of work.
ii. The system of purchasing, taking delivery and verification of materials.
iii. The system for ensuring quality of workmanship.
iv. The quality assurance arrangements shall conform to the relevant requirement of ISO-9001 or ISO-9002 as applicable.
v. Statement giving list of important raw materials, names of sub-suppliers for the raw materials, list of standards according to which the raw materials are tested, list of tests normally carried out on raw materials in the presence of suppliers representative, copies of test certificates.
vi. List of manufacturing facilities available.

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vii. Manufacturing process shall be fully automatic with dust proof/Air conditioned working atmosphere.

viii. List of areas in manufacturing process, where stage inspections are normally carried out for quality control and details of such tests and inspections.

ix. List of testing equipment available with the bidder for final testing of equipment specified and test plant limitation, if any vis-à-vis the type. Special acceptance and routine tests specified in the relevant standards. These limitations shall be very clearly brought out in the "Schedule of Deviations" from the specified test requirements.

x. Level of automation achieved & test of areas where manual processing exists.

b) The Successful bidder shall within 30 days of placement of order, submit the following information to the Owner.

i. List of raw material as well as bought out accessories and the names of sub-suppliers selected from those furnished along with the offer.

ii. Type test certificates of the bought out accessories if required by the Owner.

iii. Quality Assurance Plan (QAP) with holds points for owner inspection. QAP and owners hold points shall be discussed between the owner and successful bidder before the QAP is finalized.

iv. The successful bidder shall submit the routine test certificates of bought out accessories and central excise passes for raw material at the time of routine testing if required by the owner and ensure that the quality assurance requirements of specifications are followed by the sub-contractor.

c) The Quality Assurance Programme shall give a description of the Quality System and Quality Plans with the following details:

i. Quality System

- The Structure of the organization.
- The duties and responsibilities assigned to staff for ensuring quality of work.
- The system of purchasing, taking delivery and verification of materials.
- The system of ensuring quality workmanship.
- The system of control of documentation.

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- The system of retention of records.
- The arrangement of successful bidder internal auditing.
- A list of administrative and work procedures required to achieve successful bidder quality requirements. These procedures shall be made readily available to the Owner for inspection on request.

ii. Quality Plans:

- An outline of the proposed work and programme sequence.
- The structure of contractor's organizations for the contract.
- The duties and responsibilities ensuring quality of work.
- Hold and notification points.
- Submission of engineering documents required by this specification.
- The Inspection of the materials and components on request.
- Reference to successful bidder work procedures appropriate to eachactivity.
- Inspection during fabrication/construction.
- Final inspection and test.

The Owner reserves the right to seek documentary proof of the source of material (insulation, outer sheath, and other cable components) and to cross check with the supplier.

13.00.0 INSPECTION:

13.01.0 Inspection may be carried out by the owner at any stage of manufacture. The successful bidder shall grant free access to the owner's representative at a reasonable time when the work is in progress. Inspection and acceptance of any equipment under this specification by the owner shall not relieve the bidder of his obligation of furnishing equipment in accordance with the specification and shall not prevent subsequent rejection if the equipment is found to be defective. The supplier shall keep the owner informed in advance about the manufacturing programme so that arrangement can be made for inspection.

13.02.0 The owner reserves the right to insist for witnessing the acceptance/ routine testing of the bought out items.

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13.03.0 No material shall be dispatched from its point of manufacture unless the material has been satisfactorily inspected and tested in presence of the owner's representative and cleared for despatch.

14.00.0 PACKING AND MARKING:

14.01.0 DELIVERY LENGTH OF CABLE:

It is important to note that the correct delivery length on each drum and the total number of drums to be delivered shall be ascertained by the successful bidder before manufacture, by cable route survey and approval of the owner.
The inner diameter of the drum shall not be less than 20 D and the minimum delivery length of the cable on each drum shall be approximately 500 Mtrs (Five Hundred) subject to approval of the owner.

14.02.0 The cable shall be wound on non-returnable strong steel drums. The dimensional drawings of steel drums shall be furnished with the bid. The drum shall be provided with circumferential lagging of strong wooden planks. The ends of the cable shall be sealed with good quality heat shrink sealing caps. The required additional sealing caps of sufficient quantity shall be supplied for use for testing during laying and jointing at site and to seal spare lengths of cable.

The packing should be able to withstand the rigors of transport.

The following information in bold letters in English shall be painted on theflanges.

(i) Name and address of the Manufacturer, Trade name/Trade Mark/Brand.

(ii) Size of cable (cross section) rated voltage, standard, insulation, cable code,drum number, year of manufacture.

(iii) Length of cables (metres).

(iv) Direction of Rolling.

(v) Net weight (in Kg).

(vi) Gross weight (in Kg).

(vii) Purchase order reference.

Note: a. Economic drum length shall be got approved from the owner during the survey of route by the successful bidder and inner drum diameter shall not be less than 20

b. Each cable end shall be hermetically sealed by means of metal cups using wiping lead so as to protect the cable from moisture penetration during transit, storage and laying. Pulling tension shall be furnished by the successful bidder.

c. The vendor shall be responsible for any damage to the cables during transit due to cable or reels not having been properly fastened, packed and

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secured.

d. Two Nos. of swivels of suitable capacity shall be supplied along with the first batch of cables free of cost.

e. The maximum weight of cable along with drum to be furnished by the successful bidder before execution of works.

Handling and Storage:

All accessories and spares shall have a minimum shelf life of 10 years, detailed instructions for storing accessories and all equipments which are supplied by the vendor shall be indicated.

15.00.0 DESPATCHES:

No dispatches shall be made without approval from the Owner to the test certificates. All dispatches shall be made to the consignees intimated by the owner.

16.00.0 CABLE LENGTHS:

The correct total quantity, the number of drums, the length of cable on each drum shall be ascertained by the successful bidder from the owner, at the time of manufacture. This is in view of any change in the already finalized route plan, profile which may arise due to any unforeseen circumstances between the period of placing the order and commencement of manufacture.

17.00.0 DELIVERY AT STORES/SITE STORES:

The stores / site is located at Bangalore. All regulations governing the transport of goods by various modes of transport shall be observed by the contractor.

It will be the sole responsibility of the successful bidder to deliver the goods safely at the owner's stores / site stores, including handling and unloading etc.,

18.00.0 INSTALLATION:

18.01.0 SURVEY – ROUTE PLAN:

18.01.1 The bidders are requested to fully inform and acquaint themselves on the local site conditions, which have a direct bearing on the cost estimates and execution of the work.

The tentative cable route plan is furnished to the bidder, indicating roads, position of road crossings, railway crossings, drainage crossings etc., in the drawing enclosed with the bidding document. In case of Variations during actual survey or any deviations in quantity, payment would be made as per quantities executed as per actuals.

The successful bidder shall make a detailed survey of the cable route, by excavating the trial pits as warranted by the local conditions and prepare necessary drawings. All relevant data, required shall be properly recorded and preserved for future use and to decide on requirements of:

- Cable delivery length per drum
- Proposed cable sections
- Location of joint bay positions
- Type and quantity of joints required
- Final cable route plans
- Design of cable ducts/trench for road crossings drainage crossings, railwaycrossings etc.
- Identify locations for bonding.
- Trench with brick masonry side wall and pre-cast reinforced concrete slabs.

The survey data on the cable route should also include recording of the information required for cable design, such as

- Type of soil along the cable route, soil resistivity
- Soil thermal resistivity, PH Value
- Sub soil water locations and other relevant information in designing the ducts and pipes for cable.

NOTE: The quantities executed will be paid at actuals.

18.01.2 LOCATION OF JOINT BAYS:

The location of the joint bays should be carefully decided to avoid, traffic hazards, collection of subsoil water and any possibility of flooding due to storm waters. The joint bays located should be easily accessible for inspection and tests.

18.01.3 CABLE LENGTH, SECTIONS:

The maximum and minimum delivery lengths of cable that can be supplied shall be furnished by the bidder in the tender.

The successful bidder shall carryout a final route survey, fix joint bay locations and finalize the sections and delivery lengths.

A tolerance of ±1% may be assumed while finalizing the actual cable length. The work on installation and laying of cables will be taken up by the successful bidder only on approval of the route plans by the owner.

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18.01.4 **CABLE INSTALLATION RECORDS:**
The route plan records / drawings, and the final route map drawings after installation and commissioning, should be furnished to the owner. Three transparencies and nine zerox copies each of route plan and 2) Final route map after installation shall be furnished. Soft copy of the same shall be furnished in CDs.

18.01.5 For preparation of cable route plans and cable records, relevant sections of Indianstandards publication IS:1255, "Code of Practice for installation and maintenance of power cable", or any other appropriate international standard may be referred for guidance.

18.01.6 **SOIL THERMAL RESISTIVITY / SOIL RESISTIVITY:**
The successful bidder shall investigate the soil characteristics along the cable route, at the required laying depths to evaluate the parameters governing the cable design.
The thermal resistivity tests should be carried out at every 200M interval along the cable route and also at specified locations at the direction of the owner. At each location the thermal resistivity tests are to be taken at three different depths and two soil samples are to be taken for further laboratory analysis.

The laboratory analysis of the soil samples collected from the site should be conducted in detail, including soil identification, moisture content, density, organic content, critical moisture content of each soil type encountered along the route to arrive at the thermal resistivity values of the native soil.

The generally assumed value of the soil thermal resistivity may be taken as 150^0C Cm/w.
The OWNER anticipates the presence of soil strata at a few locations along cable routes with a soil thermal resistivity of more than 150^oC Cm/w.

However, the successful BIDDER shall be responsible to ensure that no derating of the cable will take place on account of variation in soil thermal characteristics. In consultation with the OWNER, the BIDDER shall analyse and indicate the appropriate backfill (STB – Soil Thermal Backfill) recommended. Bidder will have to design the trench optimally to take care of local site conditions. The maximum permissible soil thermal resistivity shall be limit to 120^oC Cm/w in fully dried condition out of the locally available materials to achieve maximum current capacity for the cable section used. BIDDER shall ensure that no derating of the cable takes place on account of soil/backfill thermal characteristics and that properbackfill is used.

In conformity with the above requirement, the BIDDER shall determine and advise on the following:

- Optimum design of trench to take care of local hot spots and methods to reduceeffective Thermal resistivity value.
- The type of graded sand to be utilized by sieve analysis as one of the

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componentsof the STB backfill to obtain tight fit soil.

- The optimum Kaolinitic clay content in the soil to make it less porous and of highspecific surface area for optimum moisture retentivity suitable for areas prone to moisture migration on account of low water table.

- The material and composition of thermal backfill will be finalized during detailed Engineering. Bidder shall be responsible for ensuring the best "effective" thermalresistivity.

Subsequent to completion of backfilling, in-situ measurements of soil thermal resistivity, dry cured density, void ratio, moisture and clay contents of the soil shallbe carried out by the BIDDER along the cable routes at regular intervals mutually agreeable to the BIDDER and PURCHAER, using his own instruments as a quality check on the backfill employed and method of back-filling and detailed report shallbe submitted by BIDDER.

However, the successful bidder shall carry out the required investigation and teststo evaluate and determine the soil resistivity and soil thermal resistivity along the cable route, at cable laying depth, to the satisfaction of the owner.

18.01.7 THERMAL BACKFILLS:

The successful bidder shall design, specify supply formulate, test and lay a suitable backfill, only if the owner desires and with the prior approval of the owner, if found necessary after the receipt of the route survey report for thermal characteristics of the soil.

18.02.0 Laying and installation of Cables:

18.02.1 General

The successful bidder shall carry out all activities connected with the laying and installation of the power cables, and completion of the work for which the project is intended and to the full satisfaction of the owner.

Notwithstanding subsequent changes/alterations in route/design, the bidders shall quote in their bid proposals for carrying out the cable installation work as per the specifications of the owner, which will be considered for bid evaluation.

However, alternate route/installation arrangements offered from the bidders, with clear justification for these alternatives, will be considered by the owner, if they prove to be of a better and economical design and also the quoted bid value is the lowest.

18.02.2 Scope

This scope covers the proposed method of cable laying, in ground i.e., directly buried

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in ground with laying in ducts, pipes and in air. The excavation and construction of R.C.C., stone masonry, brick masonry ducts, laying of pipes for installing cable and also for the construction of jointing bays as per requirement of the field conditions.

The scope also includes supply of all requisite materials, labour, tools and plant like sand, brick, stones, steel, cement aggregate for reinforcement, pipes, joint and route markers and all other consumables required for the completion of this work.

The bidder shall insure for materials. The bidder shall handle, load, transport, unload and store all materials at site and arrange for security, till commissioning and handing over to the owner.

18.02.3 Drawings

The bidder shall prepare the drawings for the applicable field conditions of cable installation, like cables directly buried, in ducts, in road crossings, on drainage crossings, railway crossings, cable jointing bays, manholes if any, and furnish 6 copies of each to the owner for approval.

All works are to be executed only after due approval of the competent authority and under the supervision of the engineer in-charge.

18.02.4 Specifications

These specifications are intended for general description of quality, of materials and workmanship of finished work.

They are not intended to cover the minute details. The work shall be executed in accordance with the best modern practices, Indian standards (I.S.) and other relevant codes.

The specifications, referred to above are I.S. Standards relevant to Civil Engineering works and cable laying works.

The specifications shall be read in conjunction with the other parts of the bid documents.

The owner's decision shall be final on any issue in respect of installation.

18.02.5 Installation of U.G.Cables

Installation: The cables shall be laid generally in "directly buried in ground/in RCC cable duct in Trefoil touching formation to form 220 KV 3 single core, single circuit system. However, as per requirement of the field, the cables may also have to be laid;

- in ducts/trenches.

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- in HDPE pipes in trefoil/horizontal formation (pipes to be filled with sand/suitable material after cabling).
- in Air at terminations.
- At varying depths due to obstructions.
- As per approved drawings.
- In HDPE pipes for railway crossing

18.02.6 Inspection, Storage and Handling

The successful bidder should take all necessary precautions for inspection of cables on receipt, and for the proper handling and storage. The successful bidder shall have his own arrangement for transporting the cables, materials, equipment to siteand back to store.

The cables shall be stored on hard packed surfaces and protected from harmful weather conditions.

The cable drums shall be mounted and transported on only approved type cable drum conveyors. The cable should not be bent beyond permissible limits of the bending radius while laying and jointing.

18.02.7 Statutory Clearances

The installation of cables shall be as per established code of practice and fulfill the requirements of statutes. Obtaining all statutory clearances from other utility services, like telephones, water supply, power supply, Railways, National highways, Bengaluru Mahanagara Palike and other Local Administrative Authorities for road cutting etc., for laying the cable will be responsibility of the successful bidder.

All necessary approvals of the concerned authorities to be obtained before execution of the works by the successful bidder and necessary assistance will be rendered by the owner.

Charges to the civic/national highways/traffic/defence authorities/Railway/ Telephones/Water supply/Power supply/MahanagaraPalike and other Local Administrative authorities etc., as per their standard schedule of rates for grant of permission/approvals for trenching/laying pipes/laying cables etc., are to be paidby the successful bidder. These charges are reimbursable by the owner as per actuals, on production of valid vouchers.

18.02.8 Trench/RCC Cable duct

The cable trench/RCC cable duct work involves earth excavation for cable trench/Excavation and Construction of RCC cable duct, back filling and removal of excess earth from site. The work site shall be left as clean as possible after completion of the work.

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The earth for construction of trench/RCC cable duct shall be excavated using manual and mechanical modes as per field conditions. Most of the roads are of asphalt surface and some are with cement concrete surface.

An air compressor with pneumatic drill or equivalent mechanical tool will be essential for the road crossings and railway crossings involve horizontal drilling i.e., Trench-less cutting wherever necessary.

Where paved footpaths are encountered, the pavement slabs shall be properly stored and reinstated. Identification markers of other services shall be properly restored.

The sides of the excavated trenches/RCC cable duct shall wherever required, be well shored up with timber and sheeting.

Suitable wooden barriers should be erected between the cable trench and pedestrian / motor way/railway to prevent accidents. The barriers could be made out of Jungle Wood / Deal Wood Planks. These could be portable types of size 1.5M (long) by 1.2M (Height). These barriers should be painted with yellow and black or red and White coloured cross stripes. Warning and caution boards should be conspicuously displayed. Red lights as warning signal should be placed along the trench during the nights and any other requirements as per the traffic authorities directions.

The excavated material shall be properly restored immediately after laying the cable by mechanical compactness to avoid obstruction to public and traffic movement. The cable shall be laid immediately after formation of trenches. The bottom of the excavated trench should be levelled flat and free from any object, which would damage the cables. Any gradient encountered in trench/cable duct shall be gradual.

18.02.9 Cable Handling

The inspection of cable on receipt, handling of cables, paving out, flaking, cushioning with sand or sieved compacted native soil, back-filling, reinstatement of road surfaces, providing and fixing joint markers, route indicators, preparation of all chambers, sump holes and all necessary precautions that are required shall be carefully planned and in general conform to latest edition IS 1255 - 1983 or its equivalent.

18.02.10 Damage to Property

The successful bidder shall take all precautions during excavation of trench/RCC cable duct trial pits etc., to protect the public and private properties and to avoid accidental damage. Any damage so caused shall be immediately repaired and brought to the notice of the concerned and to the owner.

The successful bidder shall bear all responsibilities and liabilities and shall bear all

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costs of the damages so caused by him or by his workman or agents.

18.02.11 Cable over bridges:

Wherever the cable route crosses the bridges, the cables shall be laid in ducts.

18.02.12 Cable crossing open drains with long span

1) Wherever the cable route has to cross an open drain, with a long span, the cable shall be laid in suitable size ducts, or pipes, suitably jointed with collars. The entire duct system shall be designed as per civil engineering practice and shall be got approved by the concerned authorities and owner.

2) At places where the cables cross private roads, gates of residential houses or buildings, the cables shall be laid in HDPE pipes.

18.02.13 Cable route markers / cable joint markers.

Permanent means of indicating the position of joints and cable route shall be fabricated supplied and erected as per drawings approved by owner.
Markers provided shall be as per the field requirement. If the route passes through open fields, markers should be conspicuously visible and above ground surface.

The marker should incorporate the relevant information: The name of the owner, voltage, circuit and distance of cable from the marker.

18.02.14 Laying of Power Cables

The 220 KV, single-phase cables shall be laid in Trefoil formation, forming one circuit laid in the trench/duct complying with all applicable standards as per drawings approved by the owner.

The cables shall be laid wherever required in HDPE pipes of ISI approved quality. When cables are laid in RCC hume pipes, the following points shall be taken care of.

If one cable (single phase) is laid through the Cement Concrete pipe, the CC pipe should not have reinforcement of steel rods.

The cable should occupy only 30-40 % of the area of the cross section of pipe.
The CC pipes shall be backfilled by sand after installing the cable.
The cables shall be protected by covering with a pre-cast RCC slab of approved design and marking throughout the length of the route.

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18.02.15 Paving out the cable

The excavated cable trench/RCC cable duct shall be drained of all water and the bed surface shall be smooth, uniform and fairly hard before paving out the cable. The cable shall be rolled in the trench/RCC cable duct on cable rollers, spaced out at uniform intervals. The paving out process must be smooth and steady without subjecting the cable to abnormal tension. For this power winch, power roller – both straight and angle roller, may be used. The cable on being paved out shall be smoothly and evenly transferred to the ground after providing the cushion. The cables shall never be dropped. All snake bends shall be straightened. Suitable size cable stocking pulling eye shall be used for pulling the cable. While pulling the cable by winches or machines, the tension loading shall be by tension indicator andshall not exceed the permissible value for the cable. The cable laying shall be performed continuously at a speed not exceeding 600 to 1000 mtrs per hour.

The cable end seals shall be checked after laying and if found damaged shall immediately be resealed. Sufficient number of heat shrinkable cable end sealing caps shall be stocked at site stores, for testing and jointing work. The integrity of the outer sheath shall be checked after the cable is laid in position Bell mouth shall be used whenever the cables are drawn inside HDPE pipe, duct.

18.02.16 Flaking:

The cables shall be flaked and left with slight extra lengths at jointing bays for expansion and flexibility.

18.02.17 Sand Cushion:

The sieved sand cushion for the cables shall be provided as per the drawings. Sand covering shall be done by hand and in such a manner as to provide complete envelope for the cables and a good bedding for protection covers

18.02.18 Thermal Backfill:

Based on the evaluation of soil thermal resistivity along the cable route and after approval from the owner the successful bidder shall design, specify, supply, lay & monitor the installation of thermal backfill surrounding the cables.

18.02.19 Immediate Envelope To Cable

The option on the use of the material, which immediately envelops the cable viz., thermal backfill or sand or sieved native soil rests with the owner. The successful bidder shall seek prior approval on the use of the envelope material from the owner before execution of the works.

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18.02.20 Prevention of damage due to sharp edges

After the cables have been laid in the trench/RCC cable duct and untill the cables are covered with protective covering, no sharp metal tool shall be used in the trench/RCC cable duct or placed in such a position that may fall into the trench/RCC cable duct.

Straight and curved (angle) rollers used shall have no sharp projecting parts liableto damage the cable.

While pulling through pipes and ducts, the cable shall be protected to avoid damage due to sharp edges. Bell mouth shall be used whenever the cables are drawn inside HDPE pipe, duct.

The cables shall never be bent, beyond the specified bending radius.

18.02.21 Road Crossings:

The road cutting work for cable trench/RCC cable duct whether cement concrete, asphalt or macadam road surface shall be taken after obtaining approval forcutting from the civic authorities, traffic police, telephone authorities and work should be planned to be completed in the shortest possible time. Whereever necessary the work shall be planned during night time or light traffic periods.

In the excavated trench across the road, the cables shall be laid in HDPE pipes, pipes are embedded in RMC (Ready mixed cement concrete) 1:2:4 proportions, excavation backfilled, compacted and the surface shall be redone in the shortest possible time as per the requirements of the civic authorities.

18.02.22 Footpath Cutting:

The slabs, kerbstones, on the roads shall be removed and reinstated without damage.

18.02.23 Reinstatement:

After the cables and pipes have been laid and before the trench is backfilled all joints and cable positions should be carefully plotted and preserved till such timethe cable

is energised and taken over by the owner. The protective covers shall then be provided, the excavated soil riddled, sieved and replaced. It is advisable to leave a crown of earth not less than 50 mm and not more than 100 mm in the centre and tapering towards the sides of the trench.

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The temporary reinstatement of roadways should be inspected at regular intervals, more frequently in rainy season and immediately after overnight rain for checking settlement and if required, then temporary reinstatement should be done.

After the subsidence has ceased the trench may be permanently reinstated and the surface restored to the best possible condition.

In case of the road surface being cement concrete, asphalt or tarred macadam, resurfacing shall be done as per the requirements of the civic authorities.

18.02.24 Jointing Bays:

The successful bidder shall identify the location of the joint bays after carrying out detailed survey of the cable route and excavation of the trial pits. The delivery lengths of the cables shall match the location.

The joint bays shall be of sufficient size to accommodate jointing of cables and constructed with RCC M20 Grade and Fe 415 Steel. It shall consist of RCC raft laid over PCC 1:4:8, RCC Retaining walls/Side walls and RCC cover slab with an inspection chamber. All exposed faces of raft, slab and side walls shall be plastered with 12mm thick Cement Mortar 1:4. At the bottom in a corner, a sumppit shall be made for bailing out water.
After completion of all the works, viz., construction of Jointing Bay, laying of cables, testing of cables/jointing etc., the jointing bay shall be backfilled with riddled sand.

The successful bidder shall submit an economical design and drawing of joint bay for approval of the owner.
All works shall be carried out in presence and supervision of the owner's engineer.

18.02.25 Railway Crossing:

The earth shall be excavated using an air compressor with pneumatic drill or equivalent mechanical tool for laying pipes for crossing of railway track after obtaining prior approval of railway authority. The work shall be planned to be completed within shortest possible time. The work shall be carried out as per the standard practice suggested by railway authorities.

18.02.26 Tools and Plant

The successful bidder shall have all necessary tools, plant and equipment to carry out the survey and cable installation work.
The bidders are instructed to give all the details of equipment at their disposal, to carry out the work successfully and speedily.

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18.03.0 JOINTING AND TERMINATING:

18.03.1 Jointing Of Cables

General: The cable jointing personnel and his crew shall have good experience in the type of joints and terminations that are used. The jointing work shall commence as soon as two or three lengths of cables have been laid. All care should be taken to protect the factory-plumbed caps/seals on the cable ends, and the cable end shall be sealed whenever the end is exposed for tests.

Jointing of cables in carriageways, driveways under costly pavings, under concrete or asphalt surfaces and in proximity to telephone cables, and water mains should be avoided wherever possible.

Sufficient over lap of cables, shall be allowed for making the joints.

The joint bay should be of sufficient dimensions to allow the jointers to work withas much freedom of movement and comfort as possible. Sufficient space should be kept below the cable to be jointed.
The joints of different phases shall be staggered in the jointing bay.

The cable jointing work should be necessarily got done only through welltrained professional jointers.

Jointing work details

I) Uncoiling, cleaning, straightening and trimming of 220KV cable as required for jointing.
ii) Checking the cable inside the joint bay before cutting the cable, for any accidental damages due to re-excavation.
iii) Providing the joint tent, tools etc., at the site by the vendor.
iv) Erection of joint tent, (joint tents should be of metallic housing.
v) Electrification of the joint bay, arranging and fixing of air conditioners and maintaining them for the entire period of jointing (temperature inside the joint tents should be maintained below 25 deg C.)
vi) Transporting the required quantity of jointing kits from stores to site (Including link boxes)
vii) Dismantling the wiring, air conditioner etc.
viii) Dismantling the joint tent.
ix) Devolution of cable cut bits to departmental stores including transportation.
x) Providing security guards for joint bay.
xi) Cost of power for the entire period of jointing.
xii) Providing 2 Nos. 2 HP Diesel Dewatering pumps.

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18.03.2 Sumpholes:

While jointing cables in water logged ground or under unforeseen rainy conditions, a sumphole should be made at one end of the joint bay, in such a position so that the accumulated water can be pumped or bailed out by buckets, without causing interference to the jointing operation

18.03.3 Tents/Covers

Erection of Joint tent (Joint tent shall be of metallic housing) Electrification of Joint bay, arranging and Fixing of Air conditioners and maintaining them for entire period of jointing (Temperature of Joint tent should be maintained below 25 deg. C)

Providing sheath protection for earthing wherever necessary. All accessories and spares required shall be of satisfactory operation for 10 years and furnish the details of maintenance.

18.03.4 Precautions before making a joint:

The cable end seals should not be opened until all necessary precautions have been taken to prevent circumstances arising out of rainy/inclement weather conditions, which might become uncontrollable.

If the cable end seals or cable ends are found to have suffered damage the cables should not be jointed, without tests and rectification.

18.03.04A PERT CHART

Indicating time schedule for supply of cable and accessories and supervision of cable laying, testing and commissioning shall be furnished by successful vendor in consultation with the purchaser and should be got approved along with drum length approval. The schedule should be kept up by the vendor. Any delay in completing the work will attract penalty.

18.03.5 Measurement of Insulation Resistance:

Before jointing, the insulation resistance of both sections of cables shall be checked. Before laying cable in the ground, the insulation resistance of each section shall be measured.

18.03.6 Identification:

The identification of each phase shall be clearly and properly noted. The cables shall be jointed as per the approved design. Each cable shall have identification forphase at joint bays.

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18.03.7 **Making a Joint**

Comprehensive jointing instructions should be obtained from the manufacturer of jointing kits and meticulously followed.

The materials used in the joints like ferrules, screen/sheath continuity bonds, lugs, etc., shall be of good quality and conform to standards.

The jointing tools shall be appropriate and as per the requirement of jointing EHV XLPE cables.

18.03.8 **Cable Terminations**

The cable terminations used are outdoor type/GIS plugin type.

The preparation of the cable end for installing the terminations and the precautionsto be taken before fixing the terminations shall be followed as in the case of the cable jointing procedures.

The instructions furnished by the termination manufacturer shall be strictly followed.

At cable terminating end, the following provisions for supply and erections are to be included.

i) A sufficient length of spare cable shall be left in the ground, for future needs

ii) The rise of the cable, immediately from the ground shall be enclosed in minimum dia of 250 mm HDPE pipe to protect against direct exposure to the sun.

iii) The cable shall be properly fastened using nonmetallic clamps.

iv) Appropriate labels shall be fixed identifying the phase, circuit, Voltage and date of commissioning etc., on the cable supporting structure.

v) The sealing ends shall be mounted on pedestal insulators to isolate them from their supporting steel work.

vi) Protection from contact with the exposed metal work at the termination shall be provided by resin bonded glass fibre shroud.

vii) Providing earth stations with all required materials like leads, connectors, earthing rods/pipes etc.

ACCESSORIES

Dust and humidity free enclosures complete with air conditioners and material handling equipment shall be used by the vendor.

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All special tools including a set of jointers hand tools that are necessary to complete the joint/termination works shall be arranged by the vendor. Necessary power supply for jointing and termination works shall be arranged by the vendor.

The cost of consumables which are essential for satisfactory erection and commissioning shall be included.

Adequate quantity of consumable shall be supplied for completing the entire cable laying and jointing works.

Termination Work details:

1) Erection of termination structure.
2) Removal of cable from the trench, rerouting, cleaning straightening and trimming if necessary, checking the exposed cable before cutting the cable for any accidental damages due to re-excavation.
3) Providing of scaffolding pipes, clamps, wooden planks and tools for erection of termination.
4) Erection of scaffolding pipes/ providing crane for lifting 220KV cable and termination.
5) Lifting the cable up the terminal structure and positioning.
6) Transporting the termination kit from departmental stores (including link boxes)
7) Dismantling scaffolding work.
8) Transporting the above item back.
9) Devolution of cable cut bit to departmental stores including transportation.
10) Provision of security guard for the cable end/ termination.
11) Providing fire retardant paint for exposed portion of the cable and other related works.
12) Cost of power for the entire period of work.

18.03.9 **Bonding of screen/sheath**

The type of bonding i.e., single end bonding/both end bonding/cross bonding as recommended by the successful bidder, shall be adopted.

For one/both end bonding:

The screens at one/both ends, shall be brought out and solidly bonded/ orthrough SVL to the earth station through disconnecting type link boxes.

The link boxes, single-phase outdoor type with SVL at receiving end (with bye-pass arrangement for SVL) and without SVL at sending end shall be provided.

All accessories and consumables used in the termination should be of good quality and compatible with the cable.

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For cross bonding:

Shall be executed as recommended in Clause No.7.04.03.

18.03.10 Connection of Radial Water Barrier and Cable Screen

If the metallic radial water barrier is insulated from the metallic wire screen a connection suitable to carry the currents occurring during operation must be installed between metallic radial water barrier of the cable and metallic wire screenin joints and sealing ends.

18.03.11 Erection of Cable Terminating Structure.

The terminating structure should be designed as per the requirement of the cable end sealing, offered by the bidder.

The mounting structure shall have good cement concrete foundation as per civil engineering norms/Approved drawings.

After fixing the end termination, the cable shall be fixed to the support, with nonmagnetic material clamps to the required height securely. The drawings of station structure and equipment for connection of cable will be furnished by the owner.

18.03.12 Surplus Cable

The wastage of cable beyond practically required permissible limits should be avoided.

For any valid reason if there is a surplus cable, it shall be returned to the owner's store.

Approved good quality sealing caps, heat shrinkable type of the correct size, shall be supplied for spare cut lengths of cable exceeding 100 M length, to enable them to be properly stored for future maintenance purposes. The successful bidder shall be responsible for the immediate sealing of such cut lengths and the cost of the sealing end etc., thereof shall be deemed to have been included in the contract price.

The successful bidder shall clean the completed cable route and shall remove all surplus and waste materials, empty cable reels etc., preferably the same day but not later than the next day after the particular work is completed.

18.04.0 CIVIL AND STRUCTURAL WORKS:

General : This specification deals in brief with the civil and structural works for cable

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laying.

a) The scope of civil works include earth excavation for cable trench & RCC cable duct and cable laying, removal of excavated earth, design, supply and provide plain & reinforced cement concrete for foundations of equipment, support structures, back filling, dewatering of trenches. Design, supply and providing cable jointing bays. The design of RCC cable duct for laying the cable along the route and cable duct/pipe ducts for crossing drains, roads, railway lines etc., shall be suitably done and rates quoted, making provision for complete supplies and erection as per relevant schedules. It includes all connected civil works.

b) Design, fabrication and supply of galvanised steel structures for cable end terminations, mounting of earthing link boxes.

c) Supply of all consumables and sundry materials not included in the specifications in detail but are necessary to meet the intent of the project.

18.04.1 Codes And Standards

Unless otherwise stated, latest Editions of the following standards are applicable.

IS:1255	:	Installation and Maintenance of Power Cable.
IS:5820	:	Specification for pre-cast concrete cable cover.
IS:209	:	Quality of Zinc for galvanising.
IS:226	:	Structural Steel.
IS:456	:	Plain and Reinforced Cement Concrete.
IS:800	:	Use of structural steel in general building construction.
IS:2016	:	Plain washers.
IS:2633	:	Zinc coating on Galvanised Steel.
IS:3063	:	Spring washers.
IS:5358	:	Hot Dip Galvanised coating on fasteners.
IS:6639	:	Hexagonal Bolts for steel structures.

Any other equivalent International/National Standard.

18.04.2 Excavation

The specification covers excavation for cable trenches, ducts, structural foundations, jointing bays.

The successful bidder shall control the grading in the vicinity of all excavations so that the surface of the ground will be properly sloped or diked to prevent surface water from running into the excavated area during construction.

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The excavation shall include the removal of all materials required to execute the work properly and shall be made with sufficient clearance to permit the placing,

inspection and setting of forms and completion of all works for which the excavation is done.

The sides and bottoms of excavation shall be cut sharp and true. Under cutting shall not be permitted. Earth sides of excavation shall not be used in lieu of form work for placement of concrete unless authorised by the Engineers of the owner where the limitations of space for large excavation necessitates such decision.

18.04.3 **Quantities**

The bidder shall indicate the ceiling volumes/quantities for excavation and RCC works and Steel structure works, wherever specifically indicated.

18.04.4 The bidder shall quote unit rates for the items of works. He shall also quote the total price for each of the works.

18.04.5 The quoted price shall also include supply of all material, transportation charges, taxes, duties, octroi and toll, labour, construction plant and equipment and fixtures, fittings and all temporary and permanent works necessary for satisfactorycompletion in all respects.

18.04.6 The measurements of various civil works shall be jointly recorded; by the successful bidder and the Engineer-in-charge of the owner and duly certified.

18.04.7 When machines are used for excavation the last 300mm. before reaching the required level shall be excavated by hand or by such equipment that will leave the soil at required final level in its natural condition.

18.04.8 The bottom of the excavation shall be trimmed to the required level and when carried below such level by error, shall be brought to level, by filling with lean concrete of 1:4:8 mix, at successful bidder cost.

18.04.9 If the successful bidder is directed by the Engineer-in-charge of the owner to excavate to a lower level than that indicated on the drawing, such additional excavation shall be paid for at the applicable unit rates provided in the tender.
The rates shall be firm irrespective of increase in quantities to any extent. The bidder is bound to carryout any Non-tendered items of work required for completion of the task. For such items of work the applicable KPWD /MWSR schedule of rates, Data rates or derived rates whichever found appropriate will be allowed.

18.04.10 The successful bidder shall be responsible for his estimates, assumptions and conclusions regarding the nature of the materials to be excavated and difficulty of making and maintaining of required excavations and performing the work required as shown on

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the drawing and in accordance with these specifications. Cofferdams, sheeting, shoring, bracing, draining, dewatering etc., shall be furnished and installed as required and the cost thereof shall be included in unit rate quoted for the item of excavation. The successful bidder shall be held responsible for any damage to any part of the work and property caused by collapse of sides of excavation. The materials can be salvaged if it can be done withsafety for the work and structure and as approved by the Engineering-in-charge.

However, no extra claim shall be entertained for material not salvaged or any other damage to successful bidder property as the results of the collapse. He shall not be entitled to any claim for redoing the excavation as a result of the same.

18.04.11 All excavation for installation of underground facilities shall be open cuts.

18.04.12 The excavation for foundation where specified shall be carried out atleast 75mm. or as specified in relevant drawing below the bottom of the structure concrete and then be brought to the required level by placing lean concrete of 1:4:8 Mix or as specified with aggregate of 40mm. nominal size.

18.04.13 When the excavation requires bracing, sheeting, shoring, or strutting etc., the successful bidder shall submit to the Engineer-in-charge drawings showing arrangement and details of proposed installation and shall obtain the approval from the Engineer-in-charge before proceeding with the work.

18.04.14 The successful bidder shall have to constantly pump out the water collected in the pits, trenches, due to rain, sub-soil, springs etc., and maintain dry working conditions at no extra cost to the owner.

18.04.15 **Measurement Of Excavation:**
The measurement, for the payment of earth excavation will be based on volume calculations of pit/trench. The unit of measurement shall be cubic meters. Nothing extra would be payable for slopes, shoring, strutting, etc., irrespective of whatever is provided. If directed by the Engineer-in-charge, the excavation shall be done on the slopes from slope stability point of view at no extra cost to the owner.

18.04.16 Carriage of excavated soil beyond a lead of 50 mts per lift of 1.5 mts.

18.04.17 **By manual labour:**

The excavated earth for disposal purpose beyond 50 mts and upto 300 mts shall be carried by manual labour. If directed by the Engineer-in-charge, this earth shall be used for back filling purpose. The rate for disposal of earth by manual labor upto 300 Mtrs shall be included in the excavation item and no extra rate for the same is admissible.

18.04.18 **By Mechanical Transport:** The successful bidder shall arrange to transport the surplus earth and soft/hard rock, left over after back filling the trench up to the

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required level (with watering and compaction) and disposal of earth by manual labor, by Mechanical means, to the disposal point of the local bodies with all leads and lifts and as directed by the Engineer-in-charge. It shall however be ensured that no soil is stacked in excavated area. Location where the soil is to be stacked/disposed shall be as directed by the Engineer-in-charge. However the successful bidder shall take all precautions at the site of excavation, for keeping thefree flow of vehicular and human traffic and to avoid inconvenience in general.

The soil transported for disposal, shall be stacked and leveled neatly and dressed.

The rate for this item shall include loading, carriage, unloading, stacking and dressing etc., complete.

18.04.19 In no case the excavated soil shall be stacked upto to the distance of 1.5 mts from theedge of excavation or one third the depth of excavation whichever is more.

18.04.20 **Lead And Lift:**

The rates quoted for all items of work shall include all lifts and leads whenever applicable unless otherwise specified.

18.04.21 **Excavation and measurement in Hard Rock:**

Blasting in hard rock shall be done as per IS: 4081 (latest Edition). The hard rock excavated shall be stacked, measured and reduced by 40% for voids. Premeasurement of rock is to be recorded when measured on section. The quantity whichever is less shall be paid.

At locations where, open blasting can not be taken up due to site conditions, controlled blasting or removal of rock by chiseling & wedging shall be resorted to. The rate for excavation of hard rock shall include its removal by all the types referred to, appropriate to the site conditions.

18.04.22 **Backfilling Materials:**

The backfilling of excavated trenches/RCC cable duct & around foundation shall consist of one of the following materials as the Engineer-in-charge may direct in each location.

i) Selected sieved earth from excavated soil.
ii) Selected sieved earth brought from borrowed area.
iii) Sand filling (sieved).

NOTE: Sieved sand shall be strictly used for all the works.

Filling shall be done after the concrete or masonry work has fully set and its curing completed.

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The successful bidder shall fill in and around any work untill it has been properly reinstated and approved by the Engineer-in-charge.

18.04.23 Backfilling for cable trench:

Backfilling shall be done in horizontal layers of thickness not exceeding 300mm thickness, free from pockets with careful watering where necessary for compaction. The backfill shall be riddled earth free from materials likely to cause damage to the cables.

The thermal backfill surrounding the cable shall be as per the design approved, by the owner.

18.04.24 Measurements:

Payments for back filling shall be based on the volume of consolidated fill. This volume shall be derived from the difference between the volume of excavation and that of the structure (Concrete work, sand filling), or trench as the case may be.

18.04.25 Specification For Cement Concrete:

For the cement concrete, plain or reinforced for general use, requirement of concrete for nominal mix, strength and quality, pouring at all levels, form works, protection covering, finishing, add mixtures, inserts, curing etc., the provisions of the latest revision of IS:456 shall be complied with, unless permitted otherwise by any other Indian Standard Codes, shall form the part of the specification to the extent applicable within specification. The cement used shall comply with IS:269. The metal (Jelly) used in PCC/RCC shall be properly graded and machine mixed.

18.04.26 Curing And Protection Of Concrete:

All fresh concrete shall be covered with the layer of an absorbent material and kept constantly wet for a period of seven days or more from the date of placing concrete. The immature concrete shall be protected from the damages and contamination, that would impair the strength of the concrete.

18.04.27 Precast RCC Items:

The concrete mix for the various types of precast units shall conform to IS:456. The aggregate shall be mixed by weight and water cement ratio shall be controlled to obtain the dense concrete and the strength required. The reinforcement shall be as per the design approved. The curing shall be carried out for the period of seven days from the date of casting, and the precast element shall be cured by flooding with water of minimum 25mm. depth over the element for the period mentioned above. All the precast element shall be marked, appropriately as specified.

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18.04.28 **Masonry Work:**
Stone masonry and Brick (Table mould) masonry work wherever required shall be carried out by the contractor. The associated materials for masonry work like stones, bricks, sand etc., shall be of approved quality. The construction shall comply with accepted norms and standards.

18.04.29 Plaster: Plastering shall be done with cement and sand mortar, 1:4 by volume with clean sand. All plaster work shall comply with IS:1661.

Materials for plaster such as cement, sand, water shall conform to standards.

18.04.30 **Mounting Structures:**
The mounting structure include the supports for cable end boxes, link boxes and any other structure required for the intent of the contract.

All steel sections used shall be free from all imperfections, mill scales, slag intrusions, laminations, fillings, rust etc., that may impair their strength, durabilityand appearance. All materials shall be of tested quality only unless otherwise permitted by the owner. The structures shall be fabricated by the contractor.

18.04.31 **Foundation:**
Foundations for mounting structures in cement concrete shall be provided as per approved drawings by the Engineer-in-charge.

18.04.32 **Bolts Nuts and Washers:**
Standard bolts, nuts and washers shall be used in all works. These should be galvanized in accordance with IS:5358.

18.04.33 **Painting:**
Outdoor Kiosk for link boxes etc., shall be painted with anticorrosive paint and red oxide as primer and two coats of enamel paint. the boxes should be appropriately labelled as per installation at site regarding the Sl. No. location, type caution board/Danger Board. etc.

18.04.34 **Materials Used In Cable Laying:**
Specification in brief on the materials used in installation of the 220 kV underground cables, like RCC precast cable protection covers, precluded cement concrete blocks for cable route/joint indication, cable and mounting structures, joint bays, earthing and other miscellaneous materials are given below. All materials shall conform to relevant standards, and shall be approved by the Engineer.

18.04.35 **RCC Precast Cable Protection Covers:**
These should be pre casted as per the approved design and drawing. The reinforced cement concrete should be M20 grade (1:1.5:3 proportion) with 20 mm. and down size coarse aggregate and steel reinforcement (Fe 415 grade) shall be used and cured as per civil Engineering Standards. Cable Route Markers/Joint Markers:

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Permanent and durable type, cable route markers/ joint indicating blocks should be provided as per the design supplied by the owner.

The cement concrete block should be made by the wet process and the concrete shall consists of one part cement two parts sand four parts aggregate of size 20mm. and down.

18.04.36 Pipes:

HDPE pipes of ISI Mark, 250mm dia and above, 20 mm thickness approximate, of good quality shall be used for formation of cable ducts. All sundry materials like coupling, collars, caps to cover the pipe ends before cable is pulled in shall be provided.

Hume pipes and accessories conforming to IS shall be used if required. Reinforced hume pipe shall not be used for laying single core power cable, in one cable per pipe arrangement.

Stoneware pipes, salt glazed of good and approved quality shall be used.

Hume pipes without steel reinforcement, stoneware pipes, HDPE pipes can also be used where the cable passes through the passage or drive ways of public and private buildings.

In case of pipe – the size of the pipe shall be at least 30 to 40% more than size of cable. The pipe joint shall be done by using proper sleeves so as to get tight fitting. Suitable steel rope will be drawn in pipe to pull the cable. Before drawing the cable, wire brush to be drawn through pipe to clean the burrs and steel ball (sphere) shall be pushed through pipe to know whether pipe is smooth for drawing the cable.

18.04.37 Supporting Structure For Cable And Cable End Terminations:

The bidder shall quote for unit prices for support structure for each single core cable to suit the end termination supplied by him. The bidder shall design and furnish the details and drawings.

These support structures shall be fabricated out of galvanised steel pipe to IS:1239 or they shall be fabricated out of galvanised mild steel sections, such as channels, I-beams etc., conforming to IS:226, pipes if used for fabrication of the structure shall not have any joints.

The height of the structure shall be such that the terminal connection to receive the owner's ACSR Double Drake/Moose conductor/63 mm. Diameter, IPS aluminium pipe is approximately at a height of 4.5 meters. The successful bidder shall be furnished with relevant drawings by the owner.

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18.04.38 The supporting structure shall be suitable to withstand, the wind pressure, seismic forces and the short circuit forces, etc., and the design shall be with an adequate factor of safety as specified in I.E. rules 1956.

18.04.39 The bidder shall furnish the design and fabrication drawings, foundations, foundation anchor bolts, design calculations etc., of these structures.

18.04.40 **Terminal Connectors:**

The terminal connector/clamps shall be suitable for connection to 63-mm diameter IPS aluminium pipe or double Drake/Moose ACSR conductor. The terminal connector shall be of bimetallic type to connect the terminal of the cable end to the aluminium bus pipe or ACSR conductor.

The type and size of the connector will be confirmed to the successful bidder.
The connector/clamp shall be designed to overcome:

i) Galvanic Corrosion.
ii) Thermal Cycling.

The current carrying capacity of the connector/clamps shall be greater than the maximum capacity of the power cable.
The terminal clamp shall be free from burrs, voids and blowholes.

The terminal clamps shall have passed tests for short circuit current capability and temperature rise.

18.04.41 **Sand:**

Sand supplied for backfill shall be river sand, free from flakes, dust, earth, organic matter and large pebbles and stones and should be free from any chemical contaminants likely to have corrosive action on the cable coverings.
The sand should be sieved through a mesh to remove all large stones and pebbles.
The sand shall be properly graded and shall conform to IS:383 for concreting work.
The owner will decide on the requirement of the use of sand depending on the availability of the excavated earth to be used for backfill.

The sand should be used with the approval of the owner as a backfill.

18.04.42 **Earthing:**

The earthing system required is for the

i) Earthing of all non-current carrying metal parts and
ii) Earthing system for cable screens/sheath bonding at terminations and at all others places wherever required.

The latest editions of the following standards and codes are applicable.

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i)	IS:3043	:	Code of practice for earthing.
ii)	IS:2309	:	Code of practice for the protection of building and allied structures against lightning.
iii)	Indian Electricity Rules 1956	:	Provision of Rules on EHV systems.
iv)	IEEE-80	:	Guide for safety in sub-station grounding.

All equipment, supporting and mounting structures of the installation shall be bonded together and connected by separate and distinct conductor to earth electrode.

18.04.43 **Earth conductor:**
The earth conductor shall be of GI flat, of size 50 x 6 mm. size and shall be protected against mechanical damage and corrosion. The connection of the earth continuity conductors to earth bus and earth electrodes shall be strong, secure andsound and shall be easily accessible.

18.04.44 **Pipe Earth Stations:**
The pipe earth electrodes shall be of cast iron in conformity with IS:3043, buried vertically and the pit filled with alternate layers of charcoal, salt and earth. The earth lead shall be properly fastened with brass bolts nuts and connection shall be enclosed in a masonry chamber. The chamber shall be provided with a RCC inspection cover.

18.04.45 The connection between the earthing terminal of equipment and earth electrode shallbe made by short and direct earthing lead, free from kinks and splices.

18.04.46 The distance between any two electrodes shall not be less than, twice the length ofthe electrode.

18.04.47 All joints shall be covered with suitable compound to protect against corrosion.

18.04.48 Earthing connections with equipment earthing terminals shall be of bolted type. The contact surfaces shall be free from scale, paint, enamels, grease, rust or dirt. Two bolts shall be provided for making each connection. The bolted connections after being checked and tested shall be painted with anticorrosive paint or compound.

18.04.49 Welds and brazed joints shall be treated with red lead and afterwards coated with bitumen compound to prevent corrosion.

18.04.50 Steel to copper connection shall be brazed type and shall be treated to prevent moisture ingress.

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18.04.51 The resistance of the welded joint shall not be more than the resistance of equivalent length of the conductor.

18.04.52 All welded joints shall be made by electric arc welding. All welded joints shall be allowed to cool down gradually to atmospheric temperature.

18.04.53 Arc welding with large diameter conductor shall be done with low hydrogen content electrodes.

18.04.54 Bonding Of Cable Screens/Sheath:

Each single phase cable shall have a separate earth for the screen earthing.

The system short circuit level is 50 kA for 1 Sec. The earthing lead at solid earth positions shall be single core, 400 sq.mm copper conductor, PVC insulated 6.6 KV voltage grade Cable.

18.04.55 **Earth Tests**:
Tests on earths shall be carried out by the successful bidder for testing the effectiveness of earth resistance of electrodes and the results furnished to the owner.

19.00.0 **TESTING COMMISSIONING, TYPE/ROUTINE TESTS ON CABLES as Per Applicable IEC.**

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SPECIFIC TECHNICAL REQUIREMENTS FOR COMMUNICATION

The communication requirement shall be in accordance to CEA (Technical Standards for Communication System in Power System Operations) Regulations, 2020, CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022, CERC (Communication System for Inter-State transmission of electricity) Regulations, 2017, CEA (Cyber Security in Power Sector) Guidelines, 2021, and CERC Guidelines on "Interface Requirements" 2024, all above documents as amended from time to time.

The complete InSTS communication system commissioned by TSP under the RFP shall be the asset of InSTS and shall be available for usage of InSTS requirements as suggested by STU from time to time.

The communication services viz. SCADA, VoIP, PMU, AGC & AMR (wherever applicable) have been identified as critical services and therefore shall be provisioned with 2+2 redundancy i.e. 2 channels for Main Control Centre (SLDC) and 2 channels for Backup Control Centre (SLDC). In order to meet this requirement, suitable redundancy at port and card level need to be ensured by the TSP to avoid any single point of failure which may lead to interruption in real-time grid operation.

PMU to PDC communication (wherever required) shall be through 2 channels to the PDC (main) as there is no backup PDC at present.

Accordingly, all the hardware for communication services of station as stated above shall support dual redundancy for data transmission of station to respective main and backup SLDC.

In order to meet the requirement for grid management and operation of substations, Transmission Service Provider (TSP) shall provide the following:

C.1.0 400kV DC Quad moose line from proposed 400kV Ryapte Substation to proposed 400kV Doddathagalli Substation (Quad ACSR/ AAAC/ AL59 Moose equivalent).

On 400kV D/C line from 400kV Ryapte to 400kV Doddathagalli, TSP shall supply, install & commission One (1) No. OPGW cable containing 48 Fibres (48F) on one E/W peak and conventional earth wire on other E/W peak.

The TSP shall install this OPGW from gantry of Ryapte up to the gantry of Doddathaggalli (Near Hoskote) with all associated hardware including Vibration Dampers, mid-way & gantry Joint Boxes (called OPGW Hardware hereafter) and finally terminate in Joint Boxes at end Substations. The transmission line length is 135kms (approx.).

Maintenance of OPGW Cable, OPGW Hardware & shall be the responsibility of TSP.

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C.2.0 2Nos. of 400 kV line bays line bays at 400/220kV Ryapte for termination of 400kV Doddattaggalli DC lines.

I. TSP shall supply, install & commission one or more no. FODP (336F or higher) along with panel and required Approach Cables (48F/24F) with all associated hardware fittings from gantry tower to Bay Kiosk and from the Bay Kiosk to Control room.

II. TSP shall supply, install & commission One or more STM-16 (FOTE) equipment along with panel/s supporting minimum **Nine (9)** directions with Multiplex Section Protection – 1+1 (MSP)with necessary interfaces to meet the voice and data communication requirement among proposed 400kV Doddataggalli S/s. These directions shall exclude protected (1+1) local patching among equipment (if any). The suitable DC Power Supply and backup to be provided for communication equipment. The 8command Digital Tele Protection Coupler (DTPC) with 220V DC source on E1 for each 400kV line at both ends to be provided.

III. FOTE/FODP panel shall be installed in the new Bay Kiosk/ Switchyard Panel Room (SPR). The FOTE under present scope shall be integrated by TSP with the existing FOTE at remote end Sub-stations ie., 400kV Doddataggalli which shall be communicating with respective control center. TSP to provide necessary FODP sub rack / Splice trays/ Patch cords etc. and optical interfaces/equipment in the existing FOTE/FODP panels for integration with the existing FOTE for onwards data transmission.

In case spare optical direction is not available in the existing FOTE the TSP shall coordinate with station owner to reconfigure the directions in existing FOTE at control room. Alternatively, The TSP may integrate the FOTE under the present scope with existing FOTE in the nearby Kiosk connected to the control room FOTE (if available with spare direction). For this purpose, TSP shall provide necessary FODP sub rack / Splice trays/ Patch cords etc. and suitable optical interfaces/ equipment in the existing FOTE/FODP panels in another Kiosk (SPR).

IV. FOTE & FODP can be accommodated in same panel to optimize space.

V. The new communication equipment under the present scope shall be compatible for integration with existing KPTCL NMS of OPGW. The local configuration of the new communication equipment shall be the responsibility of TSP. The configuration work in the existing centralized NMS for integration of new Communication equipment shall be done by KPTCL Team, however all the necessary support in this regard shall be ensured by TSP.

The maintenance of all the communication equipment and software thereof including FOTE, PMU, FODP, approach cable, DCPS along with Battery Bank shall be the responsibility of TSP.

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Further necessary optical interfaces shall also be provided by the TSP in the FOTE of 400kV Doddataggalli S/s as per link budget requirement.

C.3.0 400kV DC Quad moose line from proposed 400kV Doddathaggalli Substation to existing 400kVKolar substation (Quad ACSR/ AAAC/ AL59 Moose equivalent).

On 400 kV D/C line from 400kV Doddatahagalli to 400kV Kolar, TSP shall supply, install & commission One (1) No. OPGW cable containing 48 Fibres (48F) on one E/W peak and conventional earth wire on other E/W peak.

The TSP shall install this OPGW from gantry of Doddathaggalli up to the gantry of Kolar with all associated hardware including Vibration Dampers, mid-way & gantry Joint Boxes (called OPGW Hardware hereafter) and finally terminate in Joint Boxes at end Substations. The transmission line length is 140kms (approx.).

Maintenance of OPGW Cable, OPGW Hardware & accessories shall be the responsibility of TSP.

C.4.0 4Nos. of 400 kV line bays line bays at 400/220kV Doddataggalli for termination of 400kV Kolar and 400 kV Ryapte DC lines.

I. TSP shall supply, install & commission one or more no. FODP (336F or higher) along with panel and required Approach Cables (48F/24F) with all associated hardware fittings from gantry tower to Bay Kiosk and from the Bay Kiosk to Control room.

II. TSP shall supply, install & commission One or more STM-16 (FOTE) equipment along with panel/s supporting minimum **Nine (9)** directions with Multiplex Section Protection – 1+1 (MSP)with necessary interfaces to meet the voice and data communication requirement among proposed 400kV Ryapte and existing 400kV Kolar S/s. These directions shall exclude protected (1+1) local patching among equipment (if any). The suitable DC Power Supply and backup to be provided for communication equipment. The 8command Digital Tele Protection Coupler (DTPC) with 220V DC source on E1 for each 400kV line at both ends to be provided.

III. FOTE/FODP panel shall be installed in the new Bay Kiosk/ Switchyard Panel Room (SPR). The FOTE under present scope shall be integrated by TSP with the existing FOTE at remote end Sub-stations ie., 400kV Kolar and 400kV Ryapte which shall be communicating with respective control center. TSP to provide necessary FODP sub rack / Splice trays/ Patch cords etc. and optical interfaces/equipment in the existing FOTE/FODP panels for integration with the existing FOTE for onwards data transmission.

In case spare optical direction is not available in the existing FOTE the TSP shall coordinate with station owner to reconfigure the directions in existing FOTE at control room. Alternatively, The TSP may integrate the FOTE under the present scope with existing FOTE in the nearby Kiosk connected to the control room FOTE (if available with spare direction). For this purpose, TSP shall provide necessary FODP sub rack

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/ Splice trays/ Patch cords etc. and suitable optical interfaces/ equipment in the existing FOTE/FODP panels in another Kiosk (SPR).

IV. FOTE & FODP can be accommodated in same panel to optimize space.

V. The new communication equipment under the present scope shall be compatible for integration with existing KPTCL NMS of OPGW. The local configuration of the new communication equipment shall be the responsibility of TSP. The configuration work in the existing centralized NMS for integration of new Communication equipment shall be done by KPTCL Team, however all the necessary support in this regard shall be ensured by TSP.

The maintenance of all the communication equipment and software thereof including FOTE, PMU, FODP, approach cable, DCPS along with Battery Bank shall be the responsibility of TSP.

Further necessary optical interfaces shall also be provided by the TSP in the FOTE of 400kV Kolar and 400kV Ryapte S/s as per link budget requirement.

C.5.0 220kV line bays at 400/220kV Doddathaggalli for termination of proposed 220 kV Sarjapura lines along with 2Nos of 220kV TB's at Sarjapura.

On 220kV line from proposed 400/220kV Doddatahaggalli to 220kV Sarjapura Sub- station, TSP shall supply, install and commission OPGW as per Tower Configurations:

(I) DC line on Single Towers: One (1) no. OPGW cable containing 48Fibres (48F) to be installed and commissioned by the TSP.

(II) Along with UG cable,48F UGOFC with accessories has to be laid in HDPE pipe.

The TSP shall install OPGW cables from Sarjapura S/s up to gantry of 400kV Doddathaggalli with all associated hardware including Vibration Dampers, mid-way and gantry Joint Boxes (called OPGW Hardware hereafter) and finally terminate in Joint Boxes at 400kV Doddathaggalli sub-station and 220kV Sarjapura sub-stations.

Further TSP shall comply to the requirements mentioned as per **Appendix-F.1-VOID**

Maintenance of OPGW Cable and OPGW Hardware shall be responsibility of TSP.

C.6.0 220kV line bays at 400/220kV Doddathaggalli for termination of proposed 220 kV Ekrajapura lines along with 2Nos of 220kV TB's at Ekrajapura SS.

On 220kV line from proposed 400/220kV Doddatahaggalli to 220kV Ekrajapura Sub-

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station, TSP shall supply, install and commission OPGW as per Tower Configurations:

(I) DC line on Single Towers: One (1) no. OPGW cable containing 48Fibres (48F) to be installed and commissioned by the TSP.

(II) Along with UG cable,48F UGOFC with accessories has to be laid in HDPE pipe.

The TSP shall install OPGW cables from gantry of IPP sub-station up to gantry of 400kV Doddathaggalli with all associated hardware including Vibration Dampers, mid-way and gantry Joint Boxes (called OPGW Hardware hereafter) and finally terminate in Joint Boxes at 400kV Doddathaggalli sub-station and 220kV Erajapura sub-stations.

Further TSP shall comply to the requirements mentioned as per **Appendix-F.1-VOID**

Maintenance of OPGW Cable and OPGW Hardware shall be responsibility of TSP.

C.7.0 220kV line bays at 400/220kV Doddathaggalli for termination of proposed 220 kV Hoskote_New lines along with 2Nos of 220kV TB's at Hoskote_New SS.

On 220kV line from proposed 400/220kV Doddatahaggalli to 220kV Hoskote Sub-station, TSP shall supply, install and commission OPGW as per Tower Configurations:

(I) DC line on Single Towers: One (1) no. OPGW cable containing 48Fibres (48F) to be installed and commissioned by the TSP.

(II) Along with UG cable,48F UGOFC with accessories has to be laid in HDPE pipe.

The TSP shall install OPGW cables from gantry of Hoskote_new S/S up to gantry of 400kV Doddathaggalli with all associated hardware including Vibration Dampers, mid-way and gantry Joint Boxes (called OPGW Hardware hereafter) and finally terminate in Joint Boxes at 400kV Doddathaggalli sub-station and 220kV Hoskote_New sub-stations.

Further TSP shall comply to the requirements mentioned as per **Appendix-F.1-VOID**

Maintenance of OPGW Cable and OPGW Hardware shall be responsibility of TSP.

C.8.0 8Nos. of 220kV line bays at 400/220kV Doddathaggalli for termination of proposed 220 kV DC lines.

I. TSP shall supply, install & commission one or more no. FODP (432F or higher) along with panel and required Approach Cables (48F/24F) with all associated hardware fittings from gantry tower to Bay Kiosk and from the Bay Kiosk to Control room.

II. TSP shall supply, install & commission One or more STM-16 (FOTE) equipment along with panel/s supporting minimum **Nine (9)** directions with Multiplex Section Protection – 1+1 (MSP)with necessary interfaces to meet the voice and data communication requirement among 220kV Sarjapura, 220kV Malur, 220kV Ekarajapura, 220kV

Hosakote_New S/s. These directions shall exclude protected (1+1) local patching among equipment (if any). The suitable DC Power Supply and backup to be provided for communication equipment. The 8command Digital Tele Protection Coupler (DTPC) with 220V DC source on E1 for each 220kV lines at both ends to be provided.

III. FOTE/FODP panel shall be installed in the new Bay Kiosk/ Switchyard Panel Room (SPR). The FOTE under present scope shall be integrated by TSP with the existing FOTE at remote end Sub-stations ie., 220kV Sarjapura, 220kV Malur, 220kV Ekarajapura, 220kV Hosakote_New S/s which shall be communicating with respective control center. TSP to provide necessary FODP sub rack / Splice trays/ Patch cords etc. and optical interfaces/equipment in the existing FOTE/FODP panels for integration with the existing FOTE for onwards data transmission.

In case spare optical direction is not available in the existing FOTE the TSP shall coordinate with station owner to reconfigure the directions in existing FOTE at control room. Alternatively, The TSP may integrate the FOTE under the present scope with existing FOTE in the nearby Kiosk connected to the control room FOTE (if available with spare direction). For this purpose, TSP shall provide necessary FODP sub rack / Splice trays/ Patch cords etc. and suitable optical interfaces/ equipment in the existing FOTE/FODP panels in another Kiosk (SPR).

IV. FOTE & FODP can be accommodated in same panel to optimize space.

V. The new communication equipment under the present scope shall be compatible for integration with existing KPTCL NMS of OPGW. The local configuration of the new communication equipment shall be the responsibility of TSP. The configuration work in the existing centralized NMS for integration of new Communication equipment shall be done by KPTCL Team, however all the necessary support in this regard shall be ensured by TSP.
The maintenance of all the communication equipment and software thereof including FOTE, PMU, FODP, approach cable, DCPS along with Battery Bank shall be the responsibility of TSP.

C.9.0 Specific Requirement for Phasor Measurement Units (PMUs)

TSP shall supply, install & commission required No. of Phasor Measurement Units (PMUs) PMUs at all the locations under the scope of TSP under this RFP as per CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022 (along with all amendments if any), and all the applicable Regulations, Standards, Guidelines issued time to time. The signal list shall be as per the Annexure-I Part-B of CERC Guidelines on "Interface Requirements" 2024. These PMUs shall be provided with GPS clock and LAN switch and shall connect with LAN switch of control room of respective substations/ generating stations with Fibre Optic cable. These PMUs shall be connected with the FOTE at Substation/ generating stations for onwards data transmission to the PDC (Phasor Data Concentrator) located at respective SLDC&RLDC. Configuration work in existing PDC at SLDC/RLDC for new PMU integration shall be done by respective TSP in co-ordination with

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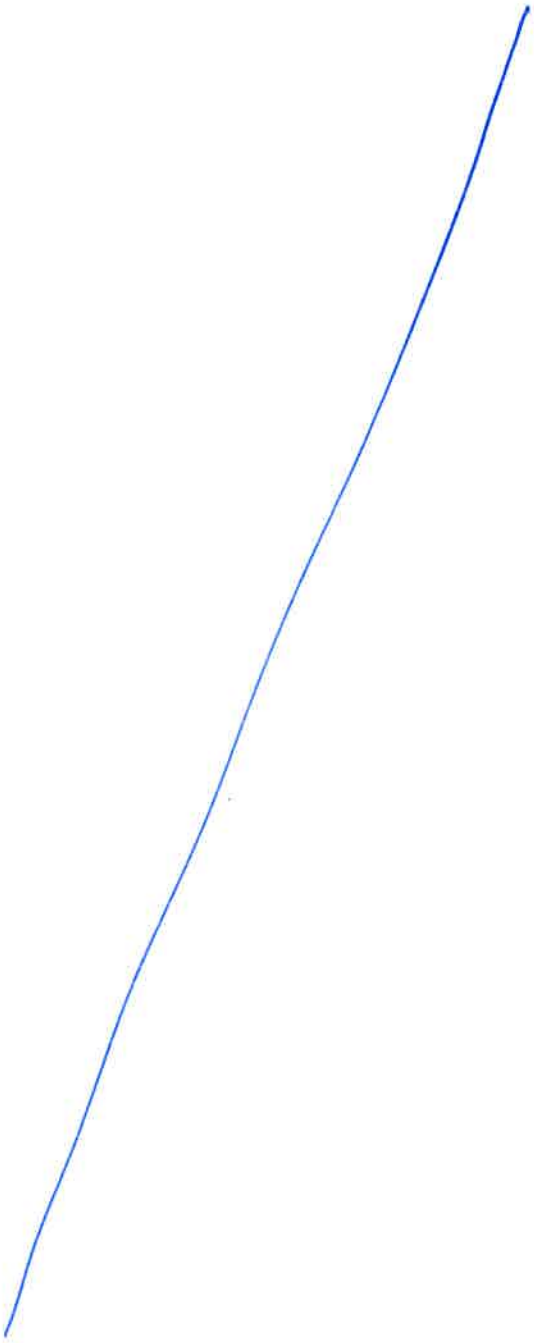
SLDC/RLDC. The maintenance of all the PMUs and associated equipment shall be the responsibility of TSP.

Note: Existing Station owner/s to provide necessary support to integrate different equipment & applications of new extended bays with the existing substation e.g. Communication (through FOTE), Voice etc. for smooth operation and monitoring of new added grid elements.



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Repeater Requirements -VOID

- If the repeater location is finalized in the Control Room of a nearby substation, TSP shall provide 1 No. OPGW (96F/48F)as per OPGW in main line to accommodate all OPGW fibers of main line ,on a single Earthwire peak with OPGW Hardware & mid- way Joint Boxes etc. of the line crossing the main line and 1 no. Approach Cable (96F/48F)as per OPGW laid to accommodate all OPGW fibers of main line ,with all associated hardware fittings, to establish connectivity between crossing point of main transmission line up to the repeater equipment in substation control room.
  TSP shall co-ordinate for Space and DC power supply sharing for repeater equipment.
  TSP shall provide required FODP, FOTE (with STM-16 capacity) with suitable interfaces require for link budget of respective link.

  OR

- If the repeater location is finalized in the nearby substation premises, the TSP shall identify the Space for repeater shelter in consultation with station owner. Further TSP shall provide 1 No. OPGW (96F/48F) as per OPGW in main line to accommodate all OPGW fibers of main line, on a single Earthwire peak with OPGW Hardware & mid- way Joint Boxes etc. of the line crossing the main line and 1 No. Approach Cable (96F/48F)as per OPGW laid to accommodate all OPGW fibers of main line, with all associated hardware fittings, to establish connectivity between crossing point of main transmission line up to the substation where the repeater shelter is to be housed.
  TSP shall provide repeater shelter along with FODP, FOTE (with STM-16 capacity) with suitable interfaces require for link budget of respective link, reliable power supply provisioning for AC and DC supply, battery bank, Air Conditioner and other associated systems.

  OR

- If the repeater location is finalized on land near the transmission tower. TSP shall make the provisions for Land at nearby tower for repeater shelter. Further TSP shall provide required. Approach Cable (96F/48F)as per OPGW laidin main line to accommodate all OPGW fibers of main line, with all associated hardware fittings to establish connectivity up to the location of repeater shelter.
  TSP shall provide repeater shelter along with FODP, FOTE (with STM-16 capacity) with suitable interfaces require for link budget of respective link, reliable power supply provisioning for AC and DC supply, battery bank, Air Conditioner and other associated systems
  Maintenance of OPGW Cable and **OPGW Hardware**, repeater equipment & items associated with repeater shelter shall be responsibility of TSP.

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Next Generation Firewall (NGFW)

TSP shall provide 2 NGFW one in Main & another in Standby mode having electrical ethernet interfaces/ports and placed between FOTE & SAS gateway/s at the substation. All ethernet based applications shall be terminated in the firewall ports directly (e.g. PMU, AMR, VOIP, SAS/SCADA etc.). Each port of firewall shall work as a separate zone. Firewall shall be hardware based with features of Block/Allow/drop and IPSec VPN (network encryption).

The number of ports/interfaces in each firewall (i.e. Main & Standby) shall be minimum 16 nos. TSP shall provide either single firewall or multiple firewalls to meet this interfaces requirement, each for main as well as standby firewall. Minimum throughput of firewall shall be 300 Mbps.

The Firewall shall be managed/ configured as standalone at present and shall also have compatibility to manage/configure through Centralized Management Console (CMC) remotely in future.

Firewall shall be tested and certified for ISO15408 Common Criteria for least EAL4+. Further, the OEM must certify that it conforms to Secure Product Development Life Cycle requirements as per IEC62443-4-1. The firewall shall generate reports for NERC-CIP Compliance.

The specifications for the firewalls are given at **Annexure-F.2** and schematic diagram showing firewall placement given at **Figure F.2**.

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Annexure F.2

Specifications of Next Generation Firewall (NGFW)

1. NGFW shall have following features including but not limited to:

   Encryption through IPSec VPN (Virtual Private Network), Deep Packet Inspection (DPI), Denial of service (DoS) and Distributed Denial of Service (DDoS) prevention, Port Block/ Allow, rules/ policies for block/allow, IP (Internet Protocol) & Media Access Control (MAC) spoofing protection, threat detection, Intrusion Prevention System (IPS), Anti-Virus, Anti-Spyware, Man InThe Middle (MITM) attack prevention.

2. The proposed firewall shall be able to handle (alert, block or allow) unknown /unidentified applications e.g. unknown TCP & UDP packets. It shall have the provision to define application control list based on application group and/or list.

3. Firewall shall have feature and also have capability to update the definition/ Signatures of Anti-Virus online as well as offline. Firewall shall also be compatible to update the definitions/signatures through CMC. There shall be a defined process for security patching and firmware up-gradation. There shall be a feature to field validate firmware checksum. The same shall also be validated before using the OEM provided file/binary in the process of firmware up-gradation and security patching

4. Firewall shall have Management Console port to configure remotely.

5. Firewall shall be EMI/EMC compliant in Substation environment as per IEC 61850-3.

6. Firewall shall be rack mounted in existing standard equipment cabinets.

7. Firewall shall have support of SCADA applications (IEC-60870-5-104), ICCP, PMU (IEEE C37.118), Sub-Station Automation System (IEC 61850), Ethernet and other substation environment protocols.

8. Client based Encryption/ VPN must support different Operating System platforms e.g. Windows, Linux & Mac.

9. The solution must have content and comprehensive file detection policies, blocking the files as function of their types, protocols and directions.

10. Firewall shall have logging facility as per standard logs/events format. Firewall shall have features to export the generated/stored logs/events in csv (Comma Separated Value) and also any other standard formats for offline usage, analysis and compliance. Firewall shall have suitable memory architecture and solution to store and be enable to export all logs/events for a period of last 90 days at any given time.

11. Firewall shall have features and be compatible with local as well as central authentication system (RADIUS, LDAP, or TACACS+) for user account and access right management. It shall also have Role Based User management feature.

12. Firewall shall have the capability to configure sufficient number of VLANs.

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13. Firewall shall have the capability to support sufficient number of sessions.

14. Firewall shall have provision to configure multiple IP Sec VPNs, at least 100 nos., (one-to-many or many-to-one). Shall support redundant operation with a similar router after creation of all the IP Sec VPN. IPSec VPN shall support encryption protocols as

AES128, AES256 and hashing algorithms as MD5 and SHA1. IPSec VPN throughput shall support at least 300 Mbps

15. Firewall shall be capable of SNMP v3 for monitoring from Network Management system. It shall also have SNMPv3 encrypted authentication and access security

16. Firewall shall support in Active/Passive or Active-Active mode with High Availability features like load balancing, failover for firewall and IPsec VPN without losing the session connectivity.

17. Firewall should have integrated traffic shaping (bandwidth, allocation, prioritisation, etc.) functionality

18. Shall support simultaneous operation with both IPv4 and IPv6 traffic

19. Firewall shall be compatible with SNTP/NTP or any other standards for clock synchronization

20. Firewall shall have the features of port as well as MAC based security

21. Firewall shall support exporting of logs to a centralized log management system (e.g. syslog) for security event and information management.

22. Firewall time shall be kept synchronised to official Indian Timekeeping agency, time.nplindia.org.

23. Firewall product shall be provided with all applicable updates at least until 36 months since the applicable date of product shipping to the concerned utility.

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Firewall Placement Diagram

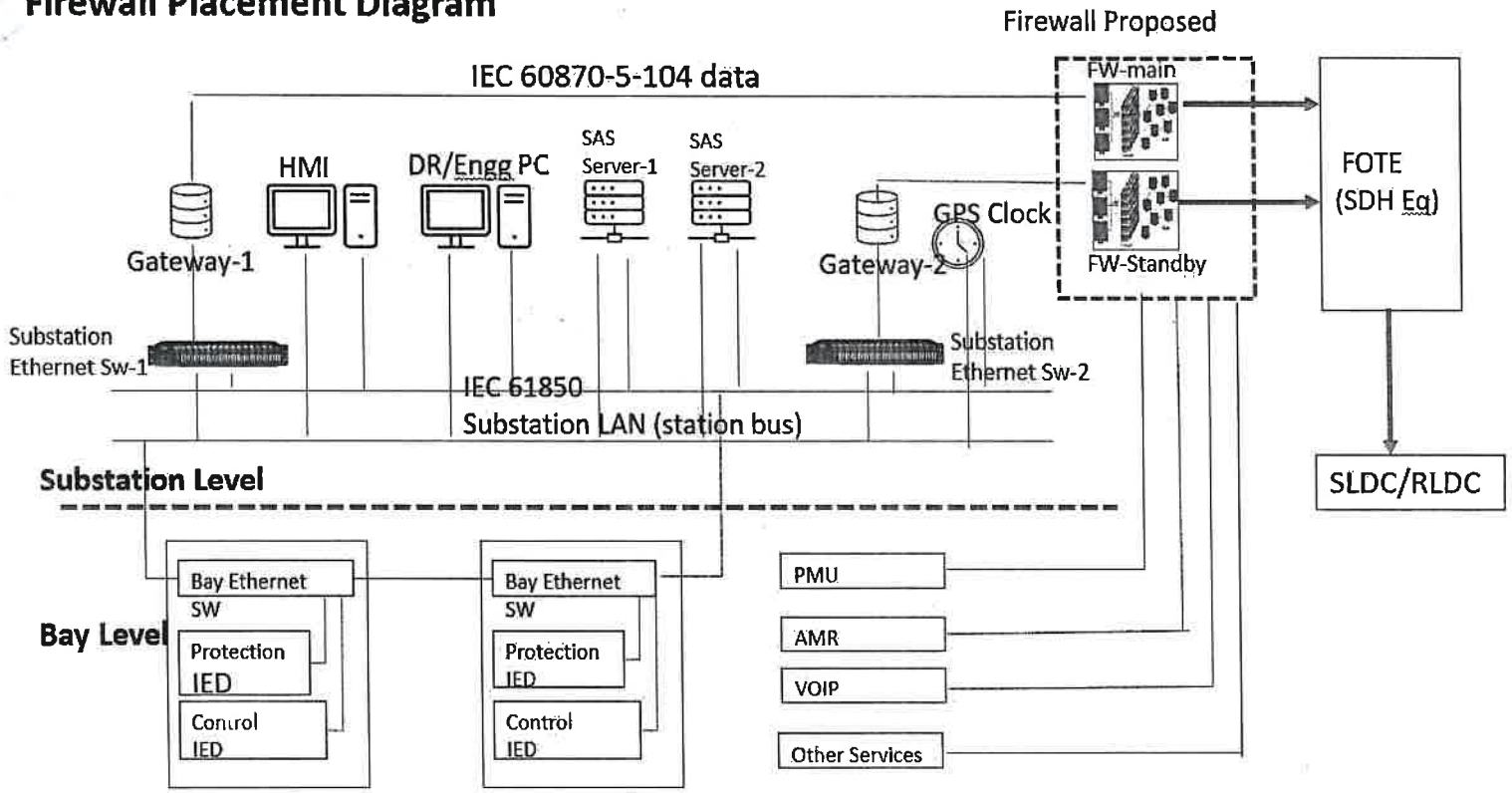

Figure F.2

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C.11.0 *PLCC and PABX:*

Power line carrier communication (PLCC) equipment complete for speech, tele-protection commands and data channels shall be provided on each transmission line. The PLCC equipment shall in brief include the following: -

- Coupling device, Coupling filters line traps, carrier terminals, protection couplers, HF cables, PABX (if applicable) and maintenance and testing instruments.
- At new substation, a telephone exchange (PABX) of 24 lines shall be provided at as means of effective communication among various buildings of the substation, remote end substations and with control centres (RLDC/ SLDC) etc.
- Coupling devices shall be suitable for 400kV and 220kV voltage class. The pass band of coupling devices shall have sufficient margin for adding communication channel in future if required. Necessary protection devices for safety of personnel and low voltage part against power frequency voltages and transient over voltage shall also be provided.
- The line traps shall be broad band tuned suitable for blocking the complete range of carrier frequencies. Line Trap shall have necessary protective devices such as lightning arresters for the protection of tuning device.
- The carrier terminals shall be of single side-band (SSB) amplitude modulation (AM) type and shall have 4 kHz band width. PLCC Carrier terminals and Protection couplers shall be considered for both ends of the line.
- **PLCC equipment for all the transmission lines covered under the scheme shall be provided by TSP. PLCC to be provided for following lines are under present scope:**

Sl. No	Line name	PLCC configuration
1	400kV Ryapte-Doddataggalli-1	Phase-Phase Coupling
2	400kV Ryapte-Doddataggalli-2	Phase-Phase Coupling
3	400kV Doddataggalli-Kolar-1	Phase-Phase Coupling
4	400kV Doddataggalli-Kolar-2	Phase-Phase Coupling

Note: Only DTPC for 220kV Doddataggali-Sarjapura-1&2, Ekarajapura 1&2 and Hoskote_New 1&2 lines as line is combination of Over head and Under Ground cable.

- Further, CVT and Wave trap for all 400 kV and 220 kV line bays under present scope shall be provided by TSP.
- All other associated equipment like cabling, coupling device and HF cable shall also be provided by the TSP.
- The PLCC Equipment to be provided at both ends of Sub-station for 400kV and 220kV lines.
- The PLCC Equipment to be provided only at 400kV Ryapte, 400kV Doddatagalli, 220kV Malur.
- Two (2) sets of 48 V battery banks for PLCC and communication equipment shall be provided at each new Substation with at least 10-hour battery backup and extended backup, if required.

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C.12.0: Communication through VSAT:

KPTCL is having captive VSAT communication network for all Sub-stations. The VSAT equipment will be provided by KPTCL and the estimated cost of equipment will be intimated.

In addition, License fee, Annual bandwidth charges, AMC cost and other statutory charges pertaining to VSAT on quarterly basis needs to be paid. The demand note will be issued from KPTCL to pay the charges. An undertaking agreement on a stamp paper towards payment of VSAT charges has to be submitted to KPTCL (as a back-up communication)

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SPECIFIC TECHNICAL REQUIREMENTS FOR INTEGRATION OF COMMUNICATION EQUIPMENT WITH STATE LEVEL NMS & REGIONAL UNMS:

The new communication equipment/ system for all the substations under the present scope shall be compatible for integration with existing regional level NMS system/ Centralized Supervision and Monitoring System (CSMS) i.e. Regional UNMS. The local configuration of the new communication equipment at the station end shall be the responsibility of TSP as per **Annexure E.1**. The configuration work in the existing centralized NMS/ CSMS at Control center end, for integration of new Communication equipment/ system shall be done by Regional ULDC Team/ NMT, however all the necessary support in this regard shall be ensured by TSP.

Requirement for integration of Communication Equipment with Regional UNMS:

1. TSP shall ensure that NMS/EMS/NE supplied by them is NBI compliant and all FCAPS functionality is supported in the NBI such as NE Inventory, Hardware Inventory – Shelf/Slot/Card/SFP/Port, Topology, Protections, Alarms, Performance- real time and periodic, Performance KPI parameters (E-1, STM, Ethernet) , Remote Configuration, Cross Connects, Trails and Circuits, Services Provisioning (NE), E-1 , STM, Ethernet , TX and RS Trace, loop back and details are published in the NBI guide for the configuration parameters.

2. TSP shall be obliged to provide/share all necessary documentations such as NBI Guide/MIB/IDL/WSDL/API files/ etc. for onward integration of their NMS/EMS/NE with regional UNMS.

3. The following support shall be provided by TSP for integration of their supplied equipment with regional UNMS:

   - Enabling and activating NBI license in their EMS/NMS and providing NBI login access along with User credentials
   - Assist in verifying NBI Connectivity with UNMS vendor for the successful communication and retrieval of data.
   - Assist in troubleshooting (if required) for NBI connectivity along with UNMS vendor for the communication and retrieval of data.

4. For standalone NE which is not integrated with any EMS/NMS, TSP shall provide modality of complete FCAPS data acquisition as above through industry standard programmatic methods and provide the CLI command manual.

BOQ of PLCC for 400kV lines at 400kV Ryapte Sub-station

400kV lines: 1) DC line from Ryapte to proposed Doddathagalli(135km)

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Sl. No	Name of materials (Supply & Erection)	Unit	At 400kV Ryapte	At 400kV Doddathag alli	Total Quantity required
01	Wave Trap 1mH, 3150A, 63kA dual band, 50 to 100kHz and 100 to 500kHz Pedestal Mounting along with mounting structure PI and Hardware (Ph-Ph Coupling)	No	4	4	8
02	(LMU+LMDU) Coupling Device	Set.	2	2	4
03	HF Coaxial Cable 75 Ohms	Km	0.5	0.5	1
04	PLCC Terminal(Carrier Cabinet) Single Channel	No	3	3	6
05	Protection Coupler -4 Command version	No	2	2	4
06	DTPC- 8 command with provision for interface with SDH on E1 on E1 (220kV DC Source)	No	1	1	2
07	48 Volts 400Ah Battery Set	Set	02	-	02
08	48V Battery Charger with 100Amps current rating suitable for 400Ah battery.	No	02	-	02
09	DCDB with independent change over b/w DC Source1 & DC Source 2, with 20 Feeders.	No	01	-	01
10	EPAX 16/8/8	No	01	-	01
11	Telephones	No	10	-	10

The BOQ of FOTE at 400kV Ryapte Sub-station

Sl No	Description	Unit	At 400kv Ryapte
	MAIN EQUIPMENTS		
1	SDH EQUIPMENT (STM-16 MADM UPTO 5MSP PROTECTED DIRECTIONS)- BASE EQUIPMENT (COMMON CARDS, CROSS CONNECT/CONTROL CARDS, OPTICAL BASECARDS, POWER SUPPLY CARDS, POWER CABLING, OTHER HARDWARE ANDACCESSORIES INCLUDING SUB RACKS, PATCH CORD, DDF ETC FULLY EQUIPEDEXCLUDING OPTICAL INTERFACE & TRIBUTARY	No	1

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	CARDS		
	Optical Interface		
2	Trans receiver		
A	Optical Line Interface Card (150-175km)		2
	Tributary Interface		
3	E1 Interface card (Min. 16 interfaces per card) - 5MSP	No	2
4	Ethernet interface 10/100 Mbps with Layer-2 switching (Min,2x1Gbps+ 4x100/10 Mbps ports) without SFP - 5MSP.	No	2
5	1x1000 base LX SFP (GIGABIT ETHERNET INTERFACES 10/100 MBPS WITH LAYER-2 SWITCHING)	Set	2
6	Cabinet Equipment to house SDH Equipment + Optical cards + Tributary Cards, Drop/Insert MUX Equipments and DACS Equipment	Set	4
7	220V DC to 48V DC CONVERTER for SDH Equipment	No	1
8	Fail over switch/Router	No	1
9	VOIP Phone	No	2

The BOQ of PLCC for 400kV lines at 400kV Doddataggalli Sub-station 400kV lines: DC line to 400kV Kolar line

Sl. No	**Name of materials (Supply & Erection)**	**Unit**	**At 400kV Doddathagalli**	**At 400kV Kolar**	**Total Quantity required**
01	Wave Trap 1mH, 3150A, 63kA dual band, 50 to 100kHz and 100 to 500kHz Pedestal Mounting along with mounting structure PI and Hardware (Ph-Ph Coupling)	No	4	4	8
02	(LMU+LMDU) Coupling Device	Set.	2	2	4
03	HF Coaxial Cable 75 Ohms	Km	0.5	0.5	1
04	PLCC Terminal(Carrier Cabinet) Single Channel	No	3	3	6
05	Protection Coupler -4 Command version	No	2	2	4

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06	DTPC- 8 command with provision for interface with SDH on E1 (220kV DC Source)	No	1	1	2
07	48 Volts 400Ah Battery Set	Set	02	-	02
08	48V Battery Charger with 100Amps current rating suitable for 400Ah battery.	No	02	-	02
09	DCDB with independent change over b/w DC Source1 & DC Source 2, with 20 Feeders.	No	01	-	01
10	EPAX 16/8/8	No	01	-	01
11	Telephones	No	10	-	10

The BOQ of FOTE at 400kV Doddataggalli Sub-station

Sl No	Description MAIN EQUIPMENTS	Unit	At 400kv Doddatag galli SS
1	SDH EQUIPMENT (STM-16 MADM UPTO 5MSP PROTECTED DIRECTIONS)-BASE EQUIPMENT (COMMON CARDS, CROSS CONNECT/CONTROL CARDS, OPTICAL BASECARDS, POWER SUPPLY CARDS, POWER CABLING, OTHER HARDWARE ANDACCESSORIES INCLUDING SUB RACKS, PATCH CORD, DDF ETC FULLY EQUIPEDEXCLUDING OPTICAL INTERFACE & TRIBUTARY CARDS	No	1
	Optical Interface		
2	Trans receiver		
A	S16.1 SFP -(30km)	No	6
B	L16.1 SFP -(30-50 km) -	No	2
	Tributary Interface		
3	E1 Interface card (Min. 16 interfaces per card) - 5MSP	No	2
4	Ethernetinterface10/100 Mbps with Layer-2 switching (Min,2x1Gbps+ 4x100/10 Mbps ports) without SFP - 5MSP.	No	2

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5	1x1000 base LX SFP (GIGABIT ETHERNET INTERFACES 10/100 MBPS WITH LAYER-2 SWITCHING)	Set	2
6	Cabinet Equipment to house SDH Equipment + Optical cards + Tributary Cards, Drop/Insert MUX Equipments and DACS Equipment	Set	4
7	220V DC to 48V DC CONVERTER for SDH Equipment	No	1
8	Fail over switch/Router	No	1
9	VOIP Phone	No	2

Note- The Communication requirement for kolar S/s shall be as per PGCIL.

The Optical Trans receiver for Doddataggalli direction should be compatible to existing SDH(STM-16) FOTE system at Kolar-PGCIL Sub-station.

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Frequently Asked Queries:

Transmission Line:

1.1 Please clarify that whether shutdowns for crossing of existing transmission lines of POWERGRID/STUs/ Power Evacuation Lines from Generation Plants/ Any other Transmission Licensee will be given to TSP on chargeable basis or free of cost.

Reply: Shutdowns for crossing of existing transmission lines of POWERGRID/ STUs/ Power Evacuation Lines from Generation Plants/ Any other Transmission Licensee will be given to TSP by the concerned owner of the lines as per their own terms and conditions. As far as shutdown of ISTS lines are concerned the same can be availed by approaching respective Regional Power Committee.

1.2 We understand that the suggested swing angle criteria are applicable for Suspension Insulator in Suspension Tower. Further, you are requested to provide similar swing angle and clearance criteria for Pilot Insulator with Jumper and Jumper.

Reply: It is clarified that the swing angle criteria (as mentioned in RFP) for transmission lines is applicable for Suspension Insulator in Suspension Tower. Further, as per Clause 2.2 of Specific Technical Requirements for transmission lines, Transmission service Provider (TSP) shall adopt any additional loading/design criteria for ensuring reliability of the line, if so desired and /or deemed necessary.

1.3 We request you to kindly allow that use of diamond configuration at Power line crossings and the existing owner of the lines may be directed to allow the same for the successful bidders.

Reply: Power line crossing including Diamond configuration is the responsibility of the TSP. TSP shall formally submit the profile of the crossing section to the owner of the existing line suggesting proposed crossing alternatives. The crossing will have to be carried out as per approval of owner of the existing line.

1.4 It is requested you to kindly provide present status of Forest Clearances if any transmission line corridor area falling in wildlife forest / reserve forest/ mangroves.

Reply: Based on the preliminary route survey, the process of initiation of forest clearance for the forest stretches, if any, enroute the proposed line alignment will be initiated by way of writing letters to the concerned authority (ies). However, it may be noted that it will be the responsibility of TSP for obtaining forest clearance for the forest stretches as provided in the survey report and also for any forest area encountered during detailed survey.

1.5 For transmission line, no special requirement is specified for type of Insulator and creepage in RFP document. Hence it is understood that bidder can decide the type of insulator along with creepage requirement based on general CEA

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regulations and relevant standards. Kindly confirm.

Reply: The minimum specific creepage distances shall be decided for the pollution condition in the area of installation. It shall be as per CEA regulations and relevant standards.

Substation

2.1 We understand that space for storage of O&M spare shall be provided by the existing owner within the station boundary without any cost. Kindly confirm.

Reply: Space for storage of O&M spares shall be arranged by TSP on its own.

2.2 With reference to subject scheme of existing sub-station, we assumed following scope of work:

(a) We assumed internal road is available and need not to be consider in the present scope of work.

(b) Drainage is available and need not to consider in the present scope of work.

(c) Cable trench extension adjacent to Main cable trench only under present scope of work.

(d) Levelled area being provided by developer for bay extension.

Reply: Regarding requirement of internal road, drainage, cable trench, leveling of the bay extension area, bidder is advised to visit site and acquaint themselves with the provisions/facilities available at substation.

2.3 Kindly provide the soil investigation report of soil parameters of existing substation.

Reply: Bidder is advised to visit the substation site and ascertain the requisite parameters.

2.4 Kindly confirm, energy accounting of aux. power consumption. Whether it will be on chargeable basis or part of transmission loss.

Reply: It will be on a chargeable basis.

2.5 We understand that VMS requirement is for unmanned stations only. For Manned stations VMS is not compulsory.

Reply: VMS shall be provided in line with requirements of RfP document.

2.6 It is understood that Construction water and power shall be provided free of cost to TSP by the respective substation owner for construction of new bays.

Reply: Arrangement of construction power and water is in the scope of TSP.

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2.7 It is understood that the existing fire hydrant system shall be extended by the TSP for bay extension.

Reply: Existing fire hydrant system shall be extended from existing system (if required)

2.8 We understood that no any dedicated metering CT and CVT is required for Line/feeders. Further, we understood that requisite Energy meters for various 765 kV, 400 kV and 220 kV Feeders shall be provided and installed by CTU free of cost to TSP.

Reply: Dedicated metering CT and CVT are not required for line/feeders. Metering core of existing CT/CVT can be used provided accuracy class matches with metering requirement. Requisite Special Energy Meters shall be provided and installed by CTU at the cost of TSP in C&P panel subject to space availability, else, in separate metering panel (to be provided by TSP at its cost).

2.9 Please clarify whether the spare 765 kV single phase Reactor unit for Bus reactor shall be provided with 1ph 765 kV CB.

Reply: As per RfP, the spare 1-Ph reactor unit shall be utilized for all the bus and switchable line reactor banks (including for future reactor banks). Hence, 1ph 765 kV CB shall also be provided with spare 1-Ph reactor for utilizing with bus reactor as well as switchable line reactor.

2.10 It is understood that existing busbar protection has provision for future bays and also PUs are available for future bays. BPC to confirm availability of CU and PU for bays under present scope of work at existing substations. BPC may kindly confirm availability of communication ports for integrating new PUs with the existing CUs at existing substations.

Reply: Bus Bar Protection with Central Unit (CU) is required for the new bus section as specified in RfP. Peripheral Units (PUs) shall be provided by the respective bay owner. Further, augmentation/replacement of existing CU, if required, to meet the system requirement shall also be provided for proper functioning of bus bar protection.

2.11 For SCADA, it is understood that necessary process I/O shall be available for future bays and accordingly license for same. BPC to confirm.

Reply: Necessary process I/O along with license shall be in the scope of the successful bidder.

2.12 No separate FF system is envisaged under the present scope of work for existing substation. BPC to confirm.

Reply: Existing fire-fighting systems shall be extended to meet the additional requirements under present scope.

2.13 PLCC for 220 kV Lines are not under the scope of TSP. BPC to Confirm.It is requested to provide Type of Coupling for 220 kV Transmission Lines under present scope.

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Reply: PLCC for 220 kV line is in the scope of developer of the line.

Phase to phase coupling for 220 kV D/C and phase to phase coupling for 220 kV S/C shall be applicable for PLCC.

2.14 BPC is requested to confirm the availability of space in the existing control rooms at existing substation for execution of extension work under current project.

Reply: Switchyard Panel Rooms are generally required for AIS type substation and relay room are required for GIS type substation. Further, if needed, the control room shall be augmented as per requirement.

Communication

3.1 What are the usage of OPGW, FOTE, PMU etc. under communication requirement of RFP?

Reply: User shall be responsible for providing compatible equipment along with appropriate interface for uninterrupted communication with the concerned control center and shall be responsible for successful integration with the communication system provided by STU.

Communication systems e.g. OPGW, FOTE etc. and PMU are required for grid operation through RLDC/SLDC, speech communication, tele-protection and tele-metering.

3.2 Is space for installation of communication panels are provided to TSP in existing Substations incase new bays are in the scope of TSP?

Reply: The space related issues are deliberated in the RFP itself. TSP to install FOTE/FODP panels in the new Bay Kiosk (Switchyard Panel Room (SPR)) / Bay Kisok/ Relay Panel Room (in case of GIS S/s). Further, TSP to connect and integrate the proposed FOTE with the existing FOTE in the control room to complete the communication path upto RLDC.

In Case 132 kV Substation TSP shall accommodate the said panels either by extension of existing control room or other arrangements.

3.3 How are PMUs integrated for new bays at existing Substations?

Reply: PMU data of new bays to be provided in the ethernet port of switch at control room and thereafter to be connected with existing FOTE of existing substation to send data to PDC of RLDC by TSP. These PMUs shall be provided with GPS clock and LAN switch and shall connect with LAN switch of control room of respective substations with Fibre Optic cable.

3.4 Is Spare direction available in existing FOTE for integration with new bay kiosk FOTE

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Reply: The FOTE under present scope shall be integrated by TSP with the existing FOTE at control room of substation for onwards data transmission.

In case spare optical direction is not available in the existing FOTE at the control room, the TSP shall coordinate with station owner to reconfigure the directions in existing FOTE at control room.

3.5 What is the distance from LILO point to proposed substation for feasibility of repeater station?

Reply: Tentative Location of LILO point shall be as per survey report of BPC however exact location to be ascertained after detailed survey by TSP.

3.6 What is the make and model of existing OPGW in case LILO of main line at new substation?

Reply: All OPGW (alongwith optical fibers) meet Central Electricity Authority (Technical Standards for Communication System in Power System Operations) Regulations, 2020 and bidder shall install OPGW accordingly.

3.7 In case of LILO of existing line at new substation who shall provide PMUs at existing substation bays?

Reply: TSP to provide PMUs for all bays under their scope of RFP.

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Schedule: 2

Scheduled COD

[Note: As referred to in the definition of "Element", "Scheduled COD", and in Articles 3.1.3 (c), 4.1 (b) and 4.3 (a) of this Agreement]

Sl. No.	Name of the Transmission Element	Scheduled COD	Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project	Element(s) which are pre-required for declaring the commercial operation (COD) of the respective Element
1.	Establishment of 5x500 MVA, 400/220 kV S/s at Ryapte in Tumkur District along with 2x125MVAr 400 kV Bus Reactors • 400/220 kV ICTs: 5 Nos. (5x500 MVA) • 400 kV ICT Bays: 5 Nos. • 400 kV Line bays (along with space provision for switchable line reactors) : 2 Nos. • 125 MVAr, 420 kV Bus reactor – 2 Nos. • 400 kV Bus reactor bay: 2 Nos • 220 kV ICT Bays: 5 Nos • 220 KV line Bay - 8 No. • 220 kV TBC bay – 2 No. • 220 kV BC bay – 2 No • 220 kV Sectionalization bay: 1 set • 400 kv Bus PT bay- 2 Nos • 220 kv Bus PT bay- 4 Nos Space For Future Provision: • 400/220 KV ICTs - 5 Nos. • 400 KV ICT bay – 5 Nos. • 400 kV Bus Reactor: 3 Nos • 400 kV Bus Reactor bays : 3 Nos • 220 kV ICT Bays: 5 Nos • 220 Kv line bays – 8 Nos • 400 kV Line bays (along with space provision for switchable line reactors) : 4 Nos.	30 months from Effective date	100%	All elements of scheme are required to be commissioned simultaneously as their utilization is dependent on each other.
2.	400kV DC line (Quad moose conductor) from Prop. 400/220 kV Ryapte Sub-station to Prop. 400/220 kV Doddathaggalli S/s.			

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Sl. No.	Name of the Transmission Element	Scheduled COD	Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project	Element(s) which are pre-required for declaring the commercial operation (COD) of the respective Element
3.	Establishing 3X500 MVA, 400/220kV GIS sub-station at Doddathaggalli (Near Hosakote) along with 2x125 MVAr, 400 kV Bus Reactors. • 400/220 kV ICTs: 3 no. • 400 kV ICT Bays: 3 Nos • 400 kV Line bays : 4 Nos • 125 MVAr, 420 kV Bus reactor – 2 No • 400 kV Bus reactor bay: 2 Nos • 220 kV ICT Bays: 3 Nos • 220 kV Line bays: 6 Nos. • 220 kV BC bay – 1 No • 400 kv Bus PT bay- 2 Nos • 220 kv Bus PT bay- 2 Nos Future Provision: • 400 kV line bays – 4 Nos. • 400/220 kV ICTs - 2 Nos. • 400 kV ICT bays - 2 Nos • 400 kV Bus Reactor: 2 Nos. • 400 kV Bus Reactor bays: 2 Nos. • 220 kV ICT Bays: 2 Nos • 220 kV Line bays: 4 Nos			
4.	400kV DC line (Quad moose conductor) from Kolar S/s to Prop. 400/220 kV Doddathaggalli Sub-station with following works at Kolar S/s:- *One circuit of Kolar – Doddataggalli 400kV (quad) D/c line may be terminated in existing vacant bay no. 415 at Kolar S/s. Other circuit may be terminated in new GIS diameter with 2-CB scheme. This option requires following main elements:* • *Termination of one circuit in the spare 400kV AIS bay no. 415 by providing required bay equipment to complete the 400kV Dia (413.414 and 415 bays)* • *Construction of 2 nos. 400kV outdoor GIS bays in 2 CB configuration for termination of other circuit*			

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Sl. No.	Name of the Transmission Element	Scheduled COD	Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project	Element(s) which are pre-required for declaring the commercial operation (COD) of the respective Element
	• *Extension of 400kV Main Bus-I and II through GIB duct to proposed 400kV outdoor GIS bays with AIS isolators* • *Dismantling and re-erection of one no. LM ,if required* Further, any requirement suggested by substation owners shall be followed as per site condition.			
5.	220kV DC line with Single Zebra and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions) from proposed 400/220 kV Doddathagalli sub-station to 220kV Ekarajapura sub-station with 2 No.s of AIS TB at Ekarajapura S/s with rearrangement/Shifting of existing Bus PT bay Note: The Tower design shall be suitable for TWIN Zebra.			
6.	220kV DC line with partial AAAC Moose and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions), from proposed 400/220 kV Doddathagalli sub-station to proposed 220kV Hosakote New sub-station.			
7.	220kV DC line with Single Zebra and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions) from proposed 400/220kV Doddathagalli to Sarjapura AIS S/s with 2 No.s of outdoor GIS TB at Sarjapura S/s by extending existing AIS bus bar along with AIS isolator Note: The Tower design shall be suitable for TWIN Zebra.			

The payment of Transmission Charges for any Element, irrespective of its successful commissioning on or before its Scheduled COD, shall only be considered after successful commissioning of the Element(s), which are pre-required for declaring the commercial operation of such Element as mentioned in the above table.

Scheduled COD for the Project is: 30 months from effective date

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Schedule: 3

Safety Rules and Procedures

[Note: As referred to in Articles 5.6 of this Agreement]

1: **Site Regulations and Safety:**

The TSP shall establish Site regulations within sixty (60) days from fulfilment of conditions subsequent, as per Prudent Utility Practices setting out the rules to be observed till expiry of the Agreement at the Site and shall comply therewith.

Such Site regulations shall include, but shall not be limited to, rules in respect of security, safety of the Project, gate control, sanitation, medical care, and fire prevention, public health, environment protection, security of public life, etc.

Copies of such Site regulations shall be provided to the Nodal Agency and the STU for the purpose of monitoring of the Project.

2: **Emergency Work:**

In cases of any emergency, the TSP shall carry out all necessary remedial work as may be necessary.

If the work done or caused to be done by any entity, other than the TSP, the TSP shall, reimburse the actual costs incurred, to the other Party carrying out such remedial works.

3: **Site Clearance:**

In the course of execution of the Agreement, the TSP shall keep the Site reasonably free from all unnecessary obstruction, storage, remove any surplus materials, clear away any wreckage, rubbish and temporary works from the Site, and remove any equipment no longer required for execution of the Agreement. After completion of all Elements of the Project, the TSP shall clear away and remove all wreckage, rubbish and debris of any kind from the Site, and shall leave the Site clean and safe.

4: **Watching and Lighting:**

The TSP shall provide and maintain at its own expense all lighting, fencing, and watching when and where necessary for the proper construction, operation, maintenance / repair of any of the Elements of the Project, or for the safety of the owners and occupiers of adjacent property and for the safety of the public, during such maintenance / repair.

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Schedule: 4 Computation of Transmission Charges

1.1 General

The Monthly Transmission Charges to be paid to the TSP for providing Transmission Service for any Contract Year during the term of the Agreement shall be computed in accordance with this Schedule and paid as per provision of this agreement.

Illustration regarding payment of Transmission Charges under various scenarios (considering definitions of Contract Year, Expiry Date & Monthly Transmission Charges above) is as below: -

Illustration-1: In case the Project Elements achieve COD as per Schedule

Quoted Transmission Charges: **Rs. 140 Million**

Completion Schedule:

Element No.	Completion Schedule in Months	Scheduled CoD of the Element	Actual CoD of the Element	% Charges recoverable on Scheduled CoD of the Element
Element 1	28	1-Feb-2018	1-Feb-2018	25%
Element 2	38	1-Dec-2018	1-Dec-2018	75%

Tariff Payable as follows:

Transmission Charges for Element 1			**Transmission Charges for Element 2**		
1-Feb-18 to 31-Mar-18	140 X 25% X ((28+31)/365)	5.65		--	0.00
1-Apr-18 to 30-Nov-18	140 X 25% X (244/365)	23.39		--	0.00
1-Dec-18 to 31-Mar-19	140 X 100% X (121/365)				46.41
2	140 X 100% X 1				140
3	140 X 100% X 1				140
4	140 X 100% X 1				140
5	140 X 100% X 1				140

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36 (1-Apr to 30-Nov)	140 X 100% X (244/365)	93.59

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Illustration-2: In case of extension of Scheduled COD as per Article 4.4.1 & 4.4.2 of this Agreement

Quoted Transmission Charges: **Rs. 140 Million**

Completion Schedule:

Element No.	Completion Schedule in Months	Scheduled CoD of the Element	Actual CoD of the Element	% Charges recoverable on Scheduled CoD of the Element
Element 1	20	1-Feb-2018	1-Jul-2018	25%
Element 2	28	1-Oct-2018	1-Dec-2018	75%

Tariff Payable as follows:

Transmission Charges for Element 1			**Transmission Charges for Element 2**		
1-Feb-18 to 31-Mar-18	--	0.00		--	0.00
1-Apr-18 to 30-Jun-18	--	0.00		--	0.00
1-Jul-18 to 30-Nov-18	140 X 25% X (153/365)	14.67		--	0.00
1-Dec-18 to 31-Mar-19	140 X 100% X (121/365)				46.41
2	140 X 100% X 1				140
3	140 X 100% X 1				140
4	140 X 100% X 1				140
5	140 X 100% X 1				140
.....					
.....					
36 (1-Apr to 30-Nov)	140 X 100% X (244/365)				93.59

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Illustration-3: In case of delay in achieving COD of Project & all individual Elements (COD of the Project achieved in Contract Year 1)

Quoted Transmission Charges: **Rs. 140 Million**

Completion Schedule:

Element No.	Completion Schedule in Months	Scheduled CoD of the Element	Actual CoD of the Element	% Charges recoverable on Scheduled CoD of the Element
Element 1	20	1-Feb-2018	1-Dec-2018	25%
Element 2	28	1-Oct-2018	1-Dec-2018	75%

Tariff Payable as follows:

Transmission Charges for Element 1			**Transmission Charges for Element 2**		
1-Feb-18 to 31-Mar-18	--	0.00		--	0.00
1-Apr-18 to 30-Sept-18	--	0.00		--	0.00
1-Oct-18 to 30-Nov-18	--	0.00	1-Oct-18 to 30-Nov-18	--	0.00
1-Dec-18 to 31-Mar-19	140 X 100% X (121/365)				46.41
2	140 X 100% X 1				140
3	140 X 100% X 1				140
4	140 X 100% X 1				140
5	140 X 100% X 1				140
.....					
.....					
36 (1-Apr to 30-Nov)	140 X 100% X (244/365)				93.59

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Quoted Transmission Charges: **Rs. 140 Million**

Completion Schedule:

Element No.	Completion Schedule in Months	Scheduled CoD of the Element	Actual CoD of the Element	% Charges recoverable on Scheduled CoD of the Element
Element 1	38	1-Oct-2019	1-May-2020	25%
Element 2	38	1-Oct-2019	1-May-2020	75%

Tariff Payment to be paid as:

Transmission Charges for Element 1			**Transmission Charges for Element 2**		
1-Oct-19 to 31-Mar-20	--	0.00	1-Oct-19 to 31-Mar-20	--	0.00
1-Apr-20 to 30-Apr-20	-	0.00	1-Apr-20 to 30-Apr-20	-	0.00
1-May-20 to 31-Mar-21	140 X 100% X (335/365)				128.49
2	140 X 100% X 1				140
3	140 X 100% X 1				140
4	140 X 100% X 1				140
5	140 X 100% X 1				140
.....					
.....					
36 (1-Apr to 30-Apr)	140 X 100% X (30/ 365)				11.51

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Quoted Transmission Charges: **Rs. 140 Million**

Completion Schedule:

Element No.	Completion Schedule in Months	Scheduled CoD of the Element	Actual CoD of the Element	% Charges recoverable on Scheduled CoD of the Element
Element 1	20	1-Feb-2018	1-Jul-2018	25%
Element 2	30	1-Dec-2018	1-Dec-2018	75%

Tariff Payable as follows:

Transmission Charges for Element 1			Transmission Charges for Element 2		
1-Feb-18 to 31-Mar-18	--	0.00		--	0.00
1-Apr-18 to 30-Jun-18	--	0.00		--	0.00
1-Jul-18 to 30-Nov-18	140 X 25% X (153/365)	14.67		--	0.00
1-Dec-18 to 31-Mar-19	140 X 100% X (121/365)				46.41
2	140 X 100% X 1				140
3	140 X 100% X 1				140
4	140 X 100% X 1				140
5	140 X 100% X 1				140
.....					
.....					
36 (1-Apr to 30-Nov)	140 X 100% X (244/365)				93.59

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Illustration-6: In case of early commissioning of Project

Quoted Transmission Charges: **Rs. 140 Million**

Completion Schedule:

Element No.	Completion Schedule in Months	Scheduled CoD of the Element	Actual CoD of the Element	% Charges recoverable on Scheduled CoD of the Element
Element 1	38	1-Oct-2019	1-Jul-2019	25%
Element 2	38	1-Oct-2019	1-Jul-2019	75%

Tariff Payment to be paid as:

Transmission Charges for Element 1		**Transmission Charges for Element 2**
1-July-19 to 31-Mar-20	140 X 100% X (274/365)	105.09
2	140 X 100% X 1	140
3	140 X 100% X 1	140
4	140 X 100% X 1	140
5	140 X 100% X 1	140
.....		
.....		
36 (1-Apr to 30-Jun)	140 X 100% X (91/365)	34.91

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Illustration-7: In case of early commissioning of an element

Quoted Transmission Charges: **Rs. 140 Million**
Completion Schedule:

Element No.	Completion Schedule in Months	Scheduled CoD of the Element	Actual CoD of the Element	% Charges recoverable on Scheduled CoD of the Element
Element 1	38	1-Oct-2019	1-Apr-2019	25%
Element 2	38	1-Jul-2019	1-Jul-2019	75%

Tariff Payment to be paid as:

Transmission Charges for Element 1			**Transmission Charges for Element 2**		
1-Apr-2019 to 30-Jun-19	140 X 25% X (91/365)	8.72	1-Apr-2019 to 30-Jun-19	--	0.00
1-July-19 to 31-Mar-20	140 X 100% X (274/ 365)				105.09
2	140 X 100% X 1				140
3	140 X 100% X 1				140
4	140 X 100% X 1				140
5	140 X 100% X 1				140
.....					
.....					
36 (1-Apr-30-Jun)	140 X 100% X (91/365)				34.91

The Transmission Charges shall be payable on monthly basis as computed above.

1.2 Computation of Monthly Transmission Charges

The Monthly Transmission Charges for any month m in a Contract Year n shall be calculated as below:

For AC System:

a. If Actual Transmission System Availability for the month m of contract year n is equal to

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98.50%;

Monthly Transmission Charges MTC(m) = Tmn *1

b. If Actual Transmission System Availability for the month m of contract year n exceeds 98.5% and less than or equal to 99.75%;

Monthly Transmission Charges MTC(m) = Tmn * (AA/ 98.5%)

c. If Actual Transmission System Availability for the month m of contract year n is greater than 99.75%;

Monthly Transmission Charges MTC(m) = Tmn * (99.75% / 98.5%)

d. If Actual Transmission System Availability for the month m of contract year n is less than 98.5%and greater than or equal to 95%;

Monthly Transmission Charges MTC(m) = Tmn * (AA/ 98.5%)

e. If Actual Transmission System Availability for the month m of contract year falls below 95%;

Monthly Transmission Charges MTC(m) = Tmn * (AA/ 98.5%) - 0.02 * (Tmn * (AA/ 95%)

For

DC System:

a. If Actual Transmission System Availability for the month m of contract year n is greater than or equal to 95% and less than or equal to 96%;

Monthly Transmission Charges MTC(m) = Tmn *1

a. If Actual Transmission System Availability for the month m of contract year n exceeds 96% and less than or equal to 99.75%;

Monthly Transmission Charges MTC(m) = Tmn * (AA/ 96%)

c. If Actual Transmission System Availability for the month m of contract year n is greater than 99.75%;

Monthly Transmission Charges MTC(m) = Tmn * (99.75% / 96%)

d. If Actual Transmission System Availability for the month m of contract year n is less than 95% and greater than or equal to 92.00%;

Monthly Transmission Charges MTC(m) = Tmn * (AA/ 95%)

e. If Actual Transmission System Availability for the month m of contract year falls below 92%;

Monthly Transmission Charges MTC(m) = Tmn * (AA/ 95%) - 0.02 * (Tmn * (AA/ 92%)

where:

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- AA is the actual Availability, as certified by RPC, as per procedure provided in Schedule 6.
- m is the month in Contract Year 'n'
- Tmn= Transmission Charges for the month 'm' in Contract Year 'n' = (=Transmission Charge/ no. of days in the Year n)* no. of days in month m

Provided, no Transmission Charges shall be paid during the period for which the RLDC/SLDC has not allowed the operation of the Element/Project due to the failure of the TSP to operate it as per the provisions of the Grid Code.

1.3 RLDC/SLDC Fee & Charges

The payment of RLDC / SLDC fee & charges, in accordance with relevant regulations of Central Commission / State Commission, shall be the responsibility of the TSP.

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Schedule: 5

Quoted Transmission Charges

Quoted Transmission Charges: Rs. 5210.71 Million

Proportionate Transmission Charges payable for each Element of the Project:

Sl. No.	Name of the Transmission Element	Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project	Element(s) which are pre-required for declaring the commercial operation (COD) of the respective Element
1.	Establishment of 5x500 MVA, 400/220 kV S/s at Ryapte in Tumkur District along with 2x125MVAr 400 kV Bus Reactors • 400/220 kV ICTs: 5 Nos. (5x500 MVA) • 400 kV ICT Bays: 5 Nos. • 400 kV Line bays (along with space provision for switchable line reactors) : 2 Nos. • 125 MVAr, 420 kV Bus reactor – 2 Nos. • 400 kV Bus reactor bay: 2 Nos • 220 kV ICT Bays: 5 Nos • 220 KV line Bay - 8 No. • 220 kV TBC bay – 2 No. • 220 kV BC bay – 2 No • 220 kV Sectionalization bay: 1 set • 400 kv Bus PT bay- 2 Nos • 220 kv Bus PT bay- 4 Nos Space For Future Provision: • 400/220 KV ICTs - 5 Nos. • 400 KV ICT bay – 5 Nos. • 400 kV Bus Reactor: 3 Nos • 400 kV Bus Reactor bays : 3 Nos • 220 kV ICT Bays: 5 Nos • 220 Kv line bays – 8 Nos • 400 kV Line bays (along with space provision for switchable line reactors) : 4 Nos.	100%	All elements of scheme are required to be commissioned simultaneously as their utilization is dependent on each other.
2.	400kV DC line (Quad moose conductor) from Prop. 400/220 kV Ryapte Sub-station to Prop. 400/220 kV Doddathaggalli S/s.		

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Sl. No.	Name of the Transmission Element	Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project	Element(s) which are pre-required for declaring the commercial operation (COD) of the respective Element
3.	Establishing 3X500 MVA, 400/220kV GIS sub-station at Doddathaggalli (Near Hosakote) along with 2x125 MVAr, 400 kV Bus Reactors. • 400/220 kV ICTs: 3 no. • 400 kV ICT Bays: 3 Nos • 400 kV Line bays : 4 Nos • 125 MVAr, 420 kV Bus reactor – 2 No • 400 kV Bus reactor bay: 2 Nos • 220 kV ICT Bays: 3 Nos • 220 kV Line bays: 6 Nos. • 220 kV BC bay – 1 No • 400 kv Bus PT bay- 2 Nos • 220 kv Bus PT bay- 2 Nos Future Provision: • 400 kV line bays – 4 Nos. • 400/220 kV ICTs - 2 Nos. • 400 kV ICT bays - 2 Nos • 400 kV Bus Reactor: 2 Nos. • 400 kV Bus Reactor bays: 2 Nos. • 220 kV ICT Bays: 2 Nos • 220 kV Line bays: 4 Nos		
4.	400kV DC line (Quad moose conductor) from Kolar S/s to Prop. 400/220 kV Doddathaggalli Sub-station with following works at Kolar S/s:- *One circuit of Kolar – Doddataggalli 400kV (quad) D/c line may be terminated in existing vacant bay no. 415 at Kolar S/s. Other circuit may be terminated in new GIS diameter with 2-CB scheme. This option requires following main elements:* • *Termination of one circuit in the spare 400kV AIS bay no. 415 by providing required bay equipment to complete the 400kV Dia (413.414 and 415 bays)*		

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Sl. No.	Name of the Transmission Element	Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project	Element(s) which are pre-required for declaring the commercial operation (COD) of the respective Element
	• *Construction of 2 nos. 400kV outdoor GIS bays in 2 CB configuration for termination of other circuit* • *Extension of 400kV Main Bus-I and II through GIB duct to proposed 400kV outdoor GIS bays with AIS isolators* • *Dismantling and re-erection of one no. LM ,if required* Further, any requirement suggested by substation owners shall be followed as per site condition.		
5.	220kV DC line with Single Zebra and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions) from proposed 400/220 kV Doddathagalli sub-station to 220kV Ekarajapura sub-station with 2 No.s of AIS TB at Ekarajapura S/s with rearrangement/Shifting of existing Bus PT bay Note: The Tower design shall be suitable for TWIN Zebra.		
6.	220kV DC line with partial AAAC Moose and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions), from proposed 400/220 kV Doddathagalli sub-station to proposed 220kV Hosakote New sub-station.		
7.	220kV DC line with Single Zebra and partial 2 runs of 1200 Sq.mm UG cable (based on field conditions) from proposed 400/220kV Doddathagalli to Sarjapura AIS S/s with 2 No.s of outdoor GIS TB at Sarjapura S/s by extending existing AIS bus bar along with AIS isolator Note: The Tower design shall be suitable for TWIN Zebra.		

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Procedure for Calculation of Transmission System Availability

i) Transmission system availability factor for a calendar month (TAFM) shall be calculated by the transmission licensee, got verified and certified by SLDC separately for each voltage level.

The transmission system availability shall be declared as per the formula mentioned below. The transmission elements shall be grouped into following categories for the purpose of calculation of availability of transmission systems.

(a) AC transmission lines: Each circuit of AC transmission line shall be considered as one element.

(b) Inter-Connecting Transformers (ICTs): Each ICT bank (three single phase transformer together) shall form one element.

(c) Static VAR Compensator (SVC): SVC along with SVC transformer shall form one element. However, 50% credit to inductive and 50% to capacitive rating shall be given.

(d) Switched Bus Reactor: Each switched Bus Reactor shall be considered as one element.

ii) The Availability of Transmission system shall be calculated as under:

% System Availability for the system

$$= \frac{o \times AVo + p \times AVp + q \times AVq + r \times AVr}{o + p + q + r} \times 100$$

Where

o is Total number of AC lines.

AVo is Availability of o number of AC lines.

p is Total number of switched bus reactors.

AVp is Availability of p number of switched bus reactors.

q is Total number of ICTs.

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AVq is Availability of q number of ICTs.

r is Total number of SVCs.

AVr is Availability of r number of SVCs.

iii) The weightage factor for each category of transmission elements shall be as under:

(a) For each circuit of AC line - Surge Impedance Loading for Uncompensated line (SIL) multiplied by Circuit Km. (SIL rating for various voltage level and conductor configuration shall be as per the procedure adopted for power system analysis)

(b) For each ICT bank - The rated MVA capacity.

(c) For SVC - The rated MVAR capacity (inductive & capacitive).

(d) For switched Bus reactor - The rated MVAR capacity.

iv) The availability for each category of transmission elements shall be calculated based on the weightage factor, total hours under consideration and non-available hours for each element of that category. The formulae for calculation of Availability of each category of the Transmission elements are as per Enclosure-I.

v) The transmission elements under outage due to following reasons not attributable to the Transmission Licensee shall be deemed to be available:

(a) Shut down to transmission elements availed by other agency/agencies for maintenance or construction of their transmission system.

(b) Manual tripping of line due to over voltage and manual tripping of switched bus reactor as per the directions of RLDC / SLDC.

vi) Outage time of transmission elements for the following contingencies shall be excluded from the total time of the element under period of consideration.

(a) Outage of elements due to acts of God and force majeure events beyond the control of the Transmission Licensee.

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(b) Outage caused by grid incident/disturbance not attributable to the Transmission Licensee, e.g. faults in substation or bays owned by other agency causing outage of the Transmission Licensee's elements, tripping of lines, ICTs, etc. due to grid disturbance. However, if the elements is not restored on receipt of direction from SLDC while normalising the system following grid incident/disturbance within reasonable time, the element will be considered not available for whole period of outage and outage time shall be attributable to the Transmission Licensee.

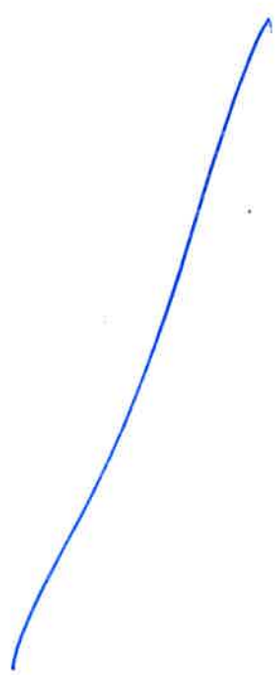
Enclosure-1

AVo (Availability of o no. of AC lines) =

$$\sum_{i=1}^{o} (Wi(Ti - TNAi) / Ti \; / \; \sum_{i=1}^{o} wi$$

AVq (Availability of q no. of ICTs)=

$$\sum_{K=1}^{q} (Wk(Tk - TNAk) / Tk) \; / \; \sum_{k=1}^{q} Wk$$



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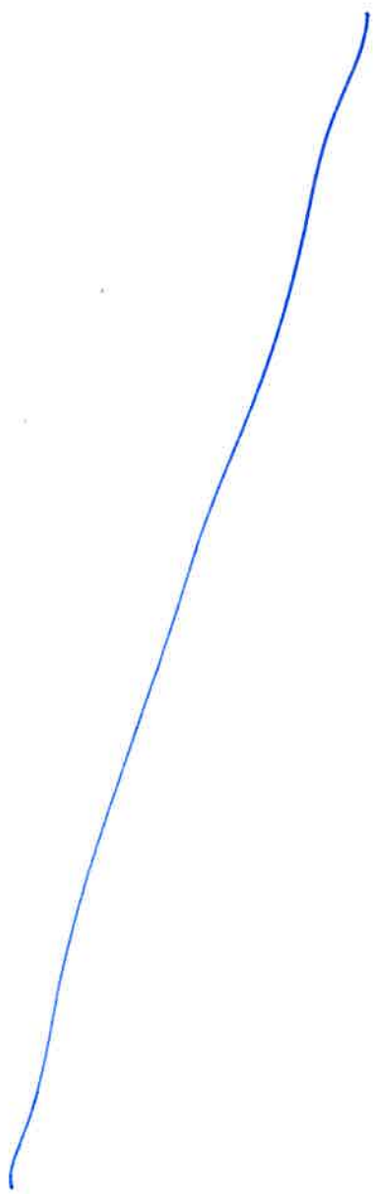
Schedule: 7

Entire Bid (both financial bid and technical bid) of the Selected Bidder to be attached here

Bid dated 06.04.2026 & 16.04.2026 shall be an integral part of this document



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Schedule: 8

Contract Performance Guarantee

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution. Foreign entities submitting Bids are required to follow the applicable law in their country.)

In consideration of the .....[Insert name of the SPV] or Selected Bidder on behalf of the TSP, or Lead Member in case of the Consortium, with address] agreeing to undertake the obligations under the Transmission Service Agreement dated and the other RFP Project Documents and the Nodal Agency and the ... .[Insert the name of the BPC], agreeing to execute the *RFP Project Documents* with the Selected Bidder, regarding setting up the Project, the ..... [Insert name and address of the bank issuing the guarantee and address of the head office] (hereinafter referred to as "Guarantor Bank") hereby agrees unequivocally, irrevocably and unconditionally to pay to ..... (being the Nodal Agency) at.....[Insert the Place from the address of the Nodal Agency indicated in the TSA] forthwith on demand in writing from the Nodal Agency or any Officer authorized by it in this behalf, any amount up to and not exceeding Rupees ..... Crores (Rs. .....) only [Insert the amount of the bank guarantee] on behalf of M/s. ... .[Insert name of the Selected Bidder or SPV].

This guarantee shall be valid and binding on the Guarantor Bank up to and including .....and shall not be terminable by notice or any change in the constitution of the Bank or the term of the Transmission Service Agreement or by any other reasons whatsoever and our liability hereunder shall not be impaired or discharged by any extension of time or variations or alternations made, given, or agreed with or without our knowledge or consent, by or between parties to the respective agreement.

Our liability under this Guarantee is restricted to Rs. ..... Crores (Rs. .....) only. Our Guarantee shall remain in force until ... .[Insert the date of validity of the Guarantee as per Article 3.1.2 of this Agreement]. The Nodal Agency, shall be entitled to invoke this Guarantee up to three hundred sixty five (365) days of the last date of the validity of this Guarantee.

The Guarantor Bank hereby expressly agrees that it shall not require any proof in addition to the written demand from ..... (in its roles as the Nodal Agency), made in any format, raised at the above mentioned address of the Guarantor Bank, in order to make the said payment to Nodal Agency .The Guarantor Bank shall make payment hereunder on first demand without restriction or

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conditions and notwithstanding any objection by ..... [Insert name of the Selected Bidder], ... [Insert name of the TSP] and / or any other person. The Guarantor Bank shall not require Nodal Agency to justify the invocation of this BANK GUARANTEE, nor shall the Guarantor Bank have any recourse against Nodal Agency in respect of any payment made hereunder.

THIS BANK GUARANTEE shall be interpreted in accordance with the laws of India.

The Guarantor Bank represents that this BANK GUARANTEE has been established in such form and with such content that it is fully enforceable in accordance with its terms as against the Guarantor Bank in the manner provided herein.

THIS BANK GUARANTEE shall not be affected in any manner by reason of merger, amalgamation, restructuring, liquidation, winding up, dissolution or any other change in the constitution of the Guarantor Bank.

THIS BANK GUARANTEE shall be a primary obligation of the Guarantor Bank and accordingly Nodal Agency shall not be obliged before enforcing this BANK GUARANTEE to take any action in any court or arbitral proceedings against ... .[Insert name of the SPV] or the Selected Bidder, as the case may be, to make any claim against or any demand on.....[Insert name of the SPV] or the Selected Bidder, as the case may be, or to give any notice to ... .[Insert name of the SPV] or the Selected Bidder, as the case may be, or to enforce any security held by the Nodal Agency or to exercise, levy or enforce any distress, diligence or other process against.....[Insert name of the SPV] or the Selected Bidder, as the case may be.

The Guarantor Bank acknowledges that this BANK GUARANTEE is not personal to Nodal Agency and may be assigned, in whole or in part, (whether absolutely or by way of security) by Nodal Agency to any entity to whom the Nodal Agency is entitled to assign its rights and obligations under the Transmission Service Agreement.

The Guarantor Bank hereby agrees and acknowledges that Nodal Agency shall have a right to invoke this Bank Guarantee either in part or in full, as it may deem fit.

Notwithstanding anything contained hereinabove, our liability under this Guarantee is restricted to Rs. ..... Crores (Rs. .....) only and it shall remain in force until..... [Date to be inserted on the basis of Article 3.1.2 of the Transmission Service Agreement], with an additional claim period of three hundred sixty five (365) days thereafter. This BANK GUARANTEE shall be extended from time to time for such period, as may be desired by ..... [Insert name of the Selected Bidder or Lead Member in case of the Consortium or SPV]. We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only if Nodal Agency serves upon us a written claim or demand.

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In witness where of:

Signature .....

Name: .....

Power of attorney No.: .....

For:

. . . .[Insert Name of the Bank]

Banker's Seal and Full Address, including mailing address of the Head Office

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SCHEDULE: 8A

FORMAT FOR SURETY INSURANCE CONTRACT

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution.

Foreign entities submitting Bids are required to follow the applicable law of India)

In consideration of the ..... [Insert name of the SPV or Selected Bidder on behalf of SPV or Lead Member in case of the Consortium, with address] (hereinafter referred to as the **'Principal Debtor'** for the purposes of this Surety Insurance Contract as provided in Section 126 of the Indian Contract Act, 1872) having been selected to undertake the Transmission Project on the terms and conditions contained in the Transmission Service Agreement dated ...../ to be executed as per the Model Transmission Service Agreement provided along with the Request for Proposal (**'RFP'**) and other RFP Project Documents, subject to the condition of providing a Performance Bank Guarantee or a Surety Insurance Contract guaranteeing/insuring the due performance of the obligations under the Transmission Service Agreement, to the Central Transmission Utility of India Limited (**'CTUIL'**) [herein after referred to as the Nodal Agency], the [Insert name and address of the Insurance Company issuing the Surety Insurance Contract and address of the head office] (hereinafter referred to as **"Surety"**) hereby agrees unequivocally, irrevocably, absolutely and unconditionally, without demur, to pay to the Nodal Agency at _____ [Insert Place and Address of the Nodal Agency indicated in Transmission Service Agreement, or to the designated Bank Account of the Nodal Agency, namely] forthwith on demand in writing from the Nodal Agency, or any Officer authorized by it in this behalf, intimated to the Surety at the address mentioned above, any amount as may be decided by the Nodal Agency not exceeding Rupees .....Crores (Rs.....) only [Insert the amount of the Surety Insurance Contract]

The Surety hereby acknowledges, accepts and confirms that the Surety has received from the Principal Debtor, by way of premium the entire consideration for the Surety to execute, in favour of the Nodal Agency, this Surety Insurance Contract, as extended by the Surety from time to time and assuming the obligation to pay to the Nodal Agency the amount in terms hereof, without any requirement for payment of any other consideration to the Surety by the Principal Debtor, or otherwise.

This Surety Insurance Contract shall be valid and binding on the Surety, as the principal obligation of the Surety to pay on demand by the Nodal Agency, and shall not be terminable by notice or any change in the constitution of the Surety or the term of the Transmission Service Agreement or by any other reasons whatsoever and the liability hereunder of the Surety shall not be impaired or discharged by any extension of time or variations or alternations made, given, or agreed (with or without the knowledge or consent of the Surety) by or between the Principal Debtor and the Nodal Agency.

The liability of the Surety under this Surety Insurance Contract is restricted to Rupees

Karnataka Power Transmission Corporation Limited

C.E.E. (P & C)
KPTCL

Ryapte Power Transmission Limited

Ryapte Power Transmission Limited
New Delhi
110003
Ryapte Power Transmission Limited, Scope Complex-1, Lodhi Road

..... Crores (Rs) only. The Surety Insurance Contract shall remain in force until [Insert the date of validity of the Surety Insurance Contract]. The Nodal Agency shall be entitled to invoke this Surety Insurance Contract up to three hundred sixty five (365) days after the last date of the validity of this Surety Insurance Contract.

The Surety hereby expressly agrees that it shall not require any proof except for the written demand from the Nodal Agency, containing the statement that the contractor has failed to meet its contractual obligations raised at the above mentioned address of the Surety (address of Surety office should be a place in NCR only) and the Surety shall pay the amount without reference to the Principal Debtor.

Any such demand made by the Nodal Agency on the Surety shall be conclusive and binding not withstanding any difference between the Nodal Agency and the Principal Debtor or any dispute pending before any Court, Tribunal, Arbitrator or any other authority. The Surety undertakes not to revoke this guarantee during its currency without previous consent of the Nodal Agency and further agrees that the Surety Insurance Contract herein contained shall continue to be enforceable till the Nodal Agency discharges this contract or till the expiry of tenor (including Claim period) whichever is earlier.

The Surety shall make payment hereunder within two (02) working days on first demand without restriction or conditions and notwithstanding any objection by the Principal Debtor, namely, ... [Insert name of SPV], or [Insert
name of the Selected Bidder], or..... [Insert name of the TSP] and/or any other person.
The Surety shall not require the Nodal Agency to justify the invocation of this Surety Insurance Contract, nor shall the Surety have any recourse against the Nodal Agency in respect of any payment made hereunder.

This SURETY INSURANCE CONTRACT shall be interpreted in accordance with the laws of India.

This SURETY INSURANCE CONTRACT is being executed by the Surety in terms of the IRDAI (Surety Insurance Contract) Guidelines, 2022 and the Surety hereby acknowledges, accepts and confirms that this Surety Insurance Contract shall be a Contract of Guarantee as provided under Section 126 of the Indian Contract Act, 1872 and further shall be covered by Section 14(3)(b) of the Insolvency and Bankruptcy Code, 2016 (as amended) shall be enforceable as such.

The Surety represents that this Surety Insurance Contract has been established in such form and with such content that it is fully enforceable in accordance with its terms as against the Surety in the manner provided herein.

This SURETY INSURANCE CONTRACT shall not be affected in any manner by reason of merger, amalgamation, restructuring, liquidation, winding up, dissolution or any other change in the constitution of the Surety.
In order to give effect to this surety Bond, the Nodal Agency shall be entitled to act as if the surety insurer were the principal debtor and any change in the constitution of the contractor and/or the surety insurer, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the surety insurer under this surety Bond.

This SURETY INSURANCE CONTRACT shall be a primary obligation of the Surety as a Principal

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Ryapte Power Transmission Limited

Ryapte Power Transmission Limited New Delhi 110003 Core-4 Scope Complex-1, Lodhi Road

to pay on demand by the Nodal Agency and the Nodal Agency shall not be obliged before enforcing this Surety Insurance Contract to take any action in any court or arbitra proceedings against the Principal Debtor, namely, ... [Insert name of SPV], or ...[Insert name of the Selected Bidder], or ..[Insert name of the TSP] and/or any other person, as the case may be, to make any claim against or any demand on the Principal Debtor, namely, [Insert name of SPV], or ..... [Insert name of the Selected Bidder], or [Insert name of the TSP] and/or any other person, as the case may be, or to give any notice to Principal Debtor, namely..... [Insert name of SPV], or..... [Insert name of the Selected Bidder], or [Insert name of the TSP] and/or any other person, as the case may be, or to enforce any security held by the Nodal Agency or to exercise, levy or enforce any distress, diligence or other process against the Principal Debtor, namely, ... [Insert name of SPV], or ..... [Insert name of the Selected Bidder], or..... [Insert name of the TSP] and/or any other person, as the case may be.

The Surety acknowledges that this Surety Insurance Contract is not personal to the Nodal Agency and may be assigned, in whole or in part, (whether absolutely or by way of security) by Nodal Agency to any entity to whom the Nodal Agency is entitled to assign its rights and obligations under the Transmission Service Agreement Provided that any such assignment shall be in compliance with the relevant provisions of the Insurance Act 1938

The Surety hereby agrees and acknowledges that the Nodal Agency shall have a right to invoke this Surety Insurance Contract either in part or in full, as it may deem fit. In case of invocation of this Surety Insurance Contract in part, besides making payment for the part of Surety Insurance Contract invoked, surety at the request of Nodal agency shall amend the value of Surety Insurance Contract to the extent of balance amount.

The Surety undertakes not to revoke this Surety Contract during its currency, except with the previous express consent of the Nodal Agency in writing and declares and warrants that it has the power to issue this Surety Contract and the undersigned has full powers to do so on behalf of the Surety

In witness where of:

Signature.....

Name: .....

Power of attorney No/ Employee No. as applicable.: .....

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KPTCL

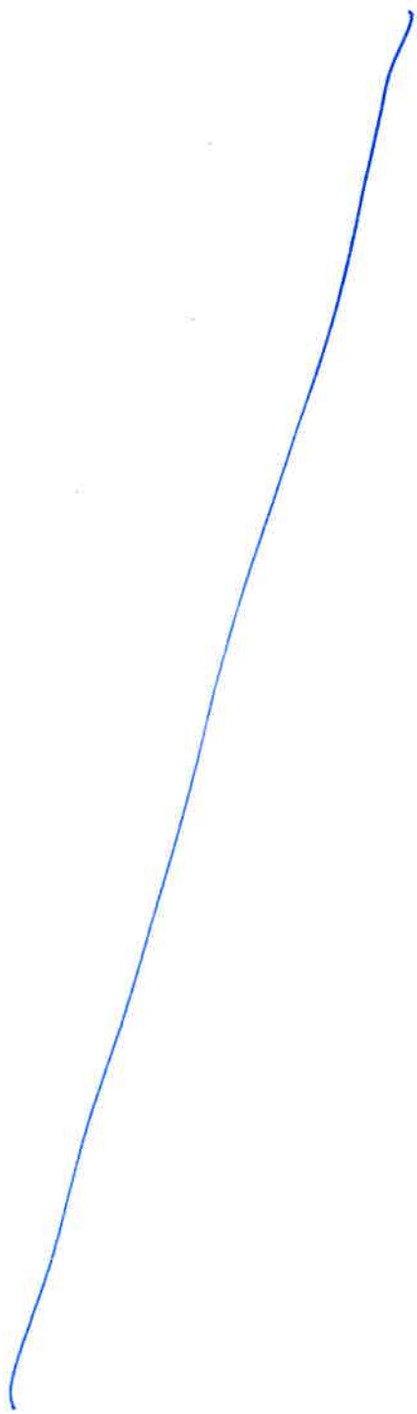
Karnataka Power Transmission Corporation Limited

Ryapte Power Transmission Limited

Ryapte Power Transmission Limited
New Delhi
110003
Plot-4, Scope Complex-7, Lodhi Road

For:

.....[Insert Name of the Surety-Insurance Company]
Banker's Seal and Full Address, including mailing address of the Head Office
Notes:
1. The Stamp Paper should be in the name of the Executing Insurance Company.



Karnataka Power Transmission Corporation Limited
C.E.E. (P & C)
KPTCL-4

Ryapte Power Transmission Limited

Ryapte Power Transmission Limited
New Delhi
110003
C-4, Sappe Complex-1, Lodhi Road

SCHEDULE: 8B

FORMAT FOR ISSUANCE OF PAYMENT ON ORDER INSTRUMENT

Dear Sir,

1. Indian Renewable Energy Development Agency Limited ('IREDA")/PFC/REC has sanctioned a non-fund based limit loan of Rs. (Rupees..... Only) to M/s. .... [Insert name of SPV or selected Bidder] under the Loan Agreement executed on ..... to execute Transmission System Projects.

2. In consideration of the.....[Insert name of the SPV or Selected Bidder on behalf of SPV or Lead Member in case of the Consortium, with address] for the purposes of this Payment on Order Instrument ("POI") having been selected to undertake the Transmission Project on the terms and conditions contained in the Transmission Service Agreement dated / to be executed as
per the draft of the Model Transmission Service Agreement provided along with the Request for Proposal (,,RFP") and other RFP Project Documents, subject to the condition of providing a POI guaranteeing the due performance of the obligations under the Transmission Service Agreement to the Nodal Agency/Central Transmission Utility of India Limited (,,CTUIL"), the.....[Insert name and address of the non-banking financial institutions(IREDA/PFC/REC) issuing the POI and address of the head office] (hereinafter referred to as "Guarantor") hereby agrees unequivocally, irrevocably, absolutely and unconditionally, without demur, to pay to the Nodal Agency at
..... [Insert Place and Address of the Nodal Agency indicated in Transmission Service Agreement, or to the designated Bank Account of the Nodal Agency, namely] forthwith on demand in writing from the Nodal Agency, or
any Officer authorized by it in this behalf, intimated to the Guarantor at the address mentioned above, any amount as may be decided by the Nodal Agency not exceeding Rupees Crores (Rs) only [Insert the amount
of Payment on Order Instrument]

3. At the request of .....and on behalf of M/s. ....., [Insert name of SPV or selected Bidder] this Payment on Order Instrument (POI) for an amount of Rs. .....
(Rupees .....) is being issued with IREDA/PFC/REC assuming the obligations to remit such amount to CTUIL from the sanctioned loan.

4. This Payment on Order Instrument comes into force immediately and IREDA/PFC/REC confirms that it has sufficient amount out of the sanctioned loan and shall maintain the required amount to pay under this Payment on Order Instrument, during the validity and claim period of this Payment on Order Instrument.

   This POI has been issued by IREDA/PFC/REC utilizing the credit limit of M/s.....[Insert name of SPV or selected Bidder] IREDA/PFC/REC confirms that its liability to pay under this Payment on Order Instrument shall be primary and

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New Delhi
110003

independent of whether at the time of invocation of Payment on Order Instrument, the sanctioned funds are available or not and notwithstanding, the status of M/s [Insert name of SPV or selected Bidder] at the relevant time and to whether IREDA/PFC/REC is able to recover the amount advanced by it to the said developer.

5. IREDA/PFC/REC and M/s .....[Insert name of SPV or selected Bidder] hereby acknowledges, accepts and confirms that this Payment on Order Instrument shall be a Contract of Guarantee as provided under Section 126 of the Indian Contract Act, 1872 and further shall be covered by Section 14(3)(b) of the Insolvency and Bankruptcy Code, 2016 (as amended) shall be enforceable as such.

6. IREDA/PFC/REC liability under this POI is restricted to Rupees Crores (Rs.....) only. This POI shall remain in force until.....[Insert the date of validity of the POI]. The Nodal Agency shall be entitled to invoke this POI up to three hundred sixty-five (365) days after the last date of the validity of this POI. This POI shall be extended from time to time for such period, as may be desired by the TSP.

7. The Guarantor hereby expressly agrees that it shall not require any proof except for the written demand from the Nodal Agency, raised at the above- mentioned address of the Guarantor (address of Guarantor office should be in NCR only) and the Guarantor shall pay the amount to the Nodal Agency without reference to the TSP.

8. Any such demand made by the Nodal Agency on the Guarantor shall be conclusive and binding not withstanding any difference between the Nodal Agency and the TSP or any dispute pending before any Court, Tribunal, Arbitrator or any other authority. The Guarantor undertakes not to revoke this guarantee during its currency without previous consent of the Nodal Agency and further agrees that the POI herein contained shall continue to be enforceable till the Nodal Agency discharges this contract or till the expiry of tenure or (including Claim period) whichever is earlier.

9. The Guarantor shall make payment hereunder within two (02) working days on first demand without restriction or conditions and notwithstanding any objection or disputes raised by the TSP, namely, [Insert name of SPV], or [Insert name of the Selected Bidder], or [Insert name of the TSP] and/or any other person. The Guarantor shall not require the Nodal Agency to justify the invocation of this POI, nor shall the Guarantor have any recourse against the Nodal Agency in respect of any payment made hereunder.

10. This POI shall be interpreted in accordance with the laws of India.

11. The Guarantor represents that this POI Contract has been established in such form and with such content that it is fully enforceable in accordance with its terms as against the Guarantor in the manner provided herein.

12. This POI shall not be affected in any manner by reason of merger, amalgamation, restructuring, liquidation, winding up, dissolution or any other change in the constitution of the Guarantor.

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Ryapte Power Transmission Limited
Ryapte Power Transmission Limited New Delhi 110003 Scope Complex-7, Lodhi Road

13. This POI Contract shall be a primary obligation of the Guarantor as a Principal to pay on demand by the Nodal Agency and the Nodal Agency shall not be obliged before enforcing this POI Contract to take any action in any court or arbitral proceedings against the TSP, namely, ...[Insert name of SPV], or..... [Insert name of the Selected Bidder], or [Insert name of the TSP] and/or
any other person, as the case may be to make any claim against or any demand on the TSP, namely, ... [Insert name of SPV], or ..... [Insert name of the Selected Bidder], or [Insert name of the TSP] and/or any other person, as
the case may be, or to give any notice to TSP, namely [Insert name of SPV],
or ..... [Insert name of the Selected Bidder], or ..... [Insert name of the TSP] and/or any other person, as the case may be, or to enforce any security held by the Nodal Agency or to exercise, levy or enforce any distress, diligence or other process against the TSP, namely, ... [Insert name of SPV], or ..... [Insert name of the Selected Bidder], or[Insert name of the TSP] and/or
any other person, as the case may be.

14. The Guarantor acknowledges that this POI Contract is not personal to the Nodal Agency and may be assigned, in whole or in part, (whether absolutely or by way of security) by Nodal Agency to any entity to whom the Nodal Agency is entitled to assign its rights and obligations under the Transmission Service Agreement.

15. The Guarantor hereby agrees and acknowledges that the Nodal Agency shall have a right to invoke this POI Contract either in part or in full, as it may deem fit. In case of invocation of this POI Contract in part, besides making payment for the part of POI Contract invoked, Guarantor at the request of Nodal Agency shall amend the value of POI Contract to the extent of balance amount.

IN WITNESS WHERE OF the non- banking financial institutions through its authorized officer, has set its hand and stamp on this..... day of.....at.....

Signature .....

Name:

Power of attorney No.:

..... For:

..... [Insert Name of the non- banking financial institutions Company]

Seal and Full Address, including mailing address of the Head Office

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Karnataka Power Transmission Corporation Limited

Ryapte Power Transmission Limited

Ryapte Power Transmission Limited
New Delhi 110003
Core-4, Scope Complex-7, Lodhi Road

Schedule: 9

Methodology for determining the Relief Under Force Majeure Event & Change in Law during Construction Period

The relief in the form of revision in tariff due to Force Majeure Event leading to extension of Scheduled COD for a period beyond one hundred eighty (180) days and/ or Change in Law during the construction period shall be as under:

$\Delta T = [(P \times d)] \div [1-(1+ d)^{(-n)}]$

Where,

ΔT = Change in Transmission Charges for each year

P = Sum of cumulative increase or decrease in the cost of the Project due to Change in Law and interest cost during construction corresponding to the period exceeding one hundred eighty (180) due to Force Majeure Event leading to extension of Scheduled COD for a period beyond one hundred eighty (180) days

n = number of years over which the Transmission Charges has to be paid

d = Discount rate as notified by the KERC, applicable on the Bid Deadline, in case KERC notification is not available, then Discount rate shall be as per CERC.

The increase in Transmission Charges as stated above shall be applicable only if the value of increase in Transmission Charges as calculated above exceeds 0.30% (zero point three percent) of the quoted Transmission Charges of the TSP.

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REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited, a 'Maharatna CPSE' under Ministry of Power, Govt. of India)

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Annexure P-31

Ref. No.: RECPDCL/TBCB/Ryapte/2026-27/2132

Date: 30.07.2026

M/s The Tata Power Company Limited,
B-12/13, 2nd Floor, Shatabdi Bhawan,
Sector-04, Noida, UP - 201301

Kind Attention: Shri Rajat Uprety

Sub: Handing over documents in respect of "Evacuation Scheme for 2000 MW solar park at Ryapte Village, Tumkur District"

Dear Sir,

Pursuant to Letter of Intent (LoI) issued on 17.06.2026, and handing over of SPV (Ryapte Power Transmission Limited) on 30.06.2026 to M/s The Tata Power Company Limited, please find attached the following documents for record and reference:

I. Original Certificate issued by the Bid Evaluation Committee in accordance with the "Tariff Based Competitive Bidding Guidelines for Transmission Service".
II. One original Transmission Service Agreement (TSA) duly signed between Karnataka Power Transmission Corporation Limited (KPTCL) and Ryapte Power Transmission Limited, witnessed by the representatives of RECPDCL.
III. Copy of Govt. order No. Energy 73 PPT 2024, Bengaluru, dated 04.03.2025 regarding allocation of the project i.e., "Evacuation Scheme for 2000 MW solar park at Ryapte Village, Tumkur District" to REC Power Development and Consultancy Limited to acting as Bid Process Coordinator (BPC).
IV. Copy of letter dated 08.10.2025 to obtain approval from Govt. of Karnataka & approval dated 05.06.2026 for Laying of overhead transmission Lines under section 68 of the Electricity Act from Govt. of Karnataka.
V. Copy of Letter dated 11.03.2026 to KERC & Govt. of Karnataka in regard to initiation of the bid process for the subject transmission scheme.
VI. Newspaper cuttings along with copies of NIT.
VII. Copy of Govt. order No. Energy 73 PPT 2024, Bengaluru, dated 20.01.2025 regarding nomination of Bid Evaluation Committee members for subject project.
VIII. Copy of approval of Ministry of Power for sale & transfer of SPV i.e., Ryapte Power Transmission Limited.
IX. Original acknowledged Letter dated 16.09.2025 written to The Conservator of Forest, Kamagondanahalli, Bangalore for Forest Clearance.

You are requested to kindly acknowledge the receipt of above-mentioned documents.

Thanking you

Yours Faithfully,

30.07.26

Rathesh Kumar
GM (Engineering)

Encl.: As above

REC Power Development and Consultancy Limited
(A wholly owned subsidiary of REC Limited, a 'Maharatna CPSE' under Ministry of Power, Govt. of India)

Annexure P-32

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REC Power Development

संदर्भ संख्या: आरईसीपीडीसीएल/टीबीसीबी/Ryapte/2026-27/2134 **दिनांक**: 30.07.2026

M/s The Tata Power Company Limited
B-12/13, 2nd Floor, Shatabdi Bhawan,
Sector-04, Noida, UP - 201301

सादर ध्यानाकर्षण: श्री रजत उप्रेती

Subject: "Evacuation Scheme for 2000 MW solar park at Ryapte Village, Tumkur District" through tariff based competitive bidding process – **Extension of LoI-** regarding.

Ref.: Letter of Intent (LOI) No. RECPDCL/TBCB/Ryapte/2026-27/1250, dated 17.06.2026

Sir,

This is in reference to above referred Letter of Intent dated 17th June, 2026 issued to M/s The Tata Power Company Limited for "Evacuation Scheme for 2000 MW solar park at Ryapte Village, Tumkur District".

In this regard, in accordance with clause 2.15.2 of RFP, the validity of LoI is extended till 30.07.2026 (i.e., date of SPV transfer).

Further, as per clause 2.15.4 of RFP, the TSP shall apply to the Commission for grant of Transmission License and make an application to the Commission for adoption of Transmission Charges, as required under Section – 63 of the Electricity Act 2003, within 5 working days from the date of acquisition of SPV i.e. by 06.08.2026.

धन्यवाद।

भवदीय,
30.07.26
रत्नेश कुमार
महाप्रबंधक (इंजीनियरिंग)

Copy to:

1. **The Additional Chief Secretary (Energy) to Government,** Room No. 236, 2nd Floor, Vikasa Soudha, Dr B.R Ambedkar Street, Bangalore - 560 001
2. **The Secretary, KERC,** No 16C-1, Millers Road, Kaverappa Layout, Vasantha Nagar, Bengaluru Karnataka 560052
3. **The Managing Director, KPTCL**, Indhana Bhavan, Nehru Nagar, Seshadripuram, Bengaluru, Karnataka 560001

Annexure P-33

Karnataka Electricity Regulatory Commission
e-Receipt

Receipt No. : OR/129/2026	**Date :** 29/07/2026 17:12:15
Name : Anand Kumar Shrivastava	**Purpose :**
Payment Ref No. : KERC260700001136	**Payment Mode :** NEFT/RTGS
Amount: Rs.2500000.00 (TWENTY FIVE LAKHs)	**Bank Ref No :** HDFCH01167532156

This is a computer generated e-Receipt and does not require any signature

1082

EFORE THE KARNATAKA ELECTRICITY REGULATORY COMMISSION AT BANGALORE

PETITION NO. OF 2026

IN THE MATTER OF:

Petition under Section 63 of the Electricity Act, 2003 seeking adoption of Transmission Charges of the Intra State Transmission Project i.e., *Evacuation Scheme for 2000 MW Solar Park at Ryapte Village, Tumkur District*"

AND

IN THE MATTER OF:

Ryapte Power Transmission Limited
Through its Authorised Representative
Plot No 181, Ground Floor,
Block- K, Mangolpuri, Delhi-110083 ... Petitioner

VERSUS

1. Karnataka Power Transmission Corporation Limited (KPTCL)
Through its Managing Director
Kaveri Bhawan, Bengaluru Karnataka
Email: fara@kptcl.org ...Respondent No. 1

2. REC Power Development and Consultancy Limited
Through Chief Executive Officer
Core 4, SCOPE Complex 7,Lodhi Road, New Delhi 110003
Email: tbcb@recpdcl.in ...Respondent No. 2

VAKALATNAMA

I, Shantanu Singh authorized signatory of the Petitioner Company i.e. Ryapte Power Transmission Limited in the above petition do hereby appoint:

Anand Kumar Shrivastava, Shruti Kanodia, Shivam Sinha, Ishita Jain, Rishabh Dua, Nilesh Panda, Ravi Nair, Amrita Bakhshi, Ankit Bhandari, Chetan Saxena, Mudassir, Suryaprava Basu, Ekshat Punwani, Mani Aneja, Kshitij Ujala,Janhavi Johar, Nirbhay Talwar, Sejal Gupta and Anuj Kulhar of Sagus Legal to appear, plead and act for me/us in the above petition and to conduct and prosecute all proceedings that may be taken in

NOTARY GOVT. OF INDIA

Ryapte Power Transmission Limited

1083

respect thereof and applications for return of documents, enter into compromise and to draw and moneys payable to me/us in the said proceeding.

Place: New Delhi
Date 06-08-2026

Signature of the Party
Petitioner
Ryapte Power Transmission Limited

Executed in my presence
Accepted

[Anand Kumar Shrivastava]
SAGUS LEGAL
Counsel for the Petitioner
B-7/8, Ground Floor, Safdarjung Enclave, New Delhi-110029
Email: service@saguslegal.com
Phone No. 011-46552925
Mob No. 9910892925

Anand Kumar Shrivastava MP/2818/2009	Shruti Kanodia D/1857/2008	Shivam Sinha D/371/2015	Ishita Jain D/1461/2015	Rishabh Dua D/2289/2017
Nilesh Panda PH/1106/2020	Ravi Nair D/2338/2020	Amrita Bakhshi D/1946/2021	Ankit Bhandari D/10977/2021	Chetan Saxena D/5781/2021
Mudassir D/6708/2022	Suryaprava Basu D/5020/2022	Ekshat Punwani D/12104/2023	Mani Aneja D/2944/2024	Kshitij Ujala D/2028/2025
Janhavi Johar D/10292/2025	Nirbhay Talwar D/15903/2025	Sejal Gupta D/16526/2025	Anuj Kulhar D/459/2026	

ATTESTED
NOTARY PUBLIC
06 AUG 2026

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RYAPTE POWER TRANSMISSION LIMITED

Registered Office: Plot No. 181, Ground Floor, Block – K, Mangolpuri, Delhi – 110083
CIN: U42202DL2025GOI448817• Tel.: 022- 6717 2858 • Email ID: bpmehta@tatapower.com

Certified True Copy of the Resolution passed at the Board Meeting held on July 30, 2026

"RESOLVED that Mr. Shantanu Singh, Group Head - Legal, The Tata Power Company Limited, (Authorised Representative) be and is hereby authorised on behalf of the Company, to do the following acts, deeds, matters and things in connection with the issues related to legal matters:

1. To commence any action or legal proceedings in any court of law and to defend for and on behalf of the Company all actions, suits, proceedings, applications or appeals arising under the provisions of the Electricity Act, 2003 (including the rules & regulations issued thereunder), and for such purposes to retain Advocates, Attorneys, Counsels and other legal practitioners, and appear for and represent the Company before Judge, Magistrate, tribunal, regulatory commission or any other public authority constituted under the Electricity Act, 2003 (including the rules and regulations issued thereunder), as occasion shall require, and thereupon to make any application, affidavit, petition including the signing of any appeal, revision, application or other document that may be required by the abovementioned authorities, or to do, execute and performs such acts, deeds, matters and things and shall be requisite or expedient according to law and in the interest of the Company. In addition to the matters concerning Electricity Act, 2003 as stated above, to commence any actions or legal proceedings in any court of law, including Arbitral Tribunal, High Court(s), Supreme Court of India and any other judicial forums in relation to matters related to Arbitration, Environmental Laws, filing of writ petitions, etc.

2. To commence any action or legal proceedings in any Court of law including any judicial/ quasi-judicial authority or institution, Regulatory Commission/Tribunal constituted under any Special Act and/or any of its Appellate forums, and to defend for and on behalf of the Company all actions including but not limited to Petitions, Suits, Writs or any other proceedings, applications or appeals arising under the various provisions of the Law/Act/ Rules/Regulations, etc as may be applicable and for such purposes to retain. Advocates, Attorneys, Counsels and other legal practitioners, and to appear for and represent the Company before any Court or judicial/quasi-judicial forums, Regulatory Commission/ Tribunal or any other public authority constituted under applicable Law/act including the rules and regulations issued thereunder), as occasion shall require, and thereupon to make any application, affidavit, petition or any other pleadings, documents including the signing and execution of such or any other documents as may be required by the abovementioned authorities/bodies or to do execute and performs such acts, deeds, matters and things and shall be requisite or expedient according to law and/or in the interest of the Company.

3. To do and execute or cause to be done and executed all documents and assurances, acts, deeds, matters or things ancillary or incidental to the abovementioned matters and all and whatsoever the Authorised Representative shall do or cause to be done in or about the premises by virtue of the aforesaid powers or any of them, the Company doth hereby for itself, its successors and assigns covenant with the said Mr. Singh, his heirs, executors and administrators to allow, ratify and confirm.

4. Generally to do and execute all acts, matters, instruments and things in or about the business of the Company as the Company could do or would have done touching these premises and that as amply and effectually to all intents and purposes as the Company could do or would have done, the Company hereby ratifies and confirms and agrees to ratify and confirm all and whatsoever the said Authorised Representative shall lawfully do or cause to be done in and about the premises by virtue of these presents."

Certified True Copy
For **Ryapte Power Transmission Limited**

Ryapte Power Transmission Limited

Nilesh N. Kane
Additional Director
DIN: 09216070

Plot No. 181, Ground Floor,
Block – K, Mangolpuri, Delhi – 110083

Date: July 31, 2026