The Tata Power Company Ltd	TATA POWER	*OPEN TENDER NOTIFICATION*
Tender Reference: ***CC27AAM008***		*Document Date:* ***26th May 2026***

The Tata Power Company Limited Invites Tender through E-Tender Two-Part Bidding Process from interested bidders for the following package: -

A. Summary of the tendered package:

Sr. No.	Description	Tender Reference no.	Bid Guarantee Fee / EMD (Rs.)	Tender Fee (Rs.)	Last Date and Time for bid submission
For the following package please send mail to Ms. Ayesha Abbas Mujawar (ayesha.mujawar@tatapower.com) with copy to Mr. Rameshkumar P N (pnramesh@tatapower.com).					
1.	1 year OLA for supply of CTPT for Mumbai Distribution	CC27AAM008	130000/-	2,000 /-	16th June 2026

B. Procedure to Participate in Tender.

Following steps to be done before "Last date and time for Payment of Tender Participation Fee" as mentioned above

1. Non-Refundable Tender Fee, as indicated in table above, to be submitted in the form of

Direct deposit in the following bank account and submit the receipt along with a covering letter clearly indicating the Tender Reference number –

Beneficiary Name – The Tata Power Co. Ltd.

Bank Name – HDFC Bank Ltd.

Branch Name – Fort Branch, Mumbai

Address – Maneckji Wadia Building, Nanik Motwani Marg, Fort, Mumbai 400023.

Branch Code – 60

Bank & Branch Code – 400240015

Account No – 00600110000763

Account type – CC

IFSC Code – HDFC0000060

2. Eligible and Interested Bidders to submit duly signed and stamped letter on Bidder's letterhead indicating

Tender Enquiry number

Name of authorized person

Contact number

e-mail id

Details of submission of Tender Participation Fee

E-mail with necessary attachment of 1 and 2 above to be send to ayesha.mujawar@tatapower.com with copy to pnramesh@tatapower.com before "Last date and time for Payment of Tender Participation Fee"

Interested bidders to submit Tender Participation Fee and Authorization Letter before Last date and time as indicated above after which link from Tata Power E-Tender system (Ariba) will be shared for further communication and bid submission.

Please note all future correspondence regarding the tender, bid submission, bid submission date extension, Pre-bid query etc. will happen only through Tata Power E-Tender system (Ariba).

No e-mail or verbal correspondence will be responded. All communication will be done strictly with the bidder who have done the above step to participate in the Tender.

Also it may be strictly noted that once date of "Last date and time for Payment of Tender Participation Fee" is lapsed no Bidder will be sent link from Tata Power E-Tender System (Ariba). Without this link vendor will not be able to participate in the tender. Any last moment request to participate in tender will not be entertained.

Any payment of Tender Participation Fee by Bidder who have not done the pre-requisite will not be refunded.

Also all future corrigendum's to the said tender will be informed on Tender section on website https://www.tatapower.com only.

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OPEN TENDER NOTIFICATION

FOR

CC27AAM008-1 year OLA for supply of CTPT for Mumbai Distribution

The Tata Power Company Limited (Tata Power)
Smart Center of Procurement Excellence,2nd Floor,
Sahar Receiving Station, Near Hotel Leela,
Sahar Airport Road, Andheri East, Mumbai-400059

Section A : Tender Notice including Instruction to Bidders

1. Tender Details

1.1 Key Tender Specific Details

Reference Number	**CC27AAM008**
Description	**1 year OLA for supply of CTPT for Mumbai Distribution**
Type of Tender	**Outline Agreement**
Estimated Period	**1 year**
Tender Fee	**Rs 2000/-**
Earnest Money Deposit (EMD)	**Rs 1,30,000/-** **Rs. One lakh thirty thousand Only**
Price Basis	**Firm Price**
Executive Handling this Tender*	Name: Ms. Ayesha Abbas Mujawar E-Mail ID: ayesha.mujawar@tatapower.com
Technical Query *	Name: Mr. Pote .R.R E-mail id- rrpote@tatapower.com

*You may contact the above personnel from Monday to Friday during office hours only.

1.2 Calendar of Events

(a)	Payment of Tender Fee and Submission of letter nominating authorized person by Interested Bidder indicating their intent to Buy Tender	Till 2nd June 2026
(b)	Access to Tender Documents through E-Tender system to authorized person of Interested Bidder	2nd June 2026
(c)	Last Date of receipt of pre-bid queries, if any.	6th June 2026
(d)	Last Date of Posting Consolidated replies to all the pre-bid queries as received	8th June 2026
(e)	Last date and time of receipt of Bids	16th June 2026

Note:- * These date and time are as planned and tentative. In case of change the same shall be intimated to Authorized Person of Interested Bidder through E-Tender System.

Please note post submission of Bids relevant communication will be done with Authorized Person of Interested Bidder through E-Tender System

1.3 Mandatory documents required along with the Bid

1.3.1 Bid Guarantee Fee (EMD) of requisite value and validity. PLEASE NOTE THAT BID GUARANTEE ONLY IN FORM OF BANK GUARANTEE WILL BE ACCEPTED.

1.3.2 Requisite Documents to ascertain fulfilling of Technical and Commercial Pre-Qualification Requirement as detailed in Tender Enquiry.

1.3.3 Technical Submission including Drawings, Type Test details etc as detailed in Technical Specification.

1.3.4 Required Commercial Submission as detailed in Tender Document

1.3.5 Technical and Commercial Clarification and Deviations as per the format attached in the Tender Enquiry

1.3.6 Proper authorization letter to sign the tender and participate in Tata Power E-Tender system on the behalf of bidder.

1.3.7 **For vendor not registered with Tata Power, Duly filled Vendor Registration form with all supporting documents is mandatory to participate in the Tender**.

Please note that in absence of any of the above documents, the bid submitted by a bidder shall be liable for rejection.

Also please note that whenever editable format are shared it is requested that data be filled in relevant cells. No formatting or addition / deletion of rows / columns to be done. Wherever editable Excel submission are requested the file should be free from references, macros etc.

Checklist of Document Submission

Stage of Tendering	Document	Type of Format	Mode of submission
Before last date of Pre-Bid Query	Query / Clarification / Deviation (QCD) Format. (F1) Technical and Commercial	Editable Excel Format	Through message in E-tender system
Bid Submission Envelope 1 (First Part)	**Earnest Money Deposit**	**Original Bank Guarantee**	**In Sealed Envelope**
Bid Submission Envelope 2 (Second Part)	**Documents to be uploaded in Ariba only.** In case of multiple files, a zipped folder can be attached for the same (size limit of 100MB per zipped file)		
To be submitted Under Tab 2.1 in Ariba	Duly filled PQR and supporting documents		
	Duly filled PQR format	Editable Excel Format	E-Tender System
	Backup documents for Technical and Commercial PQR	Signed and Scanned documents	E-Tender System
To be submitted under Tab 2.2 in Ariba	Technical Submission and Supporting Documents		
	Duly filled Unpriced Bid Format. Signed copy of Technical Specifications indicating your acceptance of the same	Signed and scanned copy of document	E-Tender System
To be submitted under Tab 2.3 in Ariba	Commercial Submission and supporting document		

	Letter of Undertaking (FOR VENDORS NOT REGISTERED WITH TATA POWER)	Scanned Copy of letter of undertaking duly filled, stamped and signed	E-Tender System
	E-auction Undertaking form	Scanned Copy of letter of undertaking duly filled, stamped and signed	E-Tender System
Bid Submission Envelope 3 (Third Part)	**Duly filled Priced Bid Format**	Hard copy in original duly signed and stamped	**Sealed Envelope**
	Duly filled Priced Bid Format	To be entered in E-Tender System	E-Tender System

1.4 Deviation from Tender

Normally, the deviations to tender terms are not admissible and the bids with deviation are liable for rejection. Hence, the bidders are advised to refrain from taking any deviations on this Tender. Still in case of any deviations, all such deviations shall be set out by the Bidders, clause by clause in the Query / Clarification / Deviation (QCD) Format. Deviations have to be mandatorily submitted in editable Excel sheet.

Technical or Commercial Deviation should be mentioned in Deviation Format only. Deviation in any other document or Format will not be considered.

1.5 Right of Acceptance/Rejection

1.5.1 Bids are liable for rejection in absence of following:-
1.5.2 Mandatory Documents as listed in 1.3 above
1.5.3 Price Bid as per the Price Schedule mentioned in Tender Document
1.5.4 Receipt of Bid and Response to queries within the due date and time

Tata Power reserves the right to accept/reject any or all the bids without assigning any reason thereof.

1.6 Qualification Criteria

Sr no	Parameter	Tata Power Requirement	Documents To be submitted by Bidder to ascertain meeting of Pre-qualification requirement
1	Infrastructure	Bidder must be an OEM of Equipment with manufacturing facility / assembly in India. The bidder must have in-house routine and acceptance testing facilities for acceptance as per relevant IS/IEC	Self-undertaking to be submitted in this regard. TATA Power reserves the right to inspect the said manufacturing facility as a proof of compliance to this parameter.
2	Supply and Experience	The bidder must have supplied for same or higher size and voltage a) A minimum of 40 nos CTPT Units during last 3 years or b) A single order of 20 nos or c) Two orders of 12 nos last 3 years. Indian Subsidiaries of global companies having plant in India are also eligible to bid if the qualification requirements stated above are met independently or in combination with the parent company. Declaration from parent company needs to be submitted.	Purchase Order Copies and Completion Certificates. Self-undertaking to be submitted in this regard Declaration from parent company needs to be submitted. TATA Power reserves the right to inspect the said manufacturing facility as a proof of compliance to this parameter.
3	Performance	The bidder should have performance certificates for 2 year satisfactory performance from at least 2 reputed Distribution Utilities for equipments of similar or higher rating. The work against these issued certificates should be completed in last seven years from the date of bid submission. In case the bidder has a previous association with any of Tata Power Groups for similar products and services, the performance feedback for that bidder by Tata Power User Group shall only be considered irrespective of performance certificates issued by any third organization.	Supply List & Performance Certificates from the utilities
4	Commercial Capability	Average Annual turnover of the bidder for last three years shall not be less than Rs 1.2 Crs	Copy of audited Balance Sheet and P&L Account along with UDIN number to be submitted in this regard.
5	Type Test	The bidder shall submit Type test reports	Type Test Report.

		obtained from CPRI/ERDA/NABL/ International Accredited Lab for the equipment / material offered. The type tests should have been conducted on the equipment / material of the same design. The type tests should have been conducted within 5 years prior to the date of bid opening. Time period for type test can be extended by another 5 years as a special case, if there is no change in design / material of construction (MOC). In case the type test reports furnished are not for the quoted equipment / material but for the equipment / material with higher voltage class and/or different capacity, then type test shall be carried out for the offered equipment / material from CPRI/ERDA/NABL/ International Accredited Lab without any cost implication to the owner and the Type Test reports shall be submitted	Undertaking that there is no change in design / material of construction (MOC) if Type Test Report older than 5 years. Type test reports for the offered equipment / material from CPRI/ERDA/NABL/ International Accredited Lab without any cost implication to the owner and the Type Test reports shall be submitted along with BID.

1.7 Pre-Bid Queries

Technical or Commercial Pre-Bid Queries if any has to be sent through message in E-Tender System. Pre-Bid Query has to be sent only in the Query / Clarification / Deviation (QCD) Format. Pre-Bid Queries sent in any other format or send through any other communication channel will not be accepted and answered. Pre-Bid Query have to be sent in the stipulated timeline as defined in the Tender Document. No Pre-Bid Query will be accepted after the due time and date as specified as "Last Date of receipt of pre-bid queries, if any"

1.8 Marketing Integrity

We have a fair and competitive marketplace. The rules for bidders are outlined in the General Condition of Contracts and other parts of Tender Documents. Bidders must agree to these rules prior to participating. In addition to other remedies available, Tata Power reserves the right to exclude a bidder from participating in future markets due to the bidder's violation of any of the rules or obligations contained in the General Condition of Contracts or other part of the Tender Documents. A bidder who violates the market place rules or engages in behavior that disrupts the fair execution of the marketplace, may result in restriction of a bidder from further participation in the marketplace for a length of time, depending upon the seriousness of the violation. Examples of violations include, but are not limited to:

- Failure to honor prices submitted to the marketplace
- Breach of terms as published in TENDER

- Submit irrelevant documents or frequently cases of missing documents as part of compliance to Qualifying, Technical or Commercial Requirements causing unnecessary delay in Tender Evaluation

1.9 Supplier Confidentiality

All information contained in this tender is confidential and shall not be disclosed, published or advertised in any manner without written authorization from Tata Power. This includes all bidding information submitted to Tata Power. All tender documents remain the property of Tata Power and all suppliers are required to return these documents to Tata Power upon request. Suppliers who do not honor these confidentiality provisions will be excluded from participating in future bidding events.

1.10 Payment Terms

100% payment shall be made within **60 days** (45 days for MSME) from the receipt and acceptance of the material at the Consignee Stores/Site/Location as per the Contractual Terms and Conditions.

2. Evaluation Criteria

- The bids will be evaluated technically on the compliance to tender terms and conditions.
- The bids will be evaluated commercially on the overall all-inclusive lowest cost for the complete tender BOQ / each line item as calculated in Schedule of Items. Tata Power however, reserves right to split the order line item wise and/or quantity wise among more than one Bidder. Hence all bidders are advised to quote their most competitive rates against each line item.
- Bidder has to mandatorily quote against each item of Schedule of Items. Failing to do so, Tata Power may reject the bids.

NOTE: In case of a new bidder not registered with Tata Power, factory inspection and evaluation shall be carried out to ascertain bidder's manufacturing capability and quality procedures. However Tata Power reserves the right to carry out factory inspection and evaluation for any bidder prior to technical qualification. In case a bidder is found as Disqualified in the factory evaluation, their bid shall not be evaluated any further and shall be summarily rejected. The decision of Tata Power shall be final and binding on the bidder in this regard.

2.1 Price Variation (PV) Clause: .

Firm Price.

3.1 Bid Submission

Bidders are requested to submit their offer in line with this Tender document. Bids shall be submitted in 3 (three) parts:

FIRST PART: "EMD – BANK GUARANTEE" of Value detailed in 1.1 valid for 180 days from the due date of bid submission in the form of Bank Guarantee favoring 'The Tata Power Company Limited'. The EMD has to be strictly in the format as mentioned in Tender Document, failing which it shall not be accepted by Tata Power and the bid as submitted shall be liable for rejection.

Note : BG of 180 days and further claim period of 180 days is needed. In case the same cannot be issued by your bank then BG valid for 365 days can be provided.

Note : At times bidders have sought Tata Power bank details which is needed by them to make BG. Hence the same is reproduced below. These details are only provided to facilitate making of BG if needed:

Tata Power's Bank Details for submitting EMD BG:

Bank Name & Address – HDFC Bank, Maneckji Wadia Building, Nanik Motwani Marg, Fort, Mumbai 400 023.
A/c no. - 00600110000763
IFSC Code – HDFC0000060

The hard copy of EMD in a sealed envelope should be sent on address mentioned in Tender document.

First Part has to be submitted in Sealed Envelope.

SECOND PART: "TECHNICAL / UN-PRICED COMMERCIAL BID" shall contain the following documents:

a) Documentary evidence in support of Technical, Commercial qualifying criteria
b) Technical literature/GTP/Type test report/Details of Qualified Manpower Available/ Testing Facility available etc. *(complete in all respect as desired and detailed in Technical Specification and Technical Requirement Section)*
c) Duly filled Technical and Commercial Deviation Sheets
d) Duly filled formats like Authorization affidavit form
e) *Unpriced Commercial Bid*

The technical / un-priced commercial bid shall be properly indexed and is to be submitted in Soft Copy though E-Tender system of Tata Power. Hard Copy of Technical Bids need not be submitted.

Second Part has to be submitted through E-Tender System Only

THIRD PART: "PRICE BID" shall contain only the price details and strictly in Price Bid format along with explicit break up of basic prices and applicable GST. Basic price should include packaging forwarding, freight, transit insurance and any other cost envisaged by the bidder.

Third part has to be submitted through E-Tender System (ARIBA) only.

FOR BIDS INVITED THROUGH E-TENDER SYSTEM (TECHNICAL AND UN-PRICED COMMERCIAL BID) :

In response to advertisement Bidder has to provide details of person authorized to Bid on behalf of the Bidder. An e-mail will be generated by E-Tender System and the authorized person can download the Tender Documents from the system.
SECOND and THIRD PART of the Bid have to be submitted in E-Tender System.

Bidders have to mandatorily submit SECOND PART (Technical and Un-priced commercial Bid) only through E-Tender system of Tata Power. Bids submitted through any other form/ route shall not be admissible.

EMD
"Please mention Tender Reference No"

Please mention our Tender Reference No on the Tender and drop the same in our Tender Box located at The Tata Power Company Limited, Smart Center of Procurement Excellence,2nd Floor, Sahar Receiving Station, Near Hotel Leela, Sahar Airport Road, Andheri East, Mumbai-400059

Bids submitted by Email/Telex/Telegram /Fax will be rejected. No request from any Bidder to Tata Power to collect the proposals from Courier/Airlines/Cargo Agents etc. shall be entertained.

SIGNING OF BID DOCUMENTS:

The bid must contain the name, residence and place of business of the person or persons making the bid and must be signed and sealed by the Bidder with his usual signature. The names of all persons signing should also be typed or printed below the signature.

The Bid being submitted must be signed by a person holding a Power of Attorney authorizing him to do so, certified copies of which shall be enclosed.

The Bid submitted on behalf of companies registered with the Indian Companies Act, for the time being in force, shall be signed by persons duly authorized to submit the Bid on behalf of the Company and shall be accompanied by certified true copies of the resolutions, extracts of Articles of Association, special or general Power of Attorney etc. to show clearly the title, authority and designation of persons signing the Bid on behalf of the Company. Satisfactory evidence of authority of the person signing on behalf of the Bidder shall be furnished with the bid.

A bid by a person who affixes to his signature the word 'President', 'Managing Director', 'Secretary', 'Agent' or other designation without disclosing his principal will be rejected.

The Bidder's name stated on the Proposal shall be the exact legal name of the firm.

3.2 Contact Information

Communication Details: Detailed in 1.1

3.3 Bid Prices

Bidders shall quote for the entire Scope of Supply/ work with a break up of prices for individual items and Taxes & duties. The bidder shall complete the appropriate Price Schedules included herein, stating the Unit Price for each item & total price with taxes, duties & freight up to destination at various sites of Tata Power. The all-inclusive prices offered shall be inclusive of all costs as well as Duties, Taxes and Levies paid or payable during the execution of the supply work, breakup of price constituents.

The quantity break up shown else-where other than Price Schedule is tentative. The bidder shall ascertain himself regarding material required for completeness of the entire work. Any items not indicated in the price schedule but which are required to complete the job as per the Technical Specifications/ Scope of Work/ SLA mentioned in the tender, shall be deemed to be included in prices quoted.

3.4 Bid Currencies

Prices shall be quoted in Indian Rupees Only. It also may be noted that the denomination of Purchase Order / Outline Agreement / Rate Contract and associated Payment to Successful Bidder shall also be in Indian Rupees Only. In case Bidder intends to import any equipment, part etc and supply to Tata Power then all liability and costs related to import will rest with the Bidder. All statutory compliances, payments, expenditure etc related to importing of equipment will be responsibility of the bidder.

3.5 Period of Validity of Bids

Bids shall remain valid for 180 days from the due date of submission of the bid.

Notwithstanding clause above, Tata Power may solicit the Bidder's consent to an extension of the Period of Bid Validity. The request and responses thereto shall be made in writing.

3.6 Alternative Bids

Bidders shall submit Bids, which comply with the Bidding documents. Alternative bids will not be considered. The attention of Bidders is drawn to the provisions regarding the rejection of Bids in the terms and conditions, which are not substantially responsive to the requirements of the bidding documents.

3.7 Modifications and Withdrawal of Bids

The bidder is not allowed to modify or withdraw its bid after the Bid's submission. The EMD as submitted along with the bid shall be liable for forfeiture in such event.

3.8 Earnest Money Deposit (EMD)

The bidder shall furnish, as part of its bid, an EMD amounting as specified in the tender. The EMD is required to protect the Tata Power against the risk of bidder's conduct which would warrant forfeiture.
The EMD shall be in following form:

- Bank Guarantee valid for 180 days after due date of submission.

The EMD shall be forfeited in case of:

a) The bidder withdraws its bid during the period of specified bid validity.

Or

b) In case of a successful bidder, if the Bidder, within 15 days, does not
i) accept the purchase order, or
ii) furnish the required Contract Performance Bank Guarantee (CPBG)

Original Bank Guarantee submitted as EMD shall be returned only after completion of award process for unsuccessful bidders and issue of Contract Performance Bank Guarantee (CPBG) for successful bidder.

4. Bid Opening & Evaluation process

4.1 Process to be confidential

Information relating to the examination, clarification, evaluation and comparison of Bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons

not officially concerned with such process. Any effort by a Bidder to influence Tata Powers processing of Bids or award decisions may result in the rejection of the Bidder's Bid.

4.2 Technical Bid Opening

Bids will be opened at Corporate Office of Tata Power as per our standard Process. The bids shall be opened internally by Tata Power. Technical bid must not contain any cost information whatsoever.

First the envelope marked "EMD" will be opened. Bids without EMD of required amount/ validity in prescribed format, shall be rejected.

Next, the technical bid of the bidders who have furnished the requisite EMD will be opened in E-Tender system.

4.3 Preliminary Examination of Bids/Responsiveness

Tata Power will examine the Bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the Bids are generally in order. Tata Power may ask for submission of original documents in order to verify the documents submitted in support of qualification criteria.

Prior to the detailed evaluation, Tata Power will determine the substantial responsiveness of each Bid to the Bidding Documents including production capability and acceptable quality of the Goods offered. A substantially responsive Bid is one, which conforms to all the terms and conditions of the Bidding Documents without material deviation.

Bid determined as not substantially responsive will be rejected by the Tata Power and/or the Tata Power and may not subsequently be made responsive by the Bidder by correction of the non-conformity.

4.4 Techno Commercial Clarifications

Bidders need to ensure that the bids submitted by them are complete in all respects. To assist in the examination, evaluation and comparison of Bids, Tata Power may, at its discretion, ask the Bidder for a clarification on its Bid for any deviations with respect to the Tata Power specifications and attempt will be made to bring all bids on a common footing. All responses to requests for clarification shall be in writing and no change in the price or substance of the Bid shall be sought, offered or permitted owing to any clarifications sought by Tata Power.

4.5 Price Bid Opening

The EMD of the bidder withdrawing or substantially altering his offer at any stage after the technical bid opening will be forfeited at the sole discretion of Tata Power without any further correspondence in this regard.

Arithmetical errors will be rectified on the following basis: If there is a discrepancy between the unit price and the total price per item that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price per item will be corrected. If there is a discrepancy between the Total Amount and the sum of the total price per item, the sum of the total price per item shall prevail and the Total Amount will be corrected.

4.6 Reverse Auction and Price Matching Option

Tata Power reserves the right to go for Reverse Auction (RA) for price negotiation and discover the most competitive price on ARIBA portal, Tata Power's official e-tendering platform. This will be decided after techno-commercial evaluation of the bids. Bidders need to give their acceptance with the offer for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids, in case Tata Power decides to go for RA.

Only those bidders who are techno-commercially qualified shall be eligible to participate further in RA process. However, the original H1 bidder (whose price bid is the highest post techno-commercial evaluation) shall not be allowed to participate in further RA process provided minimum three techno-commercially qualified bids are available.

For case where more than one bidders have to be awarded (including Rate Contract / Outline Agreement) Price Matching Option will be exercised. Volume of job allocated to original competitive bidder will be more than bidder who is chosen through Price Matching Option. Tata Power decision regarding work sharing shall be final and no explanation OR clarification shall be given regarding the same.

5.0 Award Decision

Tata Power will award the contract to the successful bidder whose bid has been determined to be the lowest-evaluated responsive bid as per the Evaluation Criterion mentioned at Clause 2.0. The Cost for the said calculation shall be taken as the all-inclusive cost quoted by bidder in Priced Bid Format subject to any corrections required in line with Clause 4.3 above. The decision to place purchase order/Outline Agreement/ Rate Contact solely depends on Tata Power on the cost competitiveness across multiple lots, quality, delivery and bidder's capacity, in addition to other factors that Tata Power may deem relevant.

Tata Power reserves all the rights to award the contract to one or more bidders so as to meet the delivery requirement or nullify the award decision without assigning any reason thereof.

In case any supplier is found unsatisfactory during the delivery process, the award will be cancelled and Tata Power reserves the right to award other suppliers who are found fit.

5.1 Rate Contract / Outline Agreement

Rate Contract / Outline Agreement does not guarantee any assured business volume in Rupees or Quantity. Quantities are only indicative and specified for the purpose of readiness as per the request from Purchaser. Supplies shall be only against Firm Purchase Orders placed as per the agreed terms and conditions of Rate Contract / Outline Agreement. Purchaser shall be entitled at its discretion to place firm order for such supplies on "As and When Required Basis" without minimum take-off guarantee.
Rate Contract / Outline Agreement will have list of Items with Unit Rate and applicable Taxes and Duties. There will be a cap on value for which order which can be placed against the Rate Contract / Outline Agreement. Actual quantity ordered for each line item may differ significantly from the tentative quantity indicated in the Tender Document. One / few / all items of Rate Contract / Outline Agreement can be ordered till the Cap Value is reached.

6.0 Order of Preference/Contradiction:

In case of contradiction in any part of various documents in tender, following shall prevail in order of preference:

1. Outline Agreement/Purchase Order (with Commercial conditions)
2. Special Terms and conditions (if applicable)
3. General Terms and conditions
4. Technical Specifications

In case there is a discrepancy in the BOQ mentioned in tender (to the extent modified through subsequent Corrigendum, if any) and the bid submitted by any bidder, the description as mentioned in the tender (to the extent modified through subsequent Corrigendum, if any) shall prevail.

7.0 Ethics

Tata Power is an ethical organization and as a policy Tata Power lays emphasis on ethical practices across its entire domain. Bidder should ensure that they should abide by all the ethical norms and in no form either directly or indirectly be involved in unethical practice.

Tata Power work practices are governed by the Tata Code of Conduct. Bidder is request to refer Tata Code of Conduct Clause in General Terms and Conditions.

8.0 General Condition of Contract and Special Condition of Contracts

Any condition not mentioned above shall be applicable as per General Terms and Conditions and Special Condition of Contracts attached along with this tender.

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Annexure 1

Schedule Of Items

Sr. No	Material code	Item Description	Unit	Estimated Quantity	Unit Rate	Total Value (Unit Rate * Quantity)
1	2000088974	CT PT UNIT 22 KV OUTDOOR	EA	25		-
2	2000088973	CT PT UNIT 11 KV OUTDOOR	EA	30		-
3	2000192973	33KV OD CTPT Unit		20		-
		Sub Total				-
		GST	**%**			-
		Total Value including GST	**Rs**			-

AGREED TERMS & CONDITIONS (ATC)- Indigenous Supply

Bidder's Name: M/s. _____

RFQ ref. No. CC27AAM008

Enquiry Description: 1 year OLA for supply of CTPT for Mumbai Distribution.

Bidder's Offer Ref.: *<pls mention your offer reference no here>*

1. SUBMISSION OF THIS DOCUMENT DULY SIGNED, SHALL CONSTRUE THAT ALL THE CLAUSES OF AGREED TERMS AND CONDITIONS HAVE BEEN ACCEPTED BY YOU. PURCHASE ORDER, IF ANY, SHALL BE GOVERNED BY THE CONFIRMATION PROVIDED HERE.

S. No.	Description	BIDDER'S RESPONSE
A	**TECHNICAL**	
1	Acceptance of technical specifications / scope of work including General/Technical notes as per Tender specification **In case of deviation, confirm that the same has been furnished separately.**	
2	Confirm data sheets duly filled in have been submitted, wherever required as requested in Technical specification/ Scope of work	
B	**COMMERCIAL**	
3	**Bid Validity** Confirm Bid Validity 180 days from date of bid submission.	
4	**Firm price:**	
5	**Delivery Terms** Confirm delivery terms FOR basis	
6	**Packing & Forwarding** Confirm that Packing & Forwarding charges including Special Packaging Requirement (if applicable) are included in base price	
7	**Freight Charges** Confirm that Freight charges & Transit insurance are included in base price	
8	**Taxes and duties:** GST: __% HSN/ SAC Code: Any other tax as applicable:	
9	**LD clause**: Confirm that Bidder agrees to the LD clause mentioned in GTC	
10	**Completion/Delivery Period:** Mention your delivery timelines from the date of order	
11	**Payment Terms Acceptance:** Confirm acceptance as per GTC – Supply	
12	**Warranty / Latent Defect Liability Period:** Confirm acceptance as per GTC – Supply	
13	**Contract Performance Bank Guarantee**: Confirm acceptance to Submission of Unconditional Bank Guarantee as per GCC Supply.	
14	**Testing and Inspection charges (if applicable):** Confirm the quoted are Inclusive of all testing and inspection charges as per Tender specification	

S. No.	Description	BIDDER'S RESPONSE
15	**Compliance to other terms & conditions** Acceptance of all other terms & conditions as forming the Part of the RFQ/ Tender document and communicated vide subsequent addendum(s) if any: **In case of deviation, confirm that the same has been furnished separately.**	

*Bidders / Vendor shall note that in case of any contradiction between the Agreed Terms and Conditions (ATC); and the Bidders offer, the ATC shall prevail.

Bidder's Authorised Signatory and stamp:

Name:

The Tata Power Company Limited is hereunder referred to as the "Purchaser" or "Company". The person, firm or company selling the goods, the subject of this purchase order is referred to as "Vendor" or "Contractor". The subject of this purchase order is hereinafter referred to as the "Material(s)"or "Goods".

The Contract shall mean the contract as derived from the following:

1. Purchase Order (with 'Commercial Notes' and Annexures to the Purchase Order referred thereon)
2. Technical Specifications.
3. General Terms & Conditions

The documents including all reference document (s) and Annexures forming the Contract are to be read together as a whole and are to be taken as mutually explanatory.

1. Price:

Unless otherwise specifically stipulated, the price shall be firm and shall not be subject to escalation for any reason till the validity of this Contract.

Unless otherwise specifically stipulated, the price shall be inclusive of road/ rail worthy water-proof packing & forwarding charges up to effecting delivery at FOT/ FOR despatch point, GST and shall also be inclusive of inland freight, terminal taxes and entry taxes as leviable on the transportation or entry of goods into any local area limits pursuant to the Contact.

2. Taxes and Duties:

2.1 The Contract Price shall be inclusive of all taxes, duties, including but not limited to GST or any local taxes, levies imposed by State/Central/Local governments

2.2 Taxes as mentioned in the Contract Price or Price Schedule shall be paid to the contractor subject to the Contractor complying with all the statutory requirements and furnishing the relevant documents including error free invoices containing detailed break-up of the taxes

2.3 However the payment of GST or local levies shall be restricted to the total amount as indicated in the price schedule.

2.4 Any duties, levies or taxes not mentioned in Contract Price or Price Schedule but applicable as per any statute (s) shall be deemed to be included in the Contract price and shall be to the account of the Contractor.

2.5 Any statutory variation in duties, levies or taxes if applicable and specified in this Contract till the scheduled date for supply of Goods and limited to direct invoices of the Contractor shall be to the account of Purchaser. The Contractor shall have the obligation to provide the necessary documentary evidence / supporting by way of gazetted notifications etc. to prove the change in such levies or taxes between the due date of submission of the Bid and the scheduled date of supply of goods to claim the difference.

2.6 The Contractor shall pass on to the Purchaser all the benefits of either reduction in tax rates, exemptions, concessions, rebate, set off, credits etc. or introduction of new tax rates exemptions, concessions, rebate, set off, credits etc. pertaining to all taxes, duties, imposts, fees and levies in respect of the supplies of Goods or performance of obligations under the contract. This would specifically include reduction of tax rates as a result of statutory changes or judicial rulings.

2.7 Any other taxes, levies and duties not mentioned in Contract Price or Price Schedule but applicable as per any statute (s) or introduction (omission) of new taxes, levies and duties shall be deemed to be included in the Contract Price and shall be to the account of the Contractor.

2.8 For facilitating availment of a credit, set-off, rebate, drawback or like benefit available to the Purchaser, the Contractor will facilitate the Purchaser by providing the necessary documentary and/or procedural support. In any process of assessment or re-assessment, of taxes payable by the Purchaser. Wherever expressly agreed the purchaser would provide the statutory form 'C' to the seller for availing the concessional rate of Central sales tax.

2.9 The Contractor shall bear and pay all the costs, liabilities, levies, interest, penalties in respect of non-compliances of any legal requirements as per various statutory provisions. The contractor shall keep the owner indemnified at all times from any tax liability, interest, penalties or assessments that may be imposed by the statutory authorities for non-compliances or non-observation of any statutory requirements by the Contractor.

2.10 Purchaser shall pay the invoices to the Vendor after necessary deductions as prescribed under the applicable law, income – tax or other

deductions under the State Tax laws as may be applicable to the Contract.

3 Packing details:

Packing details: The material must be packed in suitable packing to suit the mode of transport and to ensure its safe receipt at point of delivery. Any damage to material noticed at the time of delivery at site, due to improper packing or any other reason whatsoever shall be the responsibility of the Vendor. Such damaged goods shall be replaced within 14 days from intimation from the Purchaser.

4 Transportation and Unloading at Site:

The Vendor shall deliver the Material(s) at site/ Stores as per the delivery address specified in the Purchase order. The unloading at delivery shall be organised by the Purchaser unless otherwise specified. The receipt of the material/ equipment is subject to inspection and rejection if Material(s) is found unsatisfactory or any of the clauses under this purchase order are violated.

5 Insurance:

Unless otherwise specified, Purchaser will be responsible to obtain transit insurance for the Material(s). The Vendor shall intimate the Order Manager (as mentioned in the Purchase Order) along with Invoice, packing list, the Railway Receipt/Truck or Lorry Receipt etc. immediately after the consignment is booked, at the e-mail id mentioned in the Purchase order.

6 Payment Terms:

100% payment shall be made within 60 days from the receipt and acceptance of the material at the Consignee Stores/ Site/ Location as per the Contractual terms and conditions herein.

7 Bills and invoice:

The tax invoices should contain the details to comply with the GST Law. The supplier shall:

i) Furnish (electronically) and communicate to the Owner, the details of Goods or Services supplied by the 10th of the month succeeding the said tax period,
ii) Upon discovery of any discrepancy, rectify it and shall pay the tax and interest thereof,
iii) Furnish the returns (electronically), for the inward and outward supplies of Goods and/or Services, before the specified dates as per the GST Law,
iv) Communicate the tax paid, credits etc. as and when credited.
v) The Invoice should clearly state the description of the goods, quantity, sale price, tax %, and tax amount;
vi) The Invoice should be signed by an Authorized Signatory.

Bills/Invoices in the name of The Tata Power Company Ltd. with packing lists in triplicate shall be forwarded along with the equipment.

Contractor to furnish GST Registration no. in all invoices as well as Purchaser's (Tata Power's) GST no.

8 Transfer of Title and risk:

The transfer of property and risk of Material(s) shall be deemed to take place as follows:

a. For delivery F.O.R. or F.O.T. despatch point: Transfer of property on handing over the Material(s) to the carrier against receipt of clean Railway Receipt/Truck or Lorry Receipt and such receipt having been handed over to Purchaser. However, the risk of loss shall pass to the Purchaser on delivery of goods at the specified destination.

b. In case the Material(s) are procured by the Vendor from sub-vendors on receipt of duly endorsed documents of title to the goods.

9 Contract Performance Bank Guarantee (In case applicable):

9.1 The Vendor shall within 15 days of issue of this Purchase Order furnish an unconditional irrevocable bank guarantee duly stamped and strictly as per the prescribed format of the Purchaser from any nationalized bank or any scheduled bank having a branch in Mumbai and approved by the Purchaser for a sum equivalent to 10% of the Total value of Order valid for a period not less than 6 months from the expiry of the Warranty period.

9.2 Irrespective of the performance demonstrated as part of the Factory Acceptance Tests Take-over tests / Performance Tests etc, the Purchaser may call for re-validation of performance of the system during the performance guarantee period by conducting fresh performance tests if in its opinion, the

system is not able to deliver the designed performances based on its operational performance results. If the equipment fails to prove the performance during such performance tests, the Purchaser may allow the Vendor to either rectify the system by addition / modification of equipment etc at the Vendor's costs & risk to restore the performance levels. Failure to rectify the system to achieve the designed performance levels may result in imposition of penalties including revocation of the Performance Bank Guarantee and forfeiture of the entire amount under the Performance Guarantee.

9.3 In case the Vendor fails to furnish the requisite Bank Guarantee as stipulated above, then the Company shall have the option to terminate the contract besides other contractual remedies.

10 Price reduction:

10.1 The Vendor agrees that time of supply of Material(s) is of prime importance.
If the Vendor fails to supply Material(s) before the respective scheduled / fixed date for supply. Company may without prejudice to any other right or remedy available to the Company: -

10.1.1 Recover from the Vendor ascertained and agreed, genuine pre-estimate liquidated damages, and not by way of penalty, a sum equivalent to 1% (of total value of order) per week or part thereof for each week's delay, beyond the scheduled supply date each subject to maximum of 10% of the total order value, even though the Company may accept delay in supply after the expiry of the scheduled supply date. The Company may, at its discretion, set off the aforesaid amounts from any other amounts owed by the Company to the Vendor or recover such amounts in other manner as may be permissible under applicable laws.

10.1.2 Arrange to get supply from elsewhere on account and at the sole risk of the Vendor, such decision of the Company being final and binding on the Vendor; or

10.1.3 Terminate the contract or a portion of supply of the supply work thereof, and if so desired, arrange for the supply in default by the Vendor to be attained from elsewhere at the sole risks and costs of the Vendor.

10.2 Liquidated damages for performance shortfall (if applicable) shall be specified in the Technical Specifications.

10.3 The Liquidated Damages referred in this clause 10 may be recovered by the Company from the Vendor as set off against any monies owed by the Company to the Vendor or in any other manner permissible under applicable laws.

11 Warranties:

11.1 Materials and Workmanship: Vendor shall fully warrant that all the stores, equipment and component supplied under the order shall be new and of first class quality according to the specifications and shall be free from defects (even concealed fault, deficiency in design, materials and workmanship).

11.2 Should any defects be noticed in design, material and/or workmanship within 12 months after the Material(s) or any portion thereof as the case may be have been commissioned or for 24 months from the date of delivery, whichever period concludes earlier. Purchaser shall inform Vendor and Vendor shall immediately on receipt of such intimation, depute their personnel within 7 days to investigate the causes of defects and arrange rectification/ replacement/modification of the defective equipment at site, without any cost to Purchaser within a reasonable period. If the Vendor fails to take proper corrective action to repair/replace defects satisfactorily within a reasonable period, Purchaser shall be free to take such corrective action as may be deemed necessary at Vendor's risk and cost after giving notice to the Vendor, including arranging supply of the Goods from elsewhere at the sole risk and cost of the Vendor.

11.3 In case defects are of such nature that equipment shall have to be taken to Vendor's work for rectification etc., Vendor shall take the equipment at his costs after giving necessary undertaking or security as may be required by Purchaser. After repair Vendor shall deliver the equipment at site on freight paid basis. Any taxes applicable in relation to this repair shall be to the Vendor's account. All risks in transit to and fro shall be borne by the Vendor.

11.4 Equipment or spare parts thereof replaced shall have further warranty for a period of 12 months from the date of acceptance.

12 Quality, Testing, inspection, installation:

12.1 All Material(s) supplied under this Contract shall be new and unused.

12.2 Wherever a specific Quality Assurance Plan is provided with the Request for Quotation (RFQ) or agreed as part of the commercial/ technical discussions, the same shall be binding on the Vendor.

12.3 The material shall be inspected

a. At consignee end by Purchaser.

b. At factory premise of the Vendor/ sub-vendor by Purchaser or third party duly nominated by Purchaser. The Vendor shall extend all necessary co-operation to Purchaser/ third party inspector carrying out the inspection. The Inspector(s) shall have the right to carry out the inspection or testing, which will include inspection and testing of the raw materials at manufacturers shop, at fabricators shop and at the time of actual despatch before and/or after completion of packing.

12.4 The Vendor will inform Purchaser at least eight (8) days in advance of the exact place, date and time of tendering the Material(s) for required inspection and provide free access to the Inspector(s) during normal working hours at Vendor's or his/ its sub-Suppliers works, and place at the disposal of the Inspector(s) all useful means for undertaking the Inspection, checking the results of tests performed, marking the Material(s), getting additional tests conducted and final stamping of the Material(s).

12.5 Even if the inspection and tests are fully carried out, the Vendor shall not be absolved from its responsibilities to ensure that the Material(s), raw materials, components and other inputs are supplied strictly to conform and comply with all the requirements of the Contract at all stages, whether during manufacture and fabrication, or at the time of Delivery as on arrival at site and after its erection or start up or consumption, and during the defect liability period. The inspections and tests are merely intended to prima facie satisfy Purchaser that the Material(s) and the parts and components comply with the requirements of the Contract.

12.6 *All costs associated with the inspection shall be included in cost of Material(s).*

12.7 Original material test certificate/ performance test certificate/ fitment certificate/ test reports etc. relevant/ applicable as per the specifications/ standards shall be dispatched along with the material supply failing which the material may be rejected.

13 Rejection:

13.1 Rejected goods shall be removed and replaced within 14 days of the date of communication of rejection.

13.2 Claim in respect of breakage/shortages in any cases shall be referred on the Vendor within ninety (90) days from the date of receipt of Goods by the Purchaser which shall be replaced/made good by the Vendor at his own cost. All risk of loss or damage to the material shall be upon the Vendor till it is delivered to the purchaser/consignee.

14 **General Indemnity:**

The Vendor shall indemnify and keep the Purchaser indemnified from and against any and all claims, costs, liabilities (financial), litigations, compensations, judgments, expenses or damages (including attorney's fees and other related expenses) arising out of any breach or alleged breach of any of the conditions of this Contract, performance of the obligations hereunder, or any representation or misrepresentation made by the Vendor or any third party with regard to the subject of this Contract.

15 **Indemnity against IPR:**

The equipment, system, drawings, and other materials that shall be supplied against the order will become the Purchaser's property. Without limitation of any liability of whatsoever nature, the Purchaser shall be indemnified and kept indemnified against any claim for infringement or breach of any of the statues, rules & regulations by the use of or sale of any article or material supplied by the Vendor. The indemnity shall include any infringement of patent, trade mark, design, copyright or other property rights whether in Country of Origin, or elsewhere resulting from the Vendor's design, manufacture, use, supply or re-supply & would also cover use or sale of any article or material supplied by the Vendor to the Purchaser under the Purchase Order. The Indemnity shall cover any claim/action taken by a third party either directly against the Purchaser or any claim/action made against the Vendor & where under the Purchaser is made liable. The

Indemnity shall be for losses, damages, and costs including litigation costs, attorney fees etc incurred by the Purchaser in relation to the Purchase Order.

16 Latent Defects Liability period (if applicable):

Notwithstanding the inspections, acceptance tests, quality checks etc carried out by the Vendor and witnessed/accepted by the Purchaser, the Vendor shall further warrant the equipment for any latent defects in its design, material or workmanship against the specifications set forth and shall make good any such defects by way of repair or replacement of the part or whole of the defective product at its own cost & risks as and when such latent defects are observed and intimated by the Purchaser and intimated to the Vendor within 36 months of completion of warranty period.

17 Force Majeure:

17.1 In the event of either party being rendered unable by force majeure to perform any obligation required to be performed by it under this Contract the relative obligation of the party affected by such force majeure shall, after notice under this articles be suspended for the period during which such cause lasts. The term 'Force Majeure' as employed herein shall mean acts of God, wars (declared or undeclared), riots or civil commotion, fire, floods, and acts and regulations of the Government of India or State Government or any of the statutory agencies. Both the party shall pay to the other party, the amount payable upon the date of the occurrence of such force majeure.

17.2 Upon the occurrence of such cause and upon its termination, the party alleging that it has been rendered unable as aforesaid, thereby shall notify the other party in writing immediately but not later than twenty four (24) hours of the alleged beginning and ending thereof giving full particulars and satisfactory evidence in support of the claims.

17.3 During the period, the obligations of the parties are suspended by force majeure, the contractor shall not be entitled to payment of any rate.

17.4 In the event of the force majeure conditions continuing or reasonably expected to continue for a period more than thirty (30) days, Purchaser shall have the option of terminating the contract by giving seven (7) days notice thereof to the contractor.

18 Variation:

Except for any provisions in this Purchase Order, any change /modification to the terms and conditions of this Order can be issued only by Purchaser or with the prior written approval from Purchaser.

19 Termination

19.1 The Contract shall be deemed to be terminated on completion of delivery of Material(s)

19.2 Termination of Default by Vendor:
Purchaser may terminate the contract at any time if the Vendor fails to carry out any of his obligations including timely delivery under this Contract. Prior to termination, the Vendor shall be advised in writing of the causes of unsatisfactory performance to be improved upon 15 days of the receipt of notice. In case, if the Vendor fails to bring about the improvement to the satisfaction of the Purchaser, then the order shall be terminated.

19.3 Without prejudice to the rights and remedies available to Purchaser, Purchaser may terminate the Contract or part thereof with immediate effect with written notice to the Vendor if,:

19.3.1 The Vendor becomes bankrupt or goes into liquidation.

19.3.2 The Vendor makes a general assignment for the benefit of creditors.

19.3.3 A receiver is appointed for any substantial property owned by the Vendor.

19.3.4 The Vendor has misrepresented to Purchaser, acting on which misrepresentation Purchaser has placed the Purchase Order on the Vendor.

The Vendor/ Contractor shall not be entitled to any further payment under the Contract if the Contract is terminated. If the order is terminated under clause 19.2 and 19.3, the Vendor shall not be entitled to any further payment, except that, if Purchaser completes the supply of Material(s) and the costs of completion are less than the Total Order value, the Purchaser shall pay Vendor an amount properly allocable to supply of Material(s) fully performed by Vendor prior to termination for which payment was not made to Vendor. In case, the cost of completion of Material(s) exceed the total Order value, the additional cost incurred by Purchaser for such completion shall be paid by the Vendor.

19.4 Purchaser shall be entitled to terminate the Contract at it's convenience, at any time by giving thirty (30) Days prior notice to the Contractor. Such notice of termination shall specify that termination is for Companies convenience and the date upon which such termination becomes effective. Upon receipt of such notice, the Contractor shall proceed as follows:

19.4.1 cease all further work, except for such work as may be necessary and instructed by the Company/ Company's representative for the purpose of protecting those parts of the supplies already manufactured;

19.4.2 stop all further sub-contracting or purchasing activity, and terminate Sub-contracts;

19.4.3 handover all Documents, equipment, materials and spares relating to the supply of goods prepared by the Contractor or procured from other sources up to the date of termination for which the Contractor has received payment equivalent to the value thereof; and

19.4.4 handover those parts of the supplies manufactured by the Contractor up to the date of termination.

Upon termination pursuant to clause 19.4, the Vendor shall be entitled to be paid the full value on the Material(s) delivered in accordance with the Contract.

19.5 The Contractor shall not be released from any of his obligations or liabilities accrued under the Contract on termination. For the avoidance of doubt, the termination of the Contract in accordance with this clause shall neither relieve the Contractor of his accrued obligations for Warranty or his accrued liability to pay (liquidated) damages for Delay nor shall entitle him to reduce the value of Performance Security.

20 Sub letting and assignment:

The contractor shall not without prior consent in writing of the Purchaser, sublet, transfer or assign the contract or any part thereof or interest therein or benefit or advantage thereof in any manner whatsoever, provided nevertheless that any such consent shall not relieve the contractor from any obligation, duty or responsibility under the contract.

21 **Dispute Resolution**:

Dispute or differences arising out or relating to this Order shall be resolved amicably by the parties. Failing such amicable resolution of dispute / differences either party may refer the matter to arbitration of a Sole Arbitrator to be appointed jointly by both the parties. The award of the Arbitrator shall be final, binding and conclusive on the parties. The venue for arbitration shall be Mumbai. The Arbitration proceedings will be governed and regulated by the provisions of Indian Arbitration and Conciliation Act, 1996 as amended from time to time and the rules framed there under.

22 Governing laws

This Contract shall be construed in accordance with and governed by the Laws of India without giving effect to any principle of conflict of law.

23 Jurisdiction

This Contract and the transaction contemplated herein shall be subject to the exclusive jurisdiction of the competent Courts in Mumbai only.

24 Limitation of Liability

Notwithstanding anything contained in the Contract, the Contractor's aggregate liability under this Contract shall be limited 100% of the Total order value. This shall however, exclude liability arising pursuant to clause 2.8- tax indemnity, clause 14- General Indemnity, clause 15- Indemnity against IPR, clause 25 – Confidentiality and liabilities arising due to wilful misconduct, gross negligence, third party claims and corrupt acts attributable to the Vendor.

25 Confidentiality:

The Vendor shall use the Confidential Information of the Purchaser only in furtherance of this Contract and shall not transfer or otherwise disclose the Confidential Information to any third party. The Vendor shall (i) give access to such Confidential Information solely to those employees with a need to have access thereto; and (ii) take the same security precautions to protect against disclosure or unauthorized use of such Confidential Information that the party takes with its own confidential information but, in no

event, shall a party apply less than a reasonable standard of care to prevent such disclosure or unauthorized use.

26 Consequential Damages:

Unless otherwise specified, neither Party shall be responsible for and nor shall be liable to the other Party for indirect/consequential losses and damages suffered by such Party including for loss of use, loss of profit whether such liability or claims are based upon any negligence on the part of the other Party or its employees in connection with the performance of the Purchase Order.

27 New Legislation (The Micro, Small and Medium Enterprise Development Act 2006)

a. This Act has been enacted and made effective from 2nd October 2006. The Interest on Delayed Payments to Small Scale and Ancillary Industrial Undertaking Act, 1993 is repealed.

b. Vendor is requested to inform the purchaser if vendor fall under The Micro, Small and Medium Enterprises Development Act, 2006 legislation and provide the purchaser, registration number and date to enable purchaser to take necessary care. The vendors are also requested to mention the same on their invoice / bill.

28 Relation between parties:

The Purchase Order shall be entered into on a principal-to-principal basis only. The Purchase order shall not be construed as a partnership or an association of persons. There is no agent and principal relationship between the parties. Each party shall be responsible for its own conduct. The Vendor shall ensure at all times that all the work carried out under this contract either by its own person or through any of its sub-Vendors shall be always done under its own direct supervision.

29 Environment / ISO 14001 Certification:

The Vendor to confirm whether their organization is ISO 14001 certified. If not, the Vendor must certify that the handling, use and disposal of their product / by-products conform to practices consistent with sound environmental management and local statutes. The Vendor shall ensure that all the wastes are disposed in environmental friendly way with strict compliance to applicable laws including adherence to MoEF guidelines with respect to disposal of batteries, lead waste, copper cables, ash, waste oil, e-waste etc which shall be disposed through MoEF approved parties only. The Vendor shall also be responsible to collect and recycle all the e-waste generated at the end of the product life cycle at its own costs and risks as per the MoEF guidelines/ orders.

30 Tata Code of Conduct

The Purchaser abides by the Tata Code of Conduct in all its dealing with stake holders and the same shall be binding on the Purchaser and the Vendor for dealings under this Purchase Order. A copy of the Tata Code of Conduct is available at our website: http://www.tatapower.com/aboutus/code-of-conduct.aspx. The Vendor is requested to bring any concerns regarding this to the notice of our Chief Ethics Officer on the e-mail ID: cecounsellor@tatapower.com.

31 Responsible Supply Chain Management:

The Purchaser is committed for a cleaner environment and respect of Human rights through its Responsible Supply Chain Management policy. The Vendor is required to comply with all the environment & Human rights related laws, including emission norms, Labour and environmental regulations. The Purchaser encourages its Vendors/ Contractors/ Business partners to pay more attention to green design, green supply, green production, green logistics and green packaging in performing their business obligations.

The Vendor is required to abide by the Tata Power Corporate Environment policy, Energy Conservation and Corporate Sustainability Policy.

A copy of the Responsible Supply Chain Management Policy along with Environment policy, Energy Conservation policy, Sustainability policy, Health & Safety policy and Human Rights policy is available at website: http://www.tatapower.com/sustainability/policies.aspx.

Vendor/Bidder is required to completely fill the attached "Supplier Sustainability Questionnaire" in support of their Green Supply Chain Management initiatives and submit the same with their offer.

The Owner recognizes that diversity in the workplace positively impacts business. The Owner is committed to help people from SC/ST background either by helping them to become entrepreneurs or by engaging workforce from SC/ST community under the contracts agreed herein. To encourage engaging SC/ST community, the owner may consider on the merit to incentivize the Contractor by paying additional 1% of the service contract portion if the number of SC/ST workforce engaged in the contract exceeds 30% of the total deployed strength and 2%, if the strength goes beyond 50%. While the Contractor will assist the workforce so engaged to become self-reliant in meeting the work expectation, the Owner may also volunteer its training resources to the extent possible to improve their employability. The Contractor shall maintain the proper documentation of such category of the workforce engaged and the owner may consider to pay the incentive after its verification.

The Owner may also consider extending price preference of 5% in the bid evaluation for an order value up to Rs.50 Lacs, provided the company is owned by a person from SC/ST community having minimum 50% holding in the company.

32 Vendor rating

You are requested to ensure compliance to the terms of the individual orders with regards to timely delivery, provision of all applicable documents / challans / test certificate, quality of the material etc. Your performance with respect to the said factors will be taken into consideration for future business.

33 Vendor Feedback:

33.1 In this dealing Vendors feedback is important for the purchaser to improve its processes. If vendor have to report any grievance, problem or require any clarification, information, vendor is requested to contact purchaser at email ID: CC_CUSTOMERFEEDBACK@tatapower.com

33.2 Vendor is requested to ensure compliance to the terms of the individual orders with regards to timely delivery, provision of all applicable documents / challans / test certificate, quality of the material etc. Vendor performance with respect to the said factors will be taken into consideration for future business.

34 Non-Waiver:

Failure of Purchaser or its representatives to insist upon adherence to any of the terms or conditions incorporated in the Contract or failure or delay to exercise any right or remedies herein or by law accruing, or failure to promptly notify the Vendor in the event of breach or the acceptance of or the payment of any Material(s) hereunder or approval of any design or Material(s) shall not release the Vendor and shall not be deemed a waiver of any right of Purchaser to insist upon the strict performance thereof or of any of its rights or remedies as to any such Material(s) regardless of when the Material(s) are shipped, received or accepted not shall any purported oral modification or revisions of the Contract by Purchaser or its representative(s) act as waiver of the terms hereof.

35 **Repeat Order**:

Purchaser may place the repeat order for 100% of ordered quantities within a span of 6 months from the date of issue of this Purchase Order & Vendor shall execute it at same rates, terms and conditions.

36 Severability

If any provision of this Contract is invalid, unenforceable or prohibited by law, this Contract shall be considered divisible as to such provision and such provision shall be inoperative and shall not be part of the consideration moving from any Party hereto to the others, and the remainder of this Contract shall be valid, binding and of like effect as though such provision was not included herein.

ESG FRAMEWORK FOR BUSINESS ASSOCIATES

Tata Power's Sustainability philosophy sits at the core of its Business Strategy. Tata Power Sustainability Model has an overarching objective of 'Leadership with care' with key elements of 'Care for the Environment'; 'Care for the Community'; 'Care for our Customers / Partners' and 'Care for our People'. These sustainability objectives encompass the Environmental, Social and Governance objectives driven as integrated elements.

Tata Power, together with its stakeholders is determined to achieve sustainable growth while creating shared value for all.
As a part of future ready roadmap, Tata Power has targeted following as our Environment, Social and Governance priorities:

- Being Carbon Net Zero before 2045
- Growing Clean capacity (80% by 2030)
- Customer centricity
- Becoming water neutral before 2030
- Achieving zero waste to landfill before 2030
- No net loss of biodiversity before 2030
- Positively impacting 80 million lives by 2027

In order to create a sustainable business ecosystem, Tata Power expects that all its Business Associates (BA) which includes its suppliers, vendors, consultants and service providers to align to its ESG and sustainability commitments.

Tata Power encourages improved efficiencies and scaling up of green initiatives through technology and innovation taking us farther on the journey of reducing carbon emissions and preparing the entire eco-system towards products and services that would have net positive impact on the environment and communities that we operate in.

The Vendors/ bidders wishing to associate with Tata Power are expected to share their own sustainability and ESG journey. We at Tata Power promote all Business Associates to have a sustainable procurement policy for their supplier and service providers to contribute to our integrated approach in achieving a sustainable supply chain. The BA is encouraged to carry out the assessment of their sub-contractors and sub-vendors on sustainability readiness so that they are aware of the expectation/ business requirement.

The Vendor/ Bidder shall fill-in the 'Environment, Social and Governance Compliance Screening Questionnaire for Business Associates' attached at Annexure-I and submit the same along with the Bid in Ariba online platform.

Responsible Supply Chain Management:

Tata Power is committed for a cleaner environment and respect of Human rights through its Responsible Supply Chain Management policy.
Tata Power Business Associate (BA) shall comply with all the environment & Human rights related laws, including emission norms, Labour and environmental regulations.

Tata Power encourages its BA to focus on green design, green supply, green production, green logistics and green packaging in performing their business obligations. The BA is expected to abide by the Tata Power Corporate Environment policy, Energy Conservation and Corporate Sustainability Policy (enclosed with this document as Annexure-II).

The BA is expected to:

- Strive towards Conservation of Energy, Water, Resources and optimize transportation of Men & Materials to minimize environmental impact and reduce carbon footprint.
- Carry out the assessment of materials used for construction, operation & maintenance, consumables and accordingly phase out those materials which are environmentally hazardous.
- Be cognizant that diversity in the workplace positively impacts business.
- Promote affirmative action by supporting people from SC/ ST background by engaging workforce from SC/ ST community under the contracts agreed herein.
- Share the commitment of 'No child labour', 'No forced labour', Non-discrimination on the basis of caste, colour, religion, gender, disability, maternity or pregnancy or any other factor unrelated to the requirements of the job
- Pay the wages or remuneration to the workforce, personnel deployed in compliance to all applicable laws and regulations.
- Provide its employees/ deployed labor with an employment environment that is free of physical or psychological harassment.
- Carry out the assessment of their Sub-contractors on their Sustainability Readiness so that they are aware of the above expectation/ standards
- To ensure usage of suitable package material which is more environmentally sustainable. Further the packing material shall be recycled to the extent possible. The material used for packing is expected to suit the mode of transport and to ensure its safe receipt at point of delivery.

Waste Disposal:

The BA is expected to follow best practices for disposal of waste, few of which are listed below:

- Have a detailed project plan that includes the waste management, segregation of all designated waste material (Recyclable/ Non-Recyclable), collecting, storing, disposing and transferring the same to pre-arranged facility/ destination in timely and safe manner as per environmental legislations. The project plan shall also include the innovative construction practice to eliminate or minimize waste, protect surface/ground water, control dust and other emissions to air and control noise.

- Have purchase policy to encourage the procurement of material with recycled and minimum packaging of goods during delivery and appropriate means for site-to-site transportation of materials to avoid damage and litter generation.

- Ensure that the residents living near the site are kept informed about proposed working schedule and timings/ duration of any abnormal noise full activity that is likely to happen.

- Ensure the regular maintenance and monitoring of vehicles and equipment for efficient fuel use so that emissions and noise are within acceptable limits to avoid air pollution.

Water Management:

The BA is expected to follow best practices for water management, few of which include a management and monitoring system for water withdrawals and consumption, procedures to reduce water usage or reuse/recycle water, and pretreatment of wastewater before disposal.

Compliance to Law:
The BA shall adhere to responsible business practices and comply with the provision of all the Statutory Acts Applicable. Special attention of the BA is drawn towards the compliance of provision of the following statues: (along with the latest amendments/additions, as applicable):

- The Child Labour (Prohibition and Regulation) ACT, 1986.
- The Contract Labour (Regulation and Abolition) ACT, 1970.
- The Employee's Pension Scheme, 1995.
- The Employee's Provident Funds and miscellaneous provisions Act, 1952.
- The Employees State Insurance Act, 1948.
- The Equal Remuneration Act, 1976.
- The Industrial Disputes Act, 1947.
- The Maternity Benefit Act, 1961.
- The Minimum Wages Act, 1948.
- The Payment of Bonus Act, 1965
- The Payment of Gratuity Act, 1972.
- The Payment of Wages Act, 1936.
- The Shops & Establishment Act, 1954.
- The Workmen's Compensation Act, 1923.
- The Employer's Liability Act, 1938.
- and any other applicable statutory act

Social Accountability (SA 8000):

Tata Power expects its BAs to follow guidelines of SA 8000:2014 on the following aspects

- Child Labour
- Forced or Compulsory Labour
- Health & Safety
- Freedom of Association & Right to Collective Bargaining
- Discrimination
- Disciplinary Practices
- Working Hours
- Remuneration
- Management System

Health and Safety

The BA is expected to ensure the health and safety of his and his Sub-contractor’s staff and labour. The BA shall, in collaboration with and according to the requirements of the local health authorities, ensure that medical staff, first aid facilities, sick bay and ambulance service are available at the accommodation and on the Site at all times, and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics. The BA shall maintain records and make reports concerning health, safety and welfare of persons deployed, and damage to property, as the Owner’s Representative may reasonably require. The BA shall be responsible for the medical treatment / hospitalization of his and his Sub-contractor’s staff/ labour.

The BA shall appoint a qualified Safety officer at the Site to be responsible for maintaining the safety, and protection against accidents, of all personnel on the Site. Such Safety officer shall have the authority to issue instructions and take protective measures to prevent accidents.

The BA shall comply in toto with the Tata Power's Contractor Safety Terms & Conditions, Health Safety & Environment Manual while working on Tata Power Site/ Services/ Contracts.

Grievance Mechanism

The BA is expected to have grievance procedures that allow stakeholders to anonymously bring environmental and/or work-related violations and/or concerns to the attention of management. In addition, the BA is expected to have procedures for examining reports of environmental and/or work-related violations or concerns and/or privacy complaints.

Data Protection

The BA is expected to have a formal process to address data security or privacy issues.

ANNEXURE-I

Sr. No.	Question Description	Response (Y/N)	Remarks
Organization			
1	Does your Company have Sustainability Policy at Organization Level? If Yes, Please attach		
2	Do you have sustainable procurement policy in place for your own suppliers? If Yes, Please attach		
3	Does your company do regular assessment of its suppliers on ESG parameters?		
4	Are there ESG risks, or negative impacts identified in your supply chain		
Governance			
1	Is diversity taken into consideration when appointing board members/ senior management? Do you have an independent director/s?		
2	Has your company taken initiatives to ensure ethical practices at workplace? Please share the details, Policies etc.		
3	Does your company have a formal process to address data security or privacy issues? Please share the details, Policies etc.		
4	Does your company have grievance mechanism for stakeholder issues and track resolution?		
Environment/ Planet			
1	Does your company have Environmental Policy? If Yes, Please attach		
2	Do you have a formal process for waste management including solid wastes, liquid wastes and hazardous waste?		
3	Does your company track greenhouse gas emission? Also, what percentage of own consumption comes from the renewable energy?		
4	Does your company have a formal process for water management including monitoring of water consumption and withdrawals, and if applicable, pretreatment of wastewater?		
Green Technology/ Innovation			
1	Are your facility/ Product/ Services provided by you is based on green design, green production, green packaging or green logistics considerations? Please elaborate.		
2	Do your products or services have any environmental or social features or benefits (e.g. environmental/energy certification, ecolabels, fair trade certification, etc.)?		
Social/ People			
1	Does you facility/ Company have written personnel policies in place Are you an equal opportunity employer?		
2	Please describe any formal programme / campaign in place to promote company involvement with the community (volunteering, etc.). What is the percentage of profit spend on community activities?		
3	Does your company have a written Health & Safety Policy or Program? If Yes, Please attach		
Certifications: Does your company have following certifications (valid till date-please mention validity)			
1	ISO9001 accreditation		
2	SA8000 or equivalent		
3	ISO 14001 certification		
4	ISO 18001/45001 or equivalent		
5	ISO/IEC 27001 or equivalent		
6	Any Other (Please specify)		

Signature

Business Associate Name

ANNEXURE-II

CORPORATE SUSTAINABILITY POLICY

At Tata Power, our Sustainability Policy integrates economic progress, social responsibility and environmental concerns with the objective of improving quality of life. We believe in integrating our business values and operations to meet the expectations of our customers, employees, partners, investors, communities and public at large

- We will uphold the values of honesty, partnership and fairness in our relationship with stakeholders
- We shall provide and maintain a clean, healthy and safe working environment for employees, customers, partners and the community
- We will strive to consistently enhance our value proposition to the customers and adhere to our promised standards of service delivery
- We will respect the universal declaration of human rights, International Labour Organization's fundamental conventions on core labour standards and operate as an equal opportunities employer
- We shall encourage and support our partners to adopt responsible business policies, Business Ethics and our Code of Conduct Standards
- We will continue to serve our communities:
    - By implementing sustainable Community Development Programmes including through public/private partnerships in and around our area of operations
    - By constantly protecting ecology, maintaining and renewing bio-diversity and wherever necessary conserving and protecting wild life, particularly endangered species
    - By encouraging our employees to serve communities by volunteering and by sharing their skills and expertise
    - By striving to deploy sustainable technologies and processes in all our operations and use scarce natural resources efficiently in our facilities
    - We will also help communities that are affected by natural calamities or untoward incidence, or that are physically challenged in line with the Tata Group's efforts

The management will commit all the necessary resources required to meet the goals of Corporate Sustainability.

(Praveer Sinha)
CEO & Managing Director

Date: 15th June, 2018

TATA POWER
Lighting up Lives!

Supplier Code of Conduct

Tata Power follows the Tata Code of Conduct (TCoC) and the Whistle blower Policy and expect all its Suppliers to adhere to the same principles. **"Supplier"** here means any business, company, corporation, person or other entity that provides, sells or seeks to sell, any kind of goods or services to Tata Power, including the Supplier's employees, agents and other representatives.

Tata Code of Conduct- (TCoC): https://www.tatapower.com/pdf/aboutus/Tata-Code-of-Conduct.pdf

Whistle Blower Policy: https://www.tatapower.com/pdf/aboutus/whistle-blower-policy-and-vigil-mechanism.pdf

Anti-Bribery & Anti-Corruption Policy: https://www.tatapower.com/pdf/aboutus/abac-policy.pdf

The suppliers are expected to adhere to the following Do's and Don'ts:

Do's

1. The Suppliers shall be committed to supplying products and services of high quality that meet all applicable standards and laws, including product packaging, labelling and after-sales service obligations.
2. Comply with all applicable laws and regulations, both in letter and in spirit, in all the territories in which it operates.
3. Strive to provide a safe, healthy and clean working environment for its employees.
4. Strive for environmental sustainability, particularly with regard to the emission of greenhouse gases, consumption of water and energy and the management of waste and hazardous materials.
5. The Supplier shall represent our company (including Tata brand) only with duly authorised written permission from our company.
6. Safeguard the confidentiality on the use of intellectual property, information and data of the Company.
7. Gifts and hospitality given or received should be modest in value and appropriate as per Company Policy.
8. The assets of Tata Power shall be employed primarily and judiciously for the purpose of conducting the business for which they are duly authorised.
9. All actual or potential conflicts due to financial or any other relationship with a Tata Power employee shall be disclosed.

Don'ts

1. The Supplier shall not make unfair or misleading statements about the products and services of competitors.
2. Children shall not be employed at workplaces.
3. Forced labour shall not be used in any form.
4. The Suppliers shall neither receive nor offer or make, directly or indirectly, any illegal payments, remunerations, gifts, donations or comparable benefits that are intended, or perceived, to obtain uncompetitive favours for the conduct of its business with Tata Power.

Reporting Violations

The Supplier shall notify the Company regarding any known or suspected improper behaviour of other suppliers or employees relating to its dealings with Tata Power, by email to: cecounsellor@tatapower.com. The same can also be raised through our 3rd party ethics helpline facility:

Toll-free Number	1800 267 4065
Email	tatapower@tip-offs.in
Website & Chatbot	www.tatapower.tip-offs.in
Postal address	Attn to: Mr. Puneet Arora, Deloitte Touch Tohmatsu India LLP, 6 floor, AIPL Business, Sector 62, Gurugram, Haryana 122102

TECHNICAL SPECIFICATION

11KV CTPT METERING UNIT

The Tata Power Company Ltd.
Engineering Services (ENSE),
Distribution Division,
Senapati Bapat Marg,
Lower Parel,
Mumbai – 400013
Maharashtra

TECHNICAL SPECIFICATION COVER SHEET

Document No: ENSE-DS-2044-R0

Document Title: Technical Specification of 11 KV CT PT Metering unit

R0	**ENSE-DS-2044-R00**	Xx/xx/24		KSJ		AVP		RMB	
Rev No.	**Remarks**	**Date**		**Initials**	**Sign**	**Initials**	**Sign**	**Initials**	**Sign**
				Prepared By		**Reviewed By**		**Approved & Issued By**	

Rev No.	Prepared By & Date	Checked By & Date	Approved for Issue By & Date
R00	Ketan Jadhav 	Ajay V. Potdar 	Ravindra M. Bhanage
	27/06/24	27/06/24	27/06/24

CONTENTS

1.0	**SCOPE**	This specification covers the technical requirements of design, manufacture, testing at manufacturer's works, packing, forwarding, supply and unloading at store/site for Indoor as well as Outdoor 11kV CT-PT Metering Cubicle having Potential transformer and Current transformers, along with secondary wiring and meter box complete with all accessories for efficient and trouble free operation. The ratings shall be as per the following: CTR: 300/5 of accuracy class 0.2s PTR: 11KV/√3 / 110/√3 Volts of accuracy class 0.2.
2.0	**Applicable Standards**	The equipment covered by this specification shall conform to the requirements stated in latest editions of relevant Indian/ IEC Standards and shall conform to the regulations of local statutory authorities.

S. No.	Standards	Title
1	IS 2705-1992	Specification for Current transformer
3	IS/IEC 62155 : 2003 (IEC 62155 : 2003)	Hollow Pressurized and Unpressurized Ceramic and Glass Insulators for Use in Electrical Equipment with Rated Voltages Greater Than 1 000 V
4	IS/IEC 60137 : 2017 (IEC 60137 : 2017)	Insulated Bushings for Alternating Voltages above 1 000 V
5	IS 1271 : 2012 (IEC 60085 : 2007)	Electrical Insulation-thermal Evaluation and Designation
6	IS 5561-2018	Electric Power Connectors- Specification
1	IS 2705-1992	Specification for Current transformer
7	IEC 60137-0-1	General requirements - Enamelled round copper wire
8	IEC 60529	Degrees of protection provided by enclosures (IP code)
9	IEC 61869	Specification for instrument Transformer

3.0	**CLIMATIC CONDITIONS OF THE INSTALLATION**	1	Maximum ambient temperature	43 deg.C
		2	Max. Daily average ambient temp	35 deg.C
		3	Min Ambient Temperature	07 deg.C
		4	Maximum Relative Humidity	100%
		5	Minimum Relative Humidity	40%
		6	Average No. of thunderstorm per annum	50
		7	Average Annual Rainfall	2380mm

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8	Average No. of rainy days per annum	115
9	Rainy months	June to Oct.
10	Altitude above MSL not exceeding	300 meters
11	Average Air Pressure	29.6-inch Hg

Atmosphere is generally laden with mild acid and dust suspended during summer months and subjected to fog in winter months. The design of the equipment and accessories shall be suitable to withstand seismic forces corresponding to an acceleration of 0.1g.

4.0 GENERAL TECHNICAL REQUIRMENTS

Sr. No	Description	Requirement (Indoor/outdoor)
4.1	**General for CT-PT**	
4.1.1	Rated Voltage	12 (KV rms)
4.1.2	Service Voltage	11 (KV rms)
4.1.3	Frequency	50HZ
4.1.4	No of Phases	3
4.1.5	Impulse Withstand Voltage (on assembled CT-PT set)	75 (KV Peak)
4.1.6	Insulation Level	
	One-minute power frequency withstand voltage (on assembled CT-PT)	
	Primary	Primary- 28 (KV rms)
	Secondary	Secondary- 3 (KV rms)
4.1.7	Cable connection terminal of CT to base plate distance	750 mm Minimum
4.1.8	Min. Creepage distance to the nearest earth to any live point (16mm/KV)	192 mm
4.1.9	Paint	RAL 7032
4.1.10	Paint Thickness	120 microns
4.2	**Current Transformer**	
4.2.1	Transformation ratio (CT ratio)	300/5
4.2.2	Rated Output (VA Burden)	15 VA
4.2.3	Class of accuracy	0.2S CI
4.2.4	Varnish on CT windings	Class – H varnish
4.2.5	Impregnation	Class – H vacuum pressure impregnation
4.2.6	Epoxy resin casting	Class – F resin of reputed make
4.2.7	Rated continuous thermal current	1.2 times Primary Current
4.2.8	Short time thermal current rating	26.2KA Amps for 1Sec
4.2.9	Rated Dynamic Current	2.5 times short time thermal current rating
4.2.10	No of Cores.	One

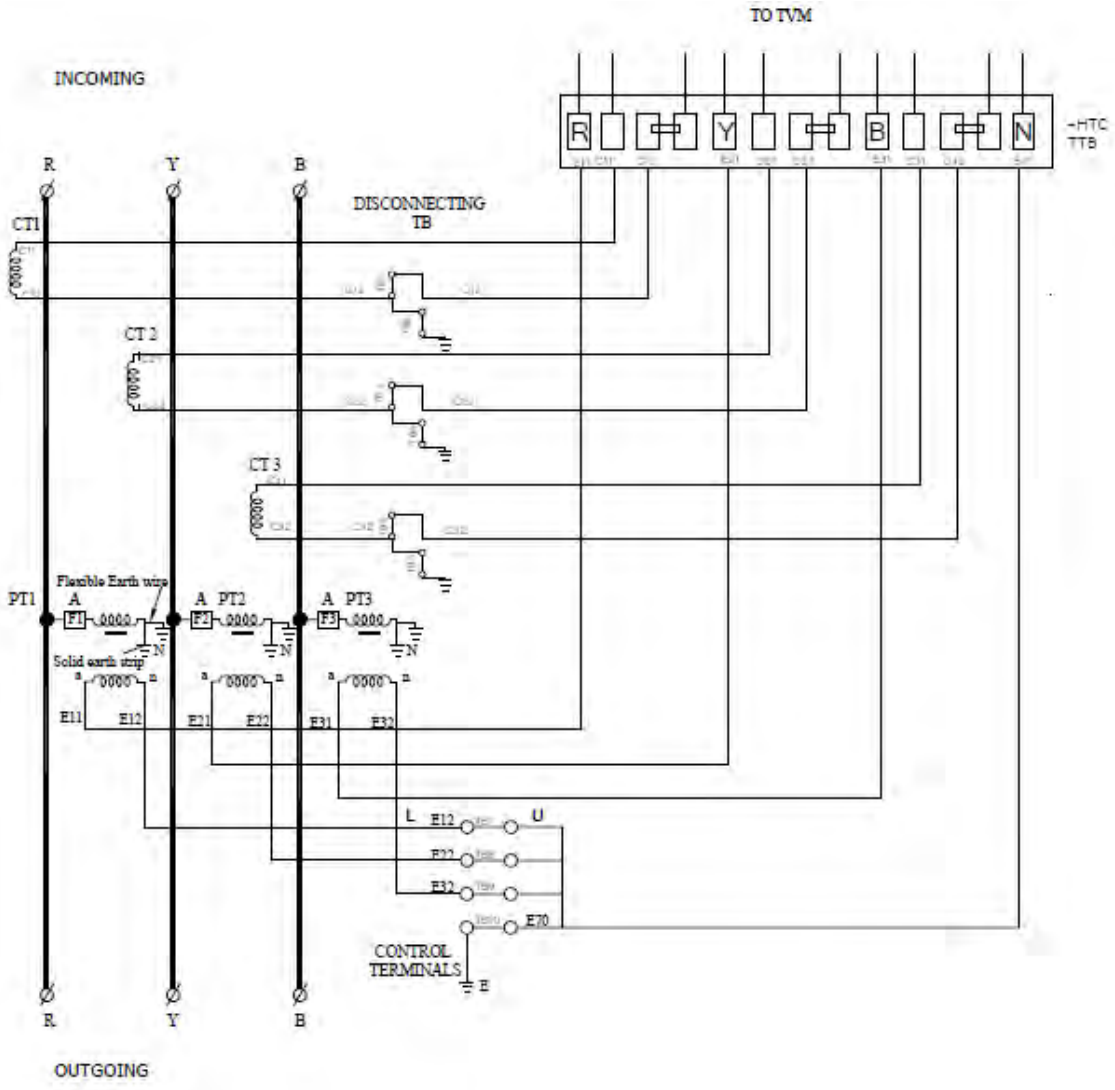
4.2.11	Instrument Security Factor (ISF)	≤ 5		
4.2.12	Limits of current (ratio) Error and phase Displacement. (For 0.2S Accuracy class)	Percentage of rated current	± percentage current (ratio) error	± phase Displacement In minutes
		1	0.75	30
		5	0.35	15
		20	0.2	10
		100	0.2	10
		120	0.2	10
4.2.13	Maximum temperature rises over ambient temperature.	105 Deg C as per IS 2705-1		
4.2.14	Size of Busbar	300 sq. mm (min.) Copper		
4.2.15	Washers and connectors	Bi-metallic washer and tinned copper connector		
4.2.16	Cable cleat	HDPE/Nylon Fire retardant cable cleat		
4.2.17	CT terminal shape	L-shaped or cross flat type		
4.3	**Potential Transformer**			
4.3.1	Transformation ratio (CT ratio)	11KV/√3/110//√3 Volts		
4.3.2	Rated Output (VA Burden)	50 VA per phase		
4.3.3	Rated Voltage factor and time	1.2 times Continuous and 1.9 for 8 Hrs		
4.3.4	Class of accuracy	0.2		
4.3.5	Winding connection	Star		
4.3.6	Epoxy resin casting	Class – F resin of reputed make		
4.3.7	Varnish on PT windings	Class – H varnish		
4.3.8	Impregnation	Class – H vacuum pressure impregnation		
4.3.9	Limit of voltage (ratio) Error	± 0.2		
4.3.10	Limit of phase displacement (minutes)	± 10		
4.3.11	Maximum temperature rises over ambient temperature	105 Deg C as per IS 3156, Part-1		
4.3.12	Winding grade	Grade 3		
4.4	**Bushing**			
4.4.1	Materials of bushings	Epoxy		
4.4.2	Minimum creepage distance between phase and earth (Ref clause 5.1-As per IS3156-Part 1)	16 mm/KV		
4.4.3	Material for Rod of bushings	Copper / brass		
4.5	**Enclosure**			

		4.5.1	Material and thickness of the meter box	MS sheet, Minimum 2mm
		4.5.2	Non-current carrying nuts, bolts, screws etc. on enclosure	SS 304
		4.5.3	Protection against penetration of dust and water	Outdoor type (Min IP54)
		4.5.4	Door of metering compartment	Door with toughened glass
5.0	**GENERAL CONSTRUCTIONS**			
5.1	**General**			

1. The 11kV Metering cubicle shall comprise of three number single phase potential transformer and three numbers single phase current transformers.
2. The connection between the CT and PT inside the enclosure shall have adequately reinforced insulation to avoid infringement of clearance in air or to the enclosure from inside the unit.
3. Adequate electrostatic and electromagnetic shielding shall be provided to eliminate the effects of electromagnetic induction/ electrostatic charge on the secondary windings. Creepage distance (minimum) from any live part to the nearest earth point shall be 16 mm/KV.
4. The resin cast PT shall have three nos single phase units with grounded neutral ~~on LT side.~~
5. The primary terminals of CT shall be of adequate cross section to carry continuously, the rated current plus 20% over load continuously.
6. Normal current density shall not be more than 1.6 A sq mm in primary winding of the CT.
7. The size of Busbar shall be appx. 30 mm X10 mm. All the busbars shall be insulated (sleeved).
8. Busbar shall be made of electrical Grade copper and of suitable size to withstand the specified short circuit rating.
9. There should be enough space to be provided for mounting future requirement like AMR modem and fuses.
10. There should be MS partition between incoming and outgoing cable chamber.
11. The space heater with hygrostat should be in both cable chambers. There should be sealing arrangement for meter front panel.
12. The unit shall be fabricated with MS sheet having thickness not less than 2 mm.
13. In case louvers are provided, they shall be with wire mesh screen. The Panel shall be such that any accidental water ingress shall be drained from bottom through a vent.
14. HT terminals to the base plate distance shall be minimum 750mm.
15. The Metering panel is compartmentalized with independent compartment of incomings, outgoings cable chamber. The Current transfer area of the terminals shall be adequate to meet the temperature rise requirement as per IS 2705.
16. CT/PT secondary terminal should have a provision for sealing.
17. Secondary wiring shall be carried out with 1100V grade PVC insulated stranded copper conductor of 4.0 sq mm for CT circuit and 2.5 Sq.mm for PT and the other circuits.
18. All wires will be colour coded (Red, Yellow, Blue, Black, Gray). The Secondary connection to be kept on front side for easy accessibility and ensure tightness.
19. Two types of PT primary Grounding should be provided one is through strip & other through cable.
20. The metering cubicle shall be welded with 4 numbers lifting lugs of adequate strength at suitable diagonal locations for balanced lifting. All the edges and joints shall be made and

		welded in such a way so that no access inside the cubicle shall be possible through them and shall thus provide strength to robust mechanical construction both for transportation and installation for its use. 21. The metering cubicle shall be provided with M16 earthing bolt at two opposite sites with welding from inside the cubicle for fixing external earth during installation. Both earthing bolts at opposite ends to be interconnected by 50 x 6 GI. The bolts shall be connected internally to 50 x 6 mm GI earth bus which shall provide earthing to PT neutral & cable earth provision. Terminal bolts and washers used in metering cubicle shall be of stainless steel. 22. Tata Power Logo of size150 mm x 150 mm shall be provided on metering panel as per Annexure 1.
5.2	**Windings and Core**	1. Both primary and secondary winding of CT and PT must be dry type. 2. Winding insulation used for PT primary must be of grade 3. 3. Winding insulation used for CT primary must be of class H only. 4. All windings of CT and PT must undergo vacuum pressure impregnation with varnish of reputed make suitable for withstanding maximum temperature as per Class 'H'. 5. After varnish impregnation all coils to be undergo epoxy resin casting with 'F' class of reputed make. Leads shall be brought out from resin casting. 6. The core material of CT-PT unit shall be of high grade non ageing electrical silicon steel (CRGO) of first quality having low hysteresis loss and high permeability to ensure accuracy at both terminal and over current voltage. The grade of the Core shall be ZDKH or better. 7. The paper used for insulation shall be of high insulation grade. The insulating paper / polyester film used for insulation shall be of high insulation grade, excellent mechanical strength (tensile, tear, and stretch), high purity, chemical stability, and heat resistance. The paper density if the used shall be approx 60-190 g/m2. The insulating paper shall be used of make Weidmann or better/ polyester film shall be used of makes herztmann/ Dr. Beck/ Resin or better. 8. The insulating materials for winding between HV and LV and between interlayer of the winding and for end turn shall be as per relevant IS. However, end turns have to be provided with reinforced insulation and lead connecting the bushing shall be provided with extra insulation. 9. No joints shall be allowed in CT secondary wires. 10. The secondary winding shall be epoxying cast and the leads shall be brought out through epoxy cast terminal. 11. The wiring shall be neatly bunched together. Only 6 wires of CT and 6 wires of PT shall come out from the chamber for connections. 12. Suitable size of lugs shall be used to tighten the wire with the unit's secondary terminals. 13. The bus bar and HT side of PT shall be connected through a flexible copper strip or equivalent size of copper and of adequate length such that HT terminals of PTs are not subjected to any compression or tension forces.
5.3	**Metering Compartment**	1. The CT secondary s1 terminal & PT secondary phase terminal of each phase shall terminate at TTB from bottom side. 2. The CT secondary s2 & PT secondary neutral wires shall be wired to droppable terminal links & then to TTB. 3. Make of droppable links shall be connected well or Elmex. 4. CT secondary & PT Star formation to be made at terminal links. 5. The TTB, wiring shall be carried out with source wires from CT and PT at bottom and meters wires at top. Only front connection screw type TTBs should be used and shall be located inside the metering panel and not on the panel door.

6. TTB shall be of DAV make & Model name is SSFS.
7. No lugs shall be provided for wires to meter & TTB.
8. Adequate space for mounting TVM should be provided in compartment (Max dimension envisaged for TVM: L x B x D: 305 x 170 x 180 mm. Location of meter shall be at convenient height (less than five feet from ground level) for easy reading & testing purpose. Window to be provided for taking meter reading manually from outside without opening of cubicle.
9. Please refer below diagram for meter wiring.



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5.4	**Cable compartment**	1) The cable compartment shall be provided with warning on door "DANGER 11kV DO NOT OPEN THIS DOOR BEFORE SWITCH OFF THE SUPPLY". 2) Suitable provision shall be made inside the compartment with proper clamping arrangement. Provision of suitable space and arrangement of proper orientation of cable termination shall be made so that there is no problem in fixing the incoming and outgoing cables. The cable size shall be 11KV, 3 core Al Ar XLPE 300 sq.mm. Suitable non-magnetic cable support shall be provided on both sides for the HT cables. The CT mounting shall be made in such a way to avoid easy access or removal. 3) The Incoming and outgoing marking to be done with paint on metering cubicle.
5.5	**Bushing**	1. The metering equipment shall be supplied with adequate number of single terminals, epoxy bushings of reputed make (as approved by the Purchaser) with Brass studs as per the rating. 2. The bushings shall be rated for 12 KV. The bushings shall confirm to IS: 8603- 2008 for the dimensions and IS: 5621and IS: 2099 for other electrical requirements.
5.6	**Painting**	1. All paint shall be applied on clean dry surfaces under suitable atmospheric conditions by seven tank process and powder coating. 2. The overall paint thickness (External & Internal) shall not be less than 120 microns. 3. The paint shall not scale off or crinkle or be removed by abrasion during normal handling. 4. The enclosure of the CT-PT unit shall be painted with RAL 7032 Siemens grey.
6.0	**NAME PLATE AND MARKINGS**	The unit shall be provided with a name plate clearly visible and effectively secured against removal. The name plate shall be indelibly and distinctly marked with all essential as per relevant standards along with the following: i) Manufacturer's name ii) Month and Year of manufacture iii) Serial number and Type designation iv) Rated primary and secondary currents v) Rated frequency vi) Rated output and the corresponding accuracy class vii) Highest system voltage viii) Rated insulation level of primary neutral ix) Rated short time thermal current x) Rated dynamic current if different than 2.5 times the rated STC rating xi) Rated primary and secondary voltage xii) Rated voltage factor and corresponding rated time xiii) Number of phases and method of connection xiv) Earthed or unearthed xv) Guarantee period xvi) Reference standard xvii) Material code xviii) PO number Reference standard xix) Property of TATA POWER-Mumbai

		Also, the danger plate should be shown on the front cover. Incoming and outgoing to be marked from inside of the panel (on sidewalls), and CT should be marked with P1 and P2 on the resin casting. Further the following shall be painted on the front with black colour and yellow background: xx) Serial number xxi) Year of manufacture xxii) Ratio
7	**TESTS**	All routine, acceptance & type tests shall be carried out separately in accordance with the relevant IS/IEC. All routine/acceptance tests shall be witnessed by the purchaser/his authorized representative. All the components shall also be type tested as per the relevant standards. **<u>For Current Transformers</u>** **Type Test** i) Short time current tests (as per clause 9.6 of IS 2705 Part-1) ii) Temperature rise test (as per clause 9.7 of IS 2705 Part-1) iii) Lightning impulse test for current transformers for service in electrically exposed installation (as per clause 9.8 of IS 2705 Part-1) iv) Determination of errors or other characteristics according to the requirements of the appropriate designation or accuracy class (as per clause 7.1.1 of IS 2705 Part-2) vi) Instrument Security Current Test (as per clause 7.1.2 of IS 2705 Part-2) **Routine Test & Acceptance** i) Verification of terminal marking and polarity (as per clause 9.2 of IS 2705 Part-1) ii) Power frequency dry withstand tests on primary windings (as per clause 9.3 of IS 2705 Part-1) iii) Power frequency dry withstand tests on secondary windings (as per clause 9.4 of IS 2705 Part-1) iv) Over voltage inter-turn tests (as per clause 9.5 of IS 2705 Part-1) v) Partial discharge test in accordance with IS 11322-1985 vi) Determination of errors or other characteristics according to the requirements of the appropriate designation or accuracy class (as per clause 7.1.1 of IS 2705 Part-2) **<u>For Potential Transformers</u>** **Type Test** i) Lightning impulse test for voltage transformers for service in electrically exposed installation (as per clause 9.6 of IS 3156 Part-1) ii) Determination of errors or other characteristics according to the requirements of the appropriate designation or accuracy class (as per clause 8.1.1 of IS 3156 Part-2) iii) Short circuit withstand capability test (as per clause 9.9 of IS 3156 Part-1) iv) Temperature rise test (as per clause 9.5 of IS 3156 Part-1) **Routine Test & Acceptance** i) Verification of terminal marking and polarity (as per clause 9.2 of IS 3156 Part-1) ii) Power frequency dry withstand tests on primary windings (as per clause 9.3 of IS 3156 Part-1)

		iii) Power frequency dry withstand tests on secondary windings (as per clause 9.4 of IS 3156 Part-1) iv) Partial discharge test in accordance with IS 11322-1985 v) Determination of errors or other characteristics according to the requirements of the appropriate designation or accuracy class (as per clause 8.1.1 of IS 3156 Part-2) **Enclosure Type Test: - (Test shall be included CT PT with busbar & enclosure)** 1. Temperature rise test 2. Ingress Protection test 3. Short time current tests (Short circuit withstand test for Metering cubicle along with CT, PT, busbar and insulator) 4. Chopped lighting impulse
8	**TYPE TEST CERTFICATE**	1. The bidder shall furnish the type test certificates for the tests as mentioned above as per the Corresponding standards. 2. All the tests shall be conducted at CPRI / ERDA / NABL Certified Labs as per the relevant standards. 3. Type test shall have been conducted in certified Test Laboratories during the period not exceeding 7 years from the date of opening the bid. 4. In the event of any discrepancy in the test reports i.e. any test report not acceptable or any/all type tests (including additional type tests, if any) not carried out, same shall be carried out without any cost implication to TATA POWER COMPANY.
9	**PRE-DISPATCH INSPECTION**	1. Equipment shall be subject to inspection by a duly authorized representative of the Purchaser. 2. Inspection may be made at any stage of manufacture at the discretion of the purchaser and the equipment, if found unsatisfactory as to workmanship or material, the same is liable to rejection. 3. Bidder shall always grant free access to the places of manufacture to the Purchaser's representatives when the work is in progress. 4. Inspection by the Purchaser or its authorized representatives shall not relieve the bidder of his obligation of furnishing equipment in accordance with the specifications. 5. Material shall be dispatched after specific MDCC (Material Dispatch Clearance Certificate) is issued by the Purchaser. Following documents shall be sent along with material 1. Test reports 2. MDCC issued by the Purchaser 3. Invoice in duplicate 4. Packing list 5. Drawings & catalogue 6. Guarantee / Warrantee card 7. Delivery Challan 8. Other Documents (as applicable)

10	**INSPECTION AFTER RECEIPT AT STORE**	The material received at the Purchaser's store will be inspected for acceptance and shall be liable for rejection, if found different from the reports of the pre-dispatch inspection and one copy of the report shall be sent to Consumer Engineering department.
11	**GUARANTEE**	1. Bidder shall stand guarantee towards design, materials, workmanship & quality of process manufacturing of items under this contract for due and intended performance of the same, as a Integrated product delivered under this contract. 2. In the event any defect is found by the purchaser up to a period of at least 48 months from the date of commissioning or 60 months from the date of last supplies made under the contract whichever is earlier, Bidder shall be liable to undertake to replace/rectify such defects at its own costs, within mutually agreed time frame, and to the entire satisfaction of the Company, failing which the purchaser will be at liberty to get it replaced/rectified at bidder's risks and costs and recover all such expenses plus the Company's own charges @ 20% of expenses incurred), from the bidder or from the" Security cum Performance Deposit" as the case may be. 3. Bidder shall further be responsible for free replacement for another period of THREE years from the end of the guarantee period for any 'Latent Defects' if noticed and reported by the purchaser.
12	**PACKING**	1. Bidder shall ensure that all material covered under this specification shall be prepared for rail/road transport (local equipment) and be packed in such a manner as to protect it from damage in transit. 2. No single use plastic to be used in packaging. The packaging material shall be environmentally friendly & recyclable.
13	**TENDER SAMPLE**	Not Applicable
14	**QUALITY CONTROL**	1. The bidder shall submit with the offer Quality assurance plan indicating the various stages of inspection, the tests and checks which will be carried out on the material of construction, components during manufacture and bought out items and fully assembled component and equipment after finishing. 2. As part of the plan, a schedule for stage and final inspection within the parameters of the delivery schedule shall be furnished. 3. The Purchaser's engineer or it nominated representative shall have free access to the bidder's/manufacturer's works to carry out inspection.
15	**MINIMUM TESTING FACILITIES**	Bidder shall have adequate in-house testing facilities for carrying out all routine tests & Acceptance tests as per relevant International/Indian standards.
16	**MANUFACTURING ACTIVITIES**	The successful bidder will have to submit GTP & Drawing with 15 days from placement of order/OLA for approval. The date of Code -2/ Code-1 approval given by TATA Power will be treated as first day for assessment of LD (if applicable).

17	**SPARES, ACCESSORIES & SPECIAL TOOLS.**	Not Applicable
18	**Drawings & Documentation**	Following documents to be submitted along with the bid for evaluation: a) Completely filled–in clause wise compliance of this specification. b) Signed and stamped copy of drawing c) Complete Type test reports d) Completely filled signed and stamped copy of tender document. e) Any other requisite document Following documents shall be submitted after award of OLA/PO before manufacturing: a) Completely filled–in clause wise compliance of the specification. b) Signed and stamped copy of Drawing c) Compliance of all undertaking submitted during technical evaluation, if any All the Documents and Drawings shall be in English Language.
19	**GUARANTEED TECHNICAL PARTICULARS**	Bidders to comply for all above requirement of specifications clauses & submit signed and stamp copy as technical compliance documents.
20	**SCHEDULE OF DEVIATION**	**The bidders shall set out all deviations from this specification, Clause by Clause in this schedule. Unless specifically mentioned in this schedule, the tender shall be deemed to confirm the purchaser's specifications.** **(TO BE ENCLOSED WITH THE BID)** **All deviations from this specification shall be set out by the bidders, clause by Clause in this schedule. Unless specifically mentioned in this Schedule, the tender shall be deemed to confirm the purchaser's specifications:**

Sr. No.	Clause No.	Details of deviation with justifications

We confirm that there are no deviations apart from those detailed above.

Seal of the Company **Signature :**

Designation :

Annexure 1: Inspection testing plan

For Current Transformer

Acceptance Test

i) Verification of terminal marking and polarity (as per clause 9.2 of IS 2705 Part-1)
ii) Power frequency dry withstand tests on primary windings (as per clause 9.3 of IS 2705 Part-1)
iii) Power frequency dry withstand tests on secondary windings (as per clause 9.4 of IS 2705 Part-1)
iv) Over voltage inter-turn tests (as per clause 9.5 of IS 2705 Part-1)
v) Partial discharge test in accordance with IS 11322-1985
vi) Determination of errors or other characteristics according to the requirements of the appropriate designation or accuracy class (as per clause 7.1.1 of IS 2705 Part-2)

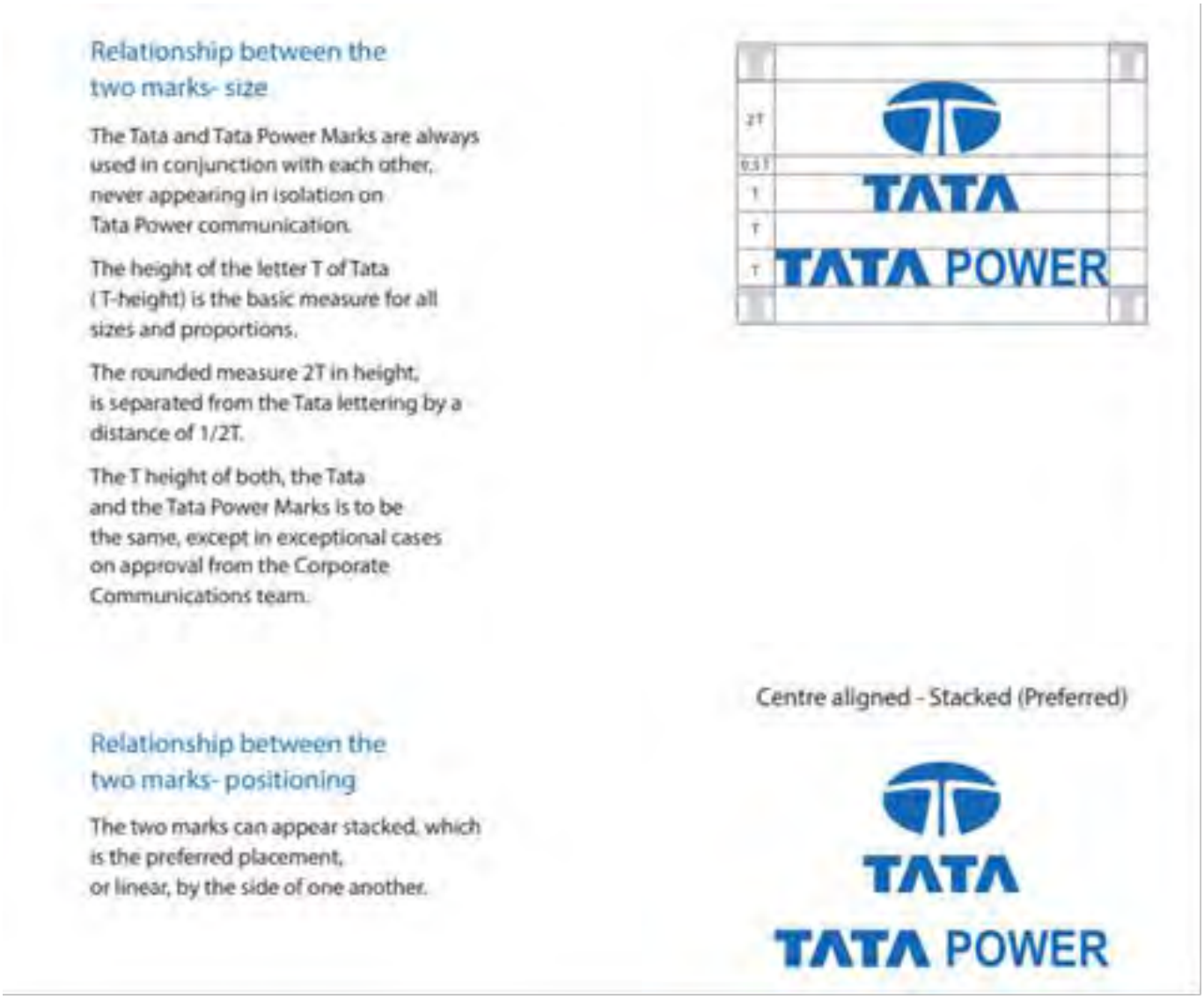
For Potential Transformers

Acceptance Test

i) Verification of terminal marking and polarity (as per clause 9.2 of IS 3156 Part-1)
ii) Power frequency dry withstand tests on primary windings (as per clause 9.3 of IS 3156 Part-1)
iii) Power frequency dry withstand tests on secondary windings (as per clause 9.4 of IS 3156 Part-1)
iv) Partial discharge test in accordance with IS 11322-1985
v) Determination of errors or other characteristics according to the requirements of the appropriate designation or accuracy class.

Annexure 2: Tata power Branding Name plate

Separate metallic name plate with Tata Power Logo of Dimension 150 mm x 150 mm in clear font as shown below.



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R00	Ketan Jadhav	Ajay V. Potdar	Ravindra M. Bhanage
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TECHNICAL SPECIFICATION

22KV CTPT METERING UNIT

The Tata Power Company Ltd.
Engineering Services (ENSE),
Distribution Division,
Senapati Bapat Marg,
Lower Parel,
Mumbai – 400013
Maharashtra

TECHNICAL SPECIFICATION COVER SHEET

Document No: ENSE-DS-2045-R0

Document Title: Technical Specification of 22 KV CT PT Metering unit

R0	**ENSE-DS-2045-R00**	Xx/xx/24		KSJ		AVP		RMB	
Rev No.	**Remarks**	**Date**		**Initials**	**Sign**	**Initials**	**Sign**	**Initials**	**Sign**
				Prepared By		**Reviewed By**		**Approved & Issued By**	

Rev No.	Prepared By & Date	Checked By & Date	Approved for Issue By & Date
R00	Ketan Jadhav 	Ajay V. Potdar 	Ravindra M. Bhanage
	27/06/24	27/06/24	27/06/24

CONTENTS

1.0	**SCOPE**	This specification covers the technical requirements of design, manufacture, testing at manufacturer's works, packing, forwarding, supply and unloading at store/site for Indoor as well as Outdoor 22kV CT-PT Metering Cubicle having Potential transformer and Current transformers, along with secondary wiring and meter box complete with all accessories for efficient and trouble free operation. The ratings shall be as per the following: CTR: 200/5 of accuracy class 0.2s PTR: 22KV/√3 / 110/√3 Volts of accuracy class 0.2.
2.0	**Applicable Standards**	The equipment covered by this specification shall conform to the requirements stated in latest editions of relevant Indian/ IEC Standards and shall conform to the regulations of local statutory authorities.

S. No.	Standards	Title
1	IS 2705-1992	Specification for Current transformer
3	IS/IEC 62155 : 2003 (IEC 62155 : 2003)	Hollow Pressurized and Unpressurized Ceramic and Glass Insulators for Use in Electrical Equipment with Rated Voltages Greater Than 1 000 V
4	IS/IEC 60137 : 2017 (IEC 60137 : 2017)	Insulated Bushings for Alternating Voltages above 1 000 V
5	IS 1271 : 2012 (IEC 60085 : 2007)	Electrical Insulation-thermal Evaluation and Designation
6	IS 5561-2018	Electric Power Connectors- Specification
7	IEC 60137-0-1	General requirements - Enameled round copper wire
8	IEC 60529	Degrees of protection provided by enclosures (IP code)
9	IEC 61869	Specification for instrument Transformer

3.0 CLIMATIC CONDITIONS OF THE INSTALLATION

1	Maximum ambient temperature	43 deg.C
2	Max. Daily average ambient temp	35 deg.C
3	Min Ambient Temperature	07 deg.C
4	Maximum Relative Humidity	100%
5	Minimum Relative Humidity	40%
6	Average No. of thunderstorm per annum	50
7	Average Annual Rainfall	2380mm
8	Average No. of rainy days per annum	115
9	Rainy months	June to Oct.

		10	Altitude above MSL not exceeding	300 meters
		11	Average Air Pressure	29.6-inch Hg

Atmosphere is generally laden with mild acid and dust suspended during summer months and subjected to fog in winter months. The design of the equipment and accessories shall be suitable to withstand seismic forces corresponding to an acceleration of 0.1g.

4.0 GENERAL TECHNICAL REQUIRMENTS

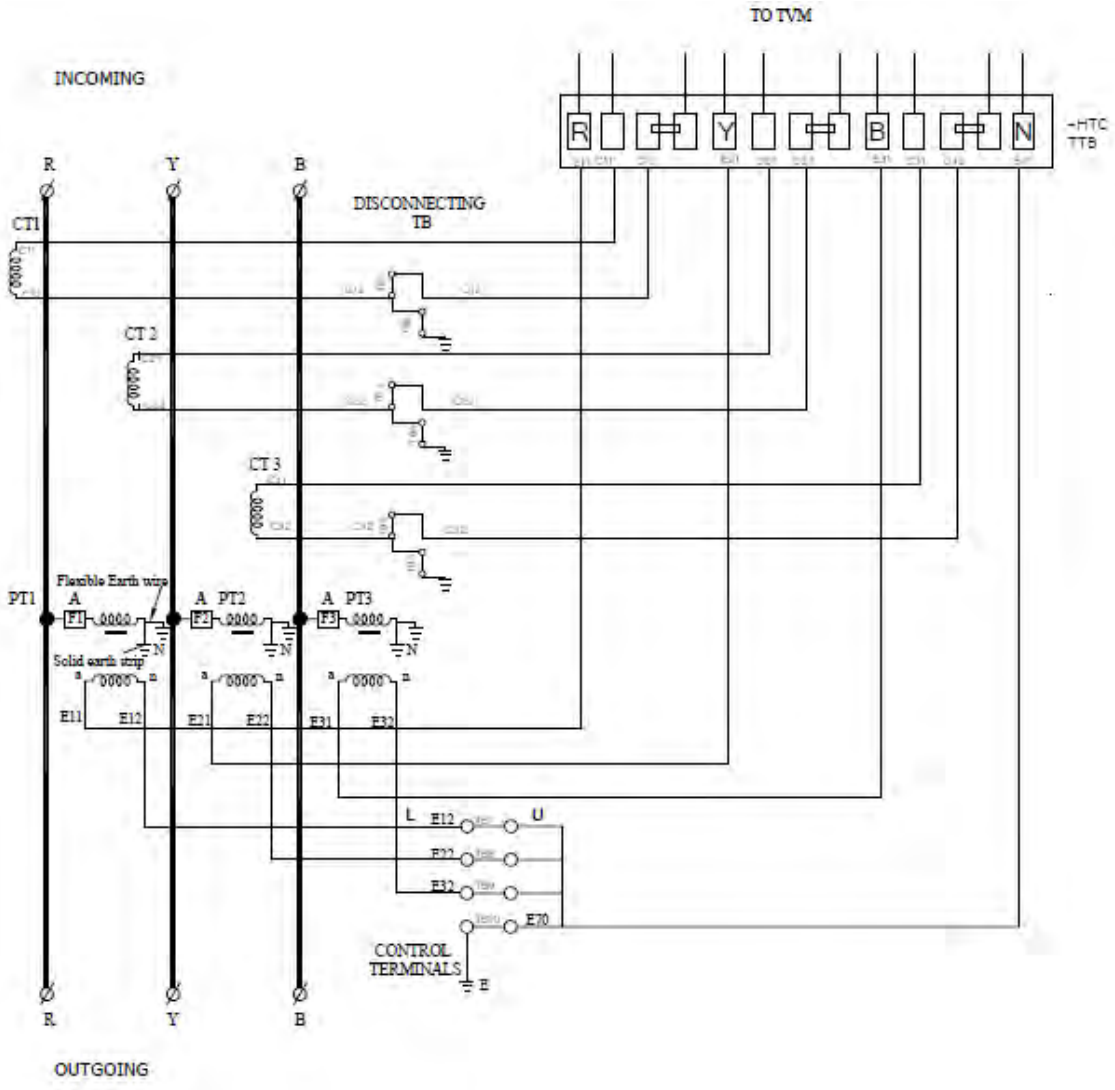
Sr. No	Description	Requirement (Indoor/outdoor)
4.1	**General for CT-PT**	
4.1.1	Rated Voltage	24 (KV rms)
4.1.2	Service Voltage	22 (KV rms)
4.1.3	Frequency	50HZ
4.1.4	No of Phases	3
4.1.5	Impulse Withstand Voltage (on assembled CT-PT set)	125 (KV Peak)
4.1.6	Insulation Level	
	One-minute power frequency withstand voltage (on assembled CT-PT)	
	Primary	Primary- 50 (KV rms)
	Secondary	Secondary- 3 (KV rms)
4.1.7	Cable connection terminal of CT to base plate distance	750 mm Minimum
4.1.8	Min. Creepage distance to the nearest earth to any live point (16mm/KV)	384 mm
4.1.9	Paint	RAL 7032
4.1.10	Paint Thickness	120 microns
4.2	**Current Transformer**	
4.2.1	Transformation ratio (CT ratio)	200/5
4.2.2	Rated Output (VA Burden)	15 VA
4.2.3	Class of accuracy	0.2S CI
4.2.4	Varnish on CT windings	Class – H varnish
4.2.5	Impregnation	Class – H vacuum pressure impregnation
4.2.6	Epoxy resin casting	Class – F resin of reputed make
4.2.7	Rated continuous thermal current	1.2 times Primary Current
4.2.8	Short time thermal current rating	26.2KA Amps for 1Sec
4.2.9	Rated Dynamic Current	2.5 times short time thermal current rating
4.2.10	No of Cores.	One
4.2.11	Instrument Security Factor (ISF)	≤ 5

		4.2.12	Limits of current (ratio) Error and phase Displacement. (For 0.2S Accuracy class)	Percentage of rated current	± percentage current (ratio) error	± phase Displacement In minutes
				1	0.75	30
				5	0.35	15
				20	0.2	10
				100	0.2	10
				120	0.2	10
		4.2.13	Maximum temperature rises over ambient temperature.	105 Deg C as per IS 2705-1		
		4.2.14	Size of Busbar	300 sq. mm (min.) Copper		
		4.2.15	Washers and connectors	Bi-metallic washer and tinned copper connector		
		4.2.16	Cable cleat	HDPE/Nylon Fire retardant cable cleat		
		4.2.17	CT terminal shape	L-shaped or cross flat type		
		4.3	**Potential Transformer**			
		4.3.1	Transformation ratio (CT ratio)	22KV/√3/110//√3 Volts		
		4.3.2	Rated Output (VA Burden)	50 VA per phase		
		4.3.3	Rated Voltage factor and time	1.2 times Continuous and 1.9 for 8 Hrs		
		4.3.4	Class of accuracy	0.2		
		4.3.5	Winding connection	Star		
		4.3.6	Epoxy resin casting	Class – F resin of reputed make		
		4.3.7	Varnish on PT windings	Class – H varnish		
		4.3.8	Impregnation	Class – H vacuum pressure impregnation		
		4.3.9	Limit of voltage (ratio) Error	± 0.2		
		4.3.10	Limit of phase displacement (minutes)	± 10		
		4.3.11	Maximum temperature rises over ambient temperature	105 Deg C as per IS 3156, Part-1		
		4.3.12	Winding grade	Grade 3		
		4.4	**Bushing**			
		4.4.1	Materials of bushings	Epoxy		
		4.4.2	Minimum creepage distance between phase and earth (Ref clause 5.1-As per IS3156-Part 1)	16 mm/KV		
		4.4.3	Material for Rod of bushings	Copper / brass		
		4.5	**Enclosure**			
		4.5.1	Material and thickness of the meter box	MS sheet, Minimum 2mm		

		4.5.2	Non-current carrying nuts, bolts, screws etc. on enclosure	SS 304
		4.5.3	Protection against penetration of dust and water	Outdoor type (Min IP54)
		4.5.4	Door of metering compartment	Door with toughened glass
5.0	**GENERAL CONSTRUCTIONS**			
5.1	**General**	1. The 22kV Metering cubicle shall comprise of three number single phase potential transformer and three numbers single phase current transformers. 2. The connection between the CT and PT inside the enclosure shall have adequately reinforced insulation to avoid infringement of clearance in air or to the enclosure from inside the unit. 3. Adequate electrostatic and electromagnetic shielding shall be provided to eliminate the effects of electromagnetic induction/ electrostatic charge on the secondary windings. Creepage distance (minimum) from any live part to the nearest earth point shall be 16 mm/KV. 4. The resin cast PT shall have three nos single phase units with grounded neutral on LT side. 5. The primary terminals of CT shall be of adequate cross section to carry continuously, the rated current plus 20% over load continuously. 6. Normal current density shall not be more than 1.6 A sq mm in primary winding of the CT. 7. The size of Busbar shall be appx. 30 mm X10 mm. All the busbars shall be insulated (sleeved). 8. Busbar shall be made of electrical Grade copper and of suitable size to withstand the specified short circuit rating. 9. There should be enough space to be provided for mounting future requirement like AMR modem and fuses. 10. There should be MS partition between incoming and outgoing cable chamber. 11. The space heater with hygrostat should be in both cable chambers. There should be sealing arrangement for meter front panel. 12. The unit shall be fabricated with MS sheet having thickness not less than 2 mm. 13. In case louvers are provided, they shall be with wire mesh screen. The Panel shall be such that any accidental water ingress shall be drained from bottom through a vent. 14. HT terminals to the base plate distance shall be minimum 750mm. 15. The Metering panel is compartmentalized with independent compartment of incomings, outgoings cable chamber. The Current transfer area of the terminals shall be adequate to meet the temperature rise requirement as per IS 2705. 16. CT/PT secondary terminal should have a provision for sealing. 17. Secondary wiring shall be carried out with 1100V grade PVC insulated stranded copper conductor of 4.0 sq mm for CT circuit and 2.5 Sq.mm for PT and the other circuits. 18. All wires will be colour coded (Red, Yellow, Blue, Black, Gray). The Secondary connection to be kept on front side for easy accessibility and ensure tightness. 19. Two types of PT primary Grounding should be provided one is through strip & other through cable. 20. The metering cubicle shall be welded with 4 numbers lifting lugs of adequate strength at suitable diagonal locations for balanced lifting. All the edges and joints shall be made and welded in such a way so that no access inside the cubicle shall be possible through them and		

		shall thus provide strength to robust mechanical construction both for transportation and installation for its use. 21. The metering cubicle shall be provided with M16 earthing bolt at two opposite sites with welding from inside the cubicle for fixing external earth during installation. Both earthing bolts at opposite ends to be interconnected by 50 x 6 GI. The bolts shall be connected internally to 50 x 6 mm GI earth bus which shall provide earthing to PT neutral & cable earth provision. Terminal bolts and washers used in metering cubicle shall be of stainless steel. 22. Tata Power Logo of size150 mm x 150 mm shall be provided on metering panel as per Annexure 1.
5.2	**Windings and Core**	1. Both primary and secondary winding of CT and PT must be dry type. 2. Winding insulation used for PT primary must be of grade 3. 3. Winding insulation used for CT primary must be of class H only. 4. All windings of CT and PT must undergo vacuum pressure impregnation with varnish of reputed make suitable for withstanding maximum temperature as per Class 'H'. 5. After varnish impregnation all coils to be undergo epoxy resin casting with 'F' class of reputed make. Leads shall be brought out from resin casting. 6. The core material of CT-PT unit shall be of high grade non ageing electrical silicon steel (CRGO) of first quality having low hysteresis loss and high permeability to ensure accuracy at both terminal and over current voltage. The grade of the Core shall be ZDKH or better. 7. The paper used for insulation shall be of high insulation grade. The insulating paper / polyester film used for insulation shall be of high insulation grade, excellent mechanical strength (tensile, tear, and stretch), high purity, chemical stability, and heat resistance. The paper density if the used shall be approx 60-190 g/m2. The insulating paper shall be used of make Weidmann or better/ polyester film shall be used of makes herztmann/ Dr. Beck/ Resin or better. 8. The insulating materials for winding between HV and LV and between interlayer of the winding and for end turn shall be as per relevant IS. However, end turns have to be provided with reinforced insulation and lead connecting the bushing shall be provided with extra insulation. 9. No joints shall be allowed in CT secondary wires. 10. The secondary winding shall be epoxying cast and the leads shall be brought out through epoxy cast terminal. 11. The wiring shall be neatly bunched together. Only 6 wires of CT and 6 wires of PT shall come out from the chamber for connections. 12. Suitable size of lugs shall be used to tighten the wire with the unit's secondary terminals. 13. The bus bar and HT side of PT shall be connected through a flexible copper strip or equivalent size of copper and of adequate length such that HT terminals of PTs are not subjected to any compression or tension forces.
5.3	**Metering Compartment**	1. The CT secondary s1 terminal & PT secondary phase terminal of each phase shall terminate at TTB from bottom side. 2. The CT secondary s2 & PT secondary neutral wires shall be wired to droppable terminal links & then to TTB. 3. Make of droppable links shall be connected well or Elmex. 4. CT & PT Star formation to be made at terminal links. 5. The TTB, wiring shall be carried out with source wires from CT and PT at bottom and meters wires at top. Only front connection screw type TTBs should be used and shall be located inside the metering panel and not on the panel door. 6. TTB shall be of DAV make & Model name is SSFS.

7. No lugs shall be provided for wires to meter & TTB.
8. Adequate space for mounting TVM should be provided in compartment (Max dimension envisaged for TVM: L x B x D: 305 x 170 x 180 mm. Location of meter shall be at convenient height (less than five feet from ground level) for easy reading & testing purpose. Window to be provided for taking meter reading manually from outside without opening of cubicle.
9. Please refer below diagram for meter wiring.



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5.4	**Cable compartment**	1) The cable compartment shall be provided with warning on door "DANGER 22kV DO NOT OPEN THIS DOOR BEFORE SWITCH OFF THE SUPPLY". 2) Suitable provision shall be made inside the compartment with proper clamping arrangement. Provision of suitable space and arrangement of proper orientation of cable termination shall be made so that there is no problem in fixing the incoming and outgoing cables. The cable size shall be 22KV, 3 core Al Ar XLPE 240 sq.mm. Suitable non-magnetic cable support shall be provided on both sides for the HT cables. The CT mounting shall be made in such a way to avoid easy access or removal. 3) The Incoming and outgoing marking to be done with paint on metering cubicle.
5.5	**Bushing**	1. The metering equipment shall be supplied with adequate number of single terminals, epoxy bushings of reputed make (as approved by the Purchaser) with Brass studs as per the rating. 2. The bushings shall be rated for 24 KV. The bushings shall confirm to IS: 8603- 2008 for the dimensions and IS: 5621and IS: 2099 for other electrical requirements.
5.6	**Painting**	1. All paint shall be applied on clean dry surfaces under suitable atmospheric conditions by seven tank process and powder coating. 2. The overall paint thickness (External & Internal) shall not be less than 120 microns. 3. The paint shall not scale off or crinkle or be removed by abrasion during normal handling. 4. The enclosure of the CT-PT unit shall be painted with RAL 7032 Siemens grey.
6.0	**NAME PLATE AND MARKINGS**	The unit shall be provided with a name plate clearly visible and effectively secured against removal. The name plate shall be indelibly and distinctly marked with all essential as per relevant standards along with the following: i) Manufacturer's name ii) Month and Year of manufacture iii) Serial number and Type designation iv) Rated primary and secondary currents v) Rated frequency vi) Rated output and the corresponding accuracy class vii) Highest system voltage viii) Rated insulation level of primary neutral ix) Rated short time thermal current x) Rated dynamic current if different than 2.5 times the rated STC rating xi) Rated primary and secondary voltage xii) Rated voltage factor and corresponding rated time xiii) Number of phases and method of connection xiv) Earthed or unearthed xv) Guarantee period xvi) Reference standard xvii) Material code xviii) PO number Reference standard xix) Property of TATA POWER-Mumbai

		Also, the danger plate should be shown on the front cover. Incoming and outgoing to be marked from inside of the panel (on sidewalls), and CT should be marked with P1 and P2 on the resin casting. Further the following shall be painted on the front with black colour and yellow background: xx) Serial number xxi) Year of manufacture xxii) Ratio
7	**TESTS**	All routine, acceptance & type tests shall be carried out separately in accordance with the relevant IS/IEC. All routine/acceptance tests shall be witnessed by the purchaser/his authorized representative. All the components shall also be type tested as per the relevant standards. **<u>For Current Transformers</u>** **Type Test** i) Short time current tests (as per clause 9.6 of IS 2705 Part-1) ii) Temperature rise test (as per clause 9.7 of IS 2705 Part-1) iii) Lightning impulse test for current transformers for service in electrically exposed installation (as per clause 9.8 of IS 2705 Part-1) iv) Determination of errors or other characteristics according to the requirements of the appropriate designation or accuracy class (as per clause 7.1.1 of IS 2705 Part-2) vi) Instrument Security Current Test (as per clause 7.1.2 of IS 2705 Part-2) **Routine Test & Acceptance** i) Verification of terminal marking and polarity (as per clause 9.2 of IS 2705 Part-1) ii) Power frequency dry withstand tests on primary windings (as per clause 9.3 of IS 2705 Part-1) iii) Power frequency dry withstand tests on secondary windings (as per clause 9.4 of IS 2705 Part-1) iv) Over voltage inter-turn tests (as per clause 9.5 of IS 2705 Part-1) v) Partial discharge test in accordance with IS 11322-1985 vi) Determination of errors or other characteristics according to the requirements of the appropriate designation or accuracy class (as per clause 7.1.1 of IS 2705 Part-2) **<u>For Potential Transformers</u>** **Type Test** i) Lightning impulse test for voltage transformers for service in electrically exposed installation (as per clause 9.6 of IS 3156 Part-1) ii) Determination of errors or other characteristics according to the requirements of the appropriate designation or accuracy class (as per clause 8.1.1 of IS 3156 Part-2) iii) Short circuit withstand capability test (as per clause 9.9 of IS 3156 Part-1) iv) Temperature rise test (as per clause 9.5 of IS 3156 Part-1) **Routine Test & Acceptance** i) Verification of terminal marking and polarity (as per clause 9.2 of IS 3156 Part-1) ii) Power frequency dry withstand tests on primary windings (as per clause 9.3 of IS 3156 Part-1)

		iii) Power frequency dry withstand tests on secondary windings (as per clause 9.4 of IS 3156 Part-1) iv) Partial discharge test in accordance with IS 11322-1985 v) Determination of errors or other characteristics according to the requirements of the appropriate designation or accuracy class (as per clause 8.1.1 of IS 3156 Part-2) **Enclosure Type Test: - (Test shall be included CT PT with busbar & enclosure)** 1. Temperature rise test 2. Ingress Protection test 3. Short time current tests (Short circuit withstand test for Metering cubicle along with CT, PT, busbar and insulator) 4. Chopped lighting impulse
8	**TYPE TEST CERTFICATE**	1. The bidder shall furnish the type test certificates for the tests as mentioned above as per the Corresponding standards. 2. All the tests shall be conducted at CPRI / ERDA / NABL Certified Labs as per the relevant standards. 3. Type test shall have been conducted in certified Test Laboratories during the period not exceeding 7 years from the date of opening the bid. 4. In the event of any discrepancy in the test reports i.e. any test report not acceptable or any/all type tests (including additional type tests, if any) not carried out, same shall be carried out without any cost implication to TATA POWER COMPANY.
9	**PRE-DISPATCH INSPECTION**	1. Equipment shall be subject to inspection by a duly authorized representative of the Purchaser. 2. Inspection may be made at any stage of manufacture at the discretion of the purchaser and the equipment, if found unsatisfactory as to workmanship or material, the same is liable to rejection. 3. Bidder shall always grant free access to the places of manufacture to the Purchaser's representatives when the work is in progress. 4. Inspection by the Purchaser or its authorized representatives shall not relieve the bidder of his obligation of furnishing equipment in accordance with the specifications. 5. Material shall be dispatched after specific MDCC (Material Dispatch Clearance Certificate) is issued by the Purchaser. Following documents shall be sent along with material 1. Test reports 2. MDCC issued by the Purchaser 3. Invoice in duplicate 4. Packing list 5. Drawings & catalogue 6. Guarantee / Warrantee card 7. Delivery Challan 8. Other Documents (as applicable)

10	**INSPECTION AFTER RECEIPT AT STORE**	The material received at the Purchaser's store will be inspected for acceptance and shall be liable for rejection, if found different from the reports of the pre-dispatch inspection and one copy of the report shall be sent to Consumer Engineering department.
11	**GUARANTEE**	1. Bidder shall stand guarantee towards design, materials, workmanship & quality of process manufacturing of items under this contract for due and intended performance of the same, as a Integrated product delivered under this contract. 2. In the event any defect is found by the purchaser up to a period of at least 48 months from the date of commissioning or 60 months from the date of last supplies made under the contract whichever is earlier, Bidder shall be liable to undertake to replace/rectify such defects at its own costs, within mutually agreed time frame, and to the entire satisfaction of the Company, failing which the purchaser will be at liberty to get it replaced/rectified at bidder's risks and costs and recover all such expenses plus the Company's own charges @ 20% of expenses incurred), from the bidder or from the" Security cum Performance Deposit" as the case may be. 3. Bidder shall further be responsible for free replacement for another period of THREE years from the end of the guarantee period for any 'Latent Defects' if noticed and reported by the purchaser.
12	**PACKING**	1. Bidder shall ensure that all material covered under this specification shall be prepared for rail/road transport (local equipment) and be packed in such a manner as to protect it from damage in transit. 2. No single use plastic to be used in packaging. The packaging material shall be environmentally friendly & recyclable.
13	**TENDER SAMPLE**	Not Applicable
14	**QUALITY CONTROL**	1. The bidder shall submit with the offer Quality assurance plan indicating the various stages of inspection, the tests and checks which will be carried out on the material of construction, components during manufacture and bought out items and fully assembled component and equipment after finishing. 2. As part of the plan, a schedule for stage and final inspection within the parameters of the delivery schedule shall be furnished. 3. The Purchaser's engineer or it nominated representative shall have free access to the bidder's/manufacturer's works to carry out inspection.
15	**MINIMUM TESTING FACILITIES**	Bidder shall have adequate in-house testing facilities for carrying out all routine tests & Acceptance tests as per relevant International/Indian standards.
16	**MANUFACTURING ACTIVITIES**	The successful bidder will have to submit GTP & Drawing with 15 days from placement of order/OLA for approval. The date of Code -2/ Code-1 approval given by TATA Power will be treated as first day for assessment of LD (if applicable).

17	**SPARES, ACCESSORIES & SPECIAL TOOLS.**	Not Applicable
18	**Drawings & Documentation**	Following documents to be submitted along with the bid for evaluation: a) Completely filled–in clause wise compliance of this specification. b) Signed and stamped copy of drawing c) Complete Type test reports d) Completely filled signed and stamped copy of tender document. e) Any other requisite document Following documents shall be submitted after award of OLA/PO before manufacturing: a) Completely filled–in clause wise compliance of the specification. b) Signed and stamped copy of Drawing c) Compliance of all undertaking submitted during technical evaluation, if any All the Documents and Drawings shall be in English Language.
19	**GUARANTEED TECHNICAL PARTICULARS**	Bidders to comply for all above requirement of specifications clauses & submit signed and stamp copy as technical compliance documents.
20	**SCHEDULE OF DEVIATION**	**The bidders shall set out all deviations from this specification, Clause by Clause in this schedule. Unless specifically mentioned in this schedule, the tender shall be deemed to confirm the purchaser's specifications.** **(TO BE ENCLOSED WITH THE BID)** **All deviations from this specification shall be set out by the bidders, clause by Clause in this schedule. Unless specifically mentioned in this Schedule, the tender shall be deemed to confirm the purchaser's specifications:**

Sr. No.	Clause No.	Details of deviation with justifications

We confirm that there are no deviations apart from those detailed above.

Seal of the Company **Signature :**

Designation :

Annexure 1: Inspection testing plan

For Current Transformer

Acceptance Test

i) Verification of terminal marking and polarity (as per clause 9.2 of IS 2705 Part-1)
ii) Power frequency dry withstand tests on primary windings (as per clause 9.3 of IS 2705 Part-1)
iii) Power frequency dry withstand tests on secondary windings (as per clause 9.4 of IS 2705 Part-1)
iv) Over voltage inter-turn tests (as per clause 9.5 of IS 2705 Part-1)
v) Partial discharge test in accordance with IS 11322-1985
vi) Determination of errors or other characteristics according to the requirements of the appropriate designation or accuracy class (as per clause 7.1.1 of IS 2705 Part-2)

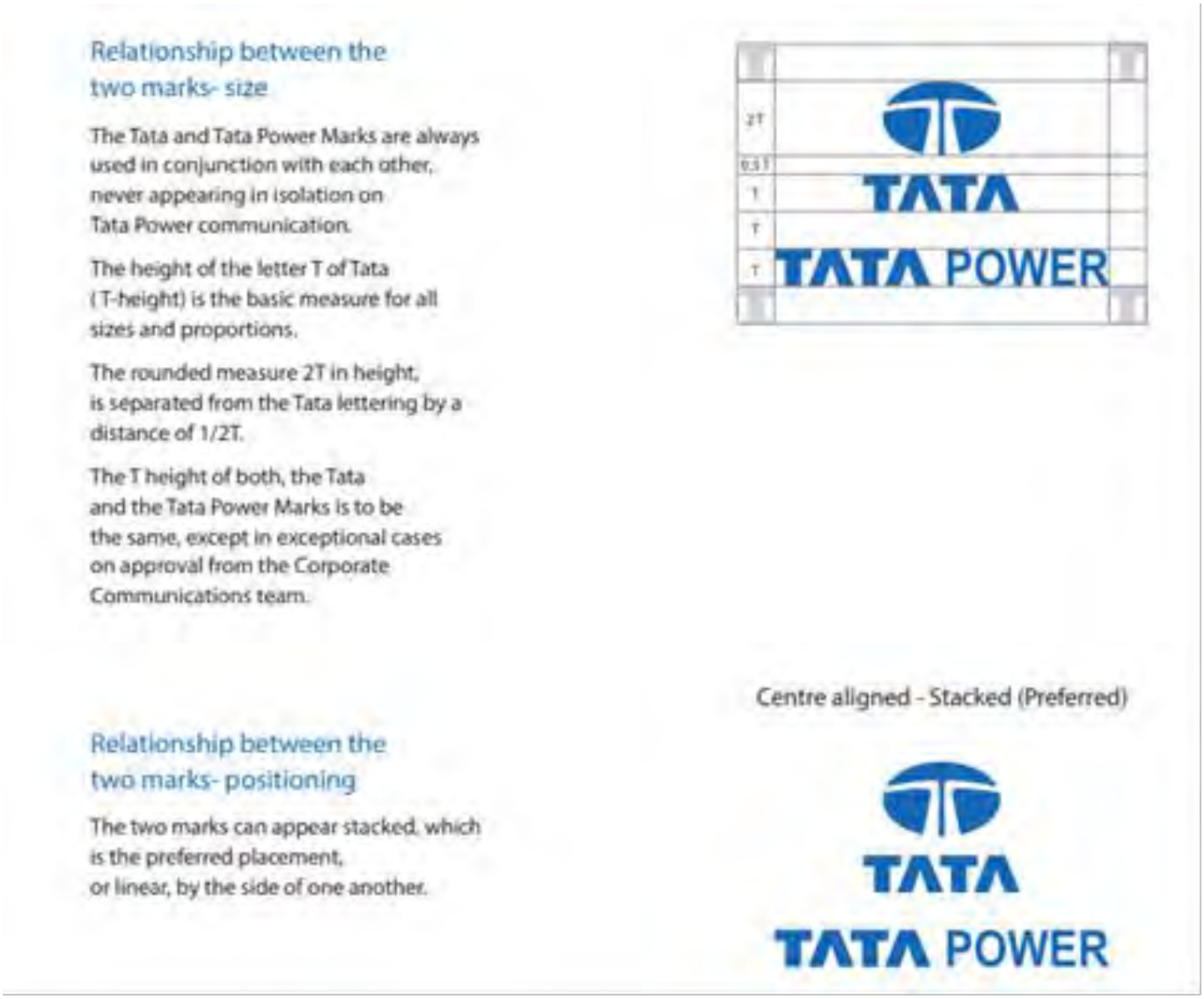
For Potential Transformers

Acceptance Test

i) Verification of terminal marking and polarity (as per clause 9.2 of IS 3156 Part-1)
ii) Power frequency dry withstand tests on primary windings (as per clause 9.3 of IS 3156 Part-1)
iii) Power frequency dry withstand tests on secondary windings (as per clause 9.4 of IS 3156 Part-1)
iv) Partial discharge test in accordance with IS 11322-1985
v) Determination of errors or other characteristics according to the requirements of the appropriate designation or accuracy class.

Annexure 2: Tata power Branding Name plate

Separate metallic name plate with Tata Power Logo of Dimension 150 mm x 150 mm in clear font as shown below.



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R00	Ketan Jadhav	Ajay V. Potdar	Ravindra M. Bhanage
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TECHNICAL SPECIFICATION

33KV CTPT METERING UNIT

The Tata Power Company Ltd.
Engineering Services (ENSE),
Distribution Division,
Senapati Bapat Marg,
Lower Parel,
Mumbai – 400013
Maharashtra

TECHNICAL SPECIFICATION COVER SHEET

Document No: ENSE-DS-2046-R0

Document Title: Technical Specification of 33 KV CT PT Metering unit

R0	**ENSE-DS-2046-R00**	Xx/xx/24		KSJ		AVP		RMB	
Rev No.	**Remarks**	**Date**		**Initials**	**Sign**	**Initials**	**Sign**	**Initials**	**Sign**
				Prepared By		**Reviewed By**		**Approved & Issued By**	

Rev No.	Prepared By & Date	Checked By & Date	Approved for Issue By & Date
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CONTENTS

1.0	**SCOPE**	This specification covers the technical requirements of design, manufacture, testing at manufacturer's works, packing, forwarding, supply and unloading at store/site for Indoor as well as Outdoor 33kV CT-PT Metering Cubicle having Potential transformer and Current transformers, along with secondary wiring and meter box complete with all accessories for efficient and trouble free operation. The ratings shall be as per the following: CTR: 350/5 of accuracy class 0.2s PTR: 33KV/√3 / 110/√3 Volts of accuracy class 0.2.
2.0	**Applicable Standards**	The equipment covered by this specification shall conform to the requirements stated in latest editions of relevant Indian/ IEC Standards and shall conform to the regulations of local statutory authorities.

Sr. No.	Standards	Title
1	IS 2705-1992	Specification for Current transformer
3	IS/IEC 62155 : 2003 (IEC 62155 : 2003)	Hollow Pressurized and Unpressurized Ceramic and Glass Insulators for Use in Electrical Equipment with Rated Voltages Greater Than 1 000 V
4	IS/IEC 60137 : 2017 (IEC 60137 : 2017)	Insulated Bushings for Alternating Voltages above 1 000 V
5	IS 1271 : 2012 (IEC 60085 : 2007)	Electrical Insulation-thermal Evaluation and Designation
6	IS 5561-2018	Electric Power Connectors- Specification
1	IS 2705-1992	Specification for Current transformer
7	IEC 60137-0-1	General requirements - Enamelled round copper wire
8	IEC 60529	Degrees of protection provided by enclosures (IP code)
9	IEC 61869	Specification for instrument Transformer

3.0	**CLIMATIC CONDITIONS OF THE INSTALLATION**	1	Maximum ambient temperature	43 deg.C
		2	Max. Daily average ambient temp	35 deg.C
		3	Min Ambient Temperature	07 deg.C
		4	Maximum Relative Humidity	100%
		5	Minimum Relative Humidity	40%
		6	Average No. of thunderstorm per annum	50
		7	Average Annual Rainfall	2380mm

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8	Average No. of rainy days per annum	115
9	Rainy months	June to Oct.
10	Altitude above MSL not exceeding	300 meters
11	Average Air Pressure	29.6-inch Hg

Atmosphere is generally laden with mild acid and dust suspended during summer months and subjected to fog in winter months. The design of the equipment and accessories shall be suitable to withstand seismic forces corresponding to an acceleration of 0.1g.

4.0 GENERAL TECHNICAL REQUIRMENTS

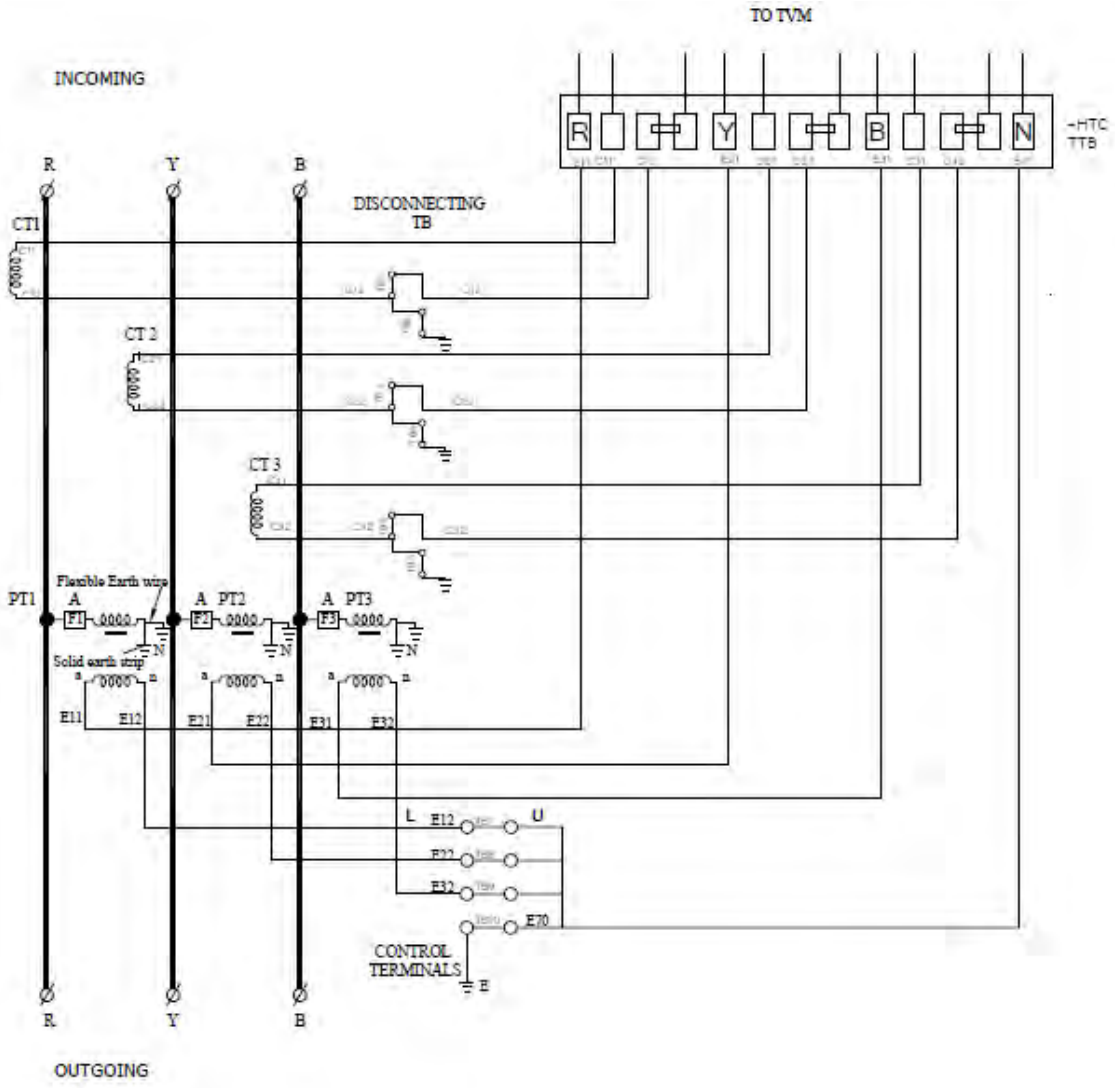
Sr. No	Description	Requirement (Indoor/outdoor)
4.1	**General for CT-PT**	
4.1.1	Rated Voltage	36 (KV rms)
4.1.2	Service Voltage	33 (KV rms)
4.1.3	Frequency	50HZ
4.1.4	No of Phases	3
4.1.5	Impulse Withstand Voltage (on assembled CT-PT set)	170 (KV Peak)
4.1.6	Insulation Level	
	One-minute power frequency withstand voltage (on assembled CT-PT)	
	Primary	Primary- 70 (KV rms)
	Secondary	Secondary- 3 (KV rms)
4.1.7	Cable connection terminal of CT to base plate distance	950 mm Minimum
4.1.8	Min. Creepage distance to the nearest earth to any live point (16mm/KV)	576 mm
4.1.9	Paint	RAL 7032
4.1.10	Paint Thickness	120 microns
4.2	**Current Transformer**	
4.2.1	Transformation ratio (CT ratio)	350/5
4.2.2	Rated Output (VA Burden)	15 VA
4.2.3	Class of accuracy	0.2S Cl
4.2.4	Varnish on CT windings	Class – H varnish
4.2.5	Impregnation	Class – H vacuum pressure impregnation
4.2.6	Epoxy resin casting	Class – F resin of reputed make
4.2.7	Rated continuous thermal current	1.2 times Primary Current
4.2.8	Short time thermal current rating	26.2KA Amps for 1Sec
4.2.9	Rated Dynamic Current	2.5 times short time thermal current rating
4.2.10	No of Cores.	One

4.2.11	Instrument Security Factor (ISF)	≤ 5		
4.2.12	Limits of current (ratio) Error and phase Displacement. (For 0.2S Accuracy class)	Percentage of rated current	± percentage current (ratio) error	± phase Displacement In minutes
		1	0.75	30
		5	0.35	15
		20	0.2	10
		100	0.2	10
		120	0.2	10
4.2.13	Maximum temperature rises over ambient temperature.	105 Deg C as per IS 2705-1		
4.2.14	Size of Busbar	300 sq. mm (min.) Copper with current density 1.6 A/sq mm		
4.2.15	Washers and connectors	Bi-metallic washer and tinned copper connector		
4.2.16	Cable cleat	HDPE/Nylon Fire retardant cable cleat		
4.2.17	CT terminal shape	L-shaped or cross flat type		
4.3	**Potential Transformer**			
4.3.1	Transformation ratio (CT ratio)	33KV/√3/110//√3 Volts		
4.3.2	Rated Output (VA Burden)	50 VA per phase		
4.3.3	Rated Voltage factor and time	1.2 times Continuous and 1.9 for 8 Hrs		
4.3.4	Class of accuracy	0.2		
4.3.5	Winding connection	Star		
4.3.6	Epoxy resin casting	Class – F resin of reputed make		
4.3.7	Varnish on PT windings	Class – H varnish		
4.3.8	Impregnation	Class – H vacuum pressure impregnation		
4.3.9	Limit of voltage (ratio) Error	± 0.2		
4.3.10	Limit of phase displacement (minutes)	± 10		
4.3.11	Maximum temperature rises over ambient temperature	105 Deg C as per IS 3156, Part-1		
4.3.12	Winding grade	Grade 3		
4.4	**Bushing**			
4.4.1	Materials of bushings	Epoxy		
4.4.2	Minimum creepage distance between phase and earth (Ref clause 5.1-As per IS3156-Part 1)	16 mm/KV		
4.4.3	Material for Rod of bushings	Copper / brass		
4.5	**Enclosure**			

		4.5.1	Material and thickness of the meter box	MS sheet, Minimum 2mm
		4.5.2	Non-current carrying nuts, bolts, screws etc. on enclosure	SS 304
		4.5.3	Protection against penetration of dust and water	Outdoor type (Min IP54)
		4.5.4	Door of metering compartment	Door with toughened glass
5.0	**GENERAL CONSTRUCTIONS**			
5.1	**General**			1. The 33kV Metering cubicle shall comprise of three number single phase potential transformer and three numbers single phase current transformers. 2. The connection between the CT and PT inside the enclosure shall have adequately reinforced insulation to avoid infringement of clearance in air or to the enclosure from inside the unit. 3. Adequate electrostatic and electromagnetic shielding shall be provided to eliminate the effects of electromagnetic induction/ electrostatic charge on the secondary windings. Creepage distance (minimum) from any live part to the nearest earth point shall be 16 mm/KV. 4. The resin cast PT shall have three nos single phase units with grounded neutral on LT side. 5. The primary terminals of CT shall be of adequate cross section to carry continuously, the rated current plus 20% over load continuously. 6. Normal current density shall not be more than 1.6 A sq mm in primary winding of the CT. 7. The size of Busbar shall be appx. 30 mm X10 mm. All the busbars shall be insulated (sleeved). 8. Busbar shall be made of electrical Grade copper and of suitable size to withstand the specified short circuit rating. 9. There should be enough space to be provided for mounting future requirement like AMR modem and fuses. 10. There should be MS partition between incoming and outgoing cable chamber. 11. The space heater with hygrostat should be in both cable chambers. There should be sealing arrangement for meter front panel. 12. The unit shall be fabricated with MS sheet having thickness not less than 2 mm. 13. In case louvers are provided, they shall be with wire mesh screen. The Panel shall be such that any accidental water ingress shall be drained from bottom through a vent. 14. HT terminals to the base plate distance shall be minimum 750mm. 15. The Metering panel is compartmentalized with independent compartment of incomings, outgoings cable chamber. The Current transfer area of the terminals shall be adequate to meet the temperature rise requirement as per IS 2705. 16. CT/PT secondary terminal should have a provision for sealing. 17. Secondary wiring shall be carried out with 1100V grade PVC insulated stranded copper conductor of 4.0 sq mm for CT circuit and 2.5 Sq.mm for PT and the other circuits. 18. All wires will be colour coded (Red, Yellow, Blue, Black, Gray). The Secondary connection to be kept on front side for easy accessibility and ensure tightness. 19. Two types of PT primary Grounding should be provided one is through strip & other through cable. 20. The metering cubicle shall be welded with 4 numbers lifting lugs of adequate strength at suitable diagonal locations for balanced lifting. All the edges and joints shall be made and

		welded in such a way so that no access inside the cubicle shall be possible through them and shall thus provide strength to robust mechanical construction both for transportation and installation for its use. 21. The metering cubicle shall be provided with M16 earthing bolt at two opposite sites with welding from inside the cubicle for fixing external earth during installation. Both earthing bolts at opposite ends to be interconnected by 50 x 6 GI. The bolts shall be connected internally to 50 x 6 mm GI earth bus which shall provide earthing to PT neutral & cable earth provision. Terminal bolts and washers used in metering cubicle shall be of stainless steel. 22. Tata Power Logo of size150 mm x 150 mm shall be provided on metering panel as per Annexure 1.
5.2	**Windings and Core**	1. Both primary and secondary winding of CT and PT must be dry type. 2. Winding insulation used for PT primary must be of grade 3. 3. Winding insulation used for CT primary must be of class H only. 4. All windings of CT and PT must undergo vacuum pressure impregnation with varnish of reputed make suitable for withstanding maximum temperature as per Class 'H'. 5. After varnish impregnation all coils to be undergo epoxy resin casting with 'F' class of reputed make. Leads shall be brought out from resin casting. 6. The core material of CT-PT unit shall be of high grade non ageing electrical silicon steel (CRGO) of first quality having low hysteresis loss and high permeability to ensure accuracy at both terminal and over current voltage. The grade of the Core shall be ZDKH or better. 7. The paper used for insulation shall be of high insulation grade. The insulating paper / polyester film used for insulation shall be of high insulation grade, excellent mechanical strength (tensile, tear, and stretch), high purity, chemical stability, and heat resistance. The paper density if the used shall be approx 60-190 g/m2. The insulating paper shall be used of make Weidmann or better/ polyester film shall be used of makes herztmann/ Dr. Beck/ Resin or better. 8. The insulating materials for winding between HV and LV and between interlayer of the winding and for end turn shall be as per relevant IS. However, end turns have to be provided with reinforced insulation and lead connecting the bushing shall be provided with extra insulation. 9. No joints shall be allowed in CT secondary wires. 10. The secondary winding shall be epoxying cast and the leads shall be brought out through epoxy cast terminal. 11. The wiring shall be neatly bunched together. Only 6 wires of CT and 6 wires of PT shall come out from the chamber for connections. 12. Suitable size of lugs shall be used to tighten the wire with the unit's secondary terminals. 13. The bus bar and HT side of PT shall be connected through a flexible copper strip or equivalent size of copper and of adequate length such that HT terminals of PTs are not subjected to any compression or tension forces.
5.3	**Metering Compartment**	1. The CT secondary s1 terminal & PT secondary phase terminal of each phase shall terminate at TTB from bottom side. 2. The CT secondary s2 & PT secondary neutral wires shall be wired to droppable terminal links & then to TTB. 3. Make of droppable links shall be connected well or Elmex 4. CT & PT Star formation to be made at terminal links. 5. The TTB, wiring shall be carried out with source wires from CT and PT at bottom and meters wires at top. Only front connection screw type TTBs should be used and shall be located inside the metering panel and not on the panel door.

6. TTB shall be of DAV make & Model name is SSFS.
7. No lugs shall be provided for wires to meter & TTB.
8. Adequate space for mounting TVM should be provided in compartment (Max dimension envisaged for TVM: L x B x D: 305 x 170 x 180 mm. Location of meter shall be at convenient height (less than five feet from ground level) for easy reading & testing purpose. Window to be provided for taking meter reading manually from outside without opening of cubicle.
9. Please refer below diagram for meter wiring.



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5.4	**Cable compartment**	1) The cable compartment shall be provided with warning on door "DANGER 33kV DO NOT OPEN THIS DOOR BEFORE SWITCH OFF THE SUPPLY". 2) Suitable provision shall be made inside the compartment with proper clamping arrangement. Provision of suitable space and arrangement of proper orientation of cable termination shall be made so that there is no problem in fixing the incoming and outgoing cables. The cable size shall be 33KV, 3 core Al Ar XLPE 400 sq.mm. Suitable non-magnetic cable support shall be provided on both sides for the HT cables. The CT mounting shall be made in such a way to avoid easy access or removal. 3) The Incoming and outgoing marking to be done with paint on metering cubicle.
5.5	**Bushing**	1. The metering equipment shall be supplied with adequate number of single terminals, epoxy bushings of reputed make (as approved by the Purchaser) with Brass studs as per the rating. 2. The bushings shall be rated for 36 KV. The bushings shall confirm to IS: 8603- 2008 for the dimensions and IS: 5621and IS: 2099 for other electrical requirements.
5.6	**Painting**	1. All paint shall be applied on clean dry surfaces under suitable atmospheric conditions by seven tank process and powder coating. 2. The overall paint thickness (External & Internal) shall not be less than 120 microns. 3. The paint shall not scale off or crinkle or be removed by abrasion during normal handling. 4. The enclosure of the CT-PT unit shall be painted with RAL 7032 Siemens grey.
6.0	**NAME PLATE AND MARKINGS**	The unit shall be provided with a name plate clearly visible and effectively secured against removal. The name plate shall be indelibly and distinctly marked with all essential as per relevant standards along with the following: i) Manufacturer's name ii) Month and Year of manufacture iii) Serial number and Type designation iv) Rated primary and secondary currents v) Rated frequency vi) Rated output and the corresponding accuracy class vii) Highest system voltage viii) Rated insulation level of primary neutral ix) Rated short time thermal current x) Rated dynamic current if different than 2.5 times the rated STC rating xi) Rated primary and secondary voltage xii) Rated voltage factor and corresponding rated time xiii) Number of phases and method of connection xiv) Earthed or unearthed xv) Guarantee period xvi) Reference standard xvii) Material code xviii) PO number Reference standard xix) Property of TATA POWER-Mumbai

		Also, the danger plate should be shown on the front cover. Incoming and outgoing to be marked from inside of the panel (on sidewalls), and CT should be marked with P1 and P2 on the resin casting. Further the following shall be painted on the front with black colour and yellow background: xx) Serial number xxi) Year of manufacture xxii) Ratio
7	**TESTS**	All routine, acceptance & type tests shall be carried out separately in accordance with the relevant IS/IEC. All routine/acceptance tests shall be witnessed by the purchaser/his authorized representative. All the components shall also be type tested as per the relevant standards. **<u>For Current Transformers</u>** **Type Test** i) Short time current tests (as per clause 9.6 of IS 2705 Part-1) ii) Temperature rise test (as per clause 9.7 of IS 2705 Part-1) iii) Lightning impulse test for current transformers for service in electrically exposed installation (as per clause 9.8 of IS 2705 Part-1) iv) Determination of errors or other characteristics according to the requirements of the appropriate designation or accuracy class (as per clause 7.1.1 of IS 2705 Part-2) vi) Instrument Security Current Test (as per clause 7.1.2 of IS 2705 Part-2) **Routine Test & Acceptance** i) Verification of terminal marking and polarity (as per clause 9.2 of IS 2705 Part-1) ii) Power frequency dry withstand tests on primary windings (as per clause 9.3 of IS 2705 Part-1) iii) Power frequency dry withstand tests on secondary windings (as per clause 9.4 of IS 2705 Part-1) iv) Over voltage inter-turn tests (as per clause 9.5 of IS 2705 Part-1) v) Partial discharge test in accordance with IS 11322-1985 vi) Determination of errors or other characteristics according to the requirements of the appropriate designation or accuracy class (as per clause 7.1.1 of IS 2705 Part-2) **<u>For Potential Transformers</u>** **Type Test** i) Lightning impulse test for voltage transformers for service in electrically exposed installation (as per clause 9.6 of IS 3156 Part-1) ii) Determination of errors or other characteristics according to the requirements of the appropriate designation or accuracy class (as per clause 8.1.1 of IS 3156 Part-2) iii) Short circuit withstand capability test (as per clause 9.9 of IS 3156 Part-1) iv) Temperature rise test (as per clause 9.5 of IS 3156 Part-1) **Routine Test & Acceptance** i) Verification of terminal marking and polarity (as per clause 9.2 of IS 3156 Part-1) ii) Power frequency dry withstand tests on primary windings (as per clause 9.3 of IS 3156 Part-1)

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12	**PACKING**	1. Bidder shall ensure that all material covered under this specification shall be prepared for rail/road transport (local equipment) and be packed in such a manner as to protect it from damage in transit. 2. No single use plastic to be used in packaging. The packaging material shall be environmentally friendly & recyclable.
13	**TENDER SAMPLE**	Not Applicable
14	**QUALITY CONTROL**	1. The bidder shall submit with the offer Quality assurance plan indicating the various stages of inspection, the tests and checks which will be carried out on the material of construction, components during manufacture and bought out items and fully assembled component and equipment after finishing. 2. As part of the plan, a schedule for stage and final inspection within the parameters of the delivery schedule shall be furnished. 3. The Purchaser's engineer or it nominated representative shall have free access to the bidder's/manufacturer's works to carry out inspection.
15	**MINIMUM TESTING FACILITIES**	Bidder shall have adequate in-house testing facilities for carrying out all routine tests & Acceptance tests as per relevant International/Indian standards.
16	**MANUFACTURING ACTIVITIES**	The successful bidder will have to submit GTP & Drawing with 15 days from placement of order/OLA for approval. The date of Code -2/ Code-1 approval given by TATA Power will be treated as first day for assessment of LD (if applicable).

17	**SPARES, ACCESSORIES & SPECIAL TOOLS.**	Not Applicable
18	**Drawings & Documentation**	Following documents to be submitted along with the bid for evaluation: a) Completely filled–in clause wise compliance of this specification. b) Signed and stamped copy of drawing c) Complete Type test reports d) Completely filled signed and stamped copy of tender document. e) Any other requisite document Following documents shall be submitted after award of OLA/PO before manufacturing: a) Completely filled–in clause wise compliance of the specification. b) Signed and stamped copy of Drawing c) Compliance of all undertaking submitted during technical evaluation, if any All the Documents and Drawings shall be in English Language.
19	**GUARANTEED TECHNICAL PARTICULARS**	Bidders to comply for all above requirement of specifications clauses & submit signed and stamp copy as technical compliance documents.
20	**SCHEDULE OF DEVIATION**	**The bidders shall set out all deviations from this specification, Clause by Clause in this schedule. Unless specifically mentioned in this schedule, the tender shall be deemed to confirm the purchaser's specifications.** **(TO BE ENCLOSED WITH THE BID)** **All deviations from this specification shall be set out by the bidders, clause by Clause in this schedule. Unless specifically mentioned in this Schedule, the tender shall be deemed to confirm the purchaser's specifications:**

Sr. No.	Clause No.	Details of deviation with justifications

We confirm that there are no deviations apart from those detailed above.

Seal of the Company **Signature :**

Designation :

Annexure 1: Inspection testing plan

For Current Transformer

Acceptance Test

i) Verification of terminal marking and polarity (as per clause 9.2 of IS 2705 Part-1)
ii) Power frequency dry withstand tests on primary windings (as per clause 9.3 of IS 2705 Part-1)
iii) Power frequency dry withstand tests on secondary windings (as per clause 9.4 of IS 2705 Part-1)
iv) Over voltage inter-turn tests (as per clause 9.5 of IS 2705 Part-1)
v) Partial discharge test in accordance with IS 11322-1985
vi) Determination of errors or other characteristics according to the requirements of the appropriate designation or accuracy class (as per clause 7.1.1 of IS 2705 Part-2)

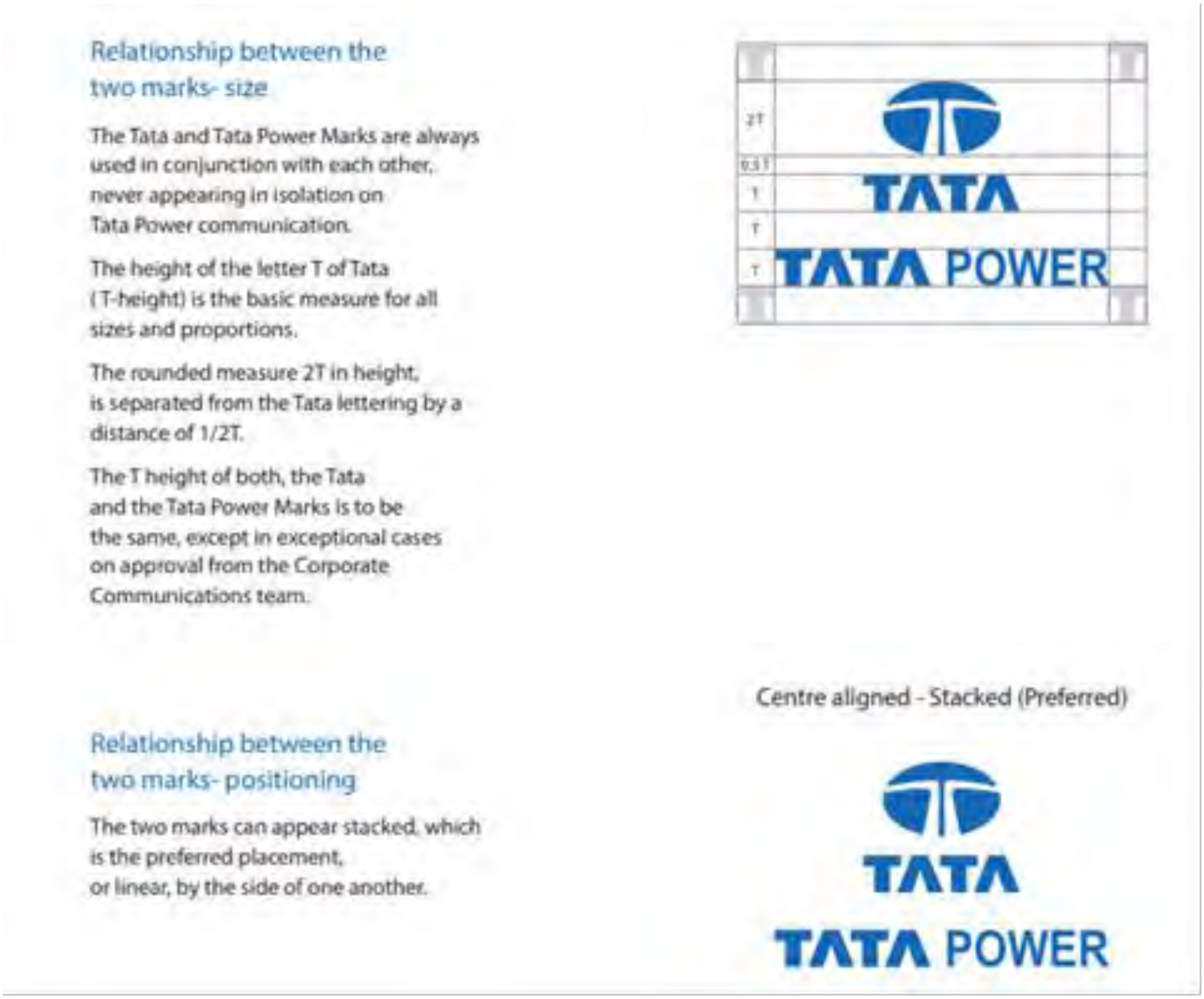
For Potential Transformers

Acceptance Test

i) Verification of terminal marking and polarity (as per clause 9.2 of IS 3156 Part-1)
ii) Power frequency dry withstand tests on primary windings (as per clause 9.3 of IS 3156 Part-1)
iii) Power frequency dry withstand tests on secondary windings (as per clause 9.4 of IS 3156 Part-1)
iv) Partial discharge test in accordance with IS 11322-1985
v) Determination of errors or other characteristics according to the requirements of the appropriate designation or accuracy class.

Annexure 2: Tata power Branding Name plate

Separate metallic name plate with Tata Power Logo of Dimension 150 mm x 150 mm in clear font as shown below.



Rev No.	Prepared By & Date	Checked By & Date	Approved for Issue By & Date
R00	Ketan Jadhav	Ajay V. Potdar	Ravindra M. Bhanage
	27/06/24	27/06/24	27/06/24