



MAHARASHTRA ELECTRICITY REGULATORY COMMISSION

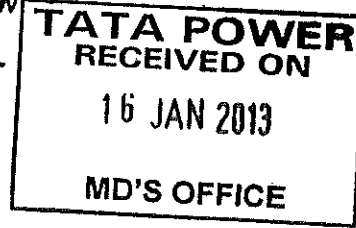
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MERC

MERC/FAC/2012-2013/02241

To,
The Managing Director,
The Tata Power Company Ltd,
24, Homi Mody Street,
Mumbai 400001

*Vidyaadh
Kopke*



Date: 4 January, 2013

Subject: Detailed Vetting of Fuel Adjustment Cost (FAC) Charges of the Tata Power Company Ltd. for QIV FY 2011-12, *January 2012 to March 2012.*

Reference: TPC-D's submission No. REG/MERC/2012/244 dated September 4, 2012

Sir,

The Commission has scrutinized the FAC computation submitted by you as above and approved the FAC chargeable to the consumers for QIV FY 2011-12 *January 2012 to March 2012.* At the end of QIV FY 2011-12, an amount of **Rs. 371.30 Crores** is to be carried forward for adjustment at future date.

The detailed report and vetted summary sheet are attached herewith as Annexure.

Yours faithfully

(Kuldip N. Khawarey)
Secretary, MERC

Enclosed: Detailed report.

Cc: All consumer representatives as per attached list.

Names and Addresses of Consumer Representatives authorized as per Section 94 (3) of the Electricity Act 2003

Prayas Energy Group, Amrita Clinic, Athawale Corner, Lakdipool-Karve Road Junction, Deccan Gymkhana, Karve Road, Pune 411 004.	The President, Mumbai Grahak Panchayat, Grahak Bhavan, Sant Dyaneshwar Marg, Behind Cooper Hospital, Vile Parle (West), Mumbai 400 056.
The General Secretary, Thane Belapur Industries Association, Plot No.P-14, MIDC, Rabale Village, PO Ghansoli, Navi Mumbai 400 7001	The President, Vidarbha Industries Association, 1st floor, Udyog Bhawan, Civil Lines, Nagpur 440 001.

Regulations Dept.
Inward No...12...
Date...17-1-13...

ANNEXURE- Detailed Vetting Report for QIV FY 2011-12

Date: 4 January ,2013

Subject: Detailed Vetting of Fuel Adjustment Cost (FAC) Charges of the Tata Power Company Ltd. for QIV FY 2011-12, *January 2012 to March 2012*.

Reference: TPC-D's submission No. REG/MERC/2012/244 dated September 4, 2012 for QIV FY 2011-12 for Post Facto Vetting.

1. Submission by TPC:

TPC-D, vide its submission dated September 4, 2012, has computed the FAC for the months of January 2012 to March 2012 in accordance with the Order in Case 98 of 2009, dated 12th September 2010 in the matter of The Tata Power Company Limited - Distribution Business' (TPC-D) Petition for Truing Up for FY 2008-09, Annual Performance Review for FY 2009-10 and Tariff Determination for FY 2010-11 and detailed methodology as per MERC (Terms and Conditions of Tariff) Regulations, 2005. The relevant parameters approved in the APR Order for computation of FAC are enclosed at Appendix.

In terms of the aforesaid Regulation a Distribution Licensee is required to obtain post facto approval of the Commission on a quarterly basis for the FAC charges. Accordingly, TPC-D has submitted details of FAC chargeable from all consumers for the months *January 2012 to March 2012* covering 4th quarter of FY 2011-12.

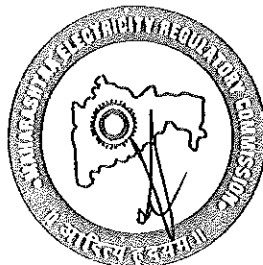
The Commission has approved FAC of **Rs. 21.72 Crores, Rs 21.36 Crores and Rs. 23.02 Crores** for months January 2012, February 2012 and March 2012 respectively. The monthly amount to be recovered is the 10 % cap value of paise 49.95/kwh.

At the end of the said quarter **Rs. 371.30 Crores** has been allowed to be carried forward for recovery at future date.

2. Methodology :

The methodology for arriving at FAC is as per Tariff Order in Case 98 of 2009, dated 12th September 2010. The salient features for arriving at FAC for the above period are as under:

- Variable cost of generation is calculated based on net generation for Tata Power-G, - allocated to TPC-D, Bilateral purchases and procurement of Renewable energy.
- The hydro generation continues to be charged based on the variable tariff @ Rs. 2.00 per kWh and Rs. 1.65 per kWh for peak and off peak period generation respectively. These charges are considered as given in the Tariff Order in Case 98 of 2009, dated 12th September 2010
- Normative/specified parameters of Heat Rate, Auxilliary Consumption, Transmission and Distribution loss are considered.
- Actual Distribution losses have been computed based on the metering arrangement established between Tata Power-T and Tata Power-D. The approved Distribution losses are 0.66%. The distribution loss computed is widely fluctuating from month to month as the quantity of energy to be metered is very small compared to the feeder sizes and respective instrumentation provided, viz. For **January 2012** it is **0.96%** for **February 2012** it is **0.54%** and for **December 2011** it is **1.58%**. It is understood that such wide fluctuations are due to the very small base of sales and inherent low

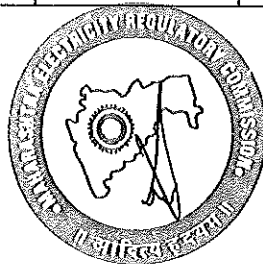


distribution loss levels. Hence, TPC has presented average Distribution loss for the said quarter, viz **1.04%**, which is approved.

- Power purchase for Tata Power-D requirement is considered from all sources of power usually purchased by the utility.
The sources include power from contracted capacity of Tata Power-G, renewable sources (wind), power purchase through bilateral contracts and power purchase through banking mechanism, Unscheduled Interchanges.
- The cap on the FAC rate, as per the Commission's Tariff Order in Case 98 of 2009, dated 12th September 2010 for Tata Power-Distribution Business which is set at 10% of the average variable charge works out to 49.95 paise.
- As submitted by TPC-D, the G<>T interface MUs as shown in the "Energy Balance" tabulation of the FAC submission, is arrived at, as follows :

			January 2012	February 2012	March 2012
Tata Power-D Requirement					
Tata Power -D Input	MUs	(i)	244.667	241.922	262.648
Changeover	MUs	(ii)	209.637	209.786	230.171
Tata Power-D Requirement at T<>D Interface	MUs		454.304	451.709	492.819
Gross up for Trans Loss	MUs	(iii)	20.462	20.346	22.197
Tata Power-D Requirement at G<> T Interface	MUs	(iii)=(i)+(ii)+(iii)	474.766	472.054	515.016
Banking Return	MUs	(iv)	0.000	0.000	0.000
Total of TPC-D	MUs	(v)=(iv)+(iii)	474.77	472.05	515.02

			January 2012	February 2012	March 2012
Met Through					
Tata Power-G Share	MUs	a	374.11	360.57	445.19
RPO	MUs	b	10.58	10.82	14.45
Contracted Purchase	MUs	c	41.54	24.19	3.42
Less External Sales	MUs	b	0.00	0.00	0.00
Drawl/Supplied to Pool	MUs	d	48.54	76.47	51.96
Total	MUs	e	474.77	472.05	515.02



It is to be noted that FBSM has been implemented with effect from August 1, 2011. However, due to non availability of data regarding Wind energy, and Change over (migrated) consumers and non availability of ABT meter data for certain time blocks, there is slight mismatch with FBSM indicated data. The Commission observes that the wind energy data is taken on basis of credit notes for the particular month, and migrated consumer data is based on actual data submitted. Further, the TPC-G generation data for the concerned blocks is based on the readings of the commercial metering available at those locations. The Commission approves the same.

3. Variable cost of generation for Tata Power-G:

While assessing the actual variable cost of generation, the Commission has assessed unit wise variable cost of generation and weighted average variable cost of generation considering the following:-

- a. Change in generation mix
- b. Change in fuel price
- c. Normative operating parameters (i.e. heat rate and auxiliary consumption) as set out in the Tariff Order.

a. Change in generation mix

The Commission has carried out a broad assessment of adherence to the principles of merit order dispatch by comparing fuel wise, unit wise monthly gross generation with the levels considered in the Tariff Order and seeking justification for any material variation.

b. Change in Fuel Price:

Actual variable cost of power generation of each unit is certified by Cost Accountant. Tata Power also has submitted Fuel Analysis Report of representative monthly samples of fuels certified by an "International Independent Inspection and Testing company" based in Mumbai, in support of actual fuel calorific value and moisture content of Coal and calorific value of Oil.

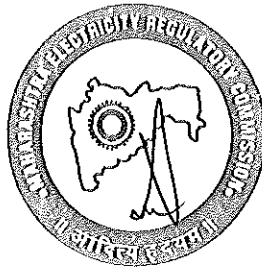
c. Normative Operating Parameters:

Tata Power has considered Unit-wise approved heat rate for January 2012 to March 2012 as per the Tariff Order for Tata Power Company Ltd Generation Business' (TPC-G) for approval of Truing up for FY 2008-09, Annual Performance Review for FY 2009-10 and Determination of Tariff for FY 2010-11 for computing actual Unit-wise, variable cost of generation on monthly basis and the same is allowed.

For Trombay Unit 6 (multi-fuel fired unit) the same approved heat rate is considered for all fuels. (Oil and RLNG) as approved in the Tariff Order as above.

The Gross Generation at Unit 4 in the months January 2012 and March 2012 has been 0 Mus.

The PLF as per the Order is 80%. However the actual PLF for the quarter is high as compared to the approved order %. The Station wise actual PLFs are shown below:



<i>Station</i>	<i>PLF as per Order</i>	<i>PLF Actual Oct 2011</i>	<i>PLF Actual Nov 2011</i>	<i>PLF Actual Dec 2011</i>
Unit # 5	80%	26%	47%	88%
Unit # 6	80%	60%	50%	58%
Unit # 7	80%	102%	101%	102%
Unit # 8	80%	93%	93%	78%

4. Variable cost of power purchase of Tata Power-D:

In addition to purchase from Tata Power-G, Tata Power-D has considered power purchase from the Wind Plants of Tata Power, short term power purchase through bilateral contracts, power purchase through banking mechanism and Unscheduled interchanges (UI)

5. Change in variable cost of power purchase ("C"):

Change in variable cost of power purchase (Rs Lakhs) has been arrived at by multiplying power purchase (MUs) with the change in weighted average cost (Rs/kWh) of power purchase.

The change in variable cost of power purchase for months January 2012 to March 2012 is as given below.

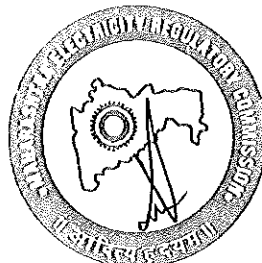
For the months of QIV FY 2011- 12, the Commission has approved weighted average variable cost of power purchase as Rs 3.381/kwh. As against this, the normative actual cost incurred is Rs. 5.2132/kwh in January 2012, Rs. 4.797/kwh in February 2012 and Rs. 5.0966/kwh in March 2012.

The explanation for the variance as above is as follows:

It is observed from TPC's submission that vide the tariff order under reference above, applicable for months January 2012 to March 2012, the Commission had approved purchase of 25.56 MUs/ month energy from sources other than TPC-G, at the rate of Rs 4.76/kwh. However, the procurement from these sources has been substantially high (3 to 5 times the MUs envisaged/approved by the Commission in the Tariff Order), on account of increase in demand due to migrated customers. The cost of such procurements was Rs. 5.08/kwh in January 2012, Rs 3.78/kwh in February 2012 and Rs. 6.08/kwh in March 2012. These procurements have offset comparatively low cost of TPC-G power, and therefore, overall increase is seen in cost of energy procured by TPC-D in January 2012 , February 2012 and March 2012.

The net change in variable cost of power purchase for the months January 2012 to March 2012 is:

<i>Months</i>	<i>Change in V.C. of PowerPurchase (Rs in Lacs)</i>
January 2012	8696.87
February 2012	6681.89
March 2012	8833.52



6. Auxiliary Consumption

For the share of TPC-D in the auxiliary consumption calculations, the percentage of Auxiliary consumption for the month of January 2012 is considered as 26.84% and for the months of February 2012 and March 2012, it is considered as 37.35% of the total Auxiliary Consumption. The reason for the same is that in the month of January 2012, Unit 4 was under Standby Condition, hence the auxiliary consumption was shared in the ratio of 26.84% which is a contracted capacity for Tata Power-D. However, in the month of February and March 2012 the Unit was taken into service for BEST and Tata Power-D up to their contracted capacities (i.e. up to 108 MW only) , hence the generation was allocated based on the ratio worked out considering of 108 MW capacity from Unit 4, that comes out to 37.35%

7. Interest on working capital ("I"):

Interest on working capital has been granted at the approved Interest rate for the eligible amount viz. the difference between the Normative Actual variable cost of Power procurement and the Order cost of power procurement, for the respective months. TPC-D has submitted for approval, the Interest on working capital due to enhanced fuel costs @ 14.75%, Rs. 156.00 Lakhs for January 2012, Rs. 130.10 Lakhs for February 2012 and Rs. 174.41 Lakhs for March 2012.

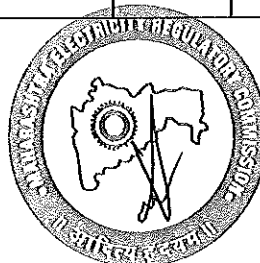
The same is approved.

8. Adjustment factor for over recovery / under recovery ("B"):

In Form 6.6 of the FAC submission, the Adjustment factor is computed by considering the records of over/under recovery in the past as well as the costs approved by the Commission in the previous months and allowed to be carried forward for recovery in the future months. The Adjustment factor as arrived at is as follows:

Adjustment Factor

Sr. No.	Parameter	Unit	January 2012	November 2011	March 2012
(A)	(B)	(C)	(D)	(E)	(F)
1.0	Adjustment for over-recovery/under-recovery ('B')				
1.1	Incremental Cost Allowed to be Recovered in the month j-4	Rs Lakh	2409	2465	2172
1.2	Incremental cost in Month j-4 actually recovered in month j-2	Rs Lakh	2172	2136	2302
1.3	Over-recovery/under-recovery (1.1-1.2)	Rs Lakh	237	329	(130)
1.4	Tariff Order adjustment	Rs Lakh			
2.0	Carried forward adjustment for over- /under-recovery attributable to application of ceiling limit	Rs Lakh	18645	25558	30559



Sr. No.	Parameter	Unit	January 2012	November 2011	March 2012
3.0	Adjustment factor for over/under-recovery(1.3+2.0)	Rs Lakh	18882	25887	30429

9. Excess Distribution Loss:

The approved distribution loss for TPC-D for FY 11 it is 0.66 %

The Actual Distribution Loss in January 2012, February 2012 and March 2012 is 0.96%, 0.54% and 1.58% respectively. The wide variations are due to measurement inadequacies. Hence, average loss for the quarter is considered by the Commission for incentivisation/ dis-incentivisation

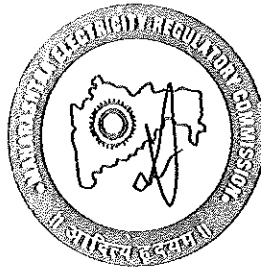
The average loss of the concerned quarter is 1.04%. Based on this, deduction or addition in MU loss is made for respectively months.

10. Summary of FAC

The summarized details of FAC (A) & FAC per unit for the months *January 2012 to March 2012* are as under:



Sr. No.	Parameter	Unit	Jan-12	Feb-12	Mar-12
(A)	(B)	(C)			
1.0	Calculation of FAC (A)				
1.1	Change in weighted average variable cost of power purchase(C)	Rs Lakh	8697	6682	8834
1.2	Working Capital Interest (I)	Rs Lakh	156	130	174
1.3	Adjustment for Over Recovery/Under Recovery (B)	Rs Lakh	18882	25887	30429
1.4	FAC (A) = C + I + B	Rs Lakh	27735	32699	39437
	Adjustment due to IBSM				
	Total FAC due to IBSM		27735	32699	39437
2.0	Calculation of FAC_{kwh}				
2.1	Sale within License Area	MU	452	450	489
2.2	Excess T&D Loss	MU	1	1	1
2.3	FAC Charge (FAC _{kwh}) without considering cap on monthly FAC Charge	Paise/kWh	612	725	805
2.4	Cap on monthly FAC Charge	Paise/kWh	50	50	50
2.5	FAC Charge (FAC _{kwh}) considering cap on monthly FAC Charge	Paise/kWh			
3.0	FAC (A)				
3.1	FAC (A) considering cap on Monthly FAC Charge (Est)	Rs Lakh	2172	2136	2302
3.2	FAC (A) disallowed corresponding to excess T&D loss (Est)	Rs Lakh	5	5	5
3.3	Carried forward FAC (A) for recovery during future period (Est)	Rs Lakh	25558	30559	37130



11. **FAC charged as per MERC amended Regulations (Consumer Category-wise FAC)**

Consumer Category	Energy Charge	FAC cap	FAC applicable for Jan 2012	FAC applicable for Feb 2012	FAC applicable for Mar 2012
	a	d = a *10%	e =min(c,d)	e =min(c,d)	e =min(c,d)
	Rs/kWh	Rs/kWh	Rs/kWh	Rs/kWh	Rs/kWh
LT I - Residential		10%			
Below Poverty Line (BPL 0-30Units)	0.4	0.04	0.04	0.04	0.04
> S1 (0-100 units)	1.05	0.11	0.11	0.11	0.11
> S2 (101-300 units)	2.5	0.25	0.25	0.25	0.25
> S3 (above 300 units)	4.4	0.44	0.44	0.44	0.44
> S4 (> 500 Units)	5.3	0.53	0.53	0.53	0.53
LT II - LT Commercial					
> 0 - 20 kW (LT-II -a)	4.25	0.43	0.43	0.43	0.43
- 0 - 300 units		0.00	0.00	0.00	0.00
- 301 - 500 units		0.00	0.00	0.00	0.00
- 501- 1000 units		0.00	0.00	0.00	0.00
- Above 1000 units		0.00	0.00	0.00	0.00
> 20kW and <= 50 kW (LT-II -b)	4.8	0.48	0.48	0.48	0.48
> 50 kW (LT -II -c)	5.05	0.51	0.51	0.51	0.51
LT III - LT Industries below 20 kW Load	4.5	0.45	0.45	0.45	0.45
- 0 - 300 units (BEST)		0.00	0.00	0.00	0.00
- 301 - 500 units (BEST)		0.00	0.00	0.00	0.00
- 501- 1000 units (BEST)		0.00	0.00	0.00	0.00
- Above 1000 units (balance units) (BEST)		0.00	0.00	0.00	0.00
	5.1	0.51	0.51	0.51	0.51
LT IV - LT Industries above 20 kW Load	5.10	0.51	0.51	0.51	0.51
- LT V - (A) Above 20 kW upto 100 kW load		0.00		0.00	
- LT V - (B) Above 100 kW load		0.00		0.00	
	4	0.40		0.40	
LT IX - Agriculture		0.00		0.00	
LT VI - Street Light	4.00	0.40	0.40	0.40	0.40
- LT VI - Street Light - Grampanchayat, A, B & C Class		0.00		0.00	
- LT VI - Street Light - Municipal Corp. Areas (MSEDCL)		0.00		0.00	
		0.00		0.00	
LT VII - Temporary-Others (LT VII - b)	11	1.10	1.10	1.10	1.10
	2	0.20	0.20	0.20	0.20
LT VII - Temporary-Religious (LT VII - a)	2.00	0.20	0.20	0.20	0.20
		0.00	0.00	0.00	0.00
LT V - Advt & Hoardings	13.55	1.36	1.36	1.36	1.36
		0.00	0.00	0.00	
LT VIII - Crematorium and Burial Grounds		0.00	0.00	0.00	
HT I - Industry	5	0.50	0.50	0.50	0.50
		0.00	0.00	0.00	0.00
HT II - Commercial	5.2	0.52	0.52	0.52	0.52
		0.00	0.00	0.00	0.00
HT III Public and Govt.		0.00	0.00	0.00	0.00
		0.00	0.00	0.00	0.00
HT III - Group Housing Society	4.1	0.41	0.41	0.41	0.41
		0.00	0.00	0.00	0.00
HT IV - Temporary Supply	9	0.90	0.90	0.90	0.90
		0.00	0.00	0.00	
HT V - Railways					
> 22/33 kV	4.95	0.50	0.50	0.50	0.50
> 100kV	4.80	0.48	0.48	0.48	0.48
Total Recovery					



Appendix-2.1

The normative parameters are as under:

Sr. No.	Parameter	Unit	Normative Rate
			<i>(As per Tariff Order dated 8th Sep 2010)</i>
1	<u>Normative Auxillary Consumption</u>		
	Hydro	%	0.50%
	Unit # 4	%	8.00%
	Unit # 5	%	5.50%
	Unit # 6	%	3.50%
	Unit # 7	%	2.75%
	Unit # 8	%	9.00%
2	<u>Heat Rate</u>		
	Unit # 4	kcal/ kWh	2683.00
	Unit # 5	kcal/ kWh	2577.00
	Unit # 6	kcal/ kWh	2514.00
	Unit # 7	kcal/ kWh	1971.00
	Unit # 8 (150 MW)	kcal/ kWh	2500.00
3	<u>Distribution Loss</u>	%	0.66%
4	<u>Transmission Loss</u>	%	4.85
5	<u>Weighted Average Cost of Power Purchase</u>	Rs. /kWh	3.3814

