

Ref No.MERC/MSEDCL/FAC/

November 23, 2006

The Managing Director,  
Maharashtra State Electricity Distribution Company Ltd,  
5<sup>th</sup> Floor, Prakashgad, Plot No. G-9,  
Bandra (East),  
Mumbai-400 051.

**Sub: Detailed Vetting Reports of FAC for the month of July and August 2006**

Ref: 1) MSEDCL Letter No. SE/TRC/33052, dated 22<sup>nd</sup> September, 2006.  
2) MSEDCL Letter No. SE/TRC/35790, dated 28<sup>th</sup> September, 2006.  
3) MSEDCL Letter No. SE/TRC/38671, dated 20<sup>th</sup> October, 2006.  
4) MERC Letter MERC/MSEDCL/FAC/2006/2189 dated November 7, 2006

Sir,

This is with reference to the Commission's letter approving the FAC for the months of July and August 2006 to be recovered during the period November 2006 to February 2007.

2. The Detailed Vetting Reports on Approval of FAC amount for the month of July 2006 and August 2006 are enclosed herewith.

With Regards,

Yours faithfully,

Sd/-  
(Ms. Malini Shankar)  
Secretary, MERC

Cc:

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 Dnyaneshwar 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,  
1<sup>st</sup> floor, Udyog Bhawan,  
Civil Lines, Nagpur 440 001.

Shri A.D. Mahajan,  
Senior Manager,  
SICOM Limited,  
Nirmal, Nariman Point,  
Mumbai – 400 021.

**Detailed Vetting Report**  
**MSEDCL, FAC Amount for the period July, 2006.**

1. The Commission vide its letter dated 24<sup>th</sup> February 2006 has approved FAC charges for the month of September 2005 based on the Tariff Order dated 10<sup>th</sup> March 2004 and MERC (Terms and Conditions of Tariff) Regulations 2005. In the said letter, the Commission has approved variable fuel cost to be considered for FAC calculations as against the variable cost of generation indicated in the Tariff Order.
2. Further, the Commission has issued a detailed Order in the matter of MSEDCL petition for review of regulations relating to FAC Formula dated 21<sup>st</sup> March, 2006, salient features of which are as below :-
  - i) The Commission has directed to consider the normative fixed cost as 69.6 paise / kWh based on the tariff order for FY. 2003-04 for arriving at the per unit variable cost for the sources of power purchase for which break up of fixed and variable cost is not available. The Commission has directed to deduct this normative fixed cost from the total cost per unit for the sources for which break up is not available such as Traders, bi-lateral sources, TPC and CPP, while estimating the change in fuel cost to be recovered through FAC.
  - ii) The Commission to approve the FAC to be recovered by MSEDCL in excess of existing ceiling (20 paise / unit) on recovery through FAC charge after detailed vetting of the actual FAC data on case to case basis till the Commission issues the order on ARR and Tariff of MSEDCL for FY. 2006-07.



3. The Commission had not considered the power purchase from sources like Kawas (liquid fuel), NVVN, Adani, Sardar Sarovar and Pench under power purchase cost while carrying out vetting of FAC for the month of April 2006 as informed by the Commission vide its letter dated 6<sup>th</sup> July 2006. The Commission had also not considered the power purchase cost from Kawas (Liquid), Adani, NVVN, RGPPL, Lanco, Sardar Sarovar, Pench as the cost is higher than the cost of supply in terms of the Order of the Commission dated 28<sup>th</sup> April 2006 and in terms of the MERC (Terms & Conditions of Tariff) Regulations 2005 as informed by the Commission vide its letter dated 6<sup>th</sup> July 2006.
4. MSEDCL vide its letter dated 22<sup>nd</sup> September 2006 has forwarded FAC submissions for the month of July 2006 with a charge @ 96 paise/unit for metered sales. The Commission has carried out vetting for July 2006 on the basis of ...
- Tariff Order dated 10<sup>th</sup> March 2004
  - MERC (Terms and Conditions of Tariff) Regulations 2005
  - Vetting reports for the months of September 2005 to June 2006
  - Commission's Order dated 21<sup>st</sup> March 2006 in the matter of MSEDCL's petition for review of Regulations relating to FAC formula (Case 52 of 2005)
  - Commission's Order dated 28<sup>th</sup> April 2006 in the matter of MSEDCL's petition for approval of short term power purchase for the period April to June 2006 (Case 3 of 2006)
5. **Analysis of FAC proposal submitted by MSEDCL and computation of FAC charges for July 2006 is as below:**
- i) **Variable Cost of Generation:**
- a. MSEDCL has made the FAC submissions for the July, 2006 in the Standard Formats prescribed by the Commission vide its letter dated 22<sup>nd</sup> September, 2006



b. MSEDCL has submitted the break up of variable cost for all stations certified by CA.

c. Variable Fuel Cost :

MSEDCL has considered the base variable fuel cost for each station as given by the Commission in its letter dated 24<sup>th</sup> February 2006. MSEDCL has submitted sample bills for the fuel purchased along with the FAC submissions.

The Commission has observed that MSEDCL has transferred coal weighing 13095 MT with value of Rs. 1.45 crore from Koradi station to Khaperkheda station. MSEDCL is hereby directed to submit confirmation in regards to accounting at Khaperkheda station.

d. Auxiliary consumption:

MSEDCL has taken auxiliary consumption at each unit at normative levels for calculation of variable cost of generation and the same is allowed.

e. Heat Rate:

MSEDCL has worked out the variable cost of generation considering normative heat rates of each station and the same is allowed.

f. Transit Loss:

MSEDCL has worked out the variable cost of generation considering normative transit loss.

**ii) Variable cost of power purchase –**

a. MSEDCL has purchased 2157 MU's with a variable cost of Rs.418.80 crore (after deduction of fixed cost @0.696 Rs./unit in case of sources where the fixed costs are not available) at avg. rate of Rs.1.9415/unit as against estimated 1349 MU's with a variable cost of Rs.161.37 crore @ Rs.1.20 /unit. Thus, the units purchased have increased by 60%, whereas the purchase cost has increased by 160% for July, 2006.



b. MSEDCL has not submitted the Long Term Power Procurement Plan. MSEDCL has considered cost of power purchase from Korba, Vindhyachal I, II & III, Kawas (Gas), Gandhar, Kakrapar, Tarapur, Eastern Region, Tata Power (Trading), Power Trading Corporation, Adani, NVVN, Tata N.P., Dodson, Sardar Sarovar, Pench, RGPPL, JSW PTCL, Non Conventional Sources and Captive Power Plants under Power Purchase Cost. The cost of power purchase from Captive Power Plants is allowed, as the avg. rate of purchase of Rs.2.75/unit is lower than the avg. cost of supply of Rs.2.83/- per unit in terms of the Regulations 25.6 of MERC (Terms & Conditions of Tariff) Regulations 2005. **However, the power purchase cost from Adani, NVVN, TataN.P., Dodson, Sardar Sarovar, Pench, RGPPL, JSW PTCL is higher than the cost of supply and has not been allowed in terms of the Order of the Commission dated 28<sup>th</sup> April, 2006 and in terms of the MERC (Terms & Conditions of Tariff) Regulations 2005.**

c. Considering the severe power shortage faced by MSEDCL partly due to shut down of the Unit 5 of Chandrapur station, the energy purchased by MSEDCL other than from Adani, NVVN, TataN.P., Dodson, Sardar Sarovar, RGPPL, Pench, JSW PTCL and cost thereof for July 2006 is allowed.

d. MSEDCL has submitted the data for the power purchase certified by Chartered Accountant except the data relating to Sardar Sarovar, Pench, Grid Losses, Non Conventional Sources of Energy (NCSE) and Captive Power Plant. The Commission expresses its displeasure in MSEDCL not submitting the audited power purchase statements from Renewable Source. **The Commission directs MSEDCL to submit future FAC submissions along with audited power purchase statements for power purchased from Renewable Source of Power and Captive Power Plants.**



e. As directed by the Commission in its order dated 21<sup>st</sup> March, 2006, MSEDCL has deducted normative fixed cost of 69.60 paise / unit from the actual total cost per unit from the sources where break up of fixed cost and variable is not available.

f. The wind power purchase rate is taken as Rs.3.46 / unit and hydro power rate is taken as Rs.2.45/ unit as per the respective orders. The cost of power purchase from bagasse is taken as Rs.3.24/- per unit. The Commission has allowed the cost for power purchase from Non Conventional Sources of Energy (NCSE) and CPP as claimed by MSEDCL.

g. UI charges:

MSEDCL has purchased 259 MU's through UI at average rate of Rs.2.23/ unit and the same are allowed.

h. Scheduled Energy Received in grid through Imports from various regions and losses:

MSEDCL has claimed losses in power purchase through grid at 120 MU's as the difference between the Scheduled Energy (including UI) and Actual Drawal. Accordingly, the Commission has considered the losses in the grid as given by MSEDCL.

Considering above, the Commission has approved change in Variable (Fuel) Cost of Generation and Power Purchase Cost of Rs. 264.05 crore as against Rs. 307.06 crore as submitted by MSEDCL.

iii) **Interest on working capital** – MSEDCL has not considered interest on incremental working capital requirement on account of change in fuel and power purchase costs and accordingly the same is not considered in the FAC.



**iv) Adjustment factor for over recovery / under recovery (B) –**

MSEDCL has submitted that Rs. 284.08 crore has been billed in the month of July 2006 as against incremental cost of Rs. 370.55 crore allowed to be recovered i.e. April 2006. MSEDCL has submitted metered sale and FOCA billed report for the billing month of July 2006 duly audited by Chartered Accountant. In the process of vetting, the Commission observed that MSEDCL has not taken into account the FAC billed to Mula Prawara and TATA in the month of July 2006. This is a gross mistake on part of MSEDCL and should be avoided in future. After considering the FAC billed to TATA and Mula Prawara, the billed amount of FAC works out to Rs. 289.15 crore and thereby reducing under recovery amount to Rs. 81.40 crore as against 86.47 crore submitted by MSEDCL.

v) **T & D Loss:** MSEDCL has worked out T&D loss at 27.61% (1555 MU) for July 2006 as against the approved norm of 26.87%. MSEDCL has considered 49.62 MUs under sales as HT – Credit, however the same are not considered in purchase from renewable sources. Thus it is not actual sale and sales figure is reduced to 3410 MUs, as against 3460 MUs submitted by MSEDCL. The T& D Loss as a percentage of net energy input works out to 28.49% (1605 MUs) as against the approved norm of 26.87 % in July 2006.

The Commission has arrived at recoverable FAC of Rs.337.80 crore (net of T&D loss) for the month of July 2006. The summary of FAC is given below and the details are as per the Tables 3.1, 3.3, 3.3a, 4.1, 6.1, 6.2, 6.6, 6.7 and 7.1.



**Calculation of FAC Amount for the month of July 2006:**

Sr. No.	Parameter	Units	July 2006	
			As per MSEDCL	As per Commission
	<b>Calculation of FAC</b>			
1	Normative Variable Fuel Cost of generation	Rs./unit	1.34	1.34
2	Normative Variable Fuel Cost of power purchase	Rs./unit	1.94	1.81
3	Normative Variable Fuel cost of generation and power purchase	Rs./unit	1.59	1.52
5	Change in Variable Fuel cost of generation and power purchase	Rs./unit	0.58	0.52
6	Net Generation	Mus	3127	3127
7	Net power purchase	MUs	2157	1970
8	Net Generation + Net power purchase	MUs	5284	5097
9	Change in Variable Fuel cost of generation and power purchase	Crore	307.06	264.05
10	Working capital interest (I)	Crore	0.00	0.00
11	Adjustment of (over recovery) / under recovery (B)	Crore	86.47	81.40
12	Total FAC (9+10+11)	Crore	393.53	345.45
	<b>FAC liable sale</b>			
13	Sale within License Area	MUs	4078	4028
14	Excess T & D losses	MUs	42	91
15	Sale within License Area and Excess T & D losses	MUs	4120	4119
16	FAC(A) allowed	Rs.crore	389.55	337.80
17	FAC(A) disallowed corresponding to excess loss	Rs.crore	3.97	7.65

Table No	Title
3.1	Heat Rate for Thermal Generating Stations
3.3	Calculation of Station-wise variable cost of generation (fuel cost)
3.3a	Calculation of Normative Variable cost of generating stations
4.1	Variable Cost of Power Purchase
6.1	Composite Variable Cost of Generation and Power Purchase
6.6	Adjustment for over recovery / under recovery (B)
6.7	Total fuel cost and power purchase adjustment
7.1	Summary of FAC (A) and FAC kwh





<b>Table</b>	<b>3.1</b>						
<b>Title</b>	<b>Heat Rate for Thermal Generating Stations</b>						
<b>Sr. No.</b>	<b>Generating Station/Unit<sup>1</sup></b>	<b>Order FY</b>	<b>Jul-06</b>				<b>Cumulative Actual upto Month &amp; Year</b>
		<b>Heat Rate</b>	<b>Gross Generation</b>	<b>Energy Input</b>	<b>Heat Rate</b>	<b>Reasons for material variation</b>	<b>Heat Rate</b>
		<b>kcal/kWh</b>	<b>MU</b>	<b>Mkcal</b>	<b>kcal/kWh</b>		<b>kcal/kWh</b>
(A)	(B)	(C)	(D)	(E)	(F) = (E)/(D)	(G)	(H)
	Khaparkheda	2725	582	1506438	2,589		2,580
	Paras	3200	7	22662	3,276		3,201
	Bhusawal	2735	236	627782	2,657	Due to wet coal & Coal Mill Choke problems, Oil Consumption was high, FO 2432 KI & LDO = 107 kl. Also Gen. is less due to U1 under COH & U2 wet Coal problems.	2,637
	Nasik	2663	537	1430804	2,664	1) Station suffered high partial loss during Jul. 06 (Partial Outage - 13.24%) 2) There are 9 Nos. of tripping, so loss on startup/shutdown increased.	2,656
	Parli	2649	400	1065119	2,664	Heat Rate is high mainly due to delayed to overhauls, Low vaccum at Unit -3 & Unit-4, Stabilisation of Unit-2 after AOH, ageing of machines.	2,669
	Koradi	2996	578	1718907	2,976		2,977
	Chandrapur	2502	761	1980979	2,604		2,602
	Gas Thermal	1966	330	647318	1,962		1,960
	<b>Total for Thermal Generation</b>		<b>3,430</b>	<b>9000010</b>	<b>2,624</b>		



Table 3.3															
Title Calculation of Station-wise variable cost of generation (fuel cost)															
Sr. No.	Generating Station/Unit <sup>1&amp;2</sup>	Fuel Basket (FB) <sup>1&amp;2</sup>	Order (FY)	Order for Month & Year					Jul-06				Normative Actual Var. Cost <sup>3</sup> for July 2006		
				Var. Cost <sup>3</sup>	Var. Cost	Generation <sup>3</sup>	Var. Cost <sup>3</sup>	Var. Cost	Generation <sup>3</sup>	Reasons for Material Variation	Var. Cost <sup>3</sup>	Var. Cost	Generation <sup>3</sup>	Var. Cost <sup>3</sup>	Var. Cost
			MU	Rs/ kWh	Rs Lakh	MU	Rs/ kWh	Rs Lakh	MU		Rs/ kWh	Rs Lakh	MU	Rs/ kWh	Rs Lakh
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)	(O)	(P)
1.0	Generating Station/Unit wise, Fuel Basket-wise details														
2.0	Generating Station/Unit wise summary														
	Khaparkhedda		5471	0.9162	50125.3	456	0.9162	4,177	530		1.15	6,097	530	1.21	6,415
	Paras		345	1.2063	4161.74	29	1.2063	347	6		1.70	97	6	1.52	87
	Bhusawal		2802	1.0721	30040.2	234	1.0721	2,503	212		1.92	4,070	212	1.95	4,136
	Nasik		4680	1.3188	61719.8	390	1.3188	5,143	487		1.58	7,693	487	1.56	7,584
	Parli		3538	1.2278	43439.6	295	1.2278	3,620	361		1.69	6,105	361	1.70	6,151
	Koradi		5901	1.1695	69012.2	492	1.1695	5,1	518		1.34	6,940	518	1.35	6,995
	Chandrapur		15693	0.7023	110212	1,308	0.7023	9,184	691		1.19	8,251	691	1.15	7,976
	Gas Thermal		3961	0.6742	26705.1	330	0.6742	2,225	323		0.81	2,613	323	0.81	2,624
	<b>Total</b>	<b>All fuels</b>	<b>42391</b>	<b>0.9328</b>	<b>395416</b>	<b>3,533</b>	<b>0.9328</b>	<b>32,951</b>	<b>3,127</b>		<b>1.34</b>	<b>41,866</b>	<b>3,127</b>	<b>1.34</b>	<b>41,968</b>



Sr. No.	Generating Station/Unit <sup>1&amp;2</sup>	Fuel Basket (FB) <sup>1&amp;2</sup>	Order (FY)	Order for Month & Year					Jul-06				Normative Actual Var. Cost <sup>4</sup> for July 2006			
				Var. Cost <sup>3</sup>	Var. Cost	Generation <sup>3</sup>	Var. Cost <sup>3</sup>	Var. Cost	Generation <sup>3</sup>	Reasons for Material Variation	Var. Cost <sup>3</sup>	Var. Cost	Generation <sup>3</sup>	Var. Cost <sup>3</sup>	Var. Cost	
				MU	Rs/ kWh	Rs Lakh	MU	Rs/ kWh	Rs Lakh	MU		Rs/ kWh	Rs Lakh	MU	Rs/ kWh	Rs Lakh
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)	(O)	(P)	
<b>3.0</b>	<b>Total for all Generating Stations/Units</b>															
	Total Generation excl FHC	All fuels														
	Fuel Handling Cost (FHC)															
	Generation including FHC															
<b>4.0</b>	<b>Generation corresponding to Utilisation of Specific Generating Station/Unit corresponding to sale mentioned at Table I.1, Item 3<sup>5</sup></b>															
	Generating Station/Unit 'n'	FB ..														
5.0	Total for all Generating Stations/Units excl. generation reported at (4.0)		42391	0.93	395416	3533	0.93	32951	3127	0	1.34	41866	3127	1.34	41968	



Sheet 3.3a									
Calculation of Normative Variable Cost of Generating Stations									
	K'kheda	Paras	Bhusawal	Nasik	Parli	Koradi	C'pur	Total for Coal	Uran (Gas)
<b>A. Thermal Stations</b>									
Actual Gross Generation (MU)	582	7	236	537	400	578	761	3,100	330
<b>Approved Auxiliary Consumption%</b>	<b>8.50%</b>	<b>9.70%</b>	<b>10.00%</b>	<b>9.00%</b>	<b>9.70%</b>	<b>9.80%</b>	<b>7.60%</b>		<b>2.40%</b>
Net Generation (MU)	532	6	213	489	361	521	703	2,825	322
Actual Generation Cost (Rs lakhs)	6,097	97	4,070	7,693	6,105	6,940	8,251	39,253	2,613
Less: Transit Loss after Adjustment	47	-	72	159	60	29	(58)	309	-
Add: Normative Transit Loss (Rs.Lakhs)	76	-	32	88	138	77	133	544	-
Actual Adjusted Gen Cost (Rs.Lakhs)	6,126	97	4,030	7,622	6,183	6,988	8,441	39,488	2,613
Actual Quantity delivered (MT)	441,937	-	203,474	492,535	308,256	438,277	646,009	2,530,488	
Avg coal purchase price (Rs/MT)	1,192	-	1,615	1,921	1,933	1,373	1,361		
Actual Transit Loss (MT)	3,982	-	4,484	8,514	3,198	2,420	(4,824)	17,773	
Actual Heat Input (MKcal)	1,506,438	22,662	627,782	1,430,804	1,065,119	1,718,907	1,980,979	8,352,692	647,318
Actual Fuel Cost (Rs/MkCal)	407	429	642	533	580	407	426	473	404
<b>Base Variable Cost (Rs/kWh)</b>	<b>0.9162</b>	<b>1.2063</b>	<b>1.0721</b>	<b>1.3188</b>	<b>1.2278</b>	<b>1.1695</b>	<b>0.7023</b>		<b>0.6742</b>
Actual Heat Rate (kCal/kWh)	2,589	3,276	2,657	2,664	2,664	2,976	2,604	2,694	1,962
<b>Norm - Heat Rate (kCal/kWh)</b>	<b>2,725</b>	<b>3,200</b>	<b>2,735</b>	<b>2,663</b>	<b>2,649</b>	<b>2,996</b>	<b>2,502</b>	<b>2,675</b>	<b>1,966</b>
Variable cost after adjustment for Heat rate & Auxiliary Consumption	1.2111	1.5217	1.9508	1.5589	1.7029	1.3503	1.1538	1.2646	0.8133
<b>Norm - Transit Loss (%)</b>	<b>1.45%</b>	<b>2.58%</b>	<b>0.98%</b>	<b>0.96%</b>	<b>2.40%</b>	<b>1.47%</b>	<b>1.72%</b>		<b>1.72%</b>
<b>Actual Transit loss (%) Quantity</b>	<b>0.90%</b>	<b>0.00%</b>	<b>2.20%</b>	<b>1.73%</b>	<b>1.04%</b>	<b>0.55%</b>	<b>-0.75%</b>		<b>0.00%</b>
<b>Normative Variable Cost (Rs/kWh)</b>	<b>1.2111</b>	<b>1.5217</b>	<b>1.9508</b>	<b>1.5589</b>	<b>1.7029</b>	<b>1.3503</b>	<b>1.1538</b>	<b>1.2646</b>	<b>0.8133</b>



Table	4.1														
Title	Variable cost of power purchase <sup>1&amp;11</sup>														
Sr. No.	Power Purchase Source <sup>2</sup>	Order (FY)	Order for Month & Year			Jul-06									
		Net Purchase <sup>3</sup>	Var. Cost <sup>5</sup>	Var. Cost Amt <sup>4</sup>	Net Purchase <sup>3</sup>	Var. Cost <sup>5</sup>	Var. Cost Amt <sup>4</sup>	Net Purchase <sup>3</sup>	Tariff <sup>6</sup>	PP Amt <sup>7</sup>	FAC Unit <sup>8</sup>	FAC Rate <sup>9</sup>	FAC Amt <sup>10</sup>	Var. Cost Amt <sup>4</sup>	Var. Cost <sup>5</sup>
		MU	Rs/ kWh	Rs Lakh	MU	Rs/ kWh	Rs Lakh	MU	Rs/ kWh	Rs Lakh	MU	Rs/ kWh	Rs Lakh	Rs Lakh	Rs/ kWh
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)=(I)*(J)	(L)	(M)	(N)=(L)*(M)	(O)=(K)+(N)	(P)
	Korba	4501	0.53	23,630	375	0.53	1,969	382	0.49	1,890	382	0.07	282	2172	0.57
	Vindhyanchal -I	2727	0.74	20,049	227	0.74	1,671	319	0.85	2,692	319	0.19	614	3307	1.04
	Vindhyanchal -II	2081	0.79	16,467	173	0.79	1,372	157	0.66	1,029	157	0.18	289	1317	0.84
	Vindhyanchal -III	0	-	-	-	-	-	0	0.87	0	0	0.05	0	0	0.92
	Kawas - Gas	457	2.45	11,190	38	2.45	933	132	1.05	1,388	132	2.26	2,982	4369	3.31
	Kawas - Liquid	0	-	-	-	-	-	-	-	-	-	-	-	0	#DIV/0!
	Gandhar	818	1.15	9,374	68	1.15	781	126	0.98	1,240	126	0.36	448	1688	1.34
	Kakrapar	1772	2.99	53,002	148	2.99	4,417	80	2.12	1,701	80	(0.06)	(50)	1651	2.06
	Tarapur 1-4	1187	0.94	11,212	99	0.94	934	247	1.52	3,748	247	0.02	57	3805	1.54
	Eastern Region	108	1.06	1,148	9	1.06	96	73	0.82	599	73	0.13	92	690	0.94
	Tata Power (Trading)	104	1.80	1,876	9	1.80	156	-	-	-	-	-	-	0	#DIV/0!
	Power Trading Corp	2127	1.49	31,796	177	1.49	2,650	61	3.70	2,264	61	-	-	2264	3.70



Sr. No.	Power Purchase Source <sup>2</sup>	Order (FY)			Order for Month & Year			Jul-06							
		Net Purchase <sup>3</sup>	Var. Cost <sup>5</sup>	Var. Cost Amt <sup>4</sup>	Net Purchase <sup>3</sup>	Var. Cost <sup>5</sup>	Var. Cost Amt <sup>4</sup>	Net Purchase <sup>3</sup>	Tariff <sup>6</sup>	PP Amt <sup>7</sup>	FAC Unit <sup>8</sup>	FAC Rate <sup>9</sup>	FAC Amt <sup>10</sup>	Var. Cost Amt <sup>4</sup>	Var. Cost <sup>5</sup>
		MU	Rs/ kWh	Rs Lakh	MU	Rs/ kWh	Rs Lakh	MU	Rs/ kWh	Rs Lakh	MU	Rs/ kWh	Rs Lakh	Rs Lakh	Rs/ kWh
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)=(I)*(J)	(L)	(M)	(N)=(L)*(M)	(O)=(K)+(N)	(P)
	Adani	0	-	-	-	-	-	-	5.31	-	-	-	-	0	#DIV/0!
	NVVN	0	-	-	-	-	-	-	3.17	-	-	-	-	0	#DIV/0!
	RETL	0	-	-	-	-	-	-	-	-	-	-	-	0	#DIV/0!
	Tata N.P.	0	-	-	-	-	-	-	1.81	-	-	-	-	0	#DIV/0!
	Dodson	0	-	-	-	-	-	-	-	-	-	-	-	0	#DIV/0!
	Sardar Sarovar	0	-	-	-	-	-	-	3.48	-	-	-	-	0	#DIV/0!
	Pench	0	-	-	-	-	-	-	-	-	-	-	-	0	#DIV/0!
	RGPPPL	0	-	-	-	-	-	-	3.55	-	-	-	-	0	#DIV/0!
	Lanco	0	-	-	-	-	-	-	-	-	-	-	-	0	#DIV/0!
	JSW PTCL	0	-	-	-	-	-	-	3.49	-	-	-	-	0	#DIV/0!
	Losses	0	-	-	-	-	-	(120)	-	-	(120)	-	-	0	-
	Unscheduled Interchange (UI)	0		4,400	-		367	259	2.23	5,790	259		-	5790	2.23
	Non Conventional Sources (Wind)	0		-	-		-	242	3.46	8,372	242		-	8372	3.46
	Non Conventional Sources (Hydro)	300	3.17	9,500	25	3.17	792	4	2.45	88	4		-	88	2.45
	Power Purchase from Bagasse	0		-	-		-	4	3.24	131	4		-	131	3.24
	Power Purchase from captive generating units	0		-	-		-	3	1.77	54	3		-	54	1.77
	<b>Total Power Purchase</b>	<b>16182</b>	<b>1.20</b>	<b>193,646</b>	<b>1349</b>	<b>1.20</b>	<b>16137</b>	<b>1970</b>	<b>1.57</b>	<b>30985</b>	<b>1970</b>	<b>0.24</b>	<b>4713</b>	<b>35698</b>	<b>1.8120</b>



Table	6.1												
Title	Composite variable cost of generation and power purchase												
Sr. No.	Parameter	Order (FY)			Order for Month & Year			Jul-06			Normative Actual <sup>4</sup> for Month & Year		
		Energy	Var. Cost <sup>2</sup>	Var. Cost Amt <sup>3</sup>	Energy	Var. Cost <sup>2</sup>	Var. Cost Amt <sup>3</sup>	Energy	Var. Cost <sup>2</sup>	Var. Cost Amt <sup>3</sup>	Energy	Var. Cost <sup>2</sup>	Var. Cost Amt <sup>3</sup>
		MU	Rs/ kWh	Rs Lakh	MU	Rs/ kWh	Rs Lakh	MU	Rs/ kWh	Rs Lakh	MU	Rs/ kWh	Rs Lakh
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)
1.0	Own Generation <sup>1</sup> (Table No. 3.3, Sr. No. 5.0)	42,391	0.93	395,416	3,533	0.93	32,951.32	3,127	1.34	41,866	3,127	1.34	41,968
2.0	Disallowance of FAC for Excess Auxiliary Consumption (Table No. 3.4)												
3.0	Net Power Purchase (Table No. 4.1)	16,182	1.20	193,646	1,349	1.20	16,137	1,970	1.81	35,698	1,970	1.81	35,698
4.0	Own Generation + Net Power Purchase (1.0-2.0+3.0)	<b>58,573</b>	<b>1.01</b>	<b>589,062</b>	<b>4,881</b>	<b>1.01</b>	<b>49,088</b>	<b>5,097</b>	<b>1.52</b>	<b>77,564</b>	<b>5,097</b>	<b>1.52</b>	<b>77,666</b>



<b>Table 6.2</b>			
<b>Title Change in variable cost of generation and power purchase (C) - Format 1</b>			
<b>Sr. No.</b>	<b>Parameter</b>	<b>Unit</b>	<b>Value</b>
(A)	(B)	(C)	(D)
1.0	Weighted Average variable cost of generation and power purchase considered by the Commission for Month & Year (Table No.6.1 Sr. No.4.0, Col. No. (G))	Rs/kWh	1.01
2.0	Weighted Average Normative Actual variable cost of generation and power purchase for Month & Year (Table No.6.1 Sr. No.4.0, Col. No. (M))	Rs/kWh	1.52
3.0	Change in variable cost of generation and power purchase (2.0-1.0)	Rs/kWh	0.52
4.0	Generation <sup>1</sup> + Net Power Purchase (Table No.6.1 Sr. No.4.0, Col. No. (L))	MU	5,097
5.0	Change in variable cost of generation and power purchase (3.0 x 4.0)	Rs Lakh	26,405





<b>Table</b>	<b>6.6</b>		
<b>Title</b>	<b>Adjustment for Over-Recovery/Under-Recovery (B)</b>		
<b>Sr. No.</b>	<b>Parameter</b>	<b>Unit</b>	<b>Value</b>
(A)	(B)	(C)	(D)
<b>1.0</b>	<b>Adjustment for over-recovery/under-recovery ('B')</b>		
1.1	Incremental cost allowed to be recovered in Month (April 2006) *	Rs Lakh	37,055
1.2	Incremental cost in Month j-4 actually recovered in month j-2 (July 2006) **	Rs Lakh	28,915
1.3	Over-recovery/under-recovery (1.2-1.1)	Rs Lakh	8,140
<b>2.0</b>	<b>Carried forward adjustment for over-recovery/under-recovery attributable to application of ceiling limit</b>	Rs Lakh	-
<b>3.0</b>	<b>Adjustment factor for over-recovery/under-recovery (1.3+2.0)</b>	Rs Lakh	8,140



<b>Table</b>	<b>6.7</b>		
<b>Title</b>	<b>Total Fuel Cost and Power Purchase Adjustment</b>		
<b>Sr. No.</b>	<b>Parameter</b>	<b>Unit</b>	<b>Value</b>
(A)	(B)	(C)	(D)
1.0	Change in cost (C) (Table 6.2, Sr. No.5.0 for FAC Mechanism or Table 6.3, Sr. No. 4.0 for FOCA Mechanism)	Rs Lakh	26,405
2.0	Interest on Working Capital (I) (Table 6.5, Sr. No. 3.0)	Rs Lakh	-
3.0	Adjustment factor for over-recovery/under-recovery (B) (Table 6.6, Sr. No. 3.0)	Rs Lakh	8,140
4.0	FAC (A) = C + I + B (1.0 + 2.0 + 3.0)	Rs Lakh	34,545
5.0	Any unpredictable and uncontrollable expenses incurred (Z) <sup>1</sup>	Rs Lakh	
6.0	FOCA (A) = C + I + B + Z (4.0 + 5.0)	Rs Lakh	



<b>Table</b>	<b>7.1</b>		
<b>Title</b>	<b>Summary of FAC (A)</b>		
<b>Sr. No.</b>	<b>Parameter</b>	<b>Unit</b>	<b>Value</b>
(A)	(B)	(C)	(D)
<b>1.0</b>	<b>Calculation of FAC (A)</b>		
1.1	Disallowance of change in variable cost of generation corresponding to excess auxiliary consumption	Rs Lakh	-
1.2	Change in weighted average variable cost of generation and power purchase after accounting for disallowance of change in variable cost corresponding to excess auxiliary consumption	Rs Lakh	-
1.3	Apportionment of change in variable cost of generation and power purchase to License Area (C)	Rs Lakh	26,405
1.4	Working Capital Interest (I)	Rs Lakh	-
1.5	Adjustment for Over Recovery/Under Recovery (B)	Rs Lakh	8,140
<b>1.6</b>	<b>FAC (A) = C + I + B</b>	Rs Lakh	<b>34,545</b>
<b>2.0</b>	<b>FAC (A)</b>		
2.1	FAC (A) considering cap on Monthly FAC Charge	Rs Lakh	33,780
2.2	FAC (A) disallowed corresponding to excess T&D loss	Rs Lakh	765
2.3	Carried forward FAC (A) for recovery during future period	Rs Lakh	(0)



**Detailed Vetting Report**  
**MSEDCL, FAC Charges for the period August, 2006.**

4. The Commission vide its letter dated 24<sup>th</sup> February 2006 has approved FAC charges for the month of September 2005 based on the Tariff Order dated 10<sup>th</sup> March 2004 and MERC (Terms and Conditions of Tariff) Regulations 2005. In the said letter, the Commission has approved variable fuel cost to be considered for FAC calculations as against the variable cost of generation indicated in the Tariff Order.
  
5. Further, the Commission has issued a detailed Order in the matter of MSEDCL petition for review of regulations relating to FAC Formula dated 21<sup>st</sup> March, 2006, salient features of which are as below :-
  - iii) The Commission has directed to consider the normative fixed cost as 69.6 paise / kWh based on the tariff order for FY. 2003-04 for arriving at the per unit variable cost for the sources of power purchase for which break up of fixed and variable cost is not available. The Commission has directed to deduct this normative fixed cost from the total cost per unit for the sources for which break up is not available such as Traders, bi-lateral sources, TPC and CPP, while estimating the change in fuel cost to be recovered through FAC.
  
  - iv) The Commission to approve the FAC to be recovered by MSEDCL in excess of existing ceiling (20 paise / unit) on recovery through FAC charge after detailed vetting of the actual FAC data on case to case basis till the Commission issues the order on ARR and Tariff of MSEDCL for FY. 2006-07.



6. The Commission had not considered the power purchase from sources like Kawas (liquid fuel), NVVN, Adani, Sardar Sarovar and Pench under power purchase cost while carrying out vetting of FAC for the month of April 2006 as informed by the Commission vide its letter dated 6<sup>th</sup> July 2006. The Commission had also not considered the power purchase cost from Kawas (Liquid), Adani, NVVN, RGPPL, Lanco, Sardar Sarovar, Pench as the cost is higher than the cost of supply in terms of the Order of the Commission dated 28<sup>th</sup> April 2006 and in terms of the MERC (Terms & Conditions of Tariff) Regulations 2005 as informed by the Commission vide its letter dated 9<sup>th</sup> August 2006.
4. MSEDCL vide its letter dated 20<sup>th</sup> October, 2006 has forwarded FAC submissions for the month of August 2006 with a FAC @ 103 paise/unit for metered sales. The Commission has carried out vetting for August 2006 on the basis of ...
- Tariff Order dated 10<sup>th</sup> March 2004
  - MERC (Terms and Conditions of Tariff) Regulations 2005
  - Vetting reports for the months of September 2005 to June 2006
  - Commission's Order dated 21<sup>st</sup> March 2006 in the matter of MSEDCL's petition for review of Regulations relating to FAC formula (Case 52 of 2005)
  - Commission's Order dated 28<sup>th</sup> April 2006 in the matter of MSEDCL's petition for approval of short term power purchase for the period April to June 2006 (Case 3 of 2006)
5. **Analysis of FAC proposal submitted by MSEDCL and computation of FAC charges for August 2006 is as below:**
- vi) **Variable Cost of Generation:**
- a. MSEDCL has made the FAC submissions for the August, 2006 in the Standard Formats prescribed by the Commission vide its letter dated 20<sup>th</sup> October, 2006.



b. MSEDCL has submitted the break up of purchase price of fuel cost for all stations certified by CA.

c. Variable Fuel Cost :

MSEDCL has considered the base variable fuel cost for each station as given by the Commission in its letter dated 24<sup>th</sup> February, 2006. MSEDCL has submitted sample bills for the fuel purchased along with the FAC submissions.

d. Auxiliary consumption:

MSEDCL has taken auxiliary consumption at each unit at normative levels for calculation of variable cost of generation and the same is allowed.

e. Heat Rate:

MSEDCL has worked out the variable cost of generation considering normative heat rates of each station and the same is allowed.

f. Transit Loss:

MSEDCL has worked out the variable cost of generation considering normative transit loss and the same is allowed.

**vii) Variable cost of power purchase –**

a. MSEDCL has purchased 2140 MU's with a variable cost of Rs.419.65 crore (after deduction of fixed cost @0.696 Rs./unit in case of sources where the fixed costs are not available) at avg. rate of Rs.1.9608/unit as against estimated 1349 MU's with a variable cost of Rs.161.37 crore @ Rs.1.20 /unit. Thus, the units purchased have increased by 59%, whereas the purchase cost has increased by 160% for August, 2006.



b. MSEDCL has considered cost of power purchase from Korba, Vindhyachal I, II & III, Kawas (Gas), Gandhar, Kakrapar, Tarapur, Eastern Region, Power Trading Corporation, Adani, NVVN, RETL, Tata N.P., Dodson, Sardar Sarovar, Pench, Lanco, JSW PTCL, Karamchand Thapar (CSLKCTL), Non Conventional Sources and Captive Power Plants under Power Purchase Cost. The cost of power purchase from Captive Power Plants is allowed, as the avg. rate of purchase of Rs.2.75/unit is lower than the avg. cost of supply of Rs.2.83/- per unit in terms of the Regulations 25.6 of MERC (Terms & Conditions of Tariff) Regulations 2005. **However, the power purchase cost from Adani, NVVN, RETL, TataN.P., Dodson, Sardar Sarovar, Pench, Lanco, JSW PTCL, CSLKCTL is higher than the cost of supply and has not been allowed in terms of the Order of the Commission dated 28<sup>th</sup> April, 2006 and in terms of the MERC (Terms & Conditions of Tariff) Regulations 2005.**

c. Considering the severe power shortage faced by MSEDCL partly due to shut down of the Unit 5 of Chandrapur station, the energy purchased by MSEDCL other than from Adani, NVVN, RETL, TataN.P., Dodson, Sardar Sarovar, Pench, Lanco, JSW PTCL, CSLKCTL and cost thereof for August 2006 is allowed.

d. As directed by the Commission in its order dated 21<sup>st</sup> March, 2006, MSEDCL has deducted normative fixed cost of 69.60 paise / unit from the actual total cost per unit from the sources where break up of fixed cost and variable is not available.

e. The wind power purchase rate is taken as Rs.3.46 / unit and hydro power rate is taken as Rs.2.45/ unit as per the respective orders. The cost of power purchase from bagasse is taken as Rs.3.24/- per unit. The Commission has allowed the cost for power purchase from Non Conventional Sources of Energy (NCSE) and CPP as claimed by MSEDCL.



f. UI charges:

MSEDCL has purchased 207 MU's through UI at average rate of Rs.3.02/ unit and the same is allowed.

g. Scheduled Energy Received in grid through Imports from various regions and losses:

MSEDCL has claimed losses in power purchase through grid at 82 MU's as the difference between the Scheduled Energy (including UI) and Actual Drawal. Accordingly, the Commission has considered the losses in the grid as given by MSEDCL.

Considering above, the Commission has approved change in Variable (Fuel) Cost of Generation and Power Purchase Cost of Rs. 252.37 crore as against Rs. 313.09 crore as submitted by MSEDCL.

viii) **Interest on working capital** – MSEDCL has not considered interest on incremental working capital requirement on account of change in fuel and power purchase costs and accordingly the same is not considered in the FAC.

ix) **Adjustment factor for over recovery / under recovery (B)** –

MSEDCL has submitted that Rs. 326.30 crore has been billed in the month of August 2006 as against incremental cost of Rs. 440.77 crore allowed to be recovered in May 2006. MSEDCL has submitted the entire FAC computation formats duly audited by Chartered Accountant for the month of August, 2006. The under recovery factor (B) worked out by MSEDCL is Rs. 114.47 crore. However, the Commission has also considered the FAC amount billed to Mula Pravara and Tata Power Company for an amount of Rs. 16.47 crore in the month of April to June 2006, as the same was not considered by MSEDCL while submitting the FAC amount billed in the computation of FAC for April to June 2006. Thus, Rs. 98 crore has been allowed as under recovery factor (B) by the Commission.





The reason for under recovery as explained by MSEDCL is the billing schedule for unmetered consumers, which is done on quarterly basis and thus FAC amount is captured on quarterly basis as and when billing is done.

- x) **T & D Loss:** MSEDCL has worked out T&D loss at 27.71% (1576 MU) for August 2006 as against the approved norm of 26.87%. MSEDCL has considered 57.78 MUs under sales as HT – Credit, however the same are not considered in purchase from renewable sources. Commission has also observed that there is a slight variation in the metered sale and FAC billed report dated 17<sup>th</sup> October, 2006 (from MSEDCL – IT department), submitted for August, 2006 and that considered by MSEDCL in FAC computation. The Commission has considered category-wise metered sale from the report dated 17<sup>th</sup> October, 2006. Thus the metered sales figure is reduced to 3452 MUs, as against 3511 MUs submitted by MSEDCL. The T& D Loss as a percentage of net energy input works out to 28.75% (1635 MUs) as against the approved norm of 26.87 % in August 2006.

The Commission has arrived at recoverable FAC of Rs.341.38 Crore (net of T&D loss) for the month of August 2006. The summary of FAC for the month of August 2006 is given below and the details are as per the Tables 3.1, 3.3, 3.3a, 4.1, 6.1, 6.2, 6.6, 6.7 and 7.1



**Calculation of FAC charge for the month of August 2006:**

Sr. No.	Parameter	Units	August 2006	
			As per MSEDCL	As per Commission
	<b>Calculation of FAC</b>			
1	Normative Variable Fuel Cost of generation	Rs./unit	1.40	1.40
2	Normative Variable Fuel Cost of power purchase	Rs./unit	1.96	1.79
3	Normative Variable Fuel cost of generation and power purchase	Rs./unit	1.64	1.55
5	Change in Variable Fuel cost of generation and power purchase	Rs./unit	0.64	0.55
6	Net Generation	Mus	2781	2781
7	Net power purchase	MUs	2140	1834
8	Net Generation + Net power purchase	MUs	4921	4615
9	Change in Variable Fuel cost of generation and power purchase	Crore	313.09	252.37
10	Working capital interest (I)	Crore	0.00	0.00
11	Adjustment of (over recovery) / under recovery (B)	Crore	114.47	98.00
12	Total FAC (9+10+11)	Crore	427.56	350.36
	<b>FAC liable sale</b>			
13	Sale within License Area	MUs	4113	4054
14	Excess T & D losses	MUs	48	107
15	Sale within License Area and Excess T & D losses	MUs	4161	4161
16	FAC(A) allowed	Rs.crore	422.66	341.38
17	FAC(A) disallowed corresponding to excess loss	Rs.crore	4.90	8.99

The Commission has approved the FAC amount of Rs 337.80 Crore (net of excess T&D loss) for the month of July 2006. Thus the total amount of FAC approved for the month of July and August 2006 works out to Rs 679.18 Crore. The Commission has approved the recovery of FAC for the month of July 2006 and August 2006 @ 41 paise/kWh to be billed in the months from November 2006 to February 2007. The summary of FAC approved for July and August 2006 to be recovered during the period November 2006 to February 2007 is given in Table below:

Sr No	Particulars	Unit	As per MSEDCL	Allowed by Commission
1.	FAC of July 2006 net of excess T&D Loss	Rs. Crore	389.55	337.80
2.	FAC of August 2006 net of excess T&D Loss	Rs Crore	422.66	341.38
2.	FAC rate to be billed in the month of November 2006 to February 2007	Paise/unit		41
3.	FAC rate (unmetered)	Rs/hp/month		
	-LT-Ag (>1300 hours per year)	Rs/hp/month		37.20
	-LT-Ag (<1300 hours per year)	Rs/hp/month		30.40



<b>Table No</b>	<b>Title</b>
3.1	Heat Rate for Thermal Generating Stations
3.3	Calculation of Station-wise variable cost of generation (fuel cost)
3.3a	Calculation of Normative Variable cost of generating stations
4.1	Variable Cost of Power Purchase
6.1	Composite Variable Cost of Generation and Power Purchase
6.6	Adjustment for over recovery / under recovery (B)
6.7	Total fuel cost and power purchase adjustment
7.1	Summary of FAC (A)



<b>Table</b>	<b>3.1</b>						
<b>Title</b>	<b>Heat Rate for Thermal Generating Stations</b>						
<b>Sr. No.</b>	<b>Generating Station/Unit<sup>1</sup></b>	<b>Order FY</b>	<b>Aug-06</b>				<b>Cumulative Actual upto Month &amp; Year</b>
		<b>Heat Rate</b>	<b>Gross Generation</b>	<b>Energy Input</b>	<b>Heat Rate</b>	<b>Reasons for material variation</b>	<b>Heat Rate</b>
		<b>kcal/kWh</b>	<b>MU</b>	<b>Mkcal</b>	<b>kcal/ kWh</b>		<b>kcal/kWh</b>
(A)	(B)	(C)	(D)	(E)	(F) = (E)/(D)	(G)	(H)
	Khaparkheda	2725	549	1428883	2,602		2,584
	Paras	3200	29	96363	3,297		3,220
	Bhusawal	2735	193	521035	2,705	Due to wet coal & Coal Mill Choke problems, Oil Consumption was high, FO 2432 Kl & LDO = 107 kl. Also Gen. is less due to U1 under COH & U2 wet Coal problems.	2,647
	Nasik	2663	413	1103547	2,675	1) Station suffered high partial loss during Jul. 06 (Partial Outage - 13.24%) 2) There are 9 Nos. of tripping, so loss on startup/shutdown increased.	2,659
	Parli	2649	290	775632	2,671	Heat rate is high mainly due to Low vaccum at Unit-3, Partial loading in first week due to wet coal, ageing effect etc	2,669
	Koradi	2996	538	1602360	2,977		2,977
	Chandrapur	2502	731	1901765	2,603		2,602
	Gas Thermal	1966	322	631424	1,959		1,960
	<b>Total for Thermal Generation</b>		<b>3,065</b>	<b>8061010.4</b>	<b>2,630</b>		



Table	3.3														
Title	Calculation of Station-wise variable cost of generation (fuel cost)														
Sr. No.	Generating Station/Unit <sup>1</sup> & <sup>2</sup>	Fuel Basket (FB) <sup>1&amp;2</sup>	Order (FY)	Order for Month & Year					Aug-06				Normative Actual Var. Cost <sup>4</sup> for Aug. 2006		
				Var. Cost <sup>3</sup>	Var. Cost	Generation <sup>3</sup>	Var. Cost <sup>3</sup>	Var. Cost	Generation <sup>3</sup>	Reasons for Material Variation	Var. Cost <sup>3</sup>	Var. Cost	Generation <sup>3</sup>	Var. Cost <sup>3</sup>	Var. Cost
			MU	Rs/ kWh	Rs Lakh	MU	Rs/ kWh	Rs Lakh	MU		Rs/ kWh	Rs Lakh	MU	Rs/ kWh	Rs Lakh
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)	(O)	(P)
<b>1.0</b>	<b>Generating Station/Unit wise, Fuel Basket-wise details</b>														
<b>2.0</b>	<b>Generating Station/Unit wise summary</b>														
	Khaparkheda		5471	0.9162	50125.3	456	0.9162	4,177	498		1.16	5,775	498	1.21	6,008
	Paras		345	1.2063	4161.74	29	1.2063	347	26		1.75	450	26	1.70	437
	Bhusawal		2802	1.0721	30040.2	234	1.0721	2,503	171		2.25	3,838	171	2.24	3,821
	Nasik		4680	1.3188	61719.8	390	1.3188	5,143	367		1.95	7,174	367	1.91	6,993
	Parli		3538	1.2278	43439.6	295	1.2278	3,620	262		1.60	4,173	262	1.60	4,186
	Koradi		5901	1.1695	69012.2	492	1.1695	5,751	480		1.54	7,387	480	1.54	7,381
	Chandrapur		15693	0.7023	110212	1,308	0.7023	9,184	663		1.20	7,963	663	1.15	7,637
	Gas Thermal		3961	0.6742	26705.1	330	0.6742	2,225	315		0.75	2,356	315	0.75	2,368
	<b>Total</b>	<b>All fuels</b>	<b>42391</b>	<b>0.9328</b>	<b>395416</b>	<b>3,533</b>	<b>0.9328</b>	<b>32,951</b>	<b>2,781</b>		<b>1.41</b>	<b>39,116</b>	<b>2,781</b>	<b>1.40</b>	<b>38,833</b>



Table	3.3														
Title	Calculation of Station-wise variable cost of generation (fuel cost)														
Sr. No.	Generating Station/Unit <sup>1&amp;2</sup>	Fuel Basket (FB) <sup>1&amp;2</sup>	Order (FY)	Order for Month & Year					Aug-06				Normative Actual Var. Cost <sup>4</sup> for Aug. 2006		
				Var. Cost <sup>3</sup>	Var. Cost	Generation <sup>3</sup>	Var. Cost <sup>3</sup>	Var. Cost	Generation <sup>3</sup>	Reasons for Material Variation	Var. Cost <sup>3</sup>	Var. Cost	Generation <sup>3</sup>	Var. Cost <sup>3</sup>	Var. Cost
			MU	Rs/ kWh	Rs Lakh	MU	Rs/ kWh	Rs Lakh	MU		Rs/ kWh	Rs Lakh	MU	Rs/ kWh	Rs Lakh
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)	(O)	(P)
<b>3.0</b>	<b>Total for all Generating Stations/Units</b>														
<b>4.0</b>	<b>Generation corresponding to Utilisation of Specific Generating Station/Unit corresponding to sale mentioned at Table 1.1, Item 3<sup>5</sup></b>														
<b>5.0</b>	<b>Total for all Generating Stations/Units excl. generation reported at (4.0)</b>		42391	0.93	395416	3533	0.93	32951	2781	0	1.41	39116	2781	1.40	38833



Sheet 3.3a									
<b>Calculation of Normative Variable Cost of Generating Stations</b>									
	K'kheda	Paras	Bhusawal	Nasik	Parli	Koradi	C'pur	Total for Coal	Uran (Gas)
<b>A. Thermal Stations</b>									
Actual Gross Generation (MU)	549	29	193	413	290	538	731	2,743	322
<b>Approved Auxiliary Consumption%</b>	<b>8.50%</b>	<b>9.70%</b>	<b>10.00%</b>	<b>9.00%</b>	<b>9.70%</b>	<b>9.80%</b>	<b>7.60%</b>		<b>2.40%</b>
Net Generation (MU)	502	26	173	375	262	486	675	2,501	315
Actual Generation Cost (Rs lakhs)	5,775	450	3,838	7,174	4,173	7,387	7,963	36,759	2,356
Less: Transit Loss after Adjustment	72	4	23	54	48	45	(11)	236	-
Add: Normative Transit Loss (Rs.Lakhs)	84	15	27	64	106	84	118	498	-
Actual Adjusted Gen Cost (Rs.Lakhs)	5,787	461	3,841	7,184	4,231	7,426	8,091	37,022	2,356
Actual Quantity delivered (MT)	484,917	35,029	170,825	346,588	258,826	436,285	685,966	2,418,435	
Avg coal purchase price (Rs/MT)	1,253	1,681	1,609	1,901	1,778	1,331	1,329		
Actual Transit Loss (MT)	6,007	236	1,446	2,818	2,830	3,440	(1,102)	15,674	
Actual Heat Input (MKcal)	1,428,883	96,363	521,035	1,103,547	775,632	1,602,360	1,901,765	7,429,586	631,424
Actual Fuel Cost (Rs/MkCal)	405	479	737	651	545	463	425	498	373
<b>Base Variable Cost (Rs/kWh)</b>	<b>0.9162</b>	<b>1.2063</b>	<b>1.0721</b>	<b>1.3188</b>	<b>1.2278</b>	<b>1.1695</b>	<b>0.7023</b>		<b>0.6742</b>
Actual Heat Rate (kCal/kWh)	2,602	3,297	2,705	2,675	2,671	2,977	2,603	2,709	1,959
<b>Norm - Heat Rate (kCal/kWh)</b>	<b>2,725</b>	<b>3,200</b>	<b>2,735</b>	<b>2,663</b>	<b>2,649</b>	<b>2,996</b>	<b>2,502</b>	<b>2,675</b>	<b>1,966</b>
Variable cost after adjustment for Heat rate & Auxiliary Consumption	1.2062	1.6971	2.2404	1.9051	1.6001	1.5392	1.1521	1.3330	0.7517
<b>Norm - Transit Loss (%)</b>	<b>1.45%</b>	<b>2.58%</b>	<b>0.98%</b>	<b>0.96%</b>	<b>2.40%</b>	<b>1.47%</b>	<b>1.72%</b>		<b>1.72%</b>
<b>Actual Transit loss (%) Quantity</b>	<b>1.24%</b>	<b>0.67%</b>	<b>0.85%</b>	<b>0.81%</b>	<b>1.09%</b>	<b>0.79%</b>	<b>-0.16%</b>		<b>0.00%</b>
<b>Normative Variable Cost (Rs/kWh)</b>	<b>1.2062</b>	<b>1.6971</b>	<b>2.2404</b>	<b>1.9051</b>	<b>1.6001</b>	<b>1.5392</b>	<b>1.1521</b>	<b>1.3330</b>	<b>0.7517</b>



Table 4.1															
Title Variable cost of power purchase <sup>1&amp;11</sup>															
Sr. No.	Power Purchase Source <sup>2</sup>	Order (FY)			Order for Month & Year			Aug-06							
		Net Purchase <sup>3</sup>	Var. Cost <sup>5</sup>	Var. Cost Amt <sup>4</sup>	Net Purchase <sup>3</sup>	Var. Cost <sup>5</sup>	Var. Cost Amt <sup>4</sup>	Net Purchase <sup>3</sup>	Tariff <sup>6</sup>	PP Amt <sup>7</sup>	FAC Unit <sup>8</sup>	FAC Rate <sup>9</sup>	FAC Amt <sup>10</sup>	Var. Cost Amt <sup>4</sup>	Var. Cost <sup>5</sup>
		MU	Rs/ kWh	Rs Lakh	MU	Rs/ kWh	Rs Lakh	MU	Rs/ kWh	Rs Lakh	MU	Rs/ kWh	Rs Lakh	Rs Lakh	Rs/ kWh
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K) = (I)*(J)	(L)	(M)	(N) = (L)*(M)	(O) = (K)+(N)	(P)
	Korba	4501	0.53	23,630	375	0.53	1,969	456	0.53	2,420	456	0.04	178	2598	0.57
	Vindhyanchal -I	2727	0.74	20,049	227	0.74	1,671	308	0.84	2,602	308	0.24	736	3338	1.08
	Vindhyanchal -II	2081	0.79	16,467	173	0.79	1,372	188	0.71	1,332	188	0.23	433	1765	0.94
	Vindhyanchal - III	-	-	-	-	-	-	0	0.87	1	0	-	-	1	0.87
	Kawas - Gas	457	2.45	11,190	38	2.45	933	14	1.16	167	14	3.09	446	613	4.25
	Kawas - Liquid	0	-	-	-	-	-	-	-	-	-	-	-	-	#DIV/0!
	Gandhar	818	1.15	9,374	68	1.15	781	66	1.03	683	66	0.31	207	889	1.35
	Kakrapar	1772	2.99	53,002	148	2.99	4,417	77	2.04	1,583	77	(0.06)	(48)	1535	1.98





Title Variable cost of power purchase <sup>1&amp;11</sup>															
Sr. No.	Power Purchase Source <sup>2</sup>	Order (FY)			Order for Month & Year			Aug-06							
		Net Purchase <sup>3</sup>	Var. Cost <sup>5</sup>	Var. Cost Amt <sup>4</sup>	Net Purchase <sup>3</sup>	Var. Cost <sup>5</sup>	Var. Cost Amt <sup>4</sup>	Net Purchase <sup>3</sup>	Tariff <sup>6</sup>	PP Amt <sup>7</sup>	FAC Unit <sup>8</sup>	FAC Rate <sup>9</sup>	FAC Amt <sup>10</sup>	Var. Cost Amt <sup>4</sup>	Var. Cost <sup>5</sup>
		MU	Rs/ kWh	Rs Lakh	MU	Rs/ kWh	Rs Lakh	MU	Rs/ kWh	Rs Lakh	MU	Rs/ kWh	Rs Lakh	Rs Lakh	Rs/ kWh
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K) = (I)*(J)	(L)	(M)	(N) = (L)*(M)	(O) = (K)+(N)	(P)
	Tarapur 1-4	1187	0.94	11,212	99	0.94	934	172	1.63	2,794	172	-	-	2794	1.63
	Eastern Region	108	1.06	1,148	9	1.06	96	57	0.89	510	57	0.13	73	583	1.01
	Tata Power (Trading)	104	1.80	1,876	9	1.80	156	-	-	-	-	-	-	-	-
	Power Trading Corp	2127	1.49	31,796	177	1.49	2,650	70	3.38	2,383	70	-	-	2383	3.38
	Adani	-	-	-	-	-	-	-	4.56	-	-	-	-	0	-
	NVVN	-	-	-	-	-	-	-	2.40	-	-	-	-	0	-
	RETL	-	-	-	-	-	-	-	2.16	-	-	-	-	0	-
	Tata N.P.	-	-	-	-	-	-	-	1.81	-	-	-	-	0	-
	Dodson	-	-	-	-	-	-	-	-	-	-	-	-	0	-
	Sardar Sarovar	-	-	-	-	-	-	-	3.48	-	-	-	-	0	-
	Pench	-	-	-	-	-	-	-	-	-	-	-	-	0	-
	RGPPL	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Variable cost of power purchase <sup>1&amp;11</sup>															
Sr. No.	Power Purchase Source <sup>2</sup>	Order (FY)			Order for Month & Year			Aug-06							
		Net Purchase <sup>3</sup>	Var. Cost <sup>5</sup>	Var. Cost Amt <sup>4</sup>	Net Purchase <sup>3</sup>	Var. Cost <sup>5</sup>	Var. Cost Amt <sup>4</sup>	Net Purchase <sup>3</sup>	Tariff <sup>6</sup>	PP Amt <sup>7</sup>	FAC Unit <sup>8</sup>	FAC Rate <sup>9</sup>	FAC Amt <sup>10</sup>	Var. Cost Amt <sup>4</sup>	Var. Cost <sup>5</sup>
		MU	Rs/ kWh	Rs Lakh	MU	Rs/ kWh	Rs Lakh	MU	Rs/ kWh	Rs Lakh	MU	Rs/ kWh	Rs Lakh	Rs Lakh	Rs/ kWh
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K) = (I)*(J)	(L)	(M)	(N) = (L)*(M)	(O) = (K)+(N)	(P)
	Lanco	-	-	-	-	-	-	-	4.14	-	-	-	-	0	-
	JSW PTCL	-	-	-	-	-	-	-	2.66	-	-	-	-	0	-
	Karamchand Thapar (CSLKCTL)	-	-	-	-	-	-	-	-	-	-	-	-	0	-
	Losses	-	-	-	-	-	-	(82)	-	-	(82)	-	-	-	-
	Unscheduled Interchange (UI)	-	-	4,400	-	-	367	207	3.02	6,255	207	-	-	6255	3.02
	Non Conventional Sources (Wind)	-	-	-	-	-	-	273	3.46	9,448	273	-	-	9448	3.46
	Non Conventional Sources (Hydro)	300	3.17	9,500	25	3.17	792	11	2.45	260	11	-	-	260	2.45
	Power Purchase from Bagasse	-	-	-	-	-	-	5	3.24	165	5	-	-	165	3.24
	Power Purchase from captive generating units	-	-	-	-	-	-	9	1.99	185	9	-	-	185	1.99
	<b>Total Power Purchase</b>	<b>16182</b>	<b>1.20</b>	<b>193,646</b>	<b>1348.5</b>	<b>1.20</b>	<b>16137</b>	<b>1834</b>	<b>1.68</b>	<b>30787</b>	<b>1834</b>	<b>0.11</b>	<b>2025</b>	<b>32812</b>	<b>1.7892</b>



Table 6.1													
Title Composite variable cost of generation and power purchase													
Sr. No.	Parameter	Order (FY)			Order for Month & Year			Aug-06			Normative Actual <sup>1</sup> for Month & Year Aug – 06		
		Energy	Var. Cost <sup>2</sup>	Var. Cost Amt <sup>3</sup>	Energy	Var. Cost <sup>2</sup>	Var. Cost Amt <sup>3</sup>	Energy	Var. Cost <sup>2</sup>	Var. Cost Amt <sup>3</sup>	Energy	Var. Cost <sup>2</sup>	Var. Cost Amt <sup>3</sup>
		MU	Rs/ kWh	Rs Lakh	MU	Rs/ kWh	Rs Lakh	MU	Rs/ kWh	Rs Lakh	MU	Rs/ kWh	Rs Lakh
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)
1.0	Own Generation <sup>1</sup> (Table No. 3.3, Sr. No. 5.0)	42,391	0.93	395,416	3,533	0.93	32,951.32	2,781	1.41	39,116	2,781	1.40	38,833
2.0	Disallowance of FAC for Excess Auxiliary Consumption (Table No. 3.4)												
3.0	Net Power Purchase (Table No. 4.1)	16,182	1.20	193,646	1,349	1.20	16,137	1,834	1.79	32,812	1,834	1.79	32,812
4.0	Own Generation + Net Power Purchase (1.0-2.0+3.0)	58,573	1.01	589,062	4,881	1.01	49,088	4,615	1.56	71,928	4,615	1.55	71,645



<b>Table</b>	<b>6.2</b>		
<b>Title</b>	<b>Change in variable cost of generation and power purchase (C) - Format 1</b>		
<b>Sr. No.</b>	<b>Parameter</b>	<b>Unit</b>	<b>Value</b>
(A)	(B)	(C)	(D)
1.0	Weighted Average variable cost of generation and power purchase considered by the Commission for Month & Year (Table No.6.1 Sr. No.4.0, Col. No. (G))	Rs/kWh	1.01
2.0	Weighted Average Normative Actual variable cost of generation and power purchase for Month & Year (Table No.6.1 Sr. No.4.0, Col. No. (M))	Rs/kWh	1.55
3.0	Change in variable cost of generation and power purchase (2.0-1.0)	Rs/kWh	0.55
4.0	Generation <sup>1</sup> + Net Power Purchase (Table No.6.1 Sr. No.4.0, Col. No. (L))	MU	4,615
5.0	Change in variable cost of generation and power purchase (3.0 x 4.0)	Rs Lakh	25,237



<b>Table</b>	<b>6.6</b>		
<b>Title</b>	<b>Adjustment for Over-Recovery/Under-Recovery (B)</b>		
<b>Sr. No.</b>	<b>Parameter</b>	<b>Unit</b>	<b>Value</b>
(A)	(B)	(C)	(D)
<b>1.0</b>	<b>Adjustment for over-recovery/under-recovery ('B')</b>		
1.1	Incremental cost allowed to be recovered in Month ( <b>May 2006</b> ) *	Rs Lakh	44,077
1.2	Incremental cost in Month j-4 actually recovered in month j-2 ( <b>August 2006</b> )	Rs Lakh	32,630
1.3	Over-recovery/under-recovery (1.2-1.1)	Rs Lakh	11,447
1.4	FAC billed to Mula Pravara and Tata Power Co. for the month of April, May and June 2006	Rs Lakh	1,647
<b>2.0</b>	<b>Carried forward adjustment for over-recovery/under-recovery attributable to application of ceiling limit</b>	Rs Lakh	-
<b>3.0</b>	<b>Adjustment factor for over-recovery/under-recovery (1.3+2.0)</b>	Rs Lakh	9,800

<b>Table</b>	<b>6.7</b>		
<b>Title</b>	<b>Total Fuel Cost and Power Purchase Adjustment</b>		
<b>Sr. No.</b>	<b>Parameter</b>	<b>Unit</b>	<b>Value</b>
(A)	(B)	(C)	(D)
1.0	Change in cost (C) (Table 6.2, Sr. No.5.0 for FAC Mechanism or Table 6.3, Sr. No. 4.0 for FOCA Mechanism)	Rs Lakh	25,237
2.0	Interest on Working Capital (I) (Table 6.5, Sr. No. 3.0)	Rs Lakh	-
3.0	Adjustment factor for over-recovery/under-recovery (B) (Table 6.6, Sr. No. 3.0)	Rs Lakh	9,800
4.0	FAC (A) = C + I + B (1.0 + 2.0 + 3.0)	Rs Lakh	35,036
5.0	Any unpredictable and uncontrollable expenses incurred (Z) <sup>1</sup>	Rs Lakh	
6.0	FOCA (A) = C + I + B + Z (4.0 + 5.0)	Rs Lakh	



<b>Table</b>	<b>8.1</b>		
<b>Title</b>	<b>Summary of FAC (A) and FAC<sub>kWh</sub></b>		
<b>Sr. No.</b>	<b>Parameter</b>	<b>Unit</b>	<b>Value</b>
(A)	(B)	(C)	(D)
<b>1.0</b>	<b>Calculation of FAC (A)</b>		
1.1	Disallowance of change in variable cost of generation corresponding to excess auxiliary consumption	Rs Lakh	-
1.2	Change in weighted average variable cost of generation and power purchase after accounting for disallowance of change in variable cost corresponding to excess auxiliary consumption	Rs Lakh	-
1.3	Apportionment of change in variable cost of generation and power purchase to License Area (C)	Rs Lakh	25,237
1.4	Working Capital Interest (I)	Rs Lakh	-
1.5	Adjustment for Over Recovery/Under Recovery (B)	Rs Lakh	9,800
<b>1.6</b>	<b>FAC (A) = C + I + B</b>	Rs Lakh	<b>35,036</b>
<b>2.0</b>	<b>FAC (A)</b>		
2.1	FAC (A) considering cap on Monthly FAC Charge	Rs Lakh	34,138
2.2	FAC (A) disallowed corresponding to excess T&D loss	Rs Lakh	899
2.3	Carried forward FAC (A) for recovery during future period	Rs Lakh	(0)

