

**MADHYA PRADESH ELECTRICITY REGULATORY COMMISSION**  
**"Metro Plaza", Bittan Market, Bhopal - 462 016**



**Petition No. 12/2009**

**PRESENT:**

**Dr. J. L. Bose, Chairman**

**K.K. Garg, Member.**

**C.S. Sharma, Member**

**IN THE MATTER OF:**

**Approval of provisional Generation Tariff for 1 x 500 MW Extension Unit-V of Sanjay Gandhi Thermal power Station of Madhya Pradesh Power Generating Company Limited (MPPGCL) at Birsinghpur for the period from 28<sup>th</sup> August 2008 to 31<sup>st</sup> March 2009.**

**M.P. Power Generating Company Ltd, Rampur, Jabalpur.**

**PETITIONER**

**Vs.**

**1. M.P. Power Trading Company Ltd., Rampur, Jabalpur**

**RESPONDENTS**

**2. M.P. Poorv Kshetra Vidyut Vitaran Company Ltd., Jabalpur**

**3. MP Madhya Kshetra Vidyut Vitaran Company Ltd., Bhopal**

**4. MP Paschim Kshetra Vidyut Vitaran Company Ltd., Indore**

**5. M.P. Power Transmission Co. Ltd. Jabalpur.**

**6. M.P. State Electricity Board, Rampur, Jabalpur.**

## ORDER

*(Passed on this 24<sup>th</sup> November, 2009)*

1. The Madhya Pradesh Electricity Regulatory Commission (hereinafter called “the Commission” or “MPERC”) after going through the petition submitted by the MP Power Generating Company Limited (hereinafter called “the Petitioner” or “Company” or “Generating Company” or “MPPGCL”) and considering the documents available on record and the supplementary submissions made by the petitioner with supporting documents thereof, hereby accepts the applications with modifications, conditions and directions as herewith attached. The Commission has also considered the orders issued by the Government of Madhya Pradesh (Energy Department) on 31<sup>st</sup> May 2005 making the Transfer Scheme Rules effective from 1<sup>st</sup> June 2005, (order no.3679/FRS/18/13/2002 dated 31.5.2005) and subsequent orders.
2. The Commission after detailed scrutiny of the financial data and operating parameters submitted by the petitioner and after considering the Commission’s applicable Regulations in this regard, has determined the provisional generation tariff as per detailed order attached herewith.
3. The generation tariff determined by this order, in accordance with Section 62 of the Electricity Act, 2003, will be applicable w.e.f. 28<sup>th</sup> August,2008 i.e. the COD (commercial operation date) to 31<sup>st</sup> March, 2009. The petitioner must take steps to implement the Order after giving seven (7) days’ public notice in accordance with clause 1.30 of MPERC (Details to be furnished and fee payable by licensee or generating company for determination of tariff and manner of making application) Regulations, 2004 and raise its bills for energy supplied to the three Distribution Companies in accordance with allocation made by the Government of Madhya Pradesh vide notification dated 19/03/2008.
4. A gist of the fixed charges and variable charges as filed by the Petitioner and as approved by the Commission through this order is given below :-

**(a) Fixed Charges****(Rs. Crore)**

Sr. No.	Fixed cost component	Claimed by the petitioner for 216 days	Admitted by the Commission
1	Return on equity	51.78	60.02*
2	Interest and finance charges	102.87	146.26*
3	Depreciation.	49.12	62.26*
4	O & M Expenses	33.64	54.75*
5	Interest on working Capital	15.17	25.29*
6	Advance Against Depreciation (AAD)	0	0
	Fixed charges	<b>252.58</b>	<b>348.58*</b>
	Fixed charges for 216 days	<b>252.58</b>	<b>206.28</b>
	95% of the fixed charges (for billing purposes)		<b>195.96</b>
7	MPERC fees	<b>0.145</b>	<b>0.145</b>

Note : The charges marked with \* are for annual basis.

**(b) Variable Cost**

Sl. No.	Particulars		As filed by the petitioner for FY 2008-09	As admitted by the Commission for FY 2008-09
1	Capacity	MW	500	500
2	Weighted average GCV of coal	Kcal/Kg	3350	*3859
3	Weighted average GCV of Sec. oil	Kcal/Ltr.	10,000	10,000
4	Weighted average price of Coal	Rs./Kg	1.38	*1.33
5	Weighted average price of Sec. oil	Rs./Ltr.	28	*35.46
6	Gross Station heat rate	Kcal/Kwh	2550	2450
7	Specific fuel oil Consumption	ml/Kwh	4.5	2
8	Aux. Energy Consumption	%	7.5	7
9	Transit and stacking loss	%	0.8	0.8
10	Heat contributed from oil per Unit	Kcal/kWh	45	20
11	Heat contributed from Coal per Unit	Kcal/kWh	2505	2430
12	Specific Coal Consumption	kg/ kWh	0.7478	0.6297
13	Specific Coal Consumption considering Transit & stacking loss	kg/ kWh	0.7538	0.6348
14	Normative PLF considered	%	80	80
15	Rate of energy charge from Coal at ex-bus	Paise /kWh	112.46	90.78
16	Rate of energy charge from oil at ex-bus	Paise /kWh	13.62	7.63
17	<b>Per unit energy charges at ex-bus</b>	<b>Paise /kWh</b>	<b>126.08</b>	<b>98.41</b>

**Note :** Figures with \* mark considered based on the supplementary submission for three preceding months.

5. Ordered as above read with attached detailed reasons and grounds,

**C.S. Sharma)**  
**Member (Economics)**

**(K.K. Garg)**  
**Member (Engineering)**

**(Dr. J. L. Bose)**  
**Chairman**

**Date: 24<sup>th</sup> November, 2009**

**Place: Bhopal**

## TABLE OF CONTENTS

	Page No.
<b>CHAPTER 1 – BACKGROUND OF THE ORDER.....</b>	<b>6</b>
<i>INTRODUCTION.....</i>	<i>6</i>
<i>PROCEDURAL HISTORY .....</i>	<i>7</i>
<i>PUBLIC HEARING.....</i>	<i>10</i>
<i>STATE ADVISORY COMMITTEE.....</i>	<i>11</i>
<b>CHAPTER 2 – ANALYSIS OF THE PETITION.....</b>	<b>12</b>
<b><i>INTRODUCTION OF THE PROJECT AND STATUS OF CLEARANCES</i></b>	
<b><i>AS SUBMITTED BY THE PETITIONER.....</i></b>	<b><i>12</i></b>
<b><i>COST ANALYSIS.....</i></b>	<b><i>13</i></b>
<i>PROJECT COST.....</i>	<i>13</i>
<i>INFIRM POWER REVENUE EARNED FROM SALE OF INFIRM POWER.....</i>	<i>15</i>
<i>DEBT-EQUITY RATIO .....</i>	<i>18</i>
<i>RETURN ON EQUITY RATIO .....</i>	<i>19</i>
<i>INTEREST AND FINANCE CHARGES ON LOAN CAPITAL.....</i>	<i>20</i>
<i>DEPRECIATION.....</i>	<i>21</i>
<i>O&amp;M EXPENSES.....</i>	<i>22</i>
<i>INTEREST ON WORKING CAPITAL .....</i>	<i>23</i>
<i>TARGET AVAILABILITY.....</i>	<i>24</i>
<i>SUMMARY OF FIXED COST.....</i>	<i>24</i>
<b><i>OTHER CHARGES .....</i></b>	<b><i>25</i></b>
<i>MPERC FEES----- .....</i>	<i>25</i>
<b><i>ENERGY/VARIABLE COST .....</i></b>	<b><i>25</i></b>

## CHAPTER-1

### Background of the order

#### Introduction

- 1.1 This order relates to petition number 12 of 2009 filed by the Madhya Pradesh Power Generating Company Limited (MPPGCL) for determination of generation tariff for 1X500 MW Extension unit-5 of Sanjay Gandhi Thermal Power Station at Birsinghpur from 28 Aug 2008. i.e. from the “date of commercial operation” to 31st of March 2009.
- 1.2 While passing the order for determination for Generation Tariff for the above mentioned period of FY 2008-09 of the 500 MW Unit-V of Sanjay Gandhi thermal power station, the Commission has made detailed examination of the operational and the financial data of the generating plant.
- 1.3 The Commission has notified the MPERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2005 in the Madhya Pradesh Government Gazette on 5th December 2005. These tariff regulations have been notified under the multiyear tariff principles for the block of 3 years from FY2006-07 to FY2008-09. As per clause 1.3 of the said Regulations, the Regulations shall come into force from the date of their publication in the official Gazette of the Government of Madhya Pradesh. As per clause 1.4, these Regulations shall apply in all cases of determination of generation tariff under section 62 of the Electricity Act 2003 for supply of electricity to a distribution licensee by existing state sector generating stations where the capacity is allocated by State Government under section 132 of Electricity Act 2003, but shall not apply where tariff has been determined through transparent process of bidding in accordance with the guidelines issued by the Central Government as per the provisions of section 63 of the Electricity Act 2003. Further, Clause 1.5 of the Regulation provides that,  
  
*“ Any new generating company or station which comes up in future and proposes to supply electricity to a distribution licensee of the State shall be subjected to the norms prescribed by CERC vide its order dated 26/03/2004 unless it proposes to supply electricity through bidding in accordance with the guidelines issued by the Central Government as per provisions of section 63 of the Electricity Act 2003.”*
- 1.4 The M.P. Power Generating Company Limited filed the subject petition before the Commission on 25<sup>th</sup> March, 2009. The Commission has observed from the petition that the petitioner is required to sale the entire generation of MPPGCL to MP Tradeco. at a rate determined by the Commission in accordance with the Govt. of MP notification of June 03,2006. A Power Purchase Agreement to this effect has also been signed between MPPGCL and MP Tradeco on 29<sup>th</sup>Nov 2006.

## Procedural history

1.5 The petitioner filed the subject petition on 24/03/2009 through its authorised signatory Shri S.P.Soni, Additional Chief Engineer in accordance with the clause 1.5 of Commission's regulations for FY2009 after COD. The petitioner has made the following submissions for the consideration of the Commission.

1..5.1 *"1x500 MW unit of SGTPS, Birsinghpur was synchronized on 18.6.07, a tariff petition for determination of tariff for Extn. Unit No.5 was submitted to Commission vide Petition No.51 of 2007 on 19.9.2007, envisaging its commercial operation w.e.f. Nov.2007. The Commission vide order dated 18.1.2008 has disapproved the MPPGCL'S request for approval of provisional Tariff stating that the unit has not started generating the electricity commercially and allowed MPPGCL the recovery of infirm power charges till the CoD of Unit. The CoD of SGTPS units No.5 has now been achieved on 28<sup>th</sup> Aug.2008*

1..5.2 *It is pertinent to mention that the Commission has issued a tariff order dated 7<sup>th</sup> March 2006, for the plants from which MPPGCL is already generating power, on Multi Year Tariff principle for a period of three years. The tariff block shall be over by March 2009. This unit has been synchronized in mid of the tariff block and hence, with a view to maintain similarity in the tariff block periods, MPPGCL is submitting the tariff petition for this plant for FY 09. It is proposed that after this time block, the petition shall be submitted by MPPGCL for determination of generation tariff along with other existing units.*

1..5.3 *It is pertinent to mention that, in pursuance with "MPERC (Terms and Conditions of Generation Tariff) Regulations, 2005 (G-26 of 2005)", tariff for sale of electricity from a thermal power generating station shall comprise of two parts, namely, the recovery of Annual Capacity (Fixed) Charges and Energy (Variable) Charges, which shall be worked out in the following way:*

1..5.4 *The annual capacity (fixed) charges shall consist of*

- a) *Interest on Loan Capital*
- b) *Depreciation including Advance Against Depreciation*
- c) *Return On Equity*
- d) *Operation and Maintenance Expenses*
- e) *Interest on Working Capital*

1..5.5 *The Energy (Variable) Charges shall cover Fuel Cost*

1..5.6 *Principles of Operation and Norms as prescribed by CERC vide its order dated.26.03.04 shall be guiding. The station shall also be eligible for incentive on the rate specified in "MPERC (Terms and Conditions of Generation Tariff) Regulations, 2005 (G-26 of 2005)", for ex-bus scheduled energy corresponding to scheduled generation in excess of ex-bus energy corresponding to target Plant Load Factor (PLF).. The actual generation shall also depend upon the dispatch*

instructions issued by SLDC depending upon system requirement, which are neither determined by MPPGCL nor in control of MPPGCL. Thus, the efforts of MPPGCL in making the plant available for generation at the discretion of SLDC does not get due recognition and in long run may affect the motivation of the company to optimize the performance from the plant. This ultimately will affect the interest of consumers adversely. Thus, with a view to safeguard the interest of consumers, MPPGCL humbly submits before the commission to consider permitting incentive on deemed generation with normative auxiliary consumption over and above the target availability. It is prudent to mention that the penalty for not being able to maintain the desired availability of plant always lies with MPPGCL and commensurate fixed cost shall be got deducted from the monthly bill.

1..5.7 Since the scheduled energy and ex-bus energy can be determined only after annual actual performance of the plant, MPPGCL has determined Fixed cost on target PLF only. Incentive / Penalties shall be affected in pursuance with the specified norms and order considering above request of MPPGCL in the final order in this regard by Hon'ble Commission.

1..5.8 MPPGCL has also considered tax holiday during initial five years of operation of the plant. Min. Alt. Tax (MAT) @11.33% has been considered. In case, due to change in Government policy or otherwise, if any, liability of tax and duties (except on incentive or additional profit over and above RoE) arises, the same shall be charged extra. Similarly, Water Charges are payable to Govt. on the rates as specified by GoMP, the same shall be chargeable extra. Fringe benefit tax, if payable on the project shall be chargeable extra on actual basis”.

1.6 The Summary of the petition filed by MPPGCL is given below:

**Table 1 : Summary of petition (Rs in Crore)**

S. No.		Particulars	FY 09
<b>Capacity (Fixed) Charges</b>	1.1	Depreciation	49.12
	1.2	Interest on Loan	102.87
	1.3	Return on Equity	51.78
	1.4	Tax on RoE	6.61
	1.5	Advance against Depreciation	0.00
	1.6	Interest on Working Capital	15.16
	1.7	MPERC Fee	0.15
	1.8	O & M Expenses	33.65
		<b>Total</b>	<b>259.33</b>



<b>Energy Charge</b>	2.1	Rate of Energy Charge from Primary Fuel (REC) p/u	112
	2.2	Rate of Energy Charge from Secondary Fuel (REC) p/u	12
	2.2A	<b>Rate of Energy Charge ex-bus(REC) p/u</b>	124
<b>Average Rate</b>	3.1	Net Sales MU	1919.81
	3.2	Total Fixed Cost	259.34
	3.3	Total Energy Cost	238.33
	3.4	<b>Total Cost</b>	<b>497.67</b>
	3.5	<b>Average Rate</b>	<b>259</b>

1.7 The petitioner has prayed the following for consideration of the Commission

- 1.7.1 Accept the tariff (Fixed and the Variable Cost) as elaborated in para 7 to 10 of the petition and permit recovery in equal monthly installments.
- 1.7.2 Accept and permit recovery of Incentive on the terms specified in "MPERC (Terms and Conditions of Generation Tariff) Regulations, 2005 (G-26 of 2005)" and on availability factor, as requested in para 8 of the petition. Deduction on account of under achievement shall also be applicable as specified in the above regulation.
- 1.7.3 Permit additional recovery on account of Water Charges, Cess, taxes, duties and levies on actual basis, over and above the amounts elaborated in the table above.
- 1.7.4 Permit the recovery of full charges at actual parameters considering the impact of factors beyond control of the utility
- 1.7.5 To allow an estimated expenditure of on account of construction of new ash bund separately, this shall be considered as additional capital expenditure.
- 1.7.6 Permit recovery of expenses understated / not considered in this petition e.g. cost, interest and finance charges, depreciation, balance works to be executed after CoD etc at a later stage, if required.
- 1.7.7 Permit recovery of fixed/ variable charges as proposed above w.e.f 28<sup>th</sup> Aug. 2008 on provisional basis, till issue of final order and effect reconciliation based on the rates approved by Hon'ble Commission at a later stage.
- 1.7.8 Condone any inadvertent omissions / errors / short comings and permit the applicant to add / change /modify / alter this filing and make further submissions as may be required at later stages.
- 1.7.9 Pass such orders as MPERC may deem fit and proper and necessary in the facts and circumstances of the case, to grant relief to the petitioner.

## Public Hearing

1.8 In view of the foregoing the Commission vide order dated 16<sup>th</sup> July,2009 directed the petitioner to file the draft public notice for inviting comments/suggestions on the Petition from the stakeholders filed by MPPGCL. The petitioner filed a draft public notice to the Commission office on 07/07/09. The public notice was published in news papers on 9<sup>th</sup> August, 2009. The last date for filing the comments/suggestions was 30<sup>th</sup> August,2009. The public notice was published in the following news papers:

- Danik Bhaskar                      Bhopal
- Nai Dunia                              Indore
- Danik Acharan                      Gwalior
- Danik Jagran                        Rewa
- Navbharat                            Jabalpur
- The pioneer                            Bhopal

1.9 The Commission office had received Comments/suggestions from two stake holders given below:

- Nagrik Adhikar Association (Satna)
- Electricity Consumer Society (Indore)

1.10 The Commission held a public hearing on the tariff petition of MPPGCL in its office on 15<sup>th</sup> Sept. 2009. Besides the representatives of the petitioner and East Discom Jabalpur, Shri H.D. Motiramani appeared on behalf of the M.P. Electricity Consumer Society Indore.

1.11 Representative of Electricity Consumer Society (Indore) has made following submission before the Commission during the course of public hearing :-

- (i) Deemed generation cannot be allowed. The tariff has to be on actual generation. Taxes and duties have to be based on actual payments made.
- (ii) The recovery on the basis of actual parameters cannot be allowed and has to be based on norms.
- (iii) The additional costs can only be considered after completion of project and final Completion report is submitted for approval.
- (iv) No later stage commitments can be made.
- (v) The provision for bad doubtful debt in tariff may not be allowed. This can form part of ARR.
- (vi) The tariff be decided on the basis of approved cost and any change in the cost of the project be considered after completion of the project and submission of completion report.
- (vii) No relaxed norms can be considered. There was sufficient time to train personal or to appoint operation / maintenance agreed through contract.
- (viii) The O&M charges allowed have to be actual charges or charges as per Norms which ever are less.

- (ix) The depreciation allowed be restricted to Regulations 2005.
- (x) Variable charges have to be restricted to norms, the norms can not be relaxed for any reasons.
- (xi) No availability of coal can not be a reason for relaxed norms. It is a bad planning. Imported coal could have been obtained as was done by other states, NTPC etc.

### **State Advisory Committee**

- 1.12 A presentation on the tariff proposal of MPPGCL in the subject petition was made before the members of the State Advisory Committee on 03/06/09 The members gave their valuable suggestions on the petition, which have been kept in mind while finalising this order.

## CHAPTER 2

### Analysis of the petition

#### **2.0 Introduction of the Project and status of Statutory clearances as submitted by the petitioner**

2.1 Sanjay Gandhi Thermal Power Station which is located in Umaria, District of Madhya Pradesh, was envisaged to install 6 units of 210MW each. It is a coal based plant having 4 units 210 MW commissioned (having 100% share of MP only). With the advent of technology and availability of 500 MW Units, it was decided by MPSEB to set up 1x500 MW capacities in lieu of balance 2x210 MW Units in the space available in the Birsinghpur Plant site. With the addition of 500 MW capacity at SGTPS, Birsinghpur it has become largest Thermal Power Station of MPPGCL.

2.2 Status of statutory clearances:-The project was taken up after obtaining requisite following clearances as follows:-

- Administrative approval of State Govt. vide letter No. 10197/F-3/31/13/97 dated 24.12.97 for setting up of 1 x 500 MW additional unit at Sanjay Gandhi Thermal Power Station, Birsinghpur.
- Approval for supply of Water by Deptt. Of Water Resources No. 29/12/96/M/31/399 dated 26.4.2002 from River Johilla.
- Approval of M.P.P.C.B. (M. P. Pollution Control Board) No. 1558/TS/MPPCB/2002 dated 13.9.2002 granting permission to establish the unit.
- Environmental clearances from Ministry Environmental Forest vide their letter dated 19th July 2002.
- Approval of S.L.C. for grant of linkage of coal from Korba Coalfields vide O.M. dated 16th January 2001.

2.3 Techno-economic clearance of the project granted by CEA vide O.M. No. 2/MP/46/96-PAC/11280 – 302 dated 20th Dec. 2002 at a total estimated cost of Rs. 2093.75 Crore.

### 3.0 Cost Analysis

#### 3.1 Fixed cost

##### (A) **Project Cost**

3.1.1 Clause 2.5 of the MPERC(Terms and Conditions for Determination of generation tariff) Regulation (G-26 of 2005), relating to the capital cost, provides that:

*“Subject to prudence check by the commission, the actual expenditure incurred on completion of the project shall form the basis for determination of tariff. The tariff shall be determined based on the admitted capital expenditure actually incurred upto the date of commercial operation of the Generating units/station and shall include capitalized initial spares subject to ceiling norms as stipulated hereunder”.*

(i) *upto 2.5% of original capital cost in case of coal based generating stations,*

3.1.2 Clause 20.6 of the same regulation provides that:

*“Scrutiny of the cost estimates by the Commission shall be with regard to the reasonableness of the capital cost, financing plan, interest during construction, use of efficient technology, and such other matters for determination of tariff and the Commission may obtain expert advice as deemed necessary”.*

3.1.3 The capital cost as per the techno-economic clearance of the Central Electricity Authority (CEA) accorded vide its O.M. No. 2/MP/46/96-PAC/11280-302 dated 20.12.2002 was Rs. 2093 Crores including Interest during construction and financing charges (IDC & FC) of Rs. 305.05 Crores with the stipulations that:

(i) The estimated completed cost of the scheme shall not exceed the above cost except on account of the :-

(a) Change in rates of Indian taxes and Duties such as Excise duty, CST, considered in cost with a ceiling of Rs. 139.1 Crores and additional taxes and duties levied, if any.

(b) Change in Indian Law resulting in change in cost.

(ii) Interest during Construction and the Financing Charges shall be as per actuals but not exceeding the amount as indicated for appraisal.

(iii) The abstract of the Completed Cost approved by CEA is given below:-

Sr. No.	Description	Cost (Rs. Crs.)
1	Land & RR	6.50
2	Turnkey Cost	1629.93
(a)	Turnkey cost excluding Taxes & Duties	1490.83
(b)	Taxes and Duties	139.10
3	Non-EPC Cost	69.84
4	Overheads	82.43
5	Project cost excluding IDC & FC	1788.70
6	IDC & Financing Cost	305.05
7	Total Project Cost	2093.75

3.1.4 The investment proposal of the generating station was approved by the Govt. of M.P. vide its letter dated 25.02.2003 at the cost of Rs. 2093.75 Cr.

3.1.5 The petitioner has claimed a revised capital cost of Rs. 2300.00 Cr. The break-up of original project cost and revised project cost as submitted by the petitioner is given below:

Sr. No.	Particulars	Original	Revised	Difference
1	Land & RR	6.50	13.70	7.2
2	Turnkey Cost	1629.93	1861.12	231.19
3	Non-EPC Cost	69.84	99.44	29.6
4	Overheads	82.43	56.40	-26.03
5	IDC & Financing Cost	305.05	269.00	-36.05
6	Total Project Cost	2093.75	2300.00	206.25

3.1.6 The table above indicates that there was cost over-run in execution of the generating station. The difference between the original project cost approved by the CEA (as per TEC) and revised project cost as filed by the petitioner is Rs. 206.25 Cr. However, the petitioner has not taken any approval from CEA for the cost over-run. The Commission has therefore, decided to take the original project cost as approved by the CEA for determination of provisional tariff and directs the petitioner to take approval from CEA for the cost over-run before filing the petition for final tariff.

- 3.1.7 As per the submission of the petitioner dated 22.06.2009 (Annexure-10), the amount of loan drawn till CoD is Rs. 1300.78 Cr. and up to 31<sup>st</sup> March, 2009 is Rs. 1318.60 Cr. The details of yearly disbursement of loan since inception of the project as submitted by the petitioner is given below.

Sr. No.	Financial Year	Loan Amount in Rs. Cr.
1	FY2003-04	242.76
2	FY2004-05	300.02
3	FY2005-06	459.11
4	FY2006-07	163.02
5	FY2007-08	101.15
6	FY2008-09	51.9 (Up to CoD Rs. 34.72 Cr.)
<b>Total</b>		<b>1317.96 (Up to CoD Rs. 1300.78Cr.)</b>

- 3.1.8 Due to delay in commissioning & completion of the project by BHEL, Rs. 93.04 crore has been retained/deducted by MPPGCL from various claims of BHEL raised by them after Dec. 2006. These deductions towards liquidity damages are still to be finally settled.
- 3.1.9 The Commission has considered Interest During Construction only up to the schedule COD of Unit which was end of November 2007. The petitioner in its petition in table No.6.1.1 has provided year-wise details of IDC under project funding. According, the amount of IDC till November 2007 is 265 crore (Rs. 187 Cr. till March 2007 and Rs. 78 Cr. on pro-rata basis from April to November 2007). The provisional capital cost as approved by the Commission is given below:

**Infirm Power Revenue earned from sale of infirm power :**

- 3.1.10 The 1x500MW unit of SGTPS, Birsinghpur was synchronized on 18.06.2007. A tariff petition was filed by the petitioner for determination of tariff for Extn. Unit No.5 on 19.9.2007. The Commission vide order dated 18.01.2008 has disapproved the MPPGCL proposal for approval of provisional tariff stating that the unit has not started generating electricity commercially and allowed MPPGCL the recovery of infirm power charges till the CoD of unit as per CERC regulation ( Terms and Conditions for determination of tariff) for sale of infirm power and its subsequent amendments effective from 7<sup>th</sup> Jan. 2008.
- 3.1.11 The revised regulation of CERC with regard to the sale of infirm power is as follows:

*“The infirm power shall be accounted as unscheduled interchange (UI) and paid from the Regional/State UI pool account at the applicable frequency linked UI rate”*

*“Provided that any revenue earned by the Generating Company from sale of infirm power after accounting for the fuel expenses shall be applied for reduction in capital cost”.*

- 3.1.12 The Commission vide order dated 20<sup>th</sup> Oct.2008 had allowed MPPGCL to claim the infirm energy at the rate of 101.35 Paise per kWh from the date of synchronisation upto 6<sup>th</sup> January,2008.
- 3.1.13 The petitioner vide affidavit dated 2<sup>nd</sup> Sept.2009 has certified that the revenue earned from sale of infirm power in excess of fuel cost in respect of the generating unit has been adjusted in the capital cost
- 3.1.14 The details of amount recoverable through infirm power charges as submitted by the petitioner is indicated below;

<b>Month</b>	<b>Injected Power in kWh</b>	<b>Billing Amount in Cr.</b>
FY2007-08	682337755	183.10
FY2008-09	891500103	315.30
<b>Total</b>	<b>1573837858</b>	<b>498.40</b>

In support of the statement that total amount earned from sale of infirm power is 498.40 Cr., the Petitioner has also submitted the monthly SLDC statement indicating the date wise Ex-bus infirm power and corresponding energy charges from the date of synchronization upto date of commercial operation.

- 3.1.15 The Petitioner has submitted the month wise details of fuel cost incurred after synchronization of unit and before CoD for generation of infirm power. As per the petition, the total amount incurred in fuel cost for generation of infirm power is 215.05 Cr. Details of Coal cost and Oil cost as submitted by the petitioner in Para 5.4.2 of the petition is given below:

<b>Year</b>	<b>Coal consumed in MT</b>	<b>Coal Cost in Rs. Cr.</b>	<b>HFO consumed in KL</b>	<b>HFO Cost in Rs. Cr.</b>	<b>LDO consumed in KL</b>	<b>LDO Cost in Rs. Cr.</b>
FY07-08	573132	81.58	8497	20.59	1981.42	5.62
FY08-09	715052	96.87	2426	7.45	876	3.02
<b>Total</b>	<b>1288184</b>	<b>178.46</b>	<b>10923</b>	<b>28.04</b>	<b>2857.42</b>	<b>8.64</b>



- 3.1.16 The petitioner however, has not mentioned the basis of arriving at quantity of coal and oil consumed during FY 2007-08 and 2008-09 for generating infirm power. The Commission has also observed inconsistency in the rate of coal and oil consumed as compared with the audited figures for October, November and December, 2007 already filed by the petitioner with the Commission as given below:-

Month	As per audited statement filed on 07/01/2008 in support of petition No.51/2007			As per petition filed on 25.03.2009 and registered as P-12/2009		
	HFO	LDO	Coal	HFO	LDO	Coal
Unit	Rs./Kl	Rs./Kl	Rs./Mt	Rs./Kl	Rs./Kl	Rs./MT
Oct'09	23596	28403	1267	22334	28249	1331
Nov'09	26284	28403	1267	25026	28344	1339
Dec'09	26284	28403	1267	24064	28344	1420

The petitioner could not file the basis for arriving at the figures for quantity of coal and oil upto CoD as mentioned in the petition. Hence, the Commission has provisionally computed the quantity of coal and oil based on the norms and calculated the cost of fuel by applying the weighted average rate of coal and oil as filed by the petitioner. The actual quantity and rate of coal and oil shall be determined and allowed at the time of determination of final tariff as and when the exact and authentic figures are filed by the petitioner.

- 3.1.17 Based on the above, the Commission has computed the per unit fuel cost for generation of infirm power as given below :-

S. No.	SGTPS, Birsinghpur 1x500MW Unit Infirm Power rate		
	Particular	Unit	Value
1	Weighted average GCV of coal	Kcal/kg	3888
2	Weighted average GCV of secondary oil	Kcal/ltr.	10000
3	Weighted average price of coal	Rs./kg	1385
4	Weighted average price of secondary oil	Rs./ltr.	26615
5	Gross station heat rate	Kcal/kwh	2550
6	Specific fuel oil consumption	ml/kwh	4.50
7	Auxiliary energy consumption	%	7.5
8	Transit and stacking loss	%	(0.8+0.5) 1.3
9	Heat contributed from oil per unit	Kcal/kwh	45.00
10	Heat contributed from coal per unit	Kcal/kwh	2505.00
11	Specific coal consumption	Kg/kwh	0.6443
12	Specific coal consumption (Transit & stacking loss)	Kg/kwh	0.6527

13	Rate of energy charge from coal	Paise/kwh	90
14	Rate of energy charge from oil	Paise/kwh	12
15	Per unit variable cost.	Paise/kwh	110.69

3.1.18 The Petitioner has also submitted the details of expenditure incurred on O&M, Administrative and General Expenses during trial period which is Rs. 5.35Cr. But as per regulation, only fuel expenses incurred for generation of infirm power is to be accounted. Any revenue other than the recovery of fuel cost earned by the generating company from sale of infirm power shall be used for corresponding reduction in capital cost.

3.1.19 Accordingly, the provisional project cost after deducting the revenue earned from sale of infirm power (after accounting for the fuel cost) is as given below:

<b>Project Cost</b>		
<b>Sr. No.</b>	<b>Description</b>	<b>Cost ( Rs. Crs.)</b>
1	Land & RR	6.5
2	Turnkey Cost	1629.93
3	Non-EPC Cost	69.84
4	Overheads	82.43
<b>5</b>	<b>Project cost excluding IDC &amp; FC</b>	<b>1788.7</b>
6	IDC & Financing Cost	265
7	Project Cost including IDC	2053.7
10	Total amount billed for infirm power	498.41
11	Expenditure on Fuel (Coal + Oil)	174.21
12	Revenue earned on A/c of infirm power	324.2
<b>13</b>	<b>Provisional project cost as on CoD</b>	<b>1729.5</b>

**The Commission hereby provisionally approves the project cost of Rs.1729.50 Cr.**

**(B) Debt-equity ratio**

3.1.20 Clause 2.11 of the MPERC(Terms and Conditions for Determination of generation tariff) Regulation (G-26 of 2005), relating to the Debt-equity ratio, stipulated that:

*“Where equity employed is in excess of 30%, the amount of equity for the purpose of tariff shall be limited to 30% and the balance amount shall be considered as loan. The interest rate applicable on the*

*equity in excess of 30% treated as loan has been specified in regulation 22. Where actual equity employed is less than 30%, the actual equity shall be considered”.*

3.1.21 The Commission has estimated the Project cost of Rs.1729.5 Cr. up to CoD which is financed by debt of Rs. 1300.78 Cr. and the remaining cost by equity of Rs.428.72 Cr. The debt–equity ratio shall be 75:25 considered for determination of tariff which is within the limit prescribed in the regulation.

**(C) Return on equity**

3.1.22 As per Clause 2.12 of the MPERC (Terms and Conditions for determination of generation tariff) Regulation, 2005 stated that

*“Return on equity shall be determined on the paid up equity capital determined in accordance regulation and shall be computed at 14% (Post tax) per annum unless the Commission allows a lower level for reason to be recorded. Provided that return on equity invested in work in progress shall be allowed from the date of commercial operation”.*

3.1.23 The Commission has reworked the capital cost of the project as Rs. 1729.50 Cr. upto CoD. Hence the total equity amount invested in this project after considering the debt of Rs. 1300.78 Cr. is worked out to Rs. 428.72 Cr. The Commission has allowed return on equity on this amount as given in table below :

<b>Sr. No.</b>	<b>Particular</b>	<b>Unit</b>	<b>FY09</b>
1	Amount of equity up to CoD	Rs. Cr.	428.72
2	Equity amount as % of the project cost	%	25.20
3	Rate of return	%	14 %
<b>4</b>	<b>Return on equity</b>	<b>Rs. Cr.</b>	<b>60.02</b>

3.1.24 The Petitioner in its petition filed the MAT at the rate of 11.33% on the amount of ROE, but as per the regulation MAT is not allowed on Return on equity. As per the regulation, the RoE is computed at 14% (post tax) per annum. **The Commission has not allowed the MAT claimed by the petitioner.**

**(D) Interest and finance charges on loan capital**

3.1.25 Clause 2.17 of the regulation MPERC (Terms and Condition for Determination of Generation Tariff) Regulation, 2005, stated that,

*“In case any moratorium period is availed of, depreciation provided for in the tariff during the years of moratorium shall be treated as repayment during those years and interest on loan capital shall be calculated accordingly”.*

3.1.26 Since the repayment shall start from April 2009, the depreciation provided for the tariff during the year FY 2008-09 is being treated as repayment during the year and interest on loan capital is being allowed accordingly.

3.1.27 The petitioner filed the capital cost of the projects as Rs. 2093.75 Cr. which is subsequently revised to Rs. 2300 Crore. As per discussion in para 3.1.10 to para 3.1.19, the project cost as on date of commercial operation is worked out to Rs. 1729.5 Cr. up to CoD after deducting the revenue earned from sale of infirm power. This project cost is considered to be funded through loan amount of Rs. 1300.78 Cr. As per submission of the petitioner, the major terms of PFC loan are:

Sanctioned amount	Rs. 1531 Cr.
Sanction date	2 <sup>nd</sup> May 2003
Amount drawn upto CoD	Rs. 1300.78 Cr.
No. of instalments	40 Nos.
Repayment period	10 Years
Weighted average rate of interest	11.52%

3.1.28 As per section 2.15 of MPERC (Terms and Condition for Determination of Generation Tariff) Regulation, 2005, interest and finance charges are to be approved by taking into account the schedule of repayment, as per the terms and conditions of the relevant loan document and restricted it to PFC/REC term landing rate or the rates specified by CERC. As the loan taken for the above project is financed by PFC and the interest rate is Weighted average interest rate (11.52%) on the loans availed from PFC, Commission approves the interest amount as follows:

Sr. No.	Particulars	Unit	FY09
1	Gross Loan up to CoD	Rs. Cr.	1300.78
2	No of instalment due	No.	0

3	Repayment during the year (considered equal to the depreciation being allowed)	Rs. Cr.	62.26
4	Net Loan closing	Rs. Cr.	1238.52
5	Average Loan	Rs. Cr	1269.65
6	Weighted average rate of interest	%	11.52
7	<b>Interest amount for the year</b>	<b>Rs. Cr</b>	<b>146.26</b>

**(D) Depreciation**

3.1.29 The Commission in its regulation “MPERC (Terms and Conditions for determination of generation tariff) Regulations, 2005” has specified the principles of charging depreciation as follows:

*“(a) The value base for the purpose of depreciation shall be the historical cost of the assets, i.e. actual expenses limited to approved /accepted capital cost:*

*Provided that the consumer contribution or capital subsidy/ grant etc shall be treated as per the accounting rules notified and in force from time to time.*

*(b) The approved/accepted cost shall include foreign currency funding converted to equivalent rupee at the exchange rate prevalent on the date of foreign currency actually availed.*

*(c) Depreciation rates for the purpose of determination of allowable depreciation shall be as per CERC notification.*

*Provided that the total depreciation during the life of the asset shall not exceed 90% of the original cost”.*

3.1.30 The petitioner has submitted that, “In the instant case the project cost has not been finalized and hence it will be redundant to determine the weighted average rate of depreciation for this based on cost elements. The petitioner has mentioned that advance against depreciation is also applicable for the project and the same has also been claimed for the project, enabling “MPPGCL to ensure repayment of principal amount, thus the rate of depreciation in the initial years, till advance against depreciation is claimed, also become academic”. The petitioner has submitted that in the instant case, for the purpose of computing depreciation, a consolidated rate of 3.85% has been considered.

3.1.31 The Commission in the regulation “MPERC (Terms and Conditions for determination of generation tariff) Regulations, 2005” has fixed the average rate of depreciation for the elements of thermal power station is 3.60% and the Commission has therefore, considered the same average rate of depreciation for SGTPS, Birsinghpur Unit-V assuming life of the plant as 25 years. The Commission directs the petitioner to bring out the actual facts and figures for working of the depreciation when the project is completed in all respect and the audited statements of accounts are available.

3.1.32 Since no repayment has been made during FY09, the petitioner is not entitled for any advance against depreciation during this period.

3.1.33 The Petitioner has submitted that the project was under operation for 216 days during FY09. The amount of annual depreciation provisionally allowed in this order is given below:-

Particular	Unit	Allowed
Project cost	Cr.	1729.5
Annual depreciation Rate	%	3.60
Depreciation Amount	Cr.	62.26
<b>Cum. Depreciation Amount Annually</b>	<b>Cr.</b>	<b>62.26</b>

**(F) O & M Expenses**

3.1.34 The Regulation 38 of “MPERC (Terms and Conditions for determination of generation tariff) Regulations, (G-26of 2005)” stipulates that

*“For generating units/stations commissioned after 01/04/2006, principles and norms for O&M as prescribed by CERC vide its order dated 26/03/2004shall be applicable”.*

3.1.35 As per the CERC regulation the annual applicable rate of O&M expenses for Coal based generating station for FY 09 is Rs.10.95 lakh/ MW. The same rate of O&M expenses shall be applicable on SGTPS,Birsinghpur Unit-V.

3.1.36 The Petitioner has submitted that the project was under operation for 216 days during FY09. The effective rate of O&M expenses for 216 days works out as follows

Particular	Unit	Allowed
Capacity of the unit	MW	500
Normative rate of O&M	L. Rs./MW	10.95
<b>Annual O&amp;M charges</b>	<b>Cr. Rs.</b>	<b>54.75</b>

**(G) Interest on working Capital**

3.1.37 As per clause 3.9 of regulation G-26 of 2005, and its subsequent amendment (AG-26(i) of 2006), working capital in case of Coal based generating stations shall cover:

- (i) Cost of coal for 45 days for pit-head generating stations and two month for non-pit-head generating stations, corresponding to the target availability;
- (ii) Cost of secondary fuel oil for two months corresponding to the target availability;
- (iii) Operation and Maintenance expenses for one month;
- (iv) Maintenance spares @ 1% of the historical cost escalated @ 4% per annum from the date of commercial operation; and
- (v) Receivables equivalent to two months of fixed and variable charges for sale of electricity calculated on the target availability.

3.1.38 As per clause 2.30 of the above mentioned regulation, the rate of interest on working capital shall be taken on a normative basis and shall be equal to the short-term Prime Landing Rate (PLR) of State Bank of India as on 1<sup>st</sup> April of the relevant year plus 1%. The interest on working capital shall be therefore, payable on normative basis notwithstanding that the generating company has not taken working capital loan from any outside agency.

3.1.39 The interest rate is considered as 13.25% (12.25+1) based on the PLR actually prevailing on 1<sup>st</sup> April 2008. The interest on working capital is worked out as follows:

Particular	Unit	FY 09
Coal Stock (60 Days)	Cr. Rs	49.30
Secondary Oil Stock (60 Days)	Cr. Rs	4.14
O&M Charges (30 Days)	Cr. Rs	4.56

Maintenance Spares (1% of Project Cost)	Cr. Rs	17.30
Receivables (2 Months)	Cr. Rs	115.59
Working Capital Required	Cr. Rs	190.89
Interest Rate	%	13.25%
<b>Interest on Working Capital</b>	<b>Cr. Rs</b>	<b>25.29</b>

**(H) Target Availability**

3.1.40 The petitioner has considered target availability of 80% for recovery of full capacity charges based on the provisions of the CERC regulation for determination of tariff,2004. Accordingly, target availability of 80% has been considered for recovery of full fixed charges and computation of fuel element in the working capital for FY09.

**Summary of fixed cost**

3.1.41 The Commission has calculated the allowable fixed cost for all components of the fixed cost as mentioned in the table below at normative availability

**(Rs. Crore)**

<b>Sr. No.</b>	<b>Fixed cost component</b>	<b>Claimed by the petitioner for 216 days</b>	<b>Annual fixed cost allowed by the Commission</b>
1	Return on equity	51.78	60.02
2	Interest and finance charges	102.87	146.26
3	Depreciation.	49.12	62.26
4	O & M Expenses	33.64	54.75
5	Interest on working Capital	15.17	25.29
6	AAD	0	0
	<b>Fixed cost</b>	<b>252.58</b>	<b>348.58</b>
	<b>Fixed cost for 216 days</b>	<b>252.58</b>	<b>206.28</b>
	<b>95% of the fixed cost</b>		<b>195.96</b>

**The Commission hereby provisionally allows the petitioner for recovery of 95% of the total fixed cost for 216 days at normative availability. The amount allowed is Rs. 195.96 Crores.**



### 3.2 Other charges

#### MPERC Fees

3.2.1 The Commission has specified fee for Thermal Power Station as Rs. 5000/MW or part thereof for full year. Accordingly, the petitioner has paid the fee for FY 09 (Sept.'08 to Mar'09) amounting to Rs.14,58,333/-. The Commission allows the amount of fees paid by the petitioner.

### 3.3 Energy/Variable cost

3.3.1 Variable Charges cover cost of primary and secondary fuel. Clause 3.6 of the regulation for generation tariff stipulates that

*“For generating units/stations commissioned after 01/04/2006, principals and norms as prescribed by CERC vide its order dated 26/03/2004 shall be applicable”*

3.3.2 Accordingly, the petitioner has computed the variable charges of energy generated from this unit for 7 months from its CoD i.e. 28<sup>th</sup> Aug 2008. For computation of variable charges, the petitioner has considered relaxed norms of the operation for initial six months of operation. The petitioner in its petition has submitted that this extension units is first 500 MW unit of MPPGCL and till date MPPGCL has no experience of 500MW. Thus, the petitioner has sought relaxation in performance parameters for this 500 MW unit.

Calculation of variable cost as submitted by the petitioner is given below:

Sl. No.	Particulars		2008-09
1	Capacity	MW	500
2	For Effective Days	No.	216
3	PUF	%	80%
4	Gross Gen.	MU	2074
5	Aux	%	7.50%
<b>6</b>	<b>Net Sale</b>	<b>MU</b>	<b>1920</b>
7	CV of Coal	K Cal/kg	3350
8	Heat Rate	K Cal/kWHR	2550
9	Sp Oil Consumption	ml/kWHR	4.50
10	Specific Coal Consumption	kg/kWHR	0.75
11	Transit & Handling Loss	%	0.80%
12	Rate of Coal	Rs/LMT	1380
<b>13</b>	<b>Cost of Coal</b>	<b>Cr.Rs</b>	<b>215</b>
<b>14</b>		<b>p/u</b>	<b>112</b>

Sl. No.	Particulars		2008-09
15	Rate of Secondary Oil	Rs/kL	28000
<b>16</b>	<b>Cost of Secondary Oil</b>	<b>Cr.Rs</b>	<b>24</b>
<b>17</b>		<b>p/u</b>	<b>12</b>
<b>18</b>	<b>Fuel Cost</b>	<b>Cr.Rs</b>	<b>239</b>
<b>19</b>		<b>p/u</b>	<b>124</b>

The petitioner has claimed the rate of energy charge of 124 paisa/kWh for FY09 after CoD.

- 3.3.3 Clause 16 of CERC regulation provides that, “*The stabilization period and relaxed norms applicable during the stabilization period shall cease to apply from 1.4.2006*”. This clause indicates that the provision of relaxed norms has been withdrawn, considering adequate experience on technological improvements. The Commission on the same lines has not considered the stabilization period as also the corresponding relaxed norms for determination of variable charges.

As per the 3.13 of the regulation, MPERC (Terms & Conditions for determination of generation tariff ) regulation,2005 the rate of the oil and coal stated that:

*Gross Calorific value of coal/lignite or gas or liquid fuel shall be taken as per actuals of the preceding three months.*

In the petition, the petitioner has not mentioned the basis of calculating the GCV of coal and rate of the coal and oil. Vide letter dated 23.10.09, the petitioner was asked to submit the weighted average GCV and rate of the coal and oil for three preceding months. The petitioner vide letter dated 27.10.09 has submitted the weighted average rates of oil and coal and weighted average GCV of preceding three months. The same values has been considered for determination of fuel cost.

- 3.3.4 The Commission has calculated the variable charges on the basis of the CERC operating norms and provisionally allows the petitioner for recovery of variable cost at 98.41 paise/kWh. The Commission has approved the variable cost as given below :-

Sr. No.	Particular	Unit	Values
1	Weighted average GCV of coal	Kcal/Kg	3859
2	Weighted average GCV of Sec. oil	Kcal/Ltr.	10,000
3	Weighted average price of Coal	Rs./Kg	1.33
4	Weighted average price of Sec. oil	Rs./Ltr.	35.46
5	Gross Station heat rate	Kcal/Kwh	2450
6	Specific fuel oil Consumption	ml/Kwh	2

7	Aux. Energy Consumption	%	7
8	Transit and stacking loss	%	0.8
9	Heat contributed from oil per Unit	Kcal/kWh	20
10	Heat contributed from Coal per Unit	Kcal/kWh	2430
11	Specific Coal Consumption	kg/ kWh	0.6297
12	Specific Coal Consumption considering Transit & stacking loss	kg/ kWh	0.6348
13	Normative PLF considered	%	80
14	Rate of energy charge from Coal at ex-bus	Paise /kWh	90.78
15	Rate of energy charge from oil at ex-bus	Paise /kWh	7.63
16	<b>Per unit energy charges at ex-bus</b>	Paise /kWh	<b>98.41</b>

3.3.5 Based on the above, the Commission has provisionally allowed the total cost of generation from 28<sup>th</sup> August 09 to 31<sup>st</sup> March 09 as given below:-

Total fixed cost including MPERC fee at normative % availability	Rs.196.105 Cr.
Total fuel cost at normative % PLF	98.41 paise/kWh