

## **A6: COMMISSION'S ANALYSIS OF THE PETITION FOR FY 2008-09**

- 6.1 The Commission has scrutinized the petition filed by TPCL for FY 2008-09. Component-wise details of the petitioner's submission and the Commission's analysis and approvals applicable for FY 2008-09 have been discussed in this section.

### **Basis of Fuel Cost & Fixed cost Determination**

#### *Petitioner's submission*

- 6.2 The petitioner has submitted its proposal of energy and fixed charges as per the terms and conditions of the PPA signed between the petitioner and TSL in 1997.

#### *Commission's analysis*

- 6.3 Since the PPA is legally binding on the petitioner and the effective tariff period is already over, the Commission has decided to issue the tariff for FY 2008-09 in accordance with the provisions of the PPA. For parameters involved in tariff determination that have not been specified in the PPA, the Commission has adhered to the 'Generation Tariff Regulations, 2004'.

### **Plant Load Factor (PLF)**

#### *Petitioner's submission*

- 6.4 The petitioner has submitted that the minimum PLF as specified in its PPA with TSL is 62.79% while the guaranteed PLF has been specified as 75%. For FY 2008-09 the petitioner has projected the PLF to be 76% for both Units.

#### *Commission's analysis*

- 6.5 Going by the norms of the petitioner's PPA with TSL, the Commission accepts the proposed PLF and hence approves 76% as the PLF for both Units of Jojobera plant for FY 2008-09.

### **Gross Generation**

#### *Petitioner's submission*

- 6.6 The petitioner has submitted gross generation of 799 MUs each for both Units for FY 2008-09.

*Commission's analysis*

- 6.7 For determining gross generation, the Commission has taken into account approved values of PLF for both Units. Since PLF proposed by the petitioner is same as the Commission's approved PLF, the Commission approves the gross generation of both Units of Jojobera at 799 MUs each.

**Auxiliary Consumption**

*Petitioner's submission*

- 6.8 The petitioner has stated that the auxiliary consumption stipulated in the PPA is 14.99%. However, the PPA has the condition that tariff would be adjusted according to actual auxiliary consumption. Accordingly, for FY 2008-09, the petitioner has proposed an auxiliary consumption of 10.40% for both Units for the purpose of tariff computation.

*Commission's analysis*

- 6.9 Since the auxiliary consumption specified in the petition for both the Units is lower than as specified in the PPA, the Commission approves the auxiliary consumption given in the petition, i.e. 10.40% for both the Units of Jojobera plant for FY 2008-09.

**Net Generation**

*Petitioner's submission*

- 6.10 The petitioner has projected its net generation for FY 2008-09 to be 716 MUs each for both the Units, after taking into account its projections for gross generation and auxiliary consumption.

*Commission's analysis*

- 6.11 Since the Commission has approved the gross generation as well as auxiliary consumption of both Units as given in the petition, therefore the net generation computed and approved by the Commission for FY 2008-09 is 716 MUs each for both the Units of Jojobera Plant.

**Station Heat Rate (SHR)**

*Petitioner's submission*

- 6.12 The petitioner has submitted that the PPA signed with TSL specifies that a SHR of 2800 kcal/kWh will be considered for tariff computation. However, the PPA also mentions that "the actual cost of coal, calorific value of coal and the heat rate of the plant during the year will be considered for bill adjustment at the end of each year."

- 6.13 The station heat rate of Unit II is given by the petitioner to be 2669 kcal/kWh in FY 2008-09, while the same for Unit III is given as 2662 kcal/kWh.

*Commission's analysis*

- 6.14 Since the station heat rate specified in the petition for FY 2008-09 is lower than that mentioned in the PPA and is within reasonable limits of the heat rate approved by the Commission in the review of the tariff petition of FY 2007-08, the Commission approves the station heat rate of 2669 kcal/kWh for Unit II and 2662 kcal/kWh for Unit III of the Jojobera plant.

**Specific oil consumption**

*Petitioner's submission*

- 6.15 The specific oil consumption for FY 2008-09 is proposed by the petitioner to be 0.97 ml/kWh for unit II and 0.91 ml/kWh for unit III.

*Commission's analysis*

- 6.16 The 'Generation Tariff Regulations, 2004' specify a maximum secondary fuel consumption of 2.0 ml/kWh. Since the petitioner has submitted specific oil consumption of 0.97 ml/kWh for unit II and 0.91 ml/kWh for unit III, which is lower than the norms of the said regulations, the Commission approves the same for FY 2008-09.

**Gross Calorific Value (GCV) of primary and secondary fuel**

*Petitioner's submission*

- 6.17 The petitioner has submitted that coal for Units II and III is sourced from two sources, viz. MCL (IB Valley) and West Bokaro. For FY 2008-09, the GCV of coal from MCL and West Bokaro has been assumed as 2800 kcal/kg and 4400 kcal/kg respectively. The GCV of secondary fuel is considered as 9100 kcal/kl.

*Commission's analysis*

- 6.18 The PPA between the petitioner and TSL mentions that the GCV of coal be assumed as 2800 kcal/kg, subject to the condition that the fuel cost would be grossed up at the end of the year on the basis of the actual GCV of consumed coal. Since the actual GCV of consumed coal in FY 2008-09 is not available with the petition of FY 2008-09, the Commission allows the petitioner's submission of GCV subject to the condition that the same would be trued up once the actual GCV of coal used in FY 2008-09 would become available.

- 6.19 The proposed GCV of secondary fuel (9100 kcal/kl) has also been accepted by the Commission.

## Price of primary and secondary fuel

### *Petitioner's submission*

6.20 The petitioner has taken the price of MCL coal to be Rs. 1050 per MT and that of West Bokaro coal to be Rs.1778 per MT. The price of secondary fuel is taken to be Rs. 46000/kilolitre.

### *Commission's analysis*

6.21 The price of fuel is an uncontrollable factor for the petitioner and thus the Commission is of the view that the actual rate of fuel paid by the petitioner should be granted. However, the actual price of the coal and secondary oil consumed by the petitioner's Units II and III are not available with the petition of FY 2008-09. Hence, the Commission approves the rates of coal and secondary fuel as proposed by the petitioner for FY 2008-09 subject to a subsequent true-up in FY 2010-11 when the actual prices of coal and secondary oil for FY 2008-09 would be available.

## Transit Loss

### *Petitioner's submission*

6.22 As per the petitioner, the PPA with TSL specifies that fuel costs shall mean the actual landed cost of primary and secondary fuel consumed by the power station, including all agreed transport losses.

### *Commission's analysis*

6.23 The Commission has not considered transit loss separately since the actual landed cost of fuel is inclusive of any transit losses that may have incurred.

## Summary of Plant parameters & fuel cost determinants

6.24 The summary of Plant parameters and fuel cost determinants for the two Units of Jojobera plant of TPCL submitted by the petitioner and approved by the Commission for FY 2008-09 is given below

**Table 13 Plant parameters & Fuel cost determinants (petition-FY 2008-09)**

Parameters	Unit	Unit II		Unit III	
		Submitted by TPCL	Approved by JSERC	Submitted by TPCL	Approved by JSERC
Capacity	MW	120	120	120	120
Plant Load Factor	%	76%	76%	76%	76%
Auxiliary Consumption	%	10.40%	10.40%	10.40%	10.40%

Station Heat Rate	Kcal/Kwh	2669	2669	2662	2662
GCV of Coal (IB Valley/West Bokaro)	Kcal/Kg	2800/4400	2800/4400	2800/4400	2800/4400
GCV of oil	Kcal/Kg	9100	9100	9100	9100
Specific oil consumption	ml/Kwh	0.97	0.97	0.91	0.91
Coal consumption	Kwh	537764	537764	536460	536460
Oil consumption	Kwh	775	775	727	727
Price of Coal (IB Valley/West Bokaro)	Rs/MT	1050/1778	1050/1778	1050/1778	1050/1778
Price of Oil	Rs/KL	46000	46000	46000	46000
Total Coal Cost	Rs. Cr	84.65	84.65	84.45	84.45
Total Oil cost	Rs. Cr	3.56	3.56	3.34	3.34
Net Fuel Cost	Rs. Cr	<b>88.22</b>	<b>88.22</b>	<b>87.79</b>	<b>87.79</b>
Energy Charges	Rs/Unit	<b>1.23</b>	<b>1.23</b>	<b>1.23</b>	<b>1.23</b>

## Operation & Maintenance (O&M) Expenses

### *Petitioner's submission*

- 6.25 The petitioner has estimated the O&M expenses of the two thermal stations Unit II and Unit III according to the terms of its PPA. Accordingly, O&M expenditure inclusive of insurance is considered at 3% of the project cost, escalated at 7% per annum. The project cost for Unit II is Rs. 431.34 Cr and the same for Unit III is Rs. 418.14 Cr. The operation of Unit II commenced in February 2001 and Unit III in February 2002.
- 6.26 The O&M expenses for FY 2008-09 as per the terms of the PPA have been proposed by the petitioner to be Rs. 21.02 Cr for Unit II and 19.04 Cr for Unit III.

### *Commission's analysis*

- 6.27 Accepting the terms and conditions of the PPA, the Commission approves the O&M norms followed by the petitioner.
- 6.28 Taking the same capital cost of the two Units as proposed by the petitioner, the O&M expenses computed by the Commission for FY 2008-09, as per the norms of the PPA, amounts to Rs. 20.78 Cr and Rs. 18.83 Cr for Unit II and Unit III respectively.

## Depreciation

### *Petitioner's submission*

- 6.29 According to the petitioner, the depreciation rate used for cost computation is 7.84% on plant and machinery (the most dominant fraction of the asset base) as per the PPA. The petitioner submits that this rate of depreciation of 7.84% is as per the rates specified by the Government of India under the erstwhile Electricity (Supply) Act, 1948 and was the prevalent rate when the PPA was signed in 1997.

**Table 14 Depreciation schedule submitted by the petitioner**

Asset Class	Asset Class Rate	Acquisition Value (Rs. Cr)	Depreciation for FY 2008-09
Land	0.00%	0	0
Plant & machinery	7.84%	405.10	31.76
Building & Civil works	3.02%	2.971	0.09
Vehicles, Battery & ACs	33.40%	0.966	0
Office furniture & others	12.77%	2.92	0.37
Fixed Tools ( 3 years life)	18.00%	0	0
Fixed Tools ( 5 years life)	30.00%	0.058	0
Cable & Other works	5.27%	6.117	0.32

- 6.30 The depreciation submitted by the petitioner for FY 2008-09 is Rs. 32.55 Cr each for both Unit II and Unit III.

### *Commission's analysis*

- 6.31 Depreciation is calculated on the historical cost of the asset. It is calculated on straight-line method over the useful life of the asset. According to the 'Generation Tariff Regulations, 2004', depreciation is allowed to a maximum of 90% of the historical cost of the asset and the residual life of the asset will be considered as 10%. As for the rate of depreciation, keeping in mind the fact that the PPA was signed in 1997, the Commission has referred to the depreciation schedule notified by the Ministry of Power in 1994 since that was the schedule prevalent at the time of PPA signing.
- 6.32 Accordingly, for the purpose of tariff calculation, the Commission has accepted the depreciation charges of Rs. 32.55 Cr each, submitted by the petitioner for both the Units of Jojobera plant for FY 2008-09.

## **Interest on Loan**

### *Petitioner's submission*

- 6.33 The petitioner has submitted that the required debt funding for the project has been met through various loans. The petition stated that the opening balances of all loans have been computed as per the billing method specified in the PPA. As per the PPA, repayment of debt is considered on half yearly basis. The PPA states that: “*Interest on loans is estimated at 8.0% for foreign loan and 13.5% for local loans. Interest is calculated on loans less accumulated deemed repayment. Accumulated deemed repayment is calculated to match claim of accumulated electricity act depreciation at the end of each year.*”
- 6.34 Based on this method of calculation, the petitioner has computed the interest payable for FY 2008-09 for Unit II to be Rs. 7.44 Cr and for Unit III to be Rs. 11.93 Cr.

### *Commission's analysis*

- 6.35 For calculation of interest on loans, the Commission has computed the weighted average of the actual interest rates of loans from different sources. It has arrived at 13.02% as the rate of interest applicable for Unit II. Since the actual loan amount taken for Unit III did not add up to 70% of its capital cost as is requirement as per the by the ‘Generation Tariff Regulations, 2004’ as well as specified in the PPA, the difference between the two has been treated as a normative debt amount at an interest of 13.02%, the interest rate mentioned in the PPA for domestic loans. Along with the interest rate on the actual loan taken for Unit III, the weighted average interest rate for Unit III works out to 12.33%.
- 6.36 The Commission has accepted the treatment of each year’s depreciation as the deemed loan repayment for that year. Consequently, for FY 2008-09, the Commission has prepared a loan schedule and calculated the interest on loan to be Rs. 6.12 Cr for Unit II and Rs. 9.88 Cr for Unit III.

## **Interest on Working Capital**

### *Petitioner's submission*

- 6.37 The petitioner has calculated working capital requirements after considering following norms for generating stations:
- (a) Cost of coal for one month corresponding to target availability;
  - (b) Two months’ stock of secondary fuel oil, corresponding to the target availability,
  - (c) Operation & Maintenance expenses for one month;
  - (d) Receivables equivalent to two months of fixed and variable charges for sale of electricity calculated on target availability.

6.38 Based on the above, the petitioner has requested the Commission to approve Rs. 4.89 Cr each for both the Units of Jojobera plant for FY 2008-09.

*Commission's analysis*

6.39 The Commission has computed the working capital base for both Units for FY 2007-08 as per the petition, which is in line with the PPA between the TPCL and TSL. The rate of interest on working capital is taken to be the short-term Prime Lending Rate of State Bank of India as on 1st April of the year for which the tariff is determined.

6.40 Accordingly, the Commission has computed and approved the interest on working capital to be Rs. 4.86 Cr and Rs. 4.84 Cr for Unit II and Unit III respectively for FY 2008-09.

**Return on Equity (RoE)**

*Petitioner's submission*

6.41 According to the terms of the PPA, the RoE is linked to the Plant Load Factor(PLF), with an increase in PLF leading to an increased rate of return on equity. The petitioner is entitled to a RoE of 16% at a base PLF of 68.5%. The petitioner submits that the RoE of 16% at a base PLF of 68.5% was a standard practice at the time of signing of the PPA and was also the prevalent norm as per the Central Electricity Authority (CEA). Further, the PPA gives incentives on improved PLF. It specifies the following mechanism for increase in the RoE vis-à-vis increase in PLF in a financial year: For each 1.0% (or fraction thereof, on pro rata basis) that the PLF is greater than the Guaranteed PLF of 75%, the RoE for such year shall be increased by

- (a) 0.5% if the PLF is between 68.5% and 73.5%;
- (b) 0.6% if the PLF is between 73.5% and 75.5%; and
- (c) 0.7% if the PLF is between 75.6% and 95%.

The PPA also contains a disincentive clause for poor performance on this parameter. For each 1.0% that the PLF is below the Minimum Plant Load Factor, the RoE for such year shall decrease by 0.25% as per the PPA.

6.42 For FY 2008-09, the petitioner has proposed to maintain a PLF of 76.0% for both Unit II and Unit III. Accordingly, as per the incentives detailed in its PPA, the petitioner has claimed RoE (plus incentive) of Rs. 25.94 Cr for Unit II and Rs. 25.15 Cr for Unit III.

### *Commission's analysis*

6.43 Since the Commission has decided to consider the PPA between the petitioner and TSL, the Commission has approved the PLF-linked incentive on RoE as proposed by the petitioner. As per the Commission's own calculation of the RoE in accordance with the provisions of the PPA, it has approved Rs. 25.78 Cr as the RoE for Unit II and Rs. 24.99 Cr for Unit III for FY 2008-09.

## **Income Tax**

### *Petitioner's submission*

6.44 The petitioner has stated that both Unit II and III enjoy a tax holiday under Section 80 IA of the Income Tax Act but the book profits of the two Units would be subject to minimum alternate tax (MAT). In effect, the RoE plus incentive is grossed up for computation of MAT. Also, the petitioner has considered the tax rate as 11.22% for tax calculations. Accordingly, the computation of MAT for FY 2008-09 is proposed by the petitioner to be Rs. 3.28 Cr for Unit II and Rs. 3.18 Cr for Unit III.

### *Commission's analysis*

6.45 The Commission has calculated and approved the MAT payable in FY 2008-09 to be Rs. 3.26 Cr on Unit II and Rs. 3.16 Cr on Unit III.

## **Summary of Fixed Cost determinants and Generation Tariff**

6.46 The summary of Fixed cost determinants and Generation Tariff for the two Units of Jojobera plant of TPCL is submitted by the petitioner and approved by the Commission for FY 2008-09 is given below

**Table 15 Fixed cost determinants and Generation Tariff (petition-FY 2008-09) (Rs. Cr)**

Parameters	Unit	Unit II		Unit III	
		Submitted by TPCL	Approved by JSERC	Submitted by TPCL	Approved by JSERC
O&M charges	Rs. Cr	21.02	20.78	19.04	18.83
Depreciation	Rs. Cr	32.55	32.55	32.55	32.55
Interest on Loan	Rs. Cr	7.44	6.12	11.93	9.88
Return on Equity	Rs. Cr	25.94	25.78	25.15	24.99
Interest on Working Capital	Rs. Cr	4.89	4.86	4.89	4.84
Income Tax	Rs. Cr	3.28	3.26	3.18	3.16
Total Fixed cost	Rs. Cr	95.13	93.34	96.75	94.24
Energy Cost	Rs. Cr	88.2	88.2	87.79	87.79

<b>Total Cost</b>	Rs. Cr	183.35	181.56	184.54	182.03
<b>Net generation</b>	MUs	716	716	716	716
<b>Generation Tariff</b>	<b>Rs./Unit</b>	<b>2.56</b>	<b>2.54</b>	<b>2.58</b>	<b>2.54</b>