A7: COMMISSION'S ANALYSIS OF THE PETITION FOR FY 2009-10

7.1 The Commission has scrutinized the petition filed by the petitioner for FY 2009-10. The Component-wise details of the petitioner's submission and the Commission's analysis and approvals applicable for FY 2009-10 have been discussed in this section.

Basis of Fuel Cost & Fixed cost Determination

Petitioner's submission

7.2 The petitioner has submitted its proposal for determination of Energy and fixed charges as per the 'Generation Tariff Regulations, 2004' issued by JSERC.

Commission's analysis

7.3 The Commission has scrutinized the petition filed by the Petitioner for FY 2008-09 and has determined the generation tariff for FY 2009-10 in accordance with the 'Generation Tariff Regulations, 2004'.

Plant Load Factor (PLF)

Petitioner's submission

7.4 The Petitioner has projected a PLF of 67.68% for both the Units. The petitioner has stated that the reason for this increase is largely due to availability of Unit I and better performance of Unit II. The projected PLF is lower than the normative value because Unit II is expected to be available only for 9 months.

7.5 During the public hearing process, the petitioner submitted the actual figures of generation for the first 10 months of FY 2009-10 and estimated generation for the remaining 2 months, on the basis of which the PLF has been estimated at 56.75%. According to the petitioner, the reduction in PLF is caused due to break down in Unit II.

Commission's analysis

7.6 During the Determination of tariff for FY 2007-08, the petitioner had submitted the PLF of 48% caused due to the break down of Unit I, in May 2007. The Commission had directed the petitioner to take suitable measures to put the unit back in to operation. The Petitioner has been able to restore the unit back in to operation and improved the PLF to 60.43% in FY 2008-09.

7.7 During FY 2009-10, the petitioner initially projected a further improvement in PLF at 67.68%. However, at the time of submission of actual generation data for FY 2009-10 for the first 10 months, the petitioner submitted that now its Unit-II has broke down because of which the estimated generation during FY 20009-10 will correspond to PLF of 56.75% during FY 2009-10.

7.8 The Commission has already given directions to the Petitioner to take adequate and sustainable measures to further improve the PLF & availability and get it to the benchmark level of 80% by the end of FY 2011-12. The Commission will not consider PLF & availability, lower than the normative value as prescribed in the Generation Tariff Regulations 2004 and amendments, if any.

7.9 In the meantime, the Commission has decided to approve the PLF as per the actual figures made available by the petitioner. Accordingly, the Commission considers the PLF of 56.75% for FY2009-10.

Gross Generation

Petitioner's submission

7.10 The petitioner has initially submitted a gross generation of 2490 MUs as per the PLF of 67.68% for both the Units for FY 2009-10.

Commission's analysis

7.11 As detailed above, the Commission approves the gross generation at 2088 MU, based on the approved PLF of 56.75% .

Auxiliary Consumption

Petitioner's submission

7.12 The petitioner has submitted that auxiliary consumption is specific to a particular power station and depends on its configuration, age and related technical parameters. The petitioner has proposed an auxiliary consumption of 9% for FY 2009-10

Commission's analysis

7.13 Since the auxiliary consumption specified in the petition for Unit I and Unit II is same as that specified in the 'Generation Tariff Regulations, 2004' , the Commission approves the auxiliary consumption of 9% for both the Units of the petitioner.

Net Generation

Petitioner's submission

7.14 The petitioner has projected net generation for FY 2009-10 to be 2265.98 MUs for the two Units of Tenughat TPS after taking into account its projections for gross generation and auxiliary consumption.

Commission's analysis

7.15 The Commission has computed and approves the net generation at 1900.03 MUs for the two Units of Tenughat TPS.

Station Heat Rate (SHR)

Petitioner's submission

7.16 The SHR of the two Units in FY 2009-10 has been projected by the petitioner to be 3100 kcal/kWh.

Commission's analysis

7.17 The 'Generation Tariff Regulations, 2004' specifies the station heat rate of 2500 kcal/kWh during the post-stabilization period of coal-based generation stations with capacity between 200 MW and 500 MW. The station heat rate proposed by the petitioner is very high. In the previous tariff order for FY 2007-08 also the Commission had approved a SHR at 2500 Kcal/Kwh.

7.18 The Commission is not in agreement with the submissions of the petitioner for approving a higher SHR for FY 2009-10. The Commission approves a SHR as per the 'Generation Tariff Regulations, 2004' at 2500 kcal/kWh for FY 2009-10 for the two Units of Tenughat power station.

Specific oil consumption

Petitioner's submission

7.19 The specific oil consumption for FY 2009-10 is proposed by the petitioner to be 2.50 ml/kWh for both the Units.

Commission's analysis

7.20 The Specific oil consumption gives the amount of secondary fuel (in ml) consumed in the process of energy generation, per unit power produced (in kWh). A lower specific oil consumption lowers the consumption of the secondary fuel in the generation process, and hence lowers the secondary fuel cost.

7.21 The 'Generation Tariff Regulations, 2004' specify a maximum secondary fuel consumption of 2.0 ml/kWh and the Commission does not find any suitable justification to approve the specific oil consumption at a level higher than the norms. The Commission thereby approves a specific oil consumption of 2ml/Kwh for FY 2009-10.

Gross Calorific Value (GCV) of primary and secondary fuel

Petitioner's submission

7.22 The petitioner has submitted the Gross Calorific Value of Coal as 4300 Kcal/Kg and GCV of secondary fuel as 10,000 kcal/kl.

Commission's analysis

7.23 Calorific value of a fuel refers to the amount of heat released on burning one unit of the fuel and a higher GCV indicates better quality of fuel and also lowers fuel cost, since it lowers the consumption of that fuel needed for producing the requisite amount of energy.

7.24 Since, the actual GCV of consumed coal for FY 2009-10 is not available in the petition; the Commission allows the petitioner's submission of GCV as 4300kcal/kg subject to the condition that the same would be trued-up once the actual GCV of coal used in FY 2009-10 is made available to the Commission.

7.25 The Commission approves the proposed GCV of secondary fuel of 10,000 kcal/kl.

Price of primary and secondary fuel

Petitioner's submission

7.26 The petitioner has taken the price of CCL coal to be Rs. 1300/MT .

7.27 The price of secondary fuel is taken as Rs. 39045.20/kilolitre.

Commission's analysis

7.28 Cost of fuel price is an uncontrollable factor for the petitioner and thus the Commission approves the rates of coal and secondary fuel proposed by the petitioner, subject to a subsequent true-up when the actual prices of coal and secondary oil for FY 2009-10 would be available.

Transit Loss

Petitioner's submission

7.29 The petitioner has submitted the Transit loss to be 0.3% of the total coal transported in FY 2009-10.

Commission's analysis

7.30 The normative transit and handling losses as a percentage of quantity of coal dispatched by the coal supply company as prescribed by JSERC is 0.3% for pithead generating stations. The Commission approves the figure given by the petitioner as 0.3% for FY 2009-10

Summary of Plant parameters & fuel cost determinants

7.31 The summary of Plant parameters and fuel cost determinants for the two Units of Tenughat plant of the petitioner and approved by the Commission for FY 2009-10 is given below

Table 22- Plant parameters & Fuel cost determinants (FY 2009-10)

Parameters	Unit	Unit I&II	
		Submitted by the Petitioner	Approved by JSERC
Capacity	MW	420	420
Plant Load Factor	%	67.68%	56.75%
Auxiliary Consumption	%	9%	9%
Station Heat Rate	Kcal/Kwh	3100	2500
GCV of Coal	Kcal/Kg	4300	4300
GCV of oil	Kcal/Kg	10,000	10,000
Specific oil consumption	ml/Kwh	2.50	2.0
Coal consumption (including transit loss)	MT	1798238	1207834
Oil consumption	Kl	6225.21	4175.89
Price of Coal	Rs/MT	1300	1300
Price of Oil	Rs/KL	39045.2	39045.2
Total Coal Cost	Rs. Cr	233.77	157.02
Total Oil cost	Rs. Cr	24.31	16.30
Net Fuel Cost	**Rs. Cr**	**258.08**	**173.32**
Energy Charges	**Rs/Unit**	**1.139**	**0.91**

Project Cost structure

Petitioner's submission

7.32 As per the directions of the Commission to submit additional information, the petitioner has submitted its annual accounts from FY 1996-97 onwards.

7.33 The petitioner also submitted vide its additional data, that it intends to capitalise the portion of the capital maintenance expenditure during FY 2009-10 incurred by it during the previous years, and which was inadvertently booked under the revenue expenditure amounting to Rs. 41.00 Cr. The petitioner further requested to consider this additional capitalisation as being funded from its internal resources.

Commission's analysis

7.34 On the perusal of annual accounts as submitted by the petitioner, the initial project cost of both the Units is derived at as Rs.1304.91 Cr. and taking into consideration the additional capitalisation during the intervening period the project cost during FY2009-10 is presented in the table given below:

Table 23- Project cost structure for FY 2009-10

Item	Amount (Rs. Cr)
Project cost at start of 2009-10	1351.90
Additional capitalization in 2009-10	43.47
Total Project Cost	1395.37

7.35 Additional capitalisation of Rs.43.47 Cr. includes an amount of Rs.2.47 Cr., which is as of now considered as a part of equity. It will be scrutinised while truing up the FY 2009-10 in subsequent Tariff Order.

Operation & Maintenance (O&M) Expenses

Petitioner's submission

7.36 The petitioner has projected Rs 124.09 Cr as O&M expense for FY 2009-10. The petitioner states that the maintenance expenditure has increased substantially due to the age of the plant and numerous outages.

7.37 The table below provides the details of O&M expenses incurred by the petitioner in the FY 2009-10:

Table 24- O&M Expenses (FY 2009-10)

Particulars	Cost (Rs. Cr)
Employee Cost	28.20
R&M Expenses	18.25
A&G Expenses	16.09
O&M incl. Capital Expenditure	61.55
Total	**124.10**

Commission's analysis

7.38 The Commission observes that the O&M expenses claimed by the petitioner are very high. The Commission has computed the O&M expenses as per the 'Generation Tariff Regulations, 2004' for plants set up before 01.04.2004, which states that the O&M should be 2.50% of the capital cost with an escalation @ 6% p.a.

7.39 The initial capital cost of both the units is as Rs.1304.91Cr. and estimated additional capitalisation of Rs. 90.46 Cr. upto 31.3.2010.

7.40 The Commission also approves the additional employee expenses on account of sixth pay Commission impact at Rs. 6.50 Cr, as proposed by the petitioner.

7.41 The total O&M charges approved by the Commission amounts to Rs. 75.68 Cr.

Depreciation

Petitioner's submission

7.42 The petitioner has calculated the depreciation on its fixed assets based on historical capital cost of the asset. Depreciation is calculated annually as per straight line method as per the rates of depreciation prescribed in the schedule attached at Appendix-II of the JSERC (Terms and conditions for the determination of Thermal Generation Tariff) Regulations, 2004, and the depreciation costs is calculated as follows:

Table 25-Total Depreciation proposed by petitioner FY 2009-10

Particulars	Amount (Rs. Cr)
Depreciation for Plant	45.17
Depreciation for HO	0.12
Depreciation for additional capitalization	0.26
Total	**45.55**

Commission's analysis

7.43 Depreciation is calculated on the historical cost of the asset at the straight-line method over the useful life of the asset. According to the 'Generation Tariff Regulations, 2004', depreciation is allowed up to a maximum of 90% of the historical cost of the asset.

7.44 The Commission has computed and approved the depreciation charges of Rs. 46.34 Cr for the two Units of Tenughat TPC for FY 2009-10.

Table 26-Total Depreciation approved by Commission FY 2009-10

Particulars	Amount (Rs. Cr)
Depreciation for Plant	45.17
Depreciation for HO	0.12
Depreciation for additional capitalization	1.06
Total	**46.34**

Interest on Loan

Petitioner's submission

7.45 The petitioner has submitted that the loan outstanding as on 31.03.2009 is Rs. 638.90 Cr and the interest on outstanding loan in Rs. 83.06 Cr. The petitioner stated that it could not meet the repayment obligation due to insufficient funds on account of non-payment of electricity charges by the Jharkhand State Electricity Board (JSEB).

7.46 The table below summarises the outstanding loan and interest component for FY 2009-10:

Table 27- Loan outstanding and interest charges (petition-FY 2009-10)

Name of the Institution	Balance at the beginning of the year	Loan received during the year	Repayment during the year	Balance outstanding at the end of the year	Rate of Interest (%)	Interest for the year
Bihar Govt. Loan	608.90	-	-	608.90	13	79.16
Jharkhand Govt. Loan	30.00	-	-	30.00	13	3.90
Normative Debt on account of additional capitalisation	0.74			0.74	13	0.09
Total	**639.64**			**639.64**		**83.15**

Commission's analysis

7.47 The Commission has calculated the annual interest of Rs. 83.06 Cr. The details are summarised as under:

Table 28- Interest on Loan for FY 2009-10

Name of the Institution	Balance at the beginning of the year	Loan received during the year	Repayment during the year	Balance outstanding at the end of the year	Rate of Interest (%)	Interest for the year
Bihar Govt. Loan	608.90	-	-	608.90	13	79.16
Jharkhand Govt. Loan	30.00	-	-	30.00	13	3.90
Total	**638.90**			**638.90**		**83.06**

Interest on Working Capital

Petitioner's submission

7.48 The interest on working capital as calculated by the petitioner for FY 2009-10 is summarized in the table below:

Table 29- Interest on Working capital (petition-FY 2008-09)

Particulars	Proposed for 2008-09
Cost of Coal for 1½ months	29.22
Secondary Fuel Oil for 1 month	2.03
Operation & Maintenance expenses for 1 month	10.34
Maintenance expenses @ 1% of Plant & Equipment	11.72
Receivables equivalent to 2 months	91.06
Total Working Capital	144.37
Interest on Working Capital @ 12.50%	18.05

7.49 The petitioner has considered the interest on working capital as 12.50% and requests the Commission to approve Rs. 18.05 as the interest on working capital for both the Units for FY 2009-10.

Commission's analysis

7.50 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.

7.51 The Commission has calculated Working capital on the following basis:

Table 30- Interest on Working Capital as approved by the Commission for FY 2009-10

Particulars	Proposed for 2009-10 Rs. Cr
Cost of Coal for 1½ month	19.63
Secondary Fuel Oil for 1 month	1.36
Operation & Maintenance expenses for 1 month	6.31
Maintenance expenses @ 1% of Plant & Equipment	11.72
Receivables equivalent to 2 months of fixed and variable Charges	66.28
Total Working Capital	105.29
Interest on Working Capital @ 12.25%	12.90

7.52 Accordingly, the Commission has computed and approved the interest on working capital as Rs. 12.90 Cr. for the two Units of Tenughat TPS for FY 2009-10.

Return on Equity (RoE)

Petitioner's submission

7.53 The details of the Return on Equity calculated by the petitioner is provided in the table below:

Table 31- Return on Equity (petition-FY 2009-10)

Particulars	Proposed for 2009-10 (Rs. Cr)
Equity at the end of 2008-09	138.036
Additional Equity	0.741
Total Equity	138.77
Return on Equity at 14%	19.43

7.54 Accordingly, the petitioner has requested the Commission to approve the Return on Equity interest of Rs. 19.43 Cr for both the units for FY 2009-10.

Commission's analysis

7.55 The Commission has considered the opening equity of Rs.134.12 Cr., as detailed above in this order. The Commission also considered the additional capitalisation of Rs.43.47Cr. during FY 2009-10 through equity infusion, which is taken on pro-rata basis assuming mid-year as reference point.

Table 32- Return on Equity approved by Commission for FY 2009-10

Particulars	Proposed for 2009-10 Rs. Cr
Equity at the end of 2008-09	134.12
Equity infusion during FY 2009-10	43.47
Total Equity	177.59
Return on Equity at 14%	21.82

7.56 As per the Commission's own calculation of the RoE in accordance with the Regulations, the Commission approves Rs.21.82 Cr. as the RoE for both the Units for FY 2009-10.

Income Tax

Petitioner's submission

7.57 The petitioner has stated that there is no assessable income for Income tax purpose and hence no tax on income is proposed for the year 2009-10.

Commission's analysis

7.58 The Commission agrees with the petitioner.

Non tariff Income

Petitioner's submission

7.59 The petitioner has estimated non-tariff income of Rs. 2 Cr for the FY 2009-10.

Commission's analysis

7.60 The Commission has considered the non-tariff income for FY 2009-10 at the same level as FY 2008-09 which is Rs.15.93 Cr. This will be trued-up as and when the actual figures are available.

Summary of Fixed Cost determinants and Generation Tariff

7.61 The table below shows the fixed cost determinants and Generation tariff for FY 2009-10, in terms of the petitioner's submission and the Commission's approved costs.

Table 33- Fixed cost determinants and Generation Tariff (Rs. Cr) (FY 2009-10)

Parameters	Units	Unit I & II	
		Submitted by the Petitioner	Approved by JSERC
O&M charges	Rs. Cr	124.10	75.68
Depreciation	Rs. Cr	45.55	46.34
Interest on Loan	Rs. Cr	83.15	83.06
Return on Equity	Rs. Cr	19.43	21.82
Interest on Working Capital	Rs. Cr	18.05	12.90
Total Fixed cost	Rs. Cr	290.28	239.80
Energy Cost	Rs. Cr	258.08	173.32
Total Expenses	Rs. Cr	548.36	413.12
Non-Tariff Income	Rs. Cr	2.00	15.43
Net total expenses	Rs. Cr	546.36	397.70
Existing Tariff (FY 2007-08)	(Rs/Kwh)	2.05	2.05
Revenue at Existing Tariff	Rs. Cr	**464.52**	**389.51**
Revenue (Gap)/Surplus	**Rs. Cr**	**(81.83)**	**(8.19)**

7.62 The Commission approves the revenue gap of Rs.8.19 Cr. for FY 2009-10, as per the detailed analysis of the tariff petition submitted by the petitioner for next year.