Jharkhand State Electricity Regulatory Commission

Tariff Order
on
Annual Revenue Requirement
and
Determination of Generation Tariff
for
Financial Years 2007-08, 2008-09 and 2009-10
for
Tata Power Company Limited
(TPCL)

Ranchi

January 2010

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List of Abbreviations

Abbreviation	Description
A&G	Administrative and General
AAD	Advance Against Depreciation
ARR	Aggregate Revenue Requirement
COD	Commercial Operation Date
CWIP	Capital Work in Progress
FY	Financial Year
GCV	Gross Calorific Value
GFA	Gross Fixed Assets
GoI	Government of India
JSERC	Jharkhand State Electricity Regulatory Commission
kcal	Kilocalorie
kg	Kilogram
kWh	Kilowatt-hour
MAT	Minimum Alternative Tax
MCL	Mahanadi Coalfields Ltd. (IB Valley Coalfields)
ml	Millilitre
MT	Million Tonnes
MUs	Million Units
MW	Megawatt
O&M	Operations and Maintenance
PLF	Plant Load Factor
PPA	Power Purchase Agreement
R&M	Repair and Maintenance
RoE	Return on Equity
Rs.	Rupees
SBI	State Bank of India
SERC	State Electricity Regulatory Commission
SLM	Straight Line Method
TSL	Tata Steel Limited
WB	West Bokaro

A1: INTRODUCTION

Jharkhand State Electricity Regulatory Commission (JSERC)

1.1 The Jharkhand State Electricity Regulatory Commission (hereinafter referred to as the "JSERC" or "the Commission") was established by the Government of Jharkhand under Section 17 of the Electricity Regulatory Commission Act, 1998 on August 22, 2002. The Commission became operational w.e.f. April 24, 2003. The Electricity Act, 2003 (hereinafter referred to as "the Act" or "EA, 2003") came into force w.e.f. June 10, 2003; and the Commission is now deemed to have been constituted and functioning under the provisions of the Act.

1.2 The Government of Jharkhand vide its notification dated 22.08.2002 defined the functions of JSERC as per Section 22 of the Electricity Regulatory Commission Act, 1998 to be the following, namely:-

(a) to determine the tariff for electricity, wholesale, bulk, grid or retail, as the case may be, in the manner provided in section 29;

(b) to determine the tariff payable for the use of the transmission facilities in the manner provided in section 29;

(c) to regulate power purchase and procurement process of the transmission utilities and distribution utilities including the price at which the power shall be procured from the generating companies, generating stations or from other sources for transmission, sale, distribution and supply in the State;

(d) to promote competition, efficiency and economy in the activities of the electricity industry to achieve the objects and purposes of this Act.

1.3 With the Electricity Act, 2003 being brought into force, the earlier Electricity Regulatory Commission Act of 1998 stands repealed and the functions of JSERC are now defined as per Section 86 of the Act.

1.4 In accordance with the Act, the JSERC discharges the following functions: -

(a) determine the tariff for generation, supply, transmission and wheeling of electricity, wholesale, bulk or retail, as the case may be, within the State:

Provided that where open access has been permitted to a category of consumers under section 42, the State Commission shall determine only the wheeling charges and surcharge thereon, if any, for the said category of consumers;

(b) regulate electricity purchase and procurement process of distribution licensees including the price at which electricity shall be procured from the generating companies or licensees or from other sources through agreements for purchase of power for distribution and supply within the State;

(c) facilitate intra-state transmission and wheeling of electricity;

(d) issue licences to persons seeking to act as transmission licensees, distribution licensees and electricity traders with respect to their operations within the State;

(e) promote cogeneration and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person, and also specify, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee;

(f) adjudicate upon the disputes between the licensees and generating companies; and to refer any dispute for arbitration;

(g) levy fee for the purposes of this Act;

(h) specify State Grid Code consistent with the Grid Code specified under Clause (h) of sub-section (1) of Section 79;

(i) specify or enforce standards with respect to quality, continuity and reliability of service by licensees;

(j) fix the trading margin in the intra-state trading of electricity, if considered, necessary;

(k) discharge such other functions as may be assigned to it under this Act.

1.5 The Commission advises the State Government on all or any of the following matters, namely :-

(a) promotion of competition, efficiency and economy in activities of the electricity industry;

(b) promotion of investment in electricity industry;

(c) reorganisation and restructuring of electricity industry in the State;

(d) matters concerning generation, transmission, distribution and trading of electricity or any other matter referred to the State Commission by that Government.

1.6 The State Commission ensures transparency while exercising its powers and discharging its functions.

1.7 In discharge of its functions, the State Commission is guided by the National Tariff Policy as brought out by GoI in compliance to Section 3 of the Act. The objectives of the National Tariff Policy are to:

(a) ensure availability of electricity to consumers at reasonable and competitive rates;

(b) ensure financial viability of the sector and attract investments;

(c) promote transparency, consistency and predictability in regulatory approaches across jurisdictions and minimize perceptions of regulatory risks;

(d) promote competition, efficiency in operations and improvement in quality of supply.

Tata Power Company Limited (TPCL)

1.8 The Tata Power Company Limited (TPCL) (hereinafter referred to as 'TPCL' or the 'petitioner'), is a company incorporated under the Indian Companies Act, VII of 1913 and is engaged in electricity generation, transmission and distribution in the country.

1.9 The petitioner has submitted that it operates two Units (Units II and III) of Jojobera Power Plant that are the subject of tariff determination in this Tariff Order. Both Units have a capacity of 120 MW each. Unit II commenced its operations on February 1, 2001 and Unit III on February 1, 2002.

1.10 TSL Limited (TSL), which is engaged in the production of iron and steel and related activities in Jamshedpur since 1907, obtained permission from the Government of Bihar to establish power plants in Jojobora in 1991 through its subsidiary company named Jamshedpur Power Company Ltd. (JAPCOL) which was subsequently transferred to Tata Power Company Limited. TPCL thereafter commissioned the two Units of 120MW at Jojobera for supply of power to TSL Ltd. and for distribution in Jamshedpur.

Scope of the present order

1.11 This Order relates to the ARR and Tariff petitions filed by TPCL before the JSERC for approval of its

(a) ARR and determination of tariff for FY 2007-08;

(b) ARR and determination of tariff for FY 2008-09; and

(c) ARR for FY 2007-08, FY 2008-09 and FY 2009-10 and determination of tariff for FY 2009-10 in accordance with Sections 61, 62 and 64 of the Act and provisions of the JSERC (Terms and Conditions for Thermal Generation Tariff) Regulation, 2004 (hereinafter referred to as ‘Generation Tariff Regulations, 2004’)

1.12 While determining tariff for FY 2007-08, FY 2008-09 & FY 2009-10, the Commission has taken into consideration the following:

(a) Provisions of section 86 of the Act,

(b) Provisions of the National Electricity Policy,

(c) Provisions of the National Tariff Policy;

(d) Principles laid down in the ‘Generation Tariff Regulations, 2004’; and

(e) Power Purchase Agreement between TPCL & TSL.

A2: PROCEDURAL HISTORY

Background

2.1 TPCL has filed the following petitions for Unit II and Unit III at Jojobera Power Plant:

(a) ARR and tariff petition for FY 2007-08 on May 16, 2007;

(b) ARR and tariff petition for FY 2008-09 on September 8, 2008

(c) ARR and tariff petition for FY 2009-10 on 24th February, 2009.

2.2 In accordance with Section 64(3) of the Electricity Act 2003, the State Electricity Regulatory Commission, within one hundred and twenty days of the application being filed, is required to either accept it and issue a tariff order or reject the application for reasons to be recorded in writing if the application is not in accordance with the provisions of the Electricity Act, 2003.

2.3 The petitions for FY 2007-08 and FY 2008-09 were not disposed off in time since the matter was pending before the Appellate Tribunal for Electricity (ATE).

2.4 Since the matter has now been decided by the ATE vide its order dated May 7, 2008 against the appeal no.160 of 2007, the Commission has decided to review the petitions for FY 2007-08 and FY 2008-09 along-with the petition for FY 2009-10.

2.5 The petitioner submitted that it had signed a Power Purchase Agreement with TSL Limited (TSL) on 12th September, 1997 under which the petitioner and TSL agreed to set up, in a phased manner, a power plant with a total capacity up to 500 MW at Jojobera. The petitioner states that Units II and III of the petitioner's Jojobera Power Plant that are the subject of analysis in this Tariff Order come under that PPA. The PPA has laid down certain provisions governing the determination of tariff for power generated by TPCL's Jojobera Power Plant and purchased by TSL. The petitioner has further submitted that the PPA is legally binding for both parties involved and has requested the Commission to determine the tariff for sale of power from Jojobera Units II and III as per the provisions of the aforementioned PPA.

2.6 Keeping in mind that the petitioner's PPA with TSL is a legally valid and enforceable contract, the Commission has decided to accept the provisions of the PPA for the tariff determination exercise for FY 2007-08, FY 2008-09 & FY 2009-10 for power generated by Jojobera Units II and III.

Information Gaps in the petition

2.7 As part of the exercise of tariff determination for the year FY 2007-08, FY 2008-09 and FY 2009-10 several deficiencies were observed in the tariff petition received from the petitioner. These information gaps were communicated to the petitioner in a note sent to the generation company vide JSERC/08/2008/17 dated April 9, 2009.

2.8 On analysis of the subsequent response sent by the petitioner vide document no. REG/JSERC/09/126 dated May 6, 2009; it was observed that some additional information essential for the purpose of tariff determination remained to be furnished. The same was communicated to the generation company via another note JSERC/08/2008/74 dated May 21, 2009.

2.9 The petitioner subsequently submitted its response and provided the requisite data vide document no. JPP/JSERC/111/09 dated 16 June, 2009.

Inviting Public Response

2.10 After acceptance of the petitions, the Commission directed the petitioner to make available the copies of the ARR and tariff petition to the general public, and issue a public notice inviting comments/ suggestions. The public notice was subsequently advertised in various newspapers.

Table 1 List of newspapers and dates on which the public notice appeared

Newspaper	Date
Telegraph (English)	17.8.09 & 18.08.09
Hindustan Times (English)	17.8.09 & 18.08.09
Prabhat Khabar (Hindi)	17.8.09 & 18.08.09
Dainik Jagaran (Hindi)	17.8.09 & 18.08.09

2.11 A period of thirty days was provided for submitting the comments/suggestions. The Commission subsequently issued advertisement on the website www.jserc.org and various newspapers for conducting the public hearing on the ARR and Tariff filing of TPCL for FY 2007-08, FY 2008-09 and FY 2009-10. The details of the newspapers where the advertisement was issued by the Commission is detailed hereunder:

Table 2 List of newspapers and dates on which the public notice appeared

Newspaper	Date
Prabhat Khabar (Jamshedpur edition)	30.10.09
Hindustan (Jamshedpur edition)	30.10.09
Uditvani (Jamshedpur edition)	30.10.09
Dainik Jagran (Jamshedpur edition)	30.10.09
Ranchi Express	30.10.09
Hindustan Times	30.10.09
The Pioneer	30.10.09
Farooqui Tanzeem (Urdu Daily)	30.10.09

Submission of comments/suggestions and conduct of public hearing

2.12 The public hearing was held on 8th November, 2009 at Adityapur and many respondents gave their comments and suggestions on the ARR filings filed by the Generation Company. The comments/suggestions received as well as petitioner's response to them are detailed in the section dealing with the public consultation process.

A3: SUMMARY OF THE PETITIONS FILED BY TPCL

Overview of the Thermal Stations

3.1 The petitioner has submitted that it operates the two Units (Units II and III) of Jojobera Power Plant that are the subject of tariff determination in the petitions filed by TPCL. In 1991, TSL obtained permission from the Government of Bihar to establish power plants in Jojobera through a subsidiary company named Jamshedpur Power Company Ltd. which was subsequently transferred to TPCL. TPCL thereafter commissioned two coal-based Units of 120 MW each, viz. Unit II and Unit III, at Jojobera for supply of power to TSL for its own use and for distribution in the township of Jamshedpur.

3.2 The following table summarizes the information pertaining to the two Units of the power plant operated by the petitioner.

Table 3 Summary of power plants owned by TPCL

S. No.	Name of thermal plant	Installed Capacity (MW)	Status of Operation	Commercial Operation Date
1	Unit II, Jojobera Power Plant	120	Operational	February 1, 2001
2	Unit III, Jojobera Power Plant	120	Operational	February 1, 2002

Status of PPA

3.3 The petitioner entered into a Power Purchase Agreement (PPA) with TSL on September 12, 1997. The petitioner has requested the Commission to accept the ARR and Tariff petition for generating stations Unit II and Unit III filed by the petitioner in accordance with the principles contained in the PPA.

3.4 The petitioner has submitted that the PPA between the petitioner and TSL was executed on September 12, 1997, i.e. before the Electricity Act 2003 that came into effect on June 10, 2003 and also before the constitution of JSERC in August 2002. The petitioner submitted that the PPA is legally binding on both parties and requested the Commission to consider the said PPA for the purpose of ARR and tariff determination.

ARR & Tariff Determination

3.5 The tariff for sale of electricity from a thermal power generating station comprises of two parts, namely, the recovery of annual capacity (fixed) charges and energy (variable) charges.

3.6 The annual capacity (fixed) charges consist of:

(a) Return on equity

(b) Interest on loan capital

(c) Operation & Maintenance (O&M) expenses

(d) Depreciation

(e) Interest on working capital

3.7 The energy (variable) charges cover fuel cost comprising:

(a) The cost of primary fuel (coal), and

(b) The cost of secondary fuel (oil)

Tariff petition for FY 2007-08

3.8 The table below summarizes the variable cost components as proposed by the petitioner in the petition of FY 2007-08 for the tariff period of FY 2007-08:

Table 4 Proposed Energy charges as per petition for FY 2007-08

Energy Charge Components	Units	Unit II	Unit III
Plant Load Factor	%	75	75
Heat Rate	kcal / kWh	2600	2600
Gross Generation	MUs	791	791
Auxiliary Consumption	%	10.57	10.55
Net Generation	MUs	707	707
Calorific Value of Coal	kcal / kg	3250 / 4775	3250 / 4775
Specific Oil Consumption	ml / kWh	2.0	2.0
Total Fuel Cost	**Rs. Cr**	**71.56**	**71.56**

3.9 The table below summarizes the fixed cost components as proposed by the petitioner in the petition of FY 2007-08 for the tariff period of FY 2007-08:

Table 5: Proposed Fixed Charges as per petition for FY 2007-08

Fixed Charge Components	Units	Unit II	Unit III
O&M expenses	Rs. Cr	19.51	18.21
Depreciation	Rs. Cr	35.88	29.25
Interest on Loan	Rs. Cr	14.70	12.20
Return on Equity	Rs. Cr	25.08	24.39
Interest on Working Capital	Rs. Cr	3.16	3.19
Total Fixed Charges	**Rs. Cr**	**98.33**	**87.24**

Tariff petition for FY 2008-09

3.10 The table below summarizes the variable cost components as proposed by the petitioner in the petition of FY 2008-09 for the tariff period of FY 2008-09:

Table 6 Proposed Energy Charges as per petition for FY 2008-09

Energy Charge Components	Units	Unit II	Unit III
Plant Load Factor	%	76	76
Heat Rate	kcal / kWh	2669	2662
Gross Generation	MUs	799	799
Auxiliary Consumption	%	10.40	10.40
Net Generation	MUs	716	716
Calorific Value of Coal	kcal / kg	2800 / 4400	2800 / 4400
Specific Oil Consumption	ml / kWh	0.97	0.91
Total Fuel Cost	**Rs. Cr**	**88.22**	**87.79**

3.11 The table below summarizes the fixed cost components as proposed by the petitioner in the petition of FY 2008-09 for the tariff period of FY 2008-09:

Table 7 Proposed Fixed Charges as per petition for FY 2008-09 (Rs. Crs)

Fixed Charge Components	Units	Units	Unit II
O&M expenses	Rs. Cr	21.02	19.04
Depreciation	Rs. Cr	32.55	32.55
Interest on Loan	Rs. Cr	7.44	11.93
Return on Equity	Rs. Cr	25.94	25.15
Interest on Working Capital	Rs. Cr	4.89	4.89
Income Tax (MAT)	Rs. Cr	3.28	3.18
Total Fixed Charges	**Rs. Cr**	**95.12**	**96.74**

Tariff petition for FY 2009-10

3.12 The table below summarizes the variable cost components as proposed by the petitioner in the petition of FY 2009-10 for the tariff period of FY 2009-10:

Table 8 Proposed Energy Charges as per petition for FY 2009-10

Energy Charge Components	Units	FY 2007-08 for true-up		FY 2008-09 (RE)		FY 2009-10(Proj.)	
		Unit II	Unit III	Unit II	Unit III	Unit II	Unit III
Plant Load Factor	%	78	74	76	76	80	80
Heat Rate	kcal / kWh	2645	2676	2669	2662	2680	2680
Gross Generation	MUs	822	780	799	799	841	841
Auxiliary Consumption	%	10.40	10.39	10.40	10.40	10.40	10.40
Net Generation	MUs	736	699	716	716	754	754
Calorific Value of Coal	kcal / kg	2809 / 4347	2809 / 4347	2800 / 4400	2800 / 4400	2800 / 4400 / 3000 / 5200	2800 / 4400 / 3000 / 5200
Specific Oil Consumption	ml / kWh	0.85	0.93	0.97	0.91	0.97	0.97

3.13 The table below summarizes the fixed cost components as proposed by the petitioner in the petition of FY 2009-10 for the tariff period of FY 2009-10:

Table 9 Proposed Fixed Charges as per petition for FY 2009-10

Fixed Charge Components	Units	FY 2007-08 for true-up		FY 2008-09 (RE)		FY 2009-	
		Unit II	Unit III	Unit II	Unit III	Unit	Unit
O&M expenses	Rs. Cr	19.65	17.80	21.02	19.04	22.49	20.38
Depreciation	Rs. Cr	32.91	32.55	32.55	32.55	32.54	32.19
Interest on Loan	Rs. Cr	10.77	14.81	6.75	10.82	2.82	6.85
Return on Equity	Rs. Cr	27.73	23.56	25.94	25.15	29.57	28.67
Interest on Working Capital	Rs. Cr	4.76	4.59	4.89	4.89	5.68	5.67
Income Tax (MAT)	Rs. Cr	3.54	3.01	3.32	3.21	3.78	3.66
Total Fixed Charges	**Rs. Cr**	**99.36**	**96.32**	**94.47**	**95.66**	**96.88**	**97.42**

A4: PUBLIC CONSULTATION PROCESS

4.1 The public hearing was held on 8th November 2009 in Jamshedpur. There were 10 members of public who took part in the pubic hearing process. The list of the attendees is attached in Annexure-I.

4.2 The written comments were received from Mr. Rajesh Kumar of Jamshedpur. The comments and suggestion of the consumers along with the response of the petitioner and the views of the Commission are detailed in the sections below.

General comments/suggestions on the petitions

Public Comments/Suggestions

4.3 The consumer argued that the affidavit submitted by the petitioner stands void since it is on a stamp paper of a State other than Jharkhand. Also, the petitioner has filed the petition from Mumbai which the consumer states is not acceptable.

4.4 The consumer enquired about the need to raise tariff after a period of three years and claims that this is not as per the rules.

TPCL's response

4.5 The petitioner clarified that TPCL has its Registered Office at 24, Homi Mody Street, Mumbai-1 and all affidavits and legal documents are signed (and notarised) from the Mumbai Registered Office. Hence, the affidavit was submitted on a stamp paper of Mumbai and the tariff petition too was filed from Mumbai. Moreover, the petitioner submitted that JSERC regulations do not stipulate any condition that requires only a stamp paper of Jharkhand to be used in submission of ARR.

4.6 The petitioner has been filing tariff petitions for Units II and III at Jojobera under the directive of the State Commission and the matter of tariff hike is under the consideration of the Commission.

Views of the Commission

4.7 As per JSERC (Miscellaneous Provisions) Order, 2003 there is no stipulation of condition which requires the petitioner to submit the affidavit on the stamp paper of Jharkhand only.

4.8 The petitioner had filed the ARR and tariff petition for FY 2007-08 for Unit II and Unit III at Jojobera Power Plant on May 16, 2007 and for FY 2008-09 on September 8, 2008 but due to legal proceedings, the tariff could not be fixed. The Commission has now decided to review all the three petitions and issue this tariff order.

Comments/Suggestions on the petition for FY 2007-08

Public Comments/Suggestions

4.9 The consumer remarked that TPCL did not describe Sections 61, 62, 64 & 86 of the Electricity Act 2003 clearly in its petition due to which it is not possible for the public to interpret the various sections of the Act completely.

TPCL's response

4.10 The petitioner submitted that it had mentioned all the sections of the Electricity Act, 2003 that were relevant to the ARR filing but a detailed description of these sections is not required as per the regulations.

Views of the Commission

4.11 The Electricity Act is a public document and the petitioner is not required to provide interpretation of every section of the Act.

Purchase of power

Public Comments/Suggestions

4.12 With reference to section 1.23 of the petition, the consumer enquired about the source of the petitioner's electricity purchase, pointing out that although the agreement has been mentioned, there is no proof or name of the seller. The consumer further remarked that the petitioner had not mentioned to whom it supplies power and at what price.

TPCL's response

4.13 As per the petitioner's reply, since it is a generating company supplying power from Units II and III to TSL, as has been mentioned in chapter 2 of the petition, it does not purchase power from any outside party for the purpose of this filing.

Views of the Commission

4.14 The Commission agrees with the response of the petitioner.

Sale of power

Public Comments/Suggestions

4.15 The consumer's comments/suggestions regarding sale of power by the petitioner are detailed below, along with the petitioner's response:

(a) With reference to section 2.1 of the petition, the petitioner is supplying power to TSL in its licensed area, but nothing has been mentioned regarding supply to other companies like TRF, Tata Motors, Tinplate, Lafarge, TSL Tubes Division etc.

(b) No details regarding the PPA have been mentioned in the tariff petition. Nothing has been mentioned regarding the tariff at which power is being sold to TSL or other companies.

(c) Referring to section 3.1 of the petition, the petitioner has not mentioned to whom and at what tariff power is supplied, and how much revenue is recovered from sale of power. Also, the objector stated that there was no proof which suggested that TSL demanded around 500 MW from the petitioner. Further, the petitioner had not prepared any plan to address this demand, nor had it informed the Commission about the same.

(d) As per section 3.3 of the petition, the petitioner has considered a depreciation rate of 7.84% for Plant & Machinery. However, no details of this have been furnished and only the amount has been mentioned. Further, no details of the Commission's norms have been mentioned.

TPCL's response

4.16 The point-wise response of the petitioner to the abovementioned comments/suggestions are as follows:

(a) TPCL supplies the entire power from Units II and III to TSL and it does not supply power to any other entity, hence there is no specific mention regarding other companies.

(b) All relevant details have been provided in the petition. A copy of the PPA has also been forwarded to the Commission.

(c) The petitioner submitted that the tariff of power sale to TSL has been mentioned in chapters 3, 4, 5 & 6 of the Tariff petition as well as in Form 1 of the Annexure at the end of the petition. As quoted in the petition from the PPA, the petitioner and TSL agreed to set up a power plant of 500 MW capacity in a phased manner to cater to the increasing load demand of TSL works and Jamshedpur city.

(d) The petitioner denied that details regarding depreciation had not been furnished. It submitted that details were provided in the petition itself. For example, the details of depreciation for Unit II have been provided in the table on page 19 of the petition submitted in September 2008. The amounts can be worked out by applying the depreciation rate to the acquisition value of assets.

Views of the Commission

4.17 The issues and details related to the tariff determination of the two Units has been discussed in the subsequent sections on Commission's analysis to the three petitions of FY 2007-08, FY 2008-09 and FY 2009-10.

4.18 The petitioner is directed to attach a copy of the PPA alongwith the petitions in future for proper understanding of the ARR petition.

Plant Load Factor

Public Comments/Suggestions

4.19 The consumer commented that while the tariff specifies that the Unit's PLF is 75%, nothing has been mentioned about the remaining 25%.

TPCL's response

4.20 The Plant Load Factor (PLF) of a power plant may be defined for a given period as the percentage of total generated energy corresponding to installed generation capacity during the period. The PPA between the petitioner and TSL mentions that Guaranteed PLF is to be 75% and the entire generation from Units II and III would be supplied to TSL.

Views of the Commission

4.21 The Commission agrees with the response of the petitioner.

Fixed Costs

Public Comments/Suggestions

4.22 The following comments/suggestions were raised regarding Fixed Charges as mentioned in the tariff petition.

(a) In section 3.5 of the petition, no details of insurance charges & project cost have been mentioned.

(b) In section 3.6 of the petition, interest on loan for Unit II has been shown but no details have been mentioned regarding the banks/financial institutions from which loan has been funded and the corresponding rate of interest, nor is there any proof of the same.

(c) Details of fixed charges have not been provided, nor is there any proof or invoice showing to whom these fixed charges are paid.

(d) In section 5.6 of the petition but no details have been mentioned regarding the banks /financial institutions from which loan has been funded and the corresponding rate of interest, nor is there any proof of the same.

TPCL's response

(a) The petitioner submitted that it is unable to understand the reference. As per the PPA, the insurance charges are built-in within O&M expenses, as mentioned in section 3.5 of the petition.

(b) The petitioner pointed out that detailed loan funding of Unit II had been mentioned in the submission vide letter no. REG/JSERC/09/126 dated May 6, 2009 before the Commission. The same was made available for public at the petitioner's website www.tatapower.com since the publication of the Public Notice for Tariff Petitions of FY 2007-08, 2008-09 and 2009-10 dated 17th and 18th of August, 2009.

(c) The details of Fixed Charges have been provided in Chapters 3 and 5 as well as in Forms 1, 11, 14 & 15 of the Tariff petition. These fixed charges form a part of ARR of the petitioner and, therefore, are proposed to be recovered from TSL.

(d) The detailed loan funding of Unit III has been mentioned in the submission vide letter no. REG/JSERC/09/126 dated May 6, 2009 before the Commission. The same was made available for the public at the petitioner's website www.tatapower.com since the publication of the Public Notice for Tariff Petitions of FY 2007-08, 2008-09 and 2009-10 dated 17th and 18th of August, 2009.

Views of the Commission

4.23 The issues and details related to the tariff determination of the two Units has been discussed in the subsequent sections on Commission analysis to the three petitions of FY 2007-08, FY 2008-09 and FY 2009-10.

Primary and Secondary fuel

Public Comments/Suggestions

(a) The consumer commented that details of coal cost and of coal mines from which coal is being procured have not been furnished.

(b) Regarding section 4.6 of the petition, the consumer enquired why the coal rate of West Bokaro has been shown in the petition. Also, types of oil to be used as well as its prices have not been mentioned, nor has it been mentioned how waste oil will be treated.

(c) With respect to section 4.7 of the petition, the consumer stated that no details regarding primary and secondary fuel have been given so that it may be ascertained that the fuel is being utilized after purchase.

TPCL's response

4.24 The Point wise response of the petitioner to the aforementioned comments/suggestions of the consumers are given below

(a) The petitioner submitted that the landed cost of coal has been mentioned in section 4.6 of the petition. It has also been mentioned that the major quantity of coal is procured from IB Valley and West Bokaro. Further details of the coal cost of Units II and III have been mentioned in the submission vide letter no. REG/JSERC/09/126 dated May 6, 2009 before the Commission. The same was made available for the public at the petitioner's website www.tatapower.com.

(b) The petitioner clarified that the landed cost of coal from West Bokaro and IB Valley have been mentioned to indicate the Energy Charges projected for FY 2007-08. In section 3.1 of the petition, Light Diesel Oil (LDO) has been specified as the secondary fuel used in the Units II and III at Jojobera. The price of LDO has been mentioned in section 4.6 of the petition. The treatment of waste oil is outside the scope of this Tariff petition.

(c) The petitioner submitted that details of primary and secondary fuel have been provided in Sections 3.1, 4.4, 4.5 and 4.6 as well as Form 17 of the petition.

Views of the Commission

4.25 The issues and details related to the tariff determination of the two Units has been discussed in the subsequent sections on Commission analysis to the three petitions of FY 2007-08, FY 2008-09 and FY 2009-10.

4.26 As regards, income from waste oil is concerned, the Commission believes, that if there is any such income from sale of waste oil, the same should be disclosed in the accounts as non-tariff income (NTI).

Regarding Station Heat Rate

Public Comments/Suggestions

4.27 Referring to section 4.3 of the petition, the objector raised the query- On the basis of 2800 kcal/kWh, how much more kcal/kWh is demanded by the petitioner? The objector has also remarked that no reason has been stated in the petition why TSL would set the prices for coal cost.

TPCL's response

4.28 The petitioner replied that Heat Rate (in kcal/kWh) is the heat input required to generate one unit of electricity. The projected heat rate for the year has been mentioned in the petition. The final bill at the end of the financial year is based on the actual coal price and revised bill is raised on TSL accordingly

Views of the Commission

4.29 The Commission agrees with the response of the petitioner.

Other Issues

Public Comments/Suggestions

(a) The consumer submitted that with reference to section 5.1 of the petition, for Units II and III no sanction letter by the CEA, Bihar Government or CERC has been enclosed in the petition which can prove that these authorities had some definite plans for the petitioner.

(b) No details of the PPA have been furnished in the petition, nor the same has been provided to the Commission.

(c) Regarding Form-1 given with the petition, the consumer enquired as to when and to whom was the summary sheet is to be given, since no self-certification has been provided.

(d) Regarding Form 2, the consumer wrote that no details of the steam generator have been attached in the petition. Also, no document signifying approval for the steam generator from the Pollution Control Board has been enclosed with the petition.

(e) The consumer submitted that Form 3 shows an expenditure chart but no self-certification has been provided.

(f) With respect to Form 11, the consumer stated that no approval has been taken from the Revenue Department of the State Government and with reference to Form 17, the details were not passed by any railway authority.

TPCL's response

(a) Prior to the Electricity Act, 2003, only the CEA used to provide techno-economic clearance to generating companies for setting up power plants. Hence, techno-economic clearance from the CEA vide letter no. Fl. No. 2/BHR/9/95-PAC/15565-88 dated 17th December 1997 is enclosed with the tariff petition for FY 2008-09.

(b) The petitioner submitted that relevant norms of the PPA with TSL have been explained in Chapters 3, 4, 5 and 6 of the tariff petition. Additionally, the section on 'Principles for Calculation of Tariff' has been reproduced in the Tariff Petitions of FY 2008-09 & 2009-10. The tariff to TSL has been mentioned in Chapters 3, 4, 5 & 6 of the Tariff petition as well as in Form 1 of the annexure at the end of the petition. The PPA between the petitioner and TSL was submitted to the Commission on 12th March 2009 vide letter no. REG/JSERC/09/58.

(c) The petitioner clarified that Form 1 and all other forms have been enclosed as part of the petition and submitted to the Commission. Since the petition contains the affidavit on a stamp paper, the forms do not need any self certification separately.

(d) The petitioner submitted that Form 2 and all other forms have been prescribed by Commission vide 'Generation Tariff Regulations,2004'. Data and information have been provided by the petitioner accordingly. Requirement of details of the steam generator or its approval from the Pollution Control Board has not been mentioned in the prescribed forms. Hence, there is no specific mention regarding the same.

(e) The petitioner responded that all forms were enclosed as part of the petition and submitted to the Commission, and since the petition contained the affidavit on a stamp paper, the forms did not need any self certification separately.

(f) The petitioner submitted that Form 11 pertains to the depreciation schedule and no approval is necessary from the revenue department of the State Government for the same.

Views of the Commission

4.30 The issues and details related to the tariff determination of the two Units has been discussed in the subsequent sections on Commission analysis to the three petitions of FY 2007-08, FY 2008-09 and FY 2009-10.

Comments/suggestions on the petition for FY 2008-09

Regarding the PPA with TSL

Public Comments/Suggestions

4.31 The consumer made the following remarks regarding the Power Purchase Agreement of the petitioner with TSL.

(a) In the PPA, it has not been mentioned at what rate power is sold to TSL. Also, it has not been mentioned how much power in MW is consumed by TSL purchased from the petitioner, nor has TSL's current requirement from the petitioner been specified. Further, the objector stated that the PPA has not been approved by the Commission.

(b) Only a few excerpts of PPA have been provided in the petition, thus it cannot be accepted as true statements.

TPCL's response

4.32 The petitioner's point-wise response to the abovementioned queries are as under

(a) The petitioner submitted that the PPA provides guidelines on the pricing of the power generated by Units II and III and supply of the same to TSL. There is no unique rate at which power is sold to TSL since it is a summation of the fixed charges and the energy charges. The quantum of electricity being sold is the capacity of Units II and III whose ARR is under the consideration of the Commission. The tariff applicable to TSL has been mentioned in Chapters 3, 4, 5 and 6 of the Tariff petition as well as in Form 1 of the Annexure at the end of the petition. Further, a copy of the PPA between the petitioner and TSL was submitted to the Commission on 12th March 2009 vide letter no. REG/JSERC/09/58.

(b) The petitioner responded that the relevant norms of PPA had been explained in detail in Chapters 5, 6, 7, 9, 10 and 11 of the tariff petition. Additionally, the section titled 'Principles for Calculation of Tariff' has been reproduced from the PPA in the tariff petitions of FY 2008-09 and FY 2009-10.

Views of the Commission

4.33 The Commission agrees with the response of the petitioner. However, the petitioner is directed to attach a copy of the PPA along-with the petitions in future for proper understanding of the ARR petition.

Regarding Operational Parameters

Public Comments/Suggestions

4.34 The consumer put forward the following queries/remarks regarding the operational parameters of Units II and III as submitted by the petitioner in its tariff petition for FY 2008-09.

(a) The consumer pointed out that the petitioner has mentioned its generation capacity to be 500 MW but out of that, details corresponding to only 240 MW are given with no information on the rest of the generation capacity.

(b) With reference to chapter 5 of the petition, the consumer submitted that a generator has been mentioned in the PPA but no details have been mentioned regarding BHEL, Hyderabad.

(c) The consumer enquired as to why a station heat rate of 2800 kcal/kWh has been considered in the agreement.

(d) It is stated that no reasons have been mentioned for the figures shown in operational parameters table. Moreover, only figures have been shown without giving the details of the expenses.

TPCL's response

4.35 The petitioner gave the following point-wise response to the abovementioned queries:.

(a) Details of only Units II and III have been presented in this tariff petition because as per the directives of the Commission, the scope of this petition covers supply of power from only Units II and III of the Jojobera power plant.

(b) The petitioner responded that as per the guidelines laid down in the 'Thermal Generation Tariff Regulations, 2004' the Commission has not prescribed any specific format or requirement for mentioning assignment of project packages to various parties. Hence, no specific mention has been made of BHEL, Hyderabad.

(c) A SHR of 2800 kcal/kWh has been considered in PPA based on the expected performance of the power plant and the PPA is binding for the petitioner and TSL.

(d) The petitioner stated that Form- 3 (Operational Parameters) has been prescribed by the Commission as per the 'Generation Tariff Regulations, 2004' and all data have been provided accordingly.

Views of the Commission

4.36 The issues and details related to the tariff determination of the two Units has been discussed in the subsequent sections on Commission Analysis to the three petitions of FY 2007-08, FY 2008-09 and FY 2009-10.

Regarding Fixed Charges

Public Comments/Suggestions

4.37 The consumer raised the following queries regarding the fixed charges for Units II and III as submitted by the petitioner in its tariff petition for FY 2008-09:

(a) With reference to page 19 of the petition, the consumer submitted that no details have been given in depreciation schedule and it is unclear why TPCL is not claiming additional capitalization.

(b) Regarding page 20 of the petition, the consumer stated that no details of the project cost of Rs. 431 Cr have been provided.

(c) With regard to page 21 of the petition, the consumer stated that no description has been given on 3% insurance according to O&M Expenses.

(d) The consumer commented that no details of loan have been furnished, nor have the details of lenders/banks been provided. Only a letter of SBI dated 22nd May 2008 has been enclosed which is also signed in Mumbai, not in Jamshedpur.

(e) The consumer stated that no description has been provided regarding the need for Advance Interest rate.

(f) The consumer commented that the Income Tax Return to be filed by Units II and III is not certified by the Income Tax Department.

(g) The consumer referred to the Tariff Principle with a remark that no detailed terms & conditions of the loan of Rs. 200 Cr have been furnished.

TPCL's response

4.38 The petitioner's point-wise response to the above is as follows:

(a) The petitioner denied that details with reference to the depreciation schedule were not furnished and submitted that details had been provided in the petition itself. For example, the details of depreciation for Unit II have been provided in the table given on page 19 of the petition submitted in September 2008. The amounts can be worked out by applying the depreciation rate to the acquisition value. Further, the petitioner is not claiming additional capitalization as per the terms laid in the PPA, as has been mentioned page 19 of the petition.

(b) The petitioner again refuted that details of project cost were not furnished and submits that details of the project cost have been provided in Form 5 at the end of the petition.

(c) The petitioner submitted that it is unable to understand the reference. It further clarified that as per the PPA, insurance charges are built in the O&M expenses, as mentioned in Section 6(iii) of the petition.

(d) The petitioner submitted that the detailed loan funding of Unit-II has been mentioned in the submission vide letter no. REG/JSERC/09/126 dated May 6, 2009 before the Commission. The same was also made available for the public at the petitioner's website www.tatapower.com.

(e) The petitioner quoted the following from the PPA: "Working Capital is estimated as per GOI norms & interest thereon at the prevailing SBI advance rate" and refutes that the SBI advance rate has not been furnished. Details of the same have been shown in Annexure 3 of the petition.

(f) The petitioner responded saying that Income Tax is proposed to be recovered from TSL as part of ARR. As Unit II and III are a part of the larger asset base of TPCL, there is no separate certification of Income Tax for the two Units.

(g) The petitioner submitted that the tariff calculation principles have been reproduced from the PPA. Further, the detailed loan funding of Unit II of Jojobera has been mentioned in the submission vide letter no. REG/JSERC/09/126 dated May 6, 2009 before the Commission.

Views of the Commission

4.39 The issues and details related to the tariff determination of the two Units has been discussed in the subsequent sections on Commission Analysis to the three petitions of FY 2007-08, FY 2008-09 and FY 2009-10.

Regarding Variable Charges

Public Comments/Suggestions

4.40 The following queries were raised by the consumer with regard to the variable cost of Units II and III as submitted by the petitioner in its tariff petition for FY 2008-09.

(a) The consumer submitted that no details regarding fuel charges of one month & maintaining the fuel stock have been furnished.

(b) With reference to chapter 11 of the petition, the consumer submitted that no detailed evidence has been provided showing to which company fuel cost has been paid.

(c) No details have been provided to which company payment has been made for LDO?

TPCL's response

4.41 With respect to the above mentioned queries, the petitioner gave the following response, listed point-wise.

(a) The petitioner refuted the charge that fuel charges for one month have not been furnished and states that details of Working Capital have been shown in the table given on page 23 of the petition.

(b) The petitioner replied that it is given in the petition that fuel cost is paid to various coal companies like West Bokaro & IB Valley and LDO cost is paid to IOCL.

(c) The petitioner responded that LDO is mostly procured from IOCL and hence the payment for LDO is made to that company.

Views of the Commission

4.42 The Commission agrees with the response of the petitioner.

Regarding sale of power

Public Comments/Suggestions

4.43 The following queries were raised by the objector with regard to the sale of power generated by Units II and Unit III of the petitioner.

(a) The consumer claimed that it is not mentioned in the petition at what tariff TSL is buying power from TPCL.

(b) The objector stated that nothing has been mentioned in the petition regarding power supply to other Tata companies, and only data regarding supply to TSL has been mentioned (only domestic category).

TPCL's response

(a) The petitioner responded saying that all relevant details have been provided in the petition.

(b) The petitioner submitted that the petitioner is a Generating Company supplying the entire power from Units II and III of its Jojobera power plant to TSL and does not supply power to any other entity.

Views of the Commission

4.44 The Commission agrees with the response of the petitioner.

Other Issues

Public Comments/Suggestions

(a) The consumer stated that none of the data tables has been certified by the Commission or any other Government agency.

(b) The consumer submitted that the cost of Steam & Turbine Generator has been mentioned but the source & reasons of purchase of the same have not been mentioned. Also, no receipt the purchase has been furnished.

(c) The consumer enquired as to why expenses have been incurred for constructing the project and who constructed the project.

(d) Referring to Form 17, the consumer said that no details have been provided regarding the entity to which payment has been made in West Bokaro.

TPCL's response

(a) The petitioner stated that since the petition contained the affidavit on a stamp paper, the data tables did not need any self certification separately.

(b) The petitioner responded that it was unable to understand the reference of the query and further submitted that the query was beyond the scope of the petition and hence the petitioner may be exempted from replying to the query.

(c) The petitioner responded that it was unable to understand the reference of the query and further submitted that the query was beyond the scope of the petition and hence the petitioner may be exempted from replying to the query.

(d) The petitioner responded that it was unable to understand the reference of the query.

Views of the Commission

4.45 The Commission agrees with the response of the petitioner.

Comments/suggestions on the petition for FY 2009-10

Regarding the Supreme Court hearing

Public Comments/Suggestions

4.46 The consumer enquired about the hearing held at Supreme Court on July 21, 2008 regarding TPCL's Units II and III being treated as Captive Power Plants (CPP). The consumer stated that no details regarding the hearing were provided in Annexure 1, and asked what benefits accrued to the petitioner from this hearing, against whom was this hearing held, and what the judgment of this hearing was.

TPCL's response

4.47 The petitioner refuted the charge that details of Supreme Court hearing held on July 21, 2008 were not furnished in the petition and submits that details of the hearing have been provided in Page 8 of the petition.

Views of the Commission

4.48 The Commission agrees with the response of the petitioner.

Regarding Variable and Fixed Charges

Public Comments/Suggestions

4.49 The objector raised the following queries regarding the variable and fixed charges mentioned in the tariff petition for FY 2009-10.

(a) The participant enquired how the project cost has increased from 93.15% to 98.63%.

(b) The objector stated that the PLF for FY 2007-08 has been shown as 76% but no details of expenses have been given. Further, in FY 2009-10, distribution of power by TSL has been shown considering the PLF at an increased level of 80% but it has not been mentioned anywhere that TSL demanded this power from TPCL. Likewise, PLF of 2007 has been shown at 56.79% but no details of the expenses have been given. Also, PLF has been projected at 75% and 80% respectively for FY 2007-08 and FY 2008-09 but no reason has been given for this increasing trend.

(c) Auxiliary consumption was shown at 10.45% for FY 2007-08, 10.40% for FY 2008-09 and FY 2009-10 (in PPA, Auxiliary consumption is 15%), but no reason for PLF has been mentioned.

(d) The objector mentioned that the station heat rate was 2800 kcal/kWh for 3 years, but for FY 2007-08, it was 2524 kcal/kWh, for FY 2008-09 it was 2669 kcal/kWh and for FY 2009-10 it was 2800 kcal/kWh. The objector questions the reason behind increasing heat rate.

(e) When the secondary fuel consumption in FY 2009-10 has been taken as 0.97 ml/kWh and the Gross Calorific Value (GCV) is also not very high, why are the expenses for FY 2009-10 projected so high?

(f) The consumer submitted that the interest amount was less for FY 2007 but it had not been mentioned to whom this interest amount was paid.

(g) The consumer states that the Interest on working capital figures have been projected high without stating any reason.

(h) Further, he submits that the projection of Income Tax is also high and these figures have not been self-certified. In addition, the RoE shown has not been certified by SEBI.

TPCL's response

4.50 The petitioner responds to all the above queries by stating that it is unable to understand their reference and requests the Commission for further elaboration of the same. Further, the petitioner states that it has provided all necessary data and computations in its tariff petitions as well as in the replies to various queries raised earlier.

Views of the Commission

4.51 The issues and details related to the tariff determination of the two Units has been discussed in the subsequent sections on Commission analysis to the three petitions of FY 2007-08, FY 2008-09 and FY 2009-10.

Regarding Fuel Costs

Public Comments/Suggestions

4.52 The consumer stated that the petitioner has shown increased fuel cost for the period from FY 2006-o7 to FY 2009-10, but no reason has been mentioned for this hike.

TPCL's response

4.53 The petitioner replied that the fuel cost showed an increasing trend mainly on account of increased fuel prices and details of fuel prices had been presented to the Commission.

Views of the Commission

4.54 The issues and details related to the tariff determination of the two Units has been discussed in the subsequent sections on Commission analysis to the three petitions of FY 2007-08, FY 2008-09 and FY 2009-10.

Other Issues

Public Comments/Suggestions

4.55 Referring to section 181 of the Electricity Act, 2003 and the 'Generation Tariff Regulations, 2004' published in Special Gazette dt. 28.6.2005 by the Commission, the consumer made the following remarks:

(a) As per section 5(a), 5(b), 5(c), long term access should be implemented under the State Grid Transmission System and as per the Grid Code.

(b) According to section 8(1), the nodal agency should be a distribution licensee for long term distribution access whereas TSL has neither shown such thing in the agreement nor has given any proof in the application that Commission has given them distribution license. Tata Power has also not indicated TSL as licensee in its application.

(c) According to section 9(1), STU, Distribution licensee or transmission licensee should submit an application with a copy for long term open access and also give all descriptions like charges, period etc. and should give to STU with Rs. 2500/- as non-refundable application fee and licensee should declare the result within 60 days. Tata Power has not done anything like this with TSL.

(d) Referring to section 11, TPCL and TSL have not made a Bulk Capacity Agreement.

(e) According to section 33, the transmission and billing cost should be paid directly to STU or licensee and should give separately Rs. 30,000/- annually as service tax, which TPCL and TSL have not done.

TPCL's response

4.56 The petitioner submitted that the query was beyond the scope of the petition and hence it may be exempted from replying to the query.

Views of the Commission

4.57 The Commission states that for the issues which are not in the purview of this tariff order, the consumers should make a separate submission to the Utility or the Commission, as the case may be.

A5: COMMISSION'S ANALYSIS OF THE PETITION FOR FY 2007-08

5.1 The Commission has scrutinized the petition filed by TPCL for FY 2007-08. Component-wise details of the petitioner's submission and the Commission's analysis and approvals applicable for FY2007-08 have been discussed in this section.

Basis of Fuel Cost & Fixed cost Determination

Petitioner's submission

5.2 The petitioner has submitted its proposal for determination 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

5.3 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 2007-08 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 parameters prescribed by the 'Generation Tariff Regulations, 2004'.

Plant Load Factor (PLF)

Petitioner's submission

5.4 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 2007-08 the petitioner projects the PLF to be 75% for both the Units.

Commission's analysis

5.5 Going by the norms of the petitioner's PPA with TSL, the Commission accepts the proposed PLF and approves 75% as the PLF for both the Units.

Gross Generation

Petitioner's submission

5.6 The petitioner has submitted gross generation of 791 MUs each, for both the Units for FY 2007-08.

Commission's analysis

5.7 For determining gross generation, the Commission has taken into consideration approved values of PLF for both the Units. Since the approved PLF is same as that proposed by the petitioner, the Commission approves the gross generation of 791 MUs each, for both the Units.

Auxiliary Consumption

Petitioner's submission

5.8 The petitioner has stated that the auxiliary consumption as 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 2007-08, the petitioner has proposed an auxiliary consumption of 10.57% for Unit II and 10.55% for Unit III for the purpose of tariff determination.

Commission's analysis

5.9 Auxiliary consumption refers to the quantum of energy generated that is used up within the plant for the power generation process. A higher auxiliary consumption corresponds to a lower net generation. Since the auxiliary consumption specified in the petition for Unit II as well as Unit III is lower than that specified in the PPA, the Commission approves the auxiliary consumption given in the petition which is 10.57% for Unit II and 10.55% for Unit III.

Net Generation

Petitioner's submission

5.10 The petitioner has projected its net generation for FY 2007-08 to be 707 MUs each for Unit II and Unit III, after taking into account the projections for gross generation and auxiliary consumption.

Commission's analysis

5.11 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 2007-08 is the same as that proposed by the petitioner which is 707 MUs each, for both the Units.

Station Heat Rate

Petitioner's submission

5.12 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."* The SHR of both Unit II and Unit III is assumed by the petitioner to be 2600 kcal/kWh in FY 2007-08.

Commission's analysis

5.13 The 'Generation Tariff Regulations, 2004' specifies the station heat rate of 2600 kcal/kWh for post-stabilization period of coal-based generation stations with capacity between 70 MW and 200 MW. The same has been proposed by the petitioner for FY 2007-08. Moreover, a lower station heat rate results in lower fuel costs. Since the station heat rate specified in the petition for FY 2007-08 is lower than that mentioned in the PPA, the Commission approves the station heat rate of 2600 kcal/kWh for both Units of Jojobera Plant.

Specific oil consumption

Petitioner's submission

5.14 The petitioner has taken the value of specific oil consumption for both Unit II and III as 2.0 ml/kWh.

Commission's analysis

5.15 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.

5.16 The 'Generation Tariff Regulations, 2004' specify a maximum secondary fuel consumption of 2.0 ml/kWh. Since the same value of 2.0 ml/kWh is proposed for both Units in the petition for FY 2007-08, it is approved by the Commission.

Gross Calorific Value (GCV) of primary and secondary fuel

Petitioner's submission

5.17 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 2007-08, for the purpose of calculation, the GCV of coal from MCL and West Bokaro has been assumed as 3250 kcal/kg and 4775 kcal/kg respectively. The GCV of secondary fuel is considered as 9100 kcal/kl.

Commission's analysis

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

5.19 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.

5.20 Since the actual GCV of consumed coal for FY 2007-08 is not available with the petition of FY 2007-08, 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 2007-08 becomes available.

5.21 Moreover, the GCV of coal from both MCL and West Bokaro as proposed in the petition is greater than that mentioned in the PPA. Hence, the Commission approves the petitioner's proposed GCV of 3250 kcal/kg for MCL coal and 4775 kcal/kg for West Bokaro coal.

5.22 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

5.23 The petitioner has taken the price of MCL coal to be Rs. 1000 per MT and that of West Bokaro coal to be Rs. 1600 per MT. The price of secondary fuel is taken to be Rs. 29000/kilolitre.

Commission's analysis

5.24 Fuel price 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 accepted. However, the actual price of the coal and secondary oil consumed by Units II and Unit III are not available with the petition of FY 2007-08. Hence the Commission approves the rates of coal and secondary fuel proposed by the petitioner for FY 2007-08 subject to a subsequent true-up when the actual prices of coal and secondary oil for FY 2007-08 would be available.

Transit Loss

Petitioner's submission

5.25 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 power station, including all agreed transport losses.

Commission's analysis

5.26 Since the fuel price submitted by the petitioner is the actual landed cost of fuel, this implies that all calculations involving the given fuel price are already grossed up. Hence 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

5.27 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 is given below:

Table 10 Plant parameters & Fuel cost determinants (petition-FY 2007-08)

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	%	75%	75%	75%	75%
Auxiliary Consumption	%	10.57%	10.57%	10.55%	10.55%
Station Heat Rate	Kcal/Kwh	2600	2600	2600	2600
GCV of Coal (IB Valley/West Bokaro)	Kcal/Kg	3250/4775	3250/4775	3250/4775	3250/4775
GCV of oil	Kcal/Kg	9100	9100	9100	9100
Specific oil consumption	ml/Kwh	2.0	2.0	2.0	2.0
Coal consumption	Kwh	478375	478375	478375	478375
Oil consumption	Kwh	1581	1581	1581	1581
Price of Coal (IB Valley/West Bokaro)	Rs/MT	1000/1600	1000/1600	1000/1600	1000/1600
Price of Oil	Rs/KL	29000	29000	29000	29000
Total Coal Cost	Rs. Cr	66.97	66.97	66.97	66.97

Total Oil cost	Rs. Cr	4.59	4.59	4.59	4.59
Net Fuel Cost	**Rs. Cr**	**71.56**	**71.56**	**71.56**	**71.56**
Energy Charges	**Rs/Unit**	**1.01**	**1.01**	**1.01**	**1.01**

Operation & Maintenance (O&M) Expenses

Petitioner's submission

5.28 The petitioner has estimated the O&M expenses of Unit II and Unit III according to the terms of its PPA. As per the PPA, 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. The O&M expenses for FY 2007-08 as per the terms of the PPA have been proposed by the petitioner to be Rs. 19.51 Cr for Unit II and Rs. 18.21 Cr for Unit III.

Commission's analysis

5.29 Accepting the terms and conditions of the PPA, the Commission approves the O&M norms followed by the petitioner for determination of O&M expenses.

5.30 The capital cost of the two Units as per the petitioner's submission has been accepted by the Commission. The O&M expenses approved by the Commission as per the norms of the PPA come to Rs. 19.42 Cr and Rs. 17.59 Cr for Unit II and Unit III respectively.

Depreciation

Petitioner's submission

5.31 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 submitted 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 11 Depreciation schedule submitted by the petitioner

Asset Class	Asset Class Rate	Acquisition Value (Rs. Cr)	Depreciation for FY 2007-08
Land	0.00%	0	0
Plant & machinery	7.84%	405.105	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

5.32 The proposed depreciation for FY 2007-08 is Rs. 35.88 Cr for Unit II and Rs. 29.25 Cr for Unit III.

Commission's analysis

5.33 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. 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 (MoP) in 1994 since it was the schedule prevalent at the time of PPA execution. Accordingly, the Commission has computed and approved the depreciation charges of Rs. 32.91 Cr for Unit II and Rs. 32.59 Cr for Unit III for FY 2007-08.

Interest on Loan

Petitioner's submission

5.34 The petitioner has submitted that the required debt funding for the project has been met through various loans. The petitioner 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 also 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.*"

5.35 Based on this method of calculation, the petitioner has proposed the interest payable for FY 2007-08 to be Rs. 14.70 Cr for Unit II and Rs. 12.20 Cr for Unit III.

Commission's analysis

5.36 For calculation of interest on loans, the Commission has taken 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 the requirement as per 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 rate of 13.02% which is 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%.

5.37 The Commission has accepted the treatment of each year's depreciation as the deemed loan repayment for that year, as proposed by the petitioner.

5.38 Consequently, for FY 2007-08, the Commission has prepared a loan schedule and has calculated the interest on loan to be Rs. 10.39 Cr for Unit II and Rs. 13.90 Cr for Unit III.

Interest on Working Capital

Petitioner's submission

5.39 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 (O&M) expenses for one month;

(d) Receivables equivalent to two months of fixed and variable charges for sale of electricity calculated on target availability.

5.40 Based on the above, the petitioner requests the Commission to approve Rs. 3.16 Cr for Unit II and Rs. 3.19 Cr for Unit III, as the interest on working capital for FY 2007-08.

Commission's analysis

5.41 The Commission has computed the working capital base for both Units for FY 2007-08 as per the petition, which is in accordance 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.

5.42 Accordingly, the Commission has computed and approved the interest on working capital to be Rs. 3.15 Cr each for Unit II and Unit III for FY 2007-08.

Return on Equity (RoE)

Petitioner's submission

5.43 The petitioner has submitted that it is entitled to a RoE of 16% at a base PLF of 68.5%. The petition states that 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 incentive in the RoE vis-à-vis PLF achieved 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.

5.44 The petitioner has proposed to maintain a PLF of 75.0% in both Units in FY 2007-08. Accordingly, the petitioner submitted that it is entitled to RoE (including incentive) of Rs. 25.08 Cr for Unit II and Rs. 24.39 Cr for Unit III for FY 2007-08.

Commission's analysis

5.45 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. 25.03 Cr as the RoE for Unit II and Rs. 24.26 Cr for Unit III for FY 2007-08.

Summary of Fixed Cost determinants and Generation Tariff

5.46 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 2007-08 is given below

Table 12 Fixed cost determinants and Generation Tariff (petition- FY2007-08) (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	19.51	19.42	18.21	17.59
Depreciation	Rs. Cr	35.88	32.91	29.25	32.59
Interest on Loan	Rs. Cr	14.70	10.39	12.20	13.90
Return on Equity	Rs. Cr	25.08	25.03	24.39	24.26
Interest on Working Capital	Rs. Cr	3.16	3.15	3.19	3.15
Total Fixed cost	Rs. Cr	98.34	90.90	87.23	91.49
Energy Cost	Rs. Cr	71.56	71.56	71.56	71.56
Total Cost	Rs. Cr	169.90	162.46	158.79	163.05
Net generation	MUs	707.00	707.00	707.16	707.16

Generation Tariff	Rs./Unit	2.40	2.30	2.25	2.31

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**	**88.22**	**88.22**	**87.79**	**87.79**
Energy Charges	**Rs/Unit**	**1.23**	**1.23**	**1.23**	**1.23**

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

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

A7: TARIFF PETITION FY 2009-10: TRUE UP FOR FY 2007-08

7.1 The Commission has scrutinized the petition filed by TPCL for FY 2009-10 for the truing up exercise of cost & operational parameter for FY 2007-08, as per actual audited data available for FY 2007-08.

7.2 The component-wise description of the petitioner's submission and the Commission's analysis on the same is given below.

Basis of Fuel Cost & Fixed cost Determination

Petitioner's submission

7.3 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 and the actual data for parameters not specified in the PPA.

Commission's analysis

7.4 Since the PPA is legally binding on the petitioner and the effective tariff period is already over, the Commission has decided to determine the tariff for FY 2007-08 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'. For parameters where the actual figures show improvement in the efficiency of the Generation company or are more cost-effective vis-a-vis the PPA terms and conditions, the Commission has accepted the actual figures for tariff determination.

Plant Load Factor (PLF)

Petitioner's submission

7.5 For the true-up of costs for FY 2007-08, the petitioner has submitted that the actual PLF in FY 2007-08 was 78% for Unit II and 74% for Unit III.

Commission's analysis

7.6 The Commission approves the PLF at 78% for Unit II and 74% for Unit III for FY 2007-08, since the submission of the petitioner is based on actual figures.

Gross Generation

Petitioner's submission

7.7 The petitioner has submitted 822 MUs as the gross generation of Unit II and 780 MUs as that of Unit III for FY 2007-08 on the basis of the actual PLF for the two Units.

Commission's analysis

7.8 Since the submission of the petitioner is based on actual figures, the Commission approves the same for true-up of ARR for FY 2007-08.

Auxiliary Consumption

Petitioner's submission

7.9 The petitioner has submitted that the actual auxiliary consumption during FY 2007-08 was 10.40% for Unit II and 10.39% for Unit III.

Commission's analysis

7.10 Since the submission of the petitioner is based on actual figures, the Commission approves the same for true-up of ARR for FY 2007-08.

Net Generation

Petitioner's submission

7.11 The Net Generation has been submitted at 736 MUs and 699 MUs for Unit II and Unit III respectively.

Commission's analysis

7.12 The Commission approves the net Generation of 736 MUs and 699 MUs for the two Units of Jojobera plant.

Station Heat Rate

Petitioner's submission

7.13 The petitioner has submitted 2645 kcal/kWh and 2676 kcal/kWh as the actual SHR for Unit II and III respectively for FY 2007-08.

Commission's analysis

7.14 Since the submission of the petitioner is based on actual figures, the Commission approves the same for true-up of FY 2007-08 costs.

Specific oil consumption

Petitioner's submission

7.15 The petitioner has submitted 0.85 ml/kWh and 0.93 ml/kWh as the actual specific oil consumption for Unit II and III respectively for FY 2007-08.

Commission's analysis

7.16 Since the submission of the petitioner is based on actual figures, the Commission approves the same for true-up of ARR for FY 2007-08

Gross Calorific Value (GCV) of primary and secondary fuel

Petitioner's submission

7.17 For the purpose of truing up, the petitioner has submitted the GCV of MCL coal as 2809 kcal/kg and that of West Bokaro coal as 4347 kcal/kg for FY 2007-08. It has submitted the GCV of secondary fuel at 9100 kcal/kl.

Commission's analysis

7.18 The Commission considered the actual monthly information given with the additional data solicited from the petitioner for calculating the actual GCV of fuel. As per the actual figures of FY 2007-08, the annual average GCV of MCL coal comes to be 3129 kcal/kg while that of West Bokaro coal comes to be 4546 kcal/kg. Hence, the Commission has approved these figures as the respective GCV of coal for FY 2007-08 true-up.

7.19 However, the Commission approves the proposed GCV of secondary fuel of 9100 kcal/kl.

Price of primary and secondary fuel

Petitioner's submission

7.20 For the purpose of truing up, the petitioner has submitted the revised price of MCL coal as Rs. 951/MT, West Bokaro coal as Rs. 1624/MT and that of secondary fuel as Rs. 28608/MT for FY 2007-08.

Commission's analysis

7.21 To determine the actual rate and quantity consumed of the primary and secondary fuel, the Commission asked the petitioner to furnish monthly bills from its fuel suppliers for FY 2007-08. After averaging out the rate of each fuel over the entire year, the Commission arrived at Rs. 952/MT as the price of MCL coal, Rs. 1614/MT as the price of West Bokaro coal and Rs. 28640/kilolitre as the rate of secondary oil for FY 2007-08. The Commission has made use of these actual figures for computing and approving the price of primary and secondary fuel for the truing up of FY 2007-08.

Transit Loss

Petitioner's submission

7.22 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

7.23 Since the fuel price submitted by the petitioner is the actual landed cost of fuel, this implies that all calculations involving the given fuel price are already grossed up. Hence the Commission has not considered transit loss separately.

Summary of Plant parameters & fuel cost determinants

7.24 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 the true up of FY 2007-08 is given below.

Table 16 Plant parameters & Fuel cost determinants (True up for FY 2007-08)

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	%	78%	78%	74%	74%
Auxiliary Consumption	%	10.40%	10.40%	10.39%	10.39%
Station Heat Rate	Kcal/Kwh	2645	2645	2676	2676
GCV of Coal (IB Valley/West Bokaro)	Kcal/Kg	2809/ 4347	3129/ 4346	2809/ 4347	3129/ 4346
GCV of oil	Kcal/Kg	9100	9100	9100	9100
Specific oil consumption	ml/Kwh	0.85	0.85	0.93	0.93

Coal consumption	Kwh	562275	537546	539552	515709
Oil consumption	Kwh	699	699	725	725
Price of Coal (IB Valley/West Bokaro)	Rs/MT	951/ 1624	952/ 1614	951/ 1624	952/ 1614
Price of Oil	Rs/KL	28608	28640	28608	28640
Total Coal Cost	Rs. Cr	79.20	73.84	76.00	70.86
Total Oil cost	Rs. Cr	2.00	2.00	2.07	2.08
Net Fuel Cost	**Rs. Cr**	**81.2**	**75.8**	**78.08**	**72.9**
Energy Charges	**Rs/Unit**	**1.10**	**1.03**	**1.12**	**1.04**

True up exercise for fixed cost determinants

7.25 Apart from RoE and Interest on working capital, the Commission finds no need for any change in any other component of fixed cost since there have been no changes in the factors & norms that forms the basis of computation for these components.

7.26 The Commission has recalculated the RoE component of fixed costs for FY 2007-08 as the rate of return on RoE is linked with the PLF of the unit for which the actual figures are different from the FY 2007-08 submissions by the petitioner.

7.27 The interest on working capital has been computed on the basis of the actual figures for cost coal & oil and receivables as also on account of the interest on working capital which was earlier taken at a lower rate and now has been considered at the short-term Prime Lending Rate of State Bank of India as on 1st April 2007.

7.28 The Income Tax payable has been computed on the basis of the RoE computed for FY 2007-08 for the two Units of the Jojobera Plant.

Summary of Fixed Cost determinants and Generation Tariff

7.29 The table below shows the trued-up fixed cost determinants and Generation tariff for FY 2007-08, in terms of the petitioner's revised submission and the Commission's approved costs.

Table 17 Fixed cost determinants and Generation Tariff (Rs. Cr) (True up for FY 2007-08)

Parameters	Unit	Unit II		Unit III	
		Submitted by TPCL	Approved by JSERC	Submitted by TPCL	Approved by JSERC
O&M charges	Rs. Cr	19.65	19.42	17.80	17.59
Depreciation	Rs. Cr	32.91	32.91	32.55	32.59

Interest on Loan	Rs. Cr	10.77	10.39	14.81	13.90
Return on Equity	Rs. Cr	27.73	27.56	23.56	23.49
Interest on Working Capital	Rs. Cr	4.76	4.69	4.59	4.82
Income Tax	Rs. Cr	3.54	3.52	3.01	3.00
Total Fixed cost	Rs. Cr	99.36	98.49	96.31	95.38
Energy Cost	Rs. Cr	81.2	75.84	78.08	72.94
Total Cost	Rs. Cr	180.56	174.34	174.4	168.32
Net generation	MUs	736	736	699	699
Generation Tariff	**Rs./Unit**	**2.45**	**2.37**	**2.50**	**2.41**

A8: TARIFF PETITION FY 2009-10: REV. ESTIMATE FOR FY 2008-09

8.1 The Commission has scrutinized the petition filed by TPCL for FY 2009-10 for the revised estimates cost & operational parameter for FY 2008-09 as per the latest or actual data available for FY 2008-09.

8.2 The component-wise description of the petitioner's submission and the Commission's analysis on the same is given below.

Basis of Fuel Cost & Fixed Cost Determination

Petitioner's submission

8.3 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 and the latest available for FY 2008-09 for parameters not specified in the PPA.

Commission's analysis

8.4 Since the PPA is legally binding on the petitioner and the effective tariff period is already over, the Commission has decided to determine 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'. For parameters where the actual figures have shown improvement in the efficiency of the generation company or are more cost-effective vis-à-vis the PPA terms and conditions, the Commission has accepted the actual or latest figures of FY 2008-09 for tariff determination.

Plant Load Factor (PLF)

Petitioner's submission

8.5 For the revised estimate exercise for FY 2008-09, the petitioner has submitted that the latest figures of PLF for FY 2008-09 was 76% for both the Units of the Jojobera Plant.

Commission's analysis

8.6 The Commission has considered the actual PLF of the two Units on the basis of the actual data received from both TPCL and TSL, which is the purchaser of electricity from TPCL. As per the actual data, the PLF for the two Units is determined and approved at 80.85% for both the Units of Jojobera plant.

Gross Generation

Petitioner's submission

8.7 The petitioner has submitted the gross generation on the basis of proposed PLF of the two Units. The Gross generation has been calculated by the petitioner at 799 MUs each for both the Units.

Commission's analysis

8.8 The Commission has considered the actual generation of the two Units on the basis of the actual data received from both TPCL and TSL, which is the purchaser of electricity from TPCL. As per the actual data, the Gross generation for the two Units is determined at 850 MUs each for both the Units of the Jojobera plants.

Auxiliary Consumption

Petitioner's submission

8.9 The petitioner has submitted that the auxiliary consumption for FY 2008-09 at 10.40% each for both the Units of Jojobera plant.

Commission's analysis

8.10 The Commission observes that the revised estimate of auxiliary consumption for FY 2008-09 is the same as submitted by the petitioner with the petition of FY 2008-09. Moreover, the auxiliary consumption specified in the petition for both the Units is lower than the same specified in the PPA. Hence, the Commission approves the auxiliary consumption of 10.40% each for both the Units of Jojobera plant.

Net Generation

Petitioner's submission

8.11 The Net Generation has been submitted at 716 MUs each for both the Units of Jojobera Plant.

Commission's analysis

8.12 The Commission approves the net generation at 761.5 MUs each for both the Units, on the basis of the gross generation and auxiliary consumption calculated and approved by the Commission.

Station Heat Rate (SHR)

Petitioner's submission

8.13 The petitioner has submitted 2669 kcal/kWh and 2662 kcal/kWh as the revised estimate of the SHR for Unit II and III respectively for FY 2008-09.

Commission's analysis

8.14 The Commission observes that the revised estimate of SHR consumption for FY 2008-09 is the same as submitted by the petitioner with the petition of FY 2008-09 and approves the SHR figures submitted by the petitioner.

Specific oil consumption

Petitioner's submission

8.15 The petitioner has submitted 0.97 ml/kWh and 0.91 ml/kWh as the revised estimate of the specific oil consumption for Unit II and III respectively for FY 2008-09.

Commission's analysis

8.16 The Commission observes that the revised estimate of specific oil consumption for FY 2008-09 is the same as submitted by the petitioner with the petition of FY 2008-09 and approves the specific oil consumption figures submitted by the petitioner.

Gross Calorific Value (GCV) of primary and secondary fuel

Petitioner's submission

8.17 For the purpose of conducting the revised estimate exercise for FY 2008-09, the petitioner has submitted the GCV of MCL coal as 2800 kcal/kg and that of West Bokaro coal as 4400 kcal/kg for FY 2008-09. It has submitted the GCV of secondary fuel at 9100 kcal/kl.

Commission's analysis

8.18 The Commission considered the actual monthly information given with the additional data solicited from the petitioner for calculating the actual GCV of fuel. As per the actual figures of FY 2008-09, the GCV of MCL coal averaged over the entire year comes out to be 3055 kcal/kg while that of West Bokaro coal comes out to be 4562 kcal/kg. Hence, the Commission has approved these GCV figures. However, the Commission approves the GCV of secondary fuel at 9100 kcal/kl.

Price of primary and secondary fuel

Petitioner's submission

8.19 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

8.20 To determine the actual rate and quantity consumed of the primary and secondary fuel, the Commission asked the petitioner to furnish monthly bills from its fuel suppliers for FY 2008-09. After averaging the rate of each fuel over the entire year, the Commission arrived at Rs. 1002/MT as the price of MCL coal, Rs. 1796/MT as the price of West Bokaro coal and Rs. 41755/kilolitre as the rate of secondary fuel for FY 2008-09. The Commission has made use of these actual figures for computing and approving the price of primary and secondary fuel for the truing up of FY 2008-09.

Transit Loss

Petitioner's submission

8.21 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

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

Summary of Plant parameters & fuel cost determinants

8.23 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 18 Plant parameters & Fuel cost determinants (Revised estimate for 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%	80.85%	76%	80.85%
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	3055/ 4562	2800/ 4400	3055/ 4562
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	552822	536460	544509
Oil consumption	Kwh	699	699	725	725
Price of Coal (IB Valley/West Bokaro)	Rs/MT	1050/ 1778	1002/ 1796	1050/ 1778	1002/ 1796
Price of Oil	Rs/KL	46000	41755	46000	41755
Total Coal Cost	Rs. Cr	84.7	85.5	84.4	85.7
Total Oil cost	Rs. Cr	3.6	3.4	3.3	3.2
Net Fuel Cost	Rs. Cr	88.2	89.0	87.8	89.0
Energy Charges	Rs/Unit	**1.23**	**1.17**	**1.23**	**1.17**

Revised estimate exercise for fixed cost determinants

8.24 Apart from RoE and Interest on working capital, the Commission finds no need for any change in any other component of fixed cost since there have been no changes in the factors & norms that serve as the basis of computation for these components.

8.25 The Commission has recalculated the RoE component of fixed costs for FY 2008-09 since the rate of return on RoE is linked with the PLF of the Unit for which the actual figures are different from the FY 2008-09 submissions by the petitioner.

8.26 The interest on working capital has been computed on the basis of the latest figures for cost coal & oil and receivables.

8.27 The Income Tax payable has been computed on the basis of the RoE computed for FY 2008-09 for the two Units of the Jojobera Plant.

Summary of Fixed Cost determinants and Generation Tariff

8.28 The table below shows the trued-up fixed cost determinants and Generation tariff for FY 2008-09, in terms of the petitioner's revised submission and the Commission's approved costs.

Table 19 Fixed cost determinants and Generation Tariff (Rs. Cr) (Revised estimate for FY 2008-09)

Parameters	Units	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	6.75	6.12	10.82	9.88
Return on Equity	Rs. Cr	25.94	30.17	25.15	29.25
Interest on Working Capital	Rs. Cr	4.89	5.23	4.89	5.37
Income Tax	Rs. Cr	3.32	3.86	3.21	3.74
Total Fixed cost	Rs. Cr	94.48	98.70	95.67	99.61
Energy Cost	Rs. Cr	88.20	88.97	87.80	88.97
Total Cost	Rs. Cr	182.70	187.67	183.46	188.57
Net generation (MUs)	MUs	716	761.5	716	761.5
Generation Tariff	**Rs./Unit**	**2.55**	**2.46**	**2.56**	**2.48**

A9: TARIFF DETERMINATION FOR FY 2009-10

9.1 The Commission has scrutinized the petition filed by TPCL for FY 2009-10 for cost estimation of cost & operational parameter.

9.2 The component-wise description of the petitioner's submission and the Commission's analysis on the same is given below.

Basis of Fuel Cost & Fixed cost Determination

Petitioner's submission

9.3 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 and the estimated data for FY 2009-10 for parameters not specified in the PPA.

Commission's analysis

9.4 As stated earlier, the Commission has decided to determine the tariff for FY 2009-10 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

9.5 For FY 2009-10, the petitioner has projected the PLF to be 80% for both the Units.

Commission's analysis

9.6 The Commission has scrutinized the latest available figures of generation data from both TPCL and its purchaser TSL and has computed the PLF of 80.27% each for the two Units for FY 2009-10.

Gross Generation

Petitioner's submission

9.7 The petitioner has submitted 841 MUs each, on the basis of the PLF, as the gross generation proposed for Unit II and III for FY 2009-10.

Commission's analysis

9.8 The Commission approves the gross generation as per the PLF computed for the two Units. The Gross generation approved by the Commission is 844 MUs each for the two Units of Jojobera plant.

Auxiliary Consumption

Petitioner's submission

9.9 The petitioner has stated that although the auxiliary consumption stipulated in the PPA is 14.99%, the PPA has a clause that the tariff would be adjusted according to actual auxiliary consumption. For FY 2009-10, the petitioner has assumed an auxiliary consumption of 10.40% for both Units, for the purpose of tariff computation.

Commission's analysis

9.10 Since the auxiliary consumption specified in the petition for Unit II as well as Unit III is lower than the same specified in the PPA and is also similar to the figures for FY 2008-09, the Commission approves the auxiliary consumption as 10.40% for both the Units of Jojobera Plant.

Net Generation

Petitioner's submission

9.11 The petitioner has projected net generation for FY 2009-10 to be 754 MUs each for both the Units after taking into account its projections for gross generation and auxiliary consumption.

Commission's analysis

9.12 The Commission has computed and approved the net generation at 756 MUs each for the two Units.

Station Heat Rate (SHR)

Petitioner's submission

9.13 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."

9.14 The station heat rate of both Units in FY 2009-10 has been projected by the petitioner to be 2680 kcal/kWh.

Commission's analysis

9.15 Since the SHR specified in the petition for FY 2009-10 is lower than that specified in the PPA and a lower SHR corresponds to lower fuel cost, the Commission approves the SHR as 2680 kcal/kWh for both Unit II and III as given in the tariff petition subject to the condition that the same would be trued up when the actual data is available.

Specific oil consumption

Petitioner's submission

9.16 The specific oil consumption for FY 2009-10 is proposed by the petitioner to be 0.97 ml/kWh for both the Units.

Commission's analysis

9.17 The 'Generation Tariff Regulations, 2004' specify a maximum secondary fuel consumption of 2.0 ml/kWh but since a lower specific oil consumption corresponds to lower specific oil consumption and hence lower fuel cost, the Commission approves the petitioner's proposed submission of specific oil consumption as 0.97 ml/kWh for both Units.

Gross Calorific Value (GCV) of primary and secondary fuel

Petitioner's submission

9.18 The petitioner has submitted that for FY 2009-10, the coal for Units II and III is sourced from four sources – MCL (IB Valley), West Bokaro, RJC and imported coal. The petitioner has proposed their GCV as 2800 kcal/kg, 4400 kcal/kg, 3000 kcal/kg and 5200 kcal/kg respectively. The GCV of secondary fuel is considered as 9100 kcal/kl.

Commission's analysis

9.19 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.

9.20 With the intent of determining the projections for FY 2009-10 to an established historic trend in GCV, the Commission asked the petitioner to furnish additional information on the actual GCV of fuels consumed during FY 2008-09. As per the actual data of FY 2008-09, the GCV of MCL coal averaged over the entire year comes out to be 3055 kcal/kg while that of West Bokaro coal comes out to be 4562 kcal/kg. The actual data for RJC as well as imported coal is not available so the Commission approves the figures submitted by the petitioner for FY 2009-10.

9.21 In case, the actual GCV of FY 2009-10 differ from the Commission's approved figures, the same would be trued up once actual data for FY 2009-10 is made available to the Commission.

9.22 The proposed GCV of secondary fuel at 9100 kcal/kl has been accepted by the Commission since the actual GCV of secondary fuel in FY 2008-09 was the same.

Price of primary and secondary fuel

Petitioner's submission

9.23 The petitioner has taken the price of MCL coal to be Rs. 1061/MT, West Bokaro coal to be Rs. 2000/MT, RJC coal to be Rs. 2700/MT and that of imported coal to be Rs. 6700/MT.

9.24 The price of secondary fuel is taken to be Rs. 46000/kilolitre.

Commission's analysis

9.25 Since price of fuel is an uncontrollable factor for the petitioner and the actual rate of fuel paid by the petitioner needs to be factored into the fuel cost calculation, the Commission asked the petitioner to furnish monthly bills from its fuel suppliers for FY 2008-09 in order to determine the actual price and consumption of fuels during FY 2008-09.

9.26 After averaging the rate of each fuel over the entire year, the Commission arrived at Rs. 1002/MT as the price of MCL coal, Rs. 1796/MT as the price of West Bokaro coal and Rs. 41755/kilolitre as the rate of secondary oil for FY 2008-09. In order to rationalize the projected cost of fuel in FY 2009-10, the Commission has decided to follow the historic trend of fuel prices and hence it has retained the actual prices of fuels in FY 2008-09 as the approved price of fuels in FY 2009-10.

9.27 Meanwhile, the Commission has approved the price of RJC coal as well as imported coal as submitted by the petitioner since the actual data is not available for the year.

9.28 In case the actual fuel prices of FY 2009-10 differ from the Commission's approved figures, the same would be trued up once actual data for FY 2009-10 is made available to the Commission.

Transit Loss

Petitioner's submission

9.29 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

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

Summary of Plant parameters & fuel cost determinants

9.31 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 2009-10 is given below

Table 20 Plant parameters & Fuel cost determinants (FY 2009-10)

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	%	80%	80.27%	80%	80.27%
Auxiliary Consumption	%	10.40%	10.40%	10.40%	10.40%
Station Heat Rate	Kcal/Kwh	2680	2680	2680	2680
GCV of Coal (IB Valley/West Bokaro/ RJC/Imported)	Kcal/Kg	2800/ 4400/ 3000/ 5200	3055/ 4562/ 3000/ 5200	2800/ 4400/ 3000/ 5200	3055/ 4562/ 3000/ 5200
GCV of oil	Kcal/Kg	9100	9100	9100	9100
Specific oil consumption	ml/Kwh	0.97	0.97	0.97	0.97
Coal consumption (Indian/imported)	Kwh	544636/ 11116	524137/ 11116	544636/ 11116	524137/ 11116
Oil consumption	Kwh	816	818	816	818
Price of Coal (IB Valley/West Bokaro/RJC/Imported)	Rs/MT	1061/2000/ 2700/6700	1002/1796/ 2700/6700	1061/2000/ 2700/6700	1002/1796/ 2700/6700
Price of Oil	Rs/KL	46000	41755	46000	41755
Total Coal Cost	Rs. Cr	108.40	95.92	108.40	95.92
Total Oil cost	Rs. Cr	3.75	3.42	3.75	3.42
Net Fuel Cost	**Rs. Cr**	**112.16**	**99.34**	**112.16**	**99.34**
Energy Charges	**Rs/Unit**	**1.49**	**1.31**	**1.49**	**1.31**

Operation & Maintenance (O&M) Expenses

Petitioner's submission

9.32 The petitioner has projected the O&M expenses of the two thermal stations according to the terms of its PPA. As per the PPA, the O&M expenditure inclusive of insurance is considered at 3% of the project cost, escalated by 7% per annum. The completed project cost for Unit II is 431.3 Cr and for Unit III is Rs. 418.1 Cr. Unit II commenced with its operations in February 2001 and Unit III in February 2002.

9.33 Taking these factors into account, the petitioner has projected the O&M expenses for FY 2009-10 to be Rs. 22.49 Cr for Unit II and Rs.20.38 Cr for Unit III.

Commission's analysis

9.34 Accepting the legally binding nature of the PPA, the Commission has approved the O&M norms followed by the petitioner.

9.35 Taking the same capital cost of the two Units as proposed the petitioner, the O&M expenses computed by the Commission for FY 2009-10 as per the norms of the PPA come to Rs. 22.23 Cr and Rs. 20.14 Cr for Unit II and Unit III respectively.

Depreciation

Petitioner's submission

9.36 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 21 Depreciation schedule submitted by the petitioner

Asset Class	Asset Class Rate	Acquisition Value (Rs. Cr)	Depreciation for FY 2007-08
Land	0.00%	0	0
Plant & machinery	7.84%	405.10	31.76
Building & Civil works	3.02%	2.97	0.09
Vehicles, Battery & ACs	33.40%	0.96	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%	6.12	0.32

9.37 The depreciation submitted by the petitioner for FY 2009-10 is Rs. 32.54 Cr for Unit II and Rs. 32.19 Cr for Unit III.

Commission's analysis

9.38 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. 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 it was the schedule prevalent at the time of PPA execution.

9.39 Accordingly, for the purpose of tariff calculation, the Commission has computed depreciation charges to be Rs. 32.54 Cr for Unit II and Rs. 32.19 Cr for Unit III.

Interest on Loan

Petitioner's submission

9.40 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."*

9.41 Based on this method of calculation, the petitioner has computed the interest payable for FY 2009-10 for Unit II to be Rs. 2.82 Cr and for Unit III to be Rs. 6.85 Cr.

Commission's analysis

9.42 For calculation of interest on loans, the Commission has considered the weighted average of the actual interest rates of loans from different sources. It 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 '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 rate 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 amounts to12.33%.

9.43 The Commission has accepted the treatment of each year's depreciation as the deemed loan repayment for that year.

9.44 Consequently, for FY 2009-10, the Commission has calculated the interest on loan to be Rs. 2.00 Cr for Unit II and Rs. 5.88 Cr for Unit III.

Table 22 Interest on Loan for FY 2007-08, 2008-09 and 2009-10

S. No	Description	Unit II		Unit III	
		Submitted by TPCL	Approved by JSERC	Submitted by TPCL	Approved by JSERC
1	Total Cost of Project	431.3	431.3	418.1	418.1
2	Total Normative Loan	301.94	301.94	292.70	292.70
3	Total Normative Equity	129.40	129.40	125.44	125.44
4	Rate of Interest	13.02% for domestic loans	13.02%	8% for foreign loans, 13% for domestic loans	12.33%
5	Interest for the year				
(i)	2007-08	10.77	10.4	14.81	13.9
(ii)	2008-09	6.75	6.1	10.82	9.9
(iii)	2009-10	2.82	2.0	6.85	5.9

Interest on Working Capital

Petitioner's submission

9.45 The PPA states that: *"Working capital is estimated as per GoI norms and the interest thereon at the prevailing SBI advance rate."* Accordingly, working capital has been calculated after considering the following norms for generating stations.

(a) Fuel costs for one month, reasonable fuel stocks as actually maintained but limited to 15 days for pit head stations and 30 days for non-pit head stations;

(b) The cost of 60-day inventory for any fuel other than coal;

(c) Operation & Maintenance expenses for one month, and

(d) The project's receivables equivalent to two months' average billing for Capacity Payment and Energy Payment.

9.46 The interest on working capital has been considered as 12.25%, which the petitioner submits is the prevailing SBI Advance Rate. Accordingly, the petitioner requests the Commission to approve Rs. 5.68 Cr and Rs. 5.67 Cr as the respective interest on working capital for Units II and Unit III respectively for FY 2009-10.

Commission's analysis

9.47 The Commission has computed the working capital base for both Units for FY 2009-10 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 2009 which is 12.25%.

9.48 Accordingly, the Commission has computed the interest on working capital to be Rs. 5.25 Cr for Unit II and Rs. 5.37 Cr for Unit III for FY 2009-10.

Return on Equity (RoE)

Petitioner's submission

9.49 As per the PPA, the petitioner is entitled to a RoE of 16% at a base PLF of 68.5%. Additional RoE is given for generation above 68.5% PLF. The PPA specifies the following mechanism for incentive in the RoE vis-à-vis PLF achieved in a financial year: For each 1.0% (or fraction thereof, on *prorata* basis) 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%.

9.50 For FY 2009-10, the petitioner proposes to maintain a PLF of 80.0%. Hence it has projected the rate of RoE (along with the incentive at 80% PLF) to be 22.85% and a cumulative RoE of Rs. 29.57 Cr for Unit II and Rs. 28.67 Cr for Unit III.

Commission's analysis

9.51 Keeping in mind the legal validity of 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 PPA's provisions and the PLF calculated by the Commission for two Units, it has approved Rs. 29.64 Cr and Rs. 28.74 Cr as the RoE for Unit II and Unit III respectively, for FY 2009-10.

Income Tax

Petitioner's submission

9.52 The petitioner has stated that both Unit II and Unit 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 MAT. In effect, the RoE plus incentive is grossed up for computation of MAT. The petitioner has considered the tax rate as 11.33% for tax calculations. Accordingly, the computation of MAT for FY 2009-10 is proposed by the petitioner to be Rs. 3.78 Cr for Unit II and Rs. 3.66 Cr for Unit III.

Commission's analysis

9.53 The Commission has calculated and approved the MAT payable by the petitioner in FY 2009-10 to be Rs. 3.79 Cr on Unit II and Rs. 3.67 Cr on Unit III.

Summary of Fixed Cost determinants and Generation Tariff

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

Table 23 Fixed cost determinants and Generation Tariff (Rs. Cr) (FY 2009-10)

Parameters	Units	Unit II		Unit III	
		Submitted by TPCL	Approved by JSERC	Submitted by TPCL	Approved by JSERC
O&M charges	Rs. Cr	22.49	22.23	20.38	20.14
Depreciation	Rs. Cr	32.54	32.54	32.19	32.19
Interest on Loan	Rs. Cr	2.82	2.00	6.85	5.88
Return on Equity	Rs. Cr	29.57	29.64	28.67	28.74
Interest on Working Capital	Rs. Cr	5.68	5.25	5.67	5.37
Income Tax	Rs. Cr	3.78	3.79	3.66	3.67
Total Fixed cost	Rs. Cr	96.88	95.46	97.42	96.00
Energy Cost	Rs. Cr	112.16	99.3	112.16	99.34
Total Cost	Rs. Cr	209.04	194.80	209.58	195.34
Net generation (MUs)	MUs	754	756	754	756
Generation Tariff	**Rs./Unit**	**2.77**	**2.58**	**2.78**	**2.58**

A10: COMMISSION DIRECTIVES

Basis for Tariff Determination

10.1 The petitioner had signed a Power Purchase Agreement (PPA) with TSL Limited (TSL) on 12th September, 1997 under which the petitioner and TSL agreed to set up, in a phased manner, a power plant with a total capacity up to 500 MW at Jojobera. The PPA laid down certain provisions governing the determination of tariff for power generated by TPCL's Jojobera Power Plant and purchased by TSL.

10.2 Since the tariff period for FY 2007-08 and FY 2008-09 is effectively over and the tariff period remaining for FY 2009-10 is also not adequate to enforce any changes in the PPA, the Commission decided to accept the provisions of the PPA for the tariff determination exercise for FY 2007-08, FY 2008-09 & FY 2009-10 for power generated from Unit II and Unit III of Jojobera Plant.

10.3 Furthermore, since the petition for FY 2010-11 is already due for submission by TPCL, the Commission has decided to continue with the provisions of the PPA for the tariff period FY 2010-11 as well.

10.4 Meanwhile, for future tariff periods, the Commission directs the petitioner to renegotiate the terms and conditions for the determination of tariff specified in the PPA with TSL Limited within 6 months of the issue of this order and submit the ARR filing for FY 2011-12 as per the new agreement (to be ratified by the Commission). The terms and conditions of the tariff determination in the new agreement between TPCL and TSL should be guided by 'Generation Tariff Regulations, 2004' as amended from time to time.

Improvement in performance of Operational parameters

10.5 The Commission has observed that the performance of the two Units of Jojobera plant with respect to some of the operational parameters is lower than other similarly placed plants in the country considering the age profile of the TPCL Units. In particular, the SHR, PLF, normative annual plant availability factor (as per CERC Tariff Regulations, 2009) and the auxiliary consumption can be improved further to the extent of CERC approved operational norms for thermal stations of such nature. The Commission directs the petitioner to submit an improvement plan for the two Units within three months of the issue of this order.

Loan restructuring

10.6 The Commission observes that the interest on long term loans paid by the petitioner is very high for both the Units of Jojobera plant. It is pertinent to mention that many funding agencies are offering lower interest rates in the market compared to the interest on loan paid by the petitioner. The Commission directs the petitioner to ascertain the interest rates of other Banks and conduct a cost benefit analysis for restructuring of its outstanding loans. The Commission directs the petitioner to submit a report in this regard within three months of the issue of this order.

Adjustment of Bills & payments/receipt as per revised cost of power sold to TSL

10.7 The Commission directs the petitioner to reconcile the payment due/receipts with TSL, in lieu of the revised Generation Tariff for power sold to TSL, as determined by the Commission in this order, within three months of the issue of this order. The Generation company is required to generate a supplementary bill for the reconciled billed amount and submit the same to TSL.

10.8 The Commission also directs the Generation Company to ensure that, henceforth, the monthly billing by TPCL, for the power sold to TSL, is done unit-wise only.

Data adequacy in next Tariff petition and timelines

10.9 The Commission directs TPCL to come up with the next tariff petition for FY 2010-11 removing the various data deficiencies highlighted throughout the tariff order along with the audited accounts for FY 2008-09 and latest actual figures of FY 2009-10.

10.10 The Commission also directs the generation company to file the next tariff petition for FY 2010-11 within one month of the issue of this order and also ensure submission of subsequent ARR & tariff filings for the ensuing year are done by 1st November every year prior to the tariff period.

This Order is signed and issued by the Jharkhand State Electricity Regulatory Commission on this the 20th day of January, 2010.

Date: 20th January, 2010
Place: Ranchi

Sd/-
(MUKHTIAR SINGH)
CHAIRPERSON

A11: ANNEXURES

ANNEXURE-I

List of participating members of public in the public hearing

Sl. No.	Name	Address / Organisation if any
1	Anil Nair	Bistupur
2	A.K. Singh	TSL
3	Vijay Prakash Singh	JUSCO
4	Amit Kumar Agrawal	JUSCO
5	K.C. Jha	JUSCO
6	Santosh Kr.	JUSCO
7	Rajesh Kumar	Adityapur
8	A.N. Patel	Tata Motors
9	K.V.A.V.R. Kumar	Tata Motors
10	Anpush Singh	The Telegraph