Jharkhand State Electricity Regulatory Commission

Order on

True-up for FY 2017-18,

Annual Performance Review for FY 2018-19 and Mid-Term Review for Revised Annual Revenue Requirement and Generation Tariff for FY 2019-20 & FY 2020-21

for

Tata Power Company Limited (TPCL)

Ranchi

February 14, 2020

CONTENTS

List of Abbreviations

Abbreviation	Description
A&G	Administrative and General
APR	Annual Performance Review
ARR	Aggregate Revenue Requirement
ATE	Appellate Tribunal for Electricity
COD	Date of Commercial Operation
Cr.	Crore
ECR	Energy Charge Rate
FY	Financial Year
GCV	Gross Calorific Value
GFA	Gross Fixed Assets
GoI	Government of India
HO & SS	Head Office and Shared Services
JSERC	Jharkhand State Electricity Regulatory Commission
kCal	Kilocalorie
Kg	Kilogram
kWh	Kilowatt-hour
LDC	Load Dispatch Centre
LPPF	Landed Price of primary fuel
MAT	Minimum Alternative Tax
MCL	MCL Mahanadi Coalfields Ltd. (IB Valley Coalfields)
ml	Millilitre
MT	Million Tonnes
MU	Million Units
MW	Megawatt
NAPAF	Normative Annual Plant Availability Factor
O&M	Operation and Maintenance
PAF	Plant Availability Factor
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
TPCL	Tata Power Company Limited
TSL	Tata Steel Limited
UoM	Unit of Measurement
WB	West Bokaro

List of Tables

BEFORE

Jharkhand State Electricity Regulatory Commission, Ranchi

Case (Tariff) No.:01 of 2019

In the matter of:

Petition for

True-up for FY 2017-18,

Annual Performance Review for FY 2018-19,

Mid-Term Review for Revised Annual Revenue Requirement and Generation Tariff for FY 2019-20 to FY 2020-21

In the matter:

Tata Power Corporation Limited (TPCL)
Jojobera Power Plant, PO Rahargora, Jamshedpur- 831016……………. **Petitioner**

PRESENT

Dr. Arbind Prasad	Chairperson
Mr. R.N. Singh	Member (Engg.)
Mr. P.K. Singh	Member (Legal)

Order dated February 14, 2020

Tata Power Company Limited (hereinafter referred to as TPCL or the Petitioner) filed Petition dated January 07, 2019.In this Petition, Tata Power Company Limited (hereinafter referred to as TPCL or the Petitioner) has prayed for Truing up for FY 2017-18, Annual Performance Review for FY 2018-19 and Mid-Term Review for Annual Revenue Requirement and Generation Tariff for FY 2019-20 and FY 2020-21.

A 1: INTRODUCTION

Jharkhand State Electricity Regulatory Commission

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 with effect from April 24, 2003.

1.2 The Government of Jharkhand vide its notification dated August 22, 2002 had 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 After the Electricity Act, 2003 came into force, the earlier Electricity Regulatory Commission Act of 1998 stands repealed and the functions of State Electricity Regulatory Commission are now defined under Section 86 of the Act.

1.4 In accordance with Section 86 (1) of 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 has to also advise the State Government as per sub section 2 of Section 86 of the Act, 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 shall ensure transparency while exercising its powers and discharging its functions.

1.7 In discharge of its functions, the State Commission is also 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 Tata Power Company Limited (hereinafter referred to as TPCL or the Petitioner), is a company incorporated under the Indian Companies Act, (VII of 1913) with its Registered Office at Bombay House, 24,HomiMody Street, Fort, Mumbai - 400001 and is engaged in the business of Electricity Generation, Transmission and Distribution.

1.9 Tata Steel Limited (TSL), which is engaged in the production of iron and steel and is also a distribution licensee in Jamshedpur (Jharkhand), obtained permission from the Government of Bihar to establish power plants in Jojobera in 1991 through its subsidiary company named Jamshedpur Power Company Limited (JAPCOL) which was subsequently transferred to Tata Power Company Limited (TPCL). TPCL thereafter commissioned five Units out of which two Units (Unit-2 & Unit-3) of 120 MW each at Jojobera is dedicated to supply power to TSL.

1.10 TPCL operates five units at Jojobera, Jharkhand with cumulative capacity of 547.5 MW out of which two units (Unit 2 & Unit 3) are the subject matter of tariff determination in this Tariff Order. Both the units have an installed capacity of 120 MW each. Unit 2 commenced its operations on February 1, 2001 and Unit 3 on February 1, 2002.

The Petitioner's Prayers

1.11 The Petitioner in this Petition has made following prayers before the Commission:

- Accept the Petition;
- Approve the Trued-up Operational, Fuel and Financial Parameters, Additional Capitalization, Annual Revenue Requirement and Generation Tariff for Unit-2 and Unit-3 of Jojobera proposed through Truing-up for FY 2017-18;
- Approve the proposed Operational, Fuel and Financial Parameters, Additional Capitalization, Annual Revenue Requirement and Generation Tariff for Unit-2 and Unit-3 of Jojobera for APR FY 2018-19;
- Approve the proposed Operational, Fuel and Financial Parameters, Additional Capitalization, Annual Revenue Requirement and Generation Tariff for Unit-2 and Unit-3 of Jojobera for Mid-Term Review for FY 2019-20 to FY 2020-21 including proposals on installation of Emission Control System;

- Provide an opportunity to the Petitioner to present its case prior to the finalization of the Tariff Order. Tata Power believes that such an approach would provide a fair treatment to all the stakeholders and may eliminate the need for a review or clarification;
- Permit the Petitioner to propose suitable changes to the Petition and the mechanism of meeting the revenue on further analysis, prior to the final approval by the Hon'ble Commission;
- Condone any inadvertent omissions/errors/rounding-off differences/shortcomings and permit the Petitioner to add/alter this filing and make further submissions as may be required at a future date;
- Pass such further and other Orders, as the Hon'ble Commission may deem fit and proper, keeping in view the facts and circumstances of the case.

Scope of the Present Order

1.12 The Petitioner filed the current Petition for truing up of FY 2017-18, Annual Performance Review for FY 2018-19 and Mid-Term Review for FY 2019-20 and FY 2020-21 of both the Units of Jojobera generating station. However, during the Public Hearing on October 23, 2019 in Jamshedpur, the Petitioner submitted that since the FY 2018-19 is completed, hence the petition number need to be revised as provisional data for the entire year was available and further that allocation of coal under SHATKI Scheme will have impact on the energy charge and requested to revise the projected number from FY 2019-20. The Commission accepted the request of the Petitioner to revise its submissions from FY 2018-19 to FY 2020-21.

1.13 The Commission in this Order has approved the True-up for FY 2017-18, Annual Performance Review for FY 2018-19 and Mid-Term Review for FY 2019-20 and FY 2020-21 of both the units of Jojobera generating station.

1.14 While approving this Order, the Commission has taken into consideration:

a) Material placed on record by the Petitioner;
b) Provisions of the Electricity Act, 2003;
c) Principles laid down in the National Electricity Policy;
d) Principles laid down in the National Tariff Policy;
e) Provisions of the JSERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2015 (hereinafter referred to as JSERC Generation Tariff Regulations, 2015 or the Tariff Regulations).

1.15 Accordingly, the Commission has scrutinized the Petition in detail and hereby issue the Order on Truing-up for FY 2017-18, Annual Performance Review for FY 2018-19 and Mid-Term Review for FY 2019-20 and FY 2020-21 of both the Units of Jojobera generating station of TPCL.

A 2: PROCEDURAL HISTORY

Background

2.1 The Commission vide MYT Order dated February 19, 2018 approved the Business Plan and determined the Annual Revenue Requirement for the 2nd MYT Control Period from FY 2016-17 to FY 2020-21 including Truing-up for FY 2015-16.

2.2 Later, the Petitioner had filed a review petition against the MYT Order dated February 19, 2018 which was disposed of by the Commission by Order dated January 9, 2019.

2.3 The True-up for FY 2016-17 was carried out by the Commission vide its Order dated December 27, 2019.

2.4 The Petitioner has now filed the Petition before the Commission for approval for True-up for FY 2017-18, Annual Performance Review for FY 2018-19 and Mid-Term Review seeking Annual Revenue Requirement and Generation Tariff for FY 2019-20 and FY 2020-21 on January 07, 2019.

Information Gaps in the Petitions

2.5 As part of the Tariff determination exercise, several deficiencies/information gaps were observed in the Petition submitted by the Petitioner. It was communicated to the Petitioner vide letter no. JSERC/Case (Tariff) No. 01 of 2019/631 dated March 07, 2019.

2.6 The Petitioner has submitted its response to the aforesaid letter and furnished additional data/ information to the Commission vide letter no. JPP/REG/JSERC/65/19 dated April 12, 2019.In addition to above, the Petitioner has also submitted additional information vide letter no. JPP/REG/JSERC/110/19 dated July 04, 2019 and JPP/REG/JSERC/119/19 dated July 15, 2019 in reply to queries raised during the public hearing held on October 23, 2019.

2.7 The Commission has further vide its letter JSERC/Case (Tariff) No. 01 of 2019/631 dated November 21, 2019 raised queries related to petition which was replied by the Petitioner vide its letter dated December 26, 2019.

2.8 The Commission has scrutinized the additional data/information and considered the same while passing this Order. The Commission has examined the replies and supporting documents as supplied by the Petitioner on the discrepancies pointed out to it.

Inviting Public Comments/Suggestions

2.9 The Commission had directed the Petitioner to make available copies of the Petition to the members of the general public on request, and also issue a public notice inviting comments/ suggestions on the Petition for approval of True-up for FY 2017-18, Annual Performance Review for FY 2018-19 and Mid-Term Review for Annual Revenue Requirement and Generation Tariff for FY 2019-20 and FY 2020-21.

2.10 The aforesaid public notice was issued by the Petitioner in various newspapers and a period of twenty-one (21) days was given to the members of the general public for submitting their comments/suggestions.

Table 1: List of newspapers and dates of publication of public notice by the Petitioner

Newspaper	Date of Publication
Hindustan Times	10th and 11th August 2019
The Telegraph	10th and 11th August 2019
Prabhat Khabar	10th and 11th August 2019
Dainik Bhaskar	10th and 11th August 2019

2.11 Subsequently, the Commission also issued a notice on its website www.jserc.org and various newspapers for conducting the public hearing on the Petition. The details of the newspapers publishing the notice by the Commission are as under:

Table 2: List of newspapers and dates of publication of public notice by the Commission

Newspaper	Date of Publication
Hindustan	04.10.2019
Dainik Jagran	04.10.2019
Morning India	04.10.2019
The Pioneer	04.10.2019
Dainik Bhaskar	15.10.2019
Prabhat Khabar	15.10.2019
The Times of India	15.10.2019
The Hindustan Times	15.10.2019

Submission of Comments/Suggestions and Conduct of Public Hearing

2.12 In order to provide adequate opportunities to all stakeholders and general public, as mandated under Section 64 (3) of the Electricity Act 2003 and in order to ensure transparency in the process of tariff determination, the Commission held public hearing on October 23, 2019 at Golmuri Club, Golmuri, Jamshedpur.

2.13 Objections/Comments/Suggestions on the Petition were received. The objections/comments/suggestions of the Public, Petitioner's responses and Commission's views thereon are detailed in **Section A4** of this Order.

A 3: BRIEF FACTS OF THE PETITION

Truing up for FY 2017-18

Operational Parameters of Plant

3.1 The summary of Aggregate Revenue Requirement for FY 2017-18 as submitted by the Petitioner vis-à-vis as approved by the Commission in Review Order dated January 9, 2019is provided in the table below.

Table 3: Annual Revenue Requirement as submitted by the Petitioner (Rs. Crore)

Particulars	UoM	Unit 2		Unit 3	
		MYT Order*	Petition	MYT Order*	Petition
Gross Generation	MU	886.58	815.39	815.52	803.04
Ex-Bus Generation	MU	797.92	743.73	733.97	732.03
Depreciation	Rs. Cr.	6.95	6.41	8.62	7.81
Interest on Loan	Rs. Cr.	4.48	3.96	4.26	3.61
O&M Expenses	Rs. Cr.	51.01	48.08	43.52	41.46
Return on Equity (Pre-Tax)	Rs. Cr.	29.27	28.90	28.40	27.90
Interest on Working Capital	Rs. Cr.	12.79	13.49	11.69	12.92
Annual Fixed Charges	**Rs. Cr.**	**104.50**	**100.84**	**96.49**	**93.70**
Energy Charge Rate	**Rs/kWh**	**2.578**	**2.877**	**2.587**	**2.823**
Energy Charges	**Rs. Cr.**	**205.67**	**213.97**	**189.85**	**206.66**
Tax on Gain on Secondary Fuel	Rs. Cr.	-	0.76	-	0.73
Tax on Gain on Auxiliary	Rs. Cr.	-	0.77	-	0.71
Tax on Gain on Station Heat Rate	Rs. Cr.	-	0.53	-	0.53
ARR including Tax on Efficiency Gains	Rs. Cr.	**310.18**	**316.87**	**286.33**	**302.33**

** Read with Review Order dated January 09, 2019*

Revenue Gap/(Surplus) for FY 2017-18

3.2 The summary of gap estimated by the Petitioner along with carrying cost for FY 2017-18 is shown below.

Table 4: Revenue Gap/(Surplus) as submitted by the Petitioner (Rs. Crore)

Particulars	UoM	Unit 2		Unit 3	
		MYT Order	Petition	MYT Order	Petition
Net ARR for FY 2017-18	Rs. Cr	310.18	316.87	286.33	302.33
Actual Revenue Recovered	Rs. Cr	-	294.39	-	279.96
Revenue Gap/(Surplus)	Rs. Cr.	-	22.48	-	22.37
Bank Rate as on 1st April of 2017	%	-	12.60%	-	12.60%
Carrying Cost for 6 Months, i.e. upto 31.03.2018	Rs. Cr.	-	1.41	-	1.41
Total outstanding till 31.03.2018	Rs. Cr.	-	23.89	-	23.78
Revenue Recovered in April 2018 for FY 2017-18	Rs. Cr.	-	20.08	-	19.39
Total Outstanding as on 01.04.2018	Rs. Cr.	-	3.81	-	4.39

Particulars	UoM	Unit 2		Unit 3	
		MYT Order	Petition	MYT Order	Petition
Bank Rate as on 1st April 2018	%	-	12.20%	-	12.20%
Carrying Cost for 6 Months	Rs. Cr.	-	0.23	-	0.27
Proposed Revenue Gap for FY 17-18	**Rs. Cr.**	**-**	**4.05**	**-**	**4.65**

3.3 In addition to above, the Petitioner proposed to recover the carrying cost on outstanding balance during recovery of revenue gap in six equal monthly instalments as per JSERC Generation Tariff Regulations, 2015. The Petitioner has proposed that such monthly interest on the outstanding revenue gap/(surplus) is in accordance with the settled principle of law that the carrying cost has to be allowed based on the financial principle that whenever the recovery of cost is deferred, the financing of the gap in cash flow arranged by the company from lenders and/or promoters and/or accruals, has to be paid for by way of carrying cost.

ANNUAL PERFORMANCE REVIEW FOR FY 2018-19

3.4 The summary of the approved vis-à-vis revised capitalization plan along with new capex proposal is summarized below.

Table 5: Revised Capitalization Plan as submitted by the Petitioner (Rs. Crore)

Particular	FY 17	FY 18	FY 19	FY 20	FY 21	Total
Carry Forward Scheme from 1st Control Period						
Approved Scheme	21.26	0	0	0	0	21.26
Revised Capitalization Plan	13.56	2.97	2.88	0	0	19.41
Additional Capitalization approved in 2nd Control Period						
Approved Scheme	0	17.05	23.05	9.70	4.20	54.00
Revised Capitalization Plan	0	0	11.40	5.31	30.69	47.40
Scheme Dropped						6.60
New Scheme proposed in 2nd Control Period						
FGD System	0	0	0	0	220.20	220.20
Other Schemes	0	0	0.13	0.60	4.20	4.93
Total Approved Plan	**21.26**	**17.05**	**23.05**	**9.70**	**4.20**	**75.26**
Total Proposed Now	**13.56**	**2.97**	**14.41**	**5.91**	**255.09**	**291.95**

3.5 The summary of Annual Performance Review (APR) for FY 2018-19 as submitted by the Petitioner against the approved value is shown below.

Table 6: Annual Performance Revenue as submitted by the Petitioner (Rs. Crore)

Particulars	UoM	Unit-2		Unit-3	
		MYT Order	Petition	MYT Order	Petition
Gross Generation	MU	835.28	802.00	893.52	804.82
Ex-Bus Generation	MU	751.75	725.68	804.17	727.20

Particulars	**UoM**	**Unit-2**		**Unit-3**	
		MYT Order	**Petition**	**MYT Order**	**Petition**
Depreciation	Rs. Cr.	8.18	7.10	9.71	7.92
Interest on Loan	Rs. Cr.	4.89	4.14	4.58	3.42
O&M Expenses	Rs. Cr.	54.51	51.58	48.19	44.74
Return on Equity (Pre-Tax)	Rs. Cr.	29.89	29.39	28.98	28.08
Interest on Working Capital	Rs. Cr.	12.54	13.84	12.79	13.66
Annual Fixed Charges	**Rs. Cr.**	**110.02**	**106.05**	**104.24**	**97.83**
Energy Charge Rate	**Rs/kWh**	**2.578**	**3.048**	**2.587**	**3.117**
Energy Charges	**Rs. Cr.**	**193.79**	**221.15**	**208.00**	**226.66**
Tax on Gain on Secondary Fuel	Rs. Cr.	-	0.52	-	0.41
Tax on Gain on Auxiliary	Rs. Cr.	-	0.32	-	0.24
Tax on Gain on Station Heat Rate	Rs. Cr.	-	0.44	-	0.43
ARR including Tax on Efficiency Gains	Rs. Cr.	**303.81**	**327.97**	**312.24**	**325.16**

MID-TERM REVIEW: FY 2019-20 & FY 2020-21

3.6 The Petitioner informed that as per MoEF notification dated 07.12.2015, generating plant is required to meet the revised emission level with respect to SOx, NOx, PM etc. In view of the above, TPCL has to install FGD system for its Unit-2 and Unit-3 by end of December, 2020. TPCL in the instant Petition before the Commission has sought approval of additional Capital Expenditure, additional O&M Expenses and increase in Auxiliary Consumption on account of installation of FGD system for Unit 2 and Unit 3.

3.7 The Petitioner submitted that the Commission in its MYT Order had approved Annual Outage Plan for 28 days. However, in order to integrate FGD System with the Units, the Petitioner has submitted its revised shutdown plan for Unit 2 and Unit 3which is as shown below.

Table 7: Revised Shutdown Plan as submitted by the Petitioner

Units	**FY 2019-20**		**FY 2020-21**	
	Proposed Now	**MYT Order**	**Proposed Now**	**MYT Order**
Unit-2	-	-	60 Days	28 Days
			Integration of FGD System along with Annual Maintenance	Annual Outage Plan
Unit-3	Approved outage deferred to FY 2020-21	28 Days	60 Days	-
		Annual Outage Plan	Integration of FGD System along with Annual Maintenance	

3.8 The revised operational parameter submitted by the Petitioner vis-a-vis that allowed in the MYT Order is shown below.

Table 8: Revised Operational Parameters as submitted by the Petitioner

Particulars	UoM	FY 2019-20		FY 2020-21	
		MYT Order	Petition	MYT Order	Petition
Unit-2					
Unit Capacity	MW	120	120	120	120
Gross Generation	MU	890.71	891.55	831.00	742.46
Plant Load Factor	%	84.50	84.58	79.05	70.63
Auxiliary Power Consumption	MU	89.07	89.15	83.10	78.59
Auxiliary Power Consumption	%	10	10	10	10.59
Ex-Bus Generation	MUs	801.64	802.39	747.90	663.86
Plant Availability	%	85	88.99	85	87.76
Gross Heat Rate	kCal/kWh	2567	2567	2567	2567
Unit-3					
Unit Capacity	MW	120	120	120	120
Gross Generation	MU	832.40	845.07	893.52	742.54
Plant Load Factor	%	78.97	80.17	85	70.64
Auxiliary Power Consumption	MU	83.24	77.62	89.35	81.58
Auxiliary Power Consumption	%	10	10	10	10.99
Ex-Bus Generation	MUs	749.16	760.56	804.17	660.96
Plant Availability	%	85	88.99	85	87.76
Gross Heat Rate	kCal/kWh	2577	2577	2577	2577

3.9 The summary of the approved vis-à-vis revised capitalization plan along with new capitalization plan for FY 2019-20 and FY 2020-21 as submitted by the Petitioner is as shown below.

Table 9: Additional Capitalization as submitted by the Petitioner (Rs. Crore)

Particulars	FY 2019-20		FY 2020-21	
	MYT Order	Petition	MYT Order	Petition
Unit-2				
Standalone	2.75	2.38	4.20	123.43
Apportioned (Common Facilities)	0	0	0	0
Net- Additional Capitalization	2.75	2.38	4.20	123.43
Unit-3				
Standalone	6.95	3.54	0	131.67
Apportioned (Common Facilities)	0	0	0	0
Net- Additional Capitalization	6.95	3.54	0	131.67

3.10 The summary of Annual Revenue Requirement (ARR) for FY 2019-20 and FY 2020-21 for Unit-2 and Unit-3 as submitted by the Petitioner against that approved in the MYT Order is as shown below.

Table 10: Revised ARR for Unit 2 as submitted by the Petitioner (Rs. Crore)

Particulars	UoM	FY 2019-20		FY 2020-21	
		MYT Order	Petition	MYT Order	Petition
Gross Generation	MU	890.71	891.55	831.00	522.43
Ex-Bus Generation	MU	801.64	802.39	747.90	470.19
Depreciation	Rs. Cr.	8.94	7.44	9.10	11.05
Interest on Loan	Rs. Cr.	5.00	4.35	4.58	8.71
O&M Expenses	Rs. Cr.	59.17	61.36	60.53	63.22
Return on Equity (Pre-Tax)	Rs. Cr.	30.41	29.85	30.61	33.58
Interest on Working Capital	Rs. Cr.	13.39	15.12	12.88	15.48
Annual Fixed Charges	**Rs. Cr.**	116.90	118.13	117.70	132.04
Energy Charge Rate	**Rs/kWh**	**2.578**	**3.040**	**2.578**	**3.067**
Energy Charges	**Rs. Cr.**	**206.65**	**243.97**	**192.79**	**203.62**
Annual Revenue Requirement	Rs. Cr.	**323.56**	**362.10**	**310.51**	**335.66**

Table 11: Revised ARR for Unit 3 as submitted by the Petitioner (Rs. Crore)

Particulars	UoM	FY 2019-20		FY 2020-21	
		MYT Order	Petition	MYT Order	Petition
Gross Generation	MU	832.40	845.07	893.52	373.48
Ex-Bus Generation	MU	749.16	760.56	804.17	336.13
Depreciation	Rs. Cr.	10.40	8.06	10.56	12.15
Interest on Loan	Rs. Cr.	4.64	3.27	4.28	8.09
O&M Expenses	Rs. Cr.	50.75	53.16	53.33	56.15
Return on Equity (Pre-Tax)	Rs. Cr.	29.42	28.22	29.63	32.23
Interest on Working Capital	Rs. Cr.	12.34	14.73	13.11	15.19
Annual Fixed Charges	**Rs. Cr.**	**107.55**	**107.44**	**110.91**	**123.81**
Energy Charge Rate	**Rs/kWh**	**2.586**	**3.080**	**2.586**	**3.126**
Energy Charges	**Rs. Cr.**	**193.75**	**234.29**	**207.97**	**206.62**
Annual Revenue Requirement	Rs. Cr.	**301.31**	**341.73**	**318.89**	**330.43**

3.11 The Petitioner has requested the Commission to approve the revised Annual Revenue Requirement (ARR) for FY 2019-20 and FY 2020-21 including Truing of FY 2017-18 and Annual Performance Review (APR) for FY 2018-19.

A 4: PUBLIC CONSULTATION PROCESS

4.1 The Petition filed by the Petitioner evoked responses from several stakeholders. The Public Hearing was held on October 23, 2019 at Golmuri Club, Golmuri, Jamshedpur to ensure maximum public participation and transparency wherein stakeholders put forth their comments and suggestions before the Commission in the presence of the Petitioner. The list of the attendees is attached as **Annexure-1** to this Order.

4.2 During the proceedings of public hearing, the Commission also allowed persons/ representatives of entities who had not submitted prior written representations but attended the public hearing to express their views, in person, with regard to the Petition filed by the Petitioner and further for ways and means to improve the services rendered by the Petitioner.

4.3 The comments and suggestions of the members of the public along with the response thereon of the Petitioner and the views of the Commission are detailed hereunder.

Issue related to Pollution & Health Hazard

Public Comments/Suggestions

4.4 The Stakeholder stated that the pollution level around the Petitioner plant is very high as it emits harmful carbon monoxide gas which is a health hazard and causes various diseases. The Petitioner should definitely comply with the revised environmental norms and requested the Commission not to allow the Petitioner to run the business at the cost of life of the human being.

Petitioner's response

4.5 The Petitioner submitted that the plant is operated and maintained in accordance with the statutory requirements including environmental norms and following prudent utility practices. It is pointed out that for meeting revised environmental norms, the Petitioner has made a proposal in the present petition for capital expenditure approval towards installation of Emission Control System(s) as directed by CEA, to comply with the revised environmental norms.

4.6 It is further submitted that the objection on high pollution level around the plant is vague and presumptive as it doesn't have any basis. As there are large numbers of industries in the vicinity of the generating Units of the Petitioner, it may not be appropriate to singled out one industry on this subject. In this regard, the Petitioner submitted the environment statement for FY 2018-19 to the State Pollution Control Board on June 27, 2019 wherein all emissions have been reported within prescribed norms. Hence, the Petitioner submitted that the objection raised is devoid of any merit.

Commission's views

4.7 The Commission has considered the objection raised and the response submitted by the Petitioner and directed the Petitioner to ensure all the environment norms applicable to generating plant.

Ash Pond

Public Comments/Suggestions

4.8 The Stakeholder submitted that the ash pond dried up during summer and dry ash fly around the plant area and causes pollution due to which the communities residing around the plant are suffering. The Petitioner should explore measures to control such pollution.

Petitioner's response

4.9 The Petitioner submitted that they follow standard practice of water sprinkling (by using a portable water tank) at the pond surrounding areas throughout the year and a rain gun is being used to sprinkle water on the pond surface to reduce the fugitive emission. It is submitted that the Petitioner is committed to take due measures if lack of such services is brought to its notice.

Commission's views

4.10 The Commission has considered the objection raised and the response submitted by the Petitioner and directed the Petitioner to ensure that appropriate measures are taken so that such inconvenience to public is avoided.

Public Liability Insurance Act, 1991

Public Comments/Suggestions

4.11 The Stakeholder stated that the Public Liability Insurance Act, 1991 is an act to provide insurance facility to public for the purpose of providing immediate relief to the persons affected by accident occurring while handling any hazardous substance and for matters connected therewith or incidental thereto. The Stakeholder asked the Petitioner whether they have complied with the said Act.

Petitioner's response

4.12 It is submitted that the Petitioner, as per provisions of the Public Liability Insurance Act, has taken a liability Insurance policy which is in force from April 01, 2019 to March 31, 2020. The operative part of the policy is extracted below for ready reference:

> *"subject to the terms, exceptions and conditions contained herein or endorsed hereon, the company will indemnify the insured owner against the statutory liability arising out of accidents occurring during the currency of the policy due to handling hazardous substances as provided for in the said Act and the Rules framed there under"*

Commission's views

4.13 The Commission has considered the objection raised and the response submitted by the Petitioner.

Expenditure for CSR Activities

Public Comments/Suggestions

4.14 The Stakeholder demanded that the Petitioner should share the details related to expenditure towards CSR activities.

Petitioner's response

4.15 The Petitioner humbly submits that the query is beyond the scope of present petition. However, it is providing the following information without prejudice to answer the query.

4.16 The Petitioner carried out various CSR activities to improve the quality of life of people in surrounding areas. Presently, CSR activities are being done in 21 villages focusing on education, sanitation and health, livelihood, sustainable agriculture, etc. At the beginning of the year, budget is allocated and an annual business plan enumerating identified activities and outcome to be achieved is spelt out. Budget allocation is done at organizational level adhering to the provisions of the Companies Act.

4.17 Last year, the Petitioner has achieved significant outcomes i.e. formation of 153SHG comprising of members close to 2000 women mostly ST, deposit mobilization of Rs. 52 lakhs by SHG, improvement in learning outcomes of around 1800 students of 6 schools through remedial classes, equipping class room with smart board, electrification in schools, digital learning for around 200 students, construction of more than 12000 toilets using CLTS approach, organizing 252HH for community based solid waste management, 1200 tree plantation, training on various income generation activities like vermi composting, mushroom cultivation, goatry, duckery, poultry farming, garment making, fishery, piggery and backyard farming resulting in significant increase in income, promoting drip irrigation based collective farming to make agriculture remunerative by organizing around 15 farmers with small landholding for technology based farming, providing inputs supports like seeds, fertilizers and involving them in vegetable trading, formation of water user group and installing RO plants at 4 different location, distributing LED street light, organizing health camps etc. Tata Power Group at group level, against an annual CSR obligation of Rs. 36.75 Crore, the business entities spent Rs. 44.58 Crore in FY 2018-19 and at the standalone level spent Rs. 12.66 Crore against the requirement of Rs. 12.65 Crore.

Commission's views

4.18 The Commission has considered the objection raised and the response submitted by the Petitioner.

Annual Shutdown

Public Comments/Suggestions

4.19 The Stakeholder submitted that the annual shutdown should not be missed by the Petitioner as it leads to production of harmful carbon monoxide.

Petitioner's response

4.20 The Petitioner submits that they take periodic shutdown of the Units for annual overhaul and has undertaken emergency/forced shutdown in case of urgent operation and maintenance requirements. Else, it may lead to Unit outages leading to loss of revenue for the Petitioner. The tentative annual outage plan for each Unit is submitted in the Business Plan and MYT Tariff Petition. Further, the Petitioner apprises the Commission with actual period of shutdown taken in that financial year in its true-up petition. Hence, the Petitioner requested the Commission to keep aside such objections as it lacks merit.

Commission's views

4.21 The Commission has considered the objection raised and the response submitted by the Petitioner. The annual shutdown plan is submitted by the Petitioner in its Business Plan, APR petition and the Commission after due diligence approve the plan. Further, there are other agencies like Pollution Control Board to ensure that the environmental norms are complied with.

Technology Improvement for Economical & Reliable Power

Public Comments/Suggestions

4.22 The Stakeholder submitted that the Petitioner should take up technological improvement measures and provide economical and quality supply to consumers.

Petitioner's response

4.23 The Petitioner submitted that as far as providing technological solution for meeting environment norms as mandated by CPCB, the Petitioner has already proposed installation of FGD System in the present petition and it shall continue to strive for taking initiatives for improvement in other areas as well.

Commission's views

4.24 The Commission has considered the objection raised and the response submitted by the Petitioner.

Electricity Subsidy

Public Comments/Suggestions

4.25 The Stakeholder stated that the electricity subsidy provision should beprovided to retired employees of electricity companies.

Petitioner's response

4.26 The Petitioner submitted that the above suggestion is beyond the scope of this petition and requested the Commission to reject the same.

Commission's views

4.27 The Commission has considered the objection raised and the response submitted by the Petitioner and is of the view that the objection raised is not relevant to current petition before the Commission.

Periodic Increase in Tariff

Public Comments/Suggestions

4.28 The Stakeholder submitted that the tariff of the Petitioner should increase in periodic manner i.e. once in 5 years.

Petitioner's response

4.29 The Petitioner submitted that electricity tariff is determined in accordance with the JSERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2015 as framed by the Commission, which provides for filing of APR and Truing -up Petition every year.

Commission's views

4.30 The Commission has considered the objection raised and the response submitted by the Petitioner and is of the view that the tariff petition and Order is issued as per JSERC Tariff Regulations, 2015.However, the Commission may consider the same at the time of finalization of next Tariff Regulations.

Sharing of Incentive with Beneficiary

Public Comments/Suggestions

4.31 The Stakeholder submitted that the Petitioner is not sharing the gain due to better operational efficiency, compared to normative level with the Beneficiary and requested the Commission to direct the Petitioner to share such gains with consumers.

Petitioner's response

4.32 The Petitioner submitted that the operational parameters, which are deemed to be of controllable nature, the Commission has set norms against them for each year of the control period as specified in Regulation 6.11 of the Generation Tariff Regulations 2015.

4.33 Further, Regulation 6.12 of the Generation Tariff Regulations 2015 clarifies that any financial gain on account of over-performance with respect to controllable parameters is on the account of Generating Company and shall not be adjusted in tariff.

Commission's views

4.34 The Commission has considered the objection raised and the response submitted by the Petitioner and has dealt with sharing of gains and losses in this Order as per JSERC Tariff Regulations, 2016.

Issue related to Additional Capitalization

Public Comments/Suggestions

4.35 The Stakeholder submitted that the battery chargers should not be allowed as additional capitalization and should be part of revenue expenditure.

Petitioner's response

4.36 The Petitioner submitted that with respect to battery chargers, the Petitioner submitted that it is integral part of the thermal power plant and hence, their availability and optimal performance is essential for continuous operation of the plant. Battery Charger has its own life, which is less than the useful life of 25 years as defined in the JSERC Generation Tariff Regulations 2010 or 2015. Accordingly, based on various criteria like performance level of the equipment, life of the equipment or obsolescence of the equipment, the Petitioner decided for refurbishment/up-gradation/replacement of any asset. It is noteworthy to mention that refurbishment/up-gradation/replacement of under/non-performing/obsolete equipment is necessarily required in order to derive the intended benefits of the fixed asset i.e. continuous and reliable generation of electricity from power plant in our case.

4.37 Therefore, subsequent expenditure related to fixed assets which improves performance to original level or helps in reducing deterioration of the future benefits from the existing asset; which are expected to be used for more than one period and which becomes integral part of the existing asset is recognized as a capital expenditure and is added to the GFA as per Generally Accepted Accounting Standards (GAAP) applicable till 2015 or Indian Accounting Standard (Ind-As) as applicable from 2016 onwards. On the other hand, R&M expenditure is recognized as the costs incurred for day-to-day servicing and are primarily the costs of labour, consumables and may include the cost of small parts.

4.38 It is further submitted that replacement of small parts or expenditure which is incurred at frequent intervals for the upkeep of the plant has been always immediately charged to the P&L account as R&M expenditure. But they are replacing/up-grading/refurbishing battery chargers after seventeen years of operation. This replacement/up-gradation/refurbishment has been with an upgraded version and is expected to last for similar number of years i.e. for more than one accounting period of 12 months/one year. Moreover, the capital expenditure undergoes rigorous statutory audit process for capitalization of the expenditure as Fixed Asset.

Commission's views

4.39 The Commission has considered the objection raised and the response submitted by the Petitioner and has dealt with the same in the subsequent section of this Order while approving the additional capitalization.

O&M Expenditure

Public Comments/Suggestions

4.40 The Stakeholder stated that the Petitioner is supplying power to Tata Steel, which is having the same address that of Tata Steel Limited which is a Steel Producing company and has set-up a Generating Company with 74:26 participation with Tata Power. Further, they have their own Captive Power Plant. The Stakeholder sought reply to following queries:

- The Petitioner and TSL has set-up a captive plant i.e. Industrial Energy Limited. Then, why Tata Steel procures power from the Petitioner.
- Representative of TSL on the day of Public hearing dated October 23, 2019 apprised the Commission that approximately 73% of their power need they take from Tata Power and balance 27% they are sourcing through online trading or their own captive power plant.
- The Petitioner is supplying 120x2 MW power directly to TSL.

Petitioner's response

4.41 The Petitioner submitted that Tata Power's Jojobera Unit 2 and Unit 3 of 120 MW each are supplying to TSL, as a Distribution Licensee as per the provisions of Power Purchase Agreement (PPA) duly approved by the Commission read with JSERC Generation Tariff Regulations, 2015.

4.42 Further, query related equity share and captive plant does not relate to the Petitioner and are beyond the scope of this petition.

Commission's views

4.43 The Commission has considered the objection raised and the response submitted by the Petitioner.

Comparison of Energy Tariff

Public Comments/Suggestions

4.44 The Stakeholder stated that the Petitioner has shown comparison of energy tariff with other generating companies like Adhunik etc. which are in NPA list. The Petitioner should have shown the comparison with healthy plant for better comparison.

Petitioner's response

4.45 The Petitioner submitted that the comparison of energy charge is done with similar size Units within and outside the state of Jharkhand as approved by the respective Regulatory Commissions in their Tariff Orders and not in relation to the company being NPA or not. The comparison was purely for a limited purpose to show that equivalent energy charge rate (ECR) for Tata Power Units 2 and Unit 3 with fuel cost of those Units is lower than their approved ECR. Dadri, Bongaigaon and Unchahar Units are of NTPC, Tenughat is Government of Jharkhand Plant, Inland and Adhunik are private sector plants in Jharkhand and two Units of AMGEN are of Torrent Power Limited in Gujarat. As per Petitioner's understanding, except Adhunik, none of them are before NCLT for being NPA. Hence, the Petitioner requested the Commission that objection lacks merit and should be kept aside.

Commission's views

4.46 The Commission has considered the objection raised and the response submitted by the Petitioner. The Commission has determined the energy charges for the Units in this Order after carrying out due prudence check of the fuel cost and other operational parameters.

Capitalization related to FGD Scheme

Public Comments/Suggestions

4.47 The Stakeholder stated that the Petitioner has proposed to incur capital expenditure of Rs. 220 Crore towards FGD. The Stakeholder raised the following question regarding the projected expenditure.

- Has Central Pollution Control Board (CPCB) considered implementation of FGD for Unit Size of 120 MW
- Do companies having Unit size below 150 MW is also undertaking similar expenditure.

Petitioner's response

4.48 In respect to queries, the Petitioner submitted that Jojobera Unit 2 and Unit 3 is directed by CPCB/MoEF to comply with the revised emission norms as prescribed by MoEF&CC vide notification dated December 07, 2015 and as per revised implementation schedule as has been issued by CEA. As per CEA list of FGD implementation even Unit size lower than 150 MW are also undertaking implementation of FGD System and incurring expenditure towards it.

Commission's views

4.49 The Commission has considered the objection raised and the response submitted by the Petitioner. The Commission has separately dealt with the issue of approving the capitalization related to FGD Scheme while carrying out Mid-term review of FY 2019-20 and FY 2020-21.

O&M Expenditure

Public Comments/Suggestions

4.50 The Stakeholder has raised an objection that the expenditure as shown towards O&M is debatable and need external verification.

Petitioner's response

4.51 The Petitioner submits that R&M expenditure which forms part of the O&M expenditure has been claimed on normative basis in true-up Petition FY 2017-18 in line with amounts approved in the MYT Order dated February 19, 2018 for the 2nd control period and as per the applicable provisions of JSERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2015.The objection raised is devoid of merit and hence the Petitioner requested the Commission to keep aside such queries.

Commission's views

4.52 The Commission has considered the objection raised and the response submitted by the Petitioner. The Commission in this Order has carried out due prudence check of O&M expenses claimed by the Petitioner and has dealt with approval of O&M expenses as per JSERC Tariff Regulations, 2016.

Supplying power in Adityapur-Saraikela-Kharsawan area

Public Comments/Suggestions

4.53 The Stakeholder has submitted that Tata Power is supplying to JUSCO at Adityapur - Saraikela-Kharsawan without seeking permission of the Commission. On this neither the Commission is doing anything nor is the Petitioner showing profit from it.

Petitioner's response

4.54 The Petitioner submitted that there is no direct supply to JUSCO and electricity generated from Jojobera Unit 2 and Unit 3 is entirely supplied to Tata Steel Limited, a Distribution Licensee. Hence, the Petitioner requested the Commission to keep aside this objection as it lacks merit.

Commission's views

4.55 The Commission has considered the objection raised and the response submitted by the Petitioner and is of the view that as per record presented before the Commission, no direct supply is done to JUSCO. The Petitioner is required to abide by the PPA, Electricity Act, 2003 and JSERC Regulations as framed from time to time.

Data related to fly ash & water tax

Public Comments/Suggestions

4.56 The Stakeholder states that the Commission in the last public hearing has asked for documents related to Fly Ash and Water Tax, which has not been submitted so far before the Commission.

Petitioner's response

4.57 The Petitioner submitted that the requisite documents related to raw water had already been submitted to the Commission in the present petition as well as in Case No 4 of 2019. Hence, the allegation made by Stakeholder is baseless and lacks merit.

Commission's views

4.58 The Commission has considered the objection raised and the response submitted by the Petitioner. The Petitioner has submitted the ash disposal and water charge expenses as per audited accounts. The Commission has scrutinized the detail submitted and carried out due diligence while approving such expenses in this Order.

Expenditure related to Non-Regulated Units

Public Comments/Suggestions

4.59 The Stakeholder has stated that the expenditure for non-regulated Units at Jojobera site is not provided by Petitioner.

Petitioner's response

4.60 The Petitioner submitted that the detailed information of expenditure along with auditor's certificate has been submitted for Unit 2 and Unit 3 as the present petition is limited to determination of Tariff for Jojobera Unit 2 and Unit 3 only and pursuant to Tariff Regulations, 2015. While, the allocation of common additional expenditure is done as per methodology approved by the Commission and O&M Expenditure is claimed as per norms stipulated by the Commission based on approved allocation. Further, data requirements as and when raised by the Commission in respect of the tariff petition are provided to the Commission. Since, the tariff determination is limited for Jojobera Units 2 and Unit 3, the expenditure details of other Units that are governed by different power purchase agreements are beyond the scope of this petition.

Commission's views

4.61 The Commission has considered the objection raised and the response submitted by the Petitioner and is of the view that the objection raised is not related to current petition before the Commission.

Ash Disposal Expenses

Public Comments/Suggestions

4.62 The Stakeholder submitted that it is required to ascertain whether the expenditure towards fly ash shown is net of income, the Petitioner earned after sale of fly ash or is only the ash disposal cost.

Petitioner's response

4.63 The Petitioner submitted that fly ash is supplied free of cost to off takers and no income has been earned on this count in the books of Account. Accordingly, the expenditure submitted and claimed is net of ash disposal expenditure incurred by the Petitioner.

Commission's views

4.64 The Commission has considered the objection raised and the response submitted by the Petitioner while approving the ash disposal expenses in this Order.

Documents related to Loan

Public Comments/Suggestions

4.65 The Stakeholder has objected that the Petitioner has not submitted any documents regarding loan.

Petitioner's response

4.66 The Petitioner submitted that it has not taken any loan for additional capitalisation claimed as it has been funded through internal resources. However, the JSERC Tariff Regulations 2015 permit interest on 70% of funds to be treated as normative loan. The details regarding the outstanding normative loan of the Unit 2 and Unit 3 as permissible under Tariff Regulations 2015 have been furnished in the true-up petition.

Commission's views

4.67 The Commission has considered the objection raised and the response submitted by the Petitioner and has considered the same while approving the interest on loan in this Order.

A 5: TRUE-UP FOR FY 2017-18

5.1 The Petitioner submitted the True-up petition for FY 2017-18 based on the Audited Account taking into consideration the provisions of the Tariff Regulations, 2015 and the methodology adopted by the Commission in its earlier Tariff Orders.

5.2 The Commission has now carried out the True-up for FY 2017-18 taking into consideration the following:

- Audited (Statutory) account for the FY 2017-18;
- JSERC Generation Tariff Regulations, 2015;
- Methodology adopted by the Commission in its earlier Tariff Orders.

Operational Performance

Plant Availability Factor (PAF)

Petitioner's Submission

5.3 The Petitioner has submitted the month wise actual plant availability truly certified by Tata Steel Load Dispatch Centre (LDC). The Petitioner has claimed the average annual plant availability of Unit 2 as 96.50% and that of Unit 3 as 97.27% respectively.

Commission's Analysis

5.4 The Commission in the MYT Order dated February 19, 2018 had approved the Normative Annual Plant Availability Factor (NAPAF) as 85% for 2nd control period in line with Clause 8.4 of JSERC Generation Tariff Regulation, 2015.

5.5 The Commission observed that the detail of availability submitted by the Petitioner is declared by "LDC, Tata Steel" and directed the Petitioner to submit the justification for not providing availability duly certified by SLDC. In reply to Commission's query dated March 07, 2019, the Petitioner submitted that as per Purchase Agreement (PPA) between the Petitioner and Tata Steel Limited (TSL), the TSL Load Despatch Centre shall mean the Power Management Centre and is authorized to monitor and certify Plant Availability Factor of the generating Units of Jojobera Power Plant of Tata Power.

5.6 The Commission noted the reply submitted by the Petitioner and scrutinized the month wise actual plant availability truly certified by Tata Steel LDC, approves the actual plant availability for FY 2017-18 as 96.50% and 97.27% for Unit 2 and Unit 3 respectively.

5.7 The actual Plant Availability as approved by the Commission in the MYT Order dated February 19, 2018, as submitted by the Petitioner and approved now by the Commission for FY 2017-18 is summarised below.

Table 12: Plant availability as approved by the Commission

Particulars	UoM	MYT Order	Petition	Approved
Unit-2				
NAPAF	%	85	85	85
Actual Plant Availability	%	-	96.50	96.50
Unit-3				
NAPAF		85	85	85
Actual Plant Availability	%	-	97.27	97.27

Auxiliary Consumption

Petitioner's Submission

5.8 The Petitioner has submitted the actual Auxiliary Consumption of Unit 2 and Unit 3 for FY 2016-17 as 8.79% and 8.84% respectively as compared to Normative Auxiliary Power Consumption of 10.00% for each Unit as approved by the Commission in the MYT Order dated February 19, 2018. However, for truing up exercise for FY 2017-18, the Petitioner has claimed the normative value of auxiliary consumption as 10.00% for both the Units.

Commission's Analysis

5.9 The Commission has scrutinized the Petitioner submission and approves the actual auxiliary consumption as submitted by the Petitioner for FY 2017-18.

5.10 Further, according to Provision of Clause 6.11 and 6.12 of JSERC Generation Tariff Regulations, 2015, auxiliary consumption is a controllable factor and any financial loss or gain on account of underperformance or over-performance is not recoverable through tariff. Hence, for computation of Energy Charge Rate (ECR), the Commission has considered the normative auxiliary consumption of 10.00% for both the Units as approved in the MYT Order dated February 19, 2018.

5.11 The Auxiliary Consumption as approved by the Commission in the MYT Order dated February 19, 2018, as submitted by the Petitioner and approved now by the Commission for FY 2017-18 is provided in the table below.

Table 13: Auxiliary Consumption as approved by the Commission

Particulars	UoM	MYT Order	Petition	Approved
Unit-2				
Normative Auxiliary Consumption	%	10	10	10

Particulars	UoM	MYT Order	Petition	Approved
Actual Auxiliary Consumption	%	-	8.79	8.79
Unit-3				
Normative Auxiliary Consumption	%	10	10	10
Actual Auxiliary Consumption	%	-	8.84	8.84

Plant Load Factor and Generation

Petitioner's Submission

5.12 The Petitioner has submitted the actual Plant Load Factor (PLF) for Unit 2 as 77.57% and 76.39% for Unit 3 which is less than the PLF of 84.34% for Unit 2 and 77.58% for Unit 3 respectively as approved by the Commission in the MYT Order dated February 19, 2018.

5.13 The Petitioner further submitted that the actual gross generation for both the Units is lower than that approved in the MYT Order dated February 19, 2018 is due to low demand by the distribution licensee.

5.14 The Petitioner has claimed the actual gross generation of Unit 2 and Unit 3 of the Jojobera generating station as 815.39 MU and 803.04 MU respectively. Accordingly, the Petitioner submitted net generation (ex-bus generation) for Unit 2 and Unit 3 as 743.73 MU and 732.03 MU respectively after deducting the auxiliary consumption.

Commission's Analysis

5.15 The Commission observed that there is huge gap between the actual Plant Availability Factor (PAF) and actual Plant Load factor (PLF). The Commission is of the view that the proper co-ordination needs to be there between the Petitioner and the Beneficiary for optimal utilization of the existing infrastructure.

5.16 The Commission has scrutinized the detail submitted by the Petitioner and approves the actual Plant Load Factor and gross generation as submitted by the Petitioner.

5.17 The Plant Load Factor, Gross and Net Generation as approved by the Commission for FY 2017-18 is summarized in the table below.

Table 14: Plant Load Factor and Generation as approved by the Commission

Particulars	UoM	MYT Order	Petition	Approved
Unit 2				
Gross Generation	MU	886.58	815.39	815.39
Net Generation	MU	797.92	743.73	743.73
Plant Load Factor	%	84.34	77.57	77.57
Unit 3				
Gross Generation	MU	815.52	803.04	803.04

Particulars	UoM	MYT Order	Petition	Approved
Net Generation	MU	733.97	732.03	732.03
Plant Load Factor	%	77.58	76.39	76.39

Gross Station Heat Rate (GHR)

Petitioner's Submission

5.18 The Petitioner has submitted the actual Gross Station Heat Rate (GHR) as 2543 kCal/kWh for Unit 2 and 2552 kCal/kWh for Unit 3 against the normative approved value of 2567 kCal/kWh and 2577 kCal/kWh for Unit 2 and Unit 3 respectively. However, the Petitioner has claimed the normative value of 2567 kCal/kWh for Unit 2 and 2577 kCal/kWh for Unit 3 for Truing-up exercise.

Commission's Analysis

5.19 According to Provisions of Clause 6.11 and 6.12 of JSERC Generation Tariff Regulations, 2015, Gross Station Heat Rate (GHR) is a controllable factor and any financial loss or gain on account of underperformance or over-performance is not recoverable through tariff.

5.20 In accordance to the Clause 8.4 of JSERC Generation Tariff Regulation, 2015 and in line with MYT Order dated February 19, 2018 the Commission true up the GHR as 2567 kCal/kWh for Unit 2 and 2577 kCal/kWh for Unit 3 respectively.

5.21 The Gross Station Heat Rate (GHR) as approved by the Commission for FY 2017-18 is summarized in the table below.

Table 15: Gross Station Heat Rate (GHR) as approved by the Commission

Particulars	UoM	MYT Order	Petition	Approved
Unit 2				
Normative Station Heat Rate	kCal/kWh	2567	2567	2567
Actual Station Heat Rate	kCal/kWh	-	2543	2543
Unit 3				
Normative Station Heat Rate	kCal/kWh	2577	2577	2577
Actual Station Heat Rate	kCal/kWh	-	2552	2552

Specific Fuel Oil Consumption

Petitioner's Submission

5.22 The Petitioner has submitted the specific fuel oil consumption as 1.00 ml/kWh for both Unit 2 and Unit 3 as specified in Clause 8.4 of JSERC Generation Tariff Regulations, 2015.

Commission's Analysis

5.23 The Commission in its MYT Order dated February 19, 2018 approved the Specific Fuel Oil Consumption as 0.50 ml/kWh for 2nd Control period. The abstract from the MYT Order is reproduced below.

> *"6.137 The JSERC Generation Tariff Regulations, 2015 specifies the following*
>
> > *"16.4 The Commission may in public interest and for reasons to be recorded in writing, relax any of the provision of these Regulations."*
>
> *6.138 Considering all of the above, the Commission has decided to approve the specific oil consumption (of LDO) at 0.5 ml/kWh for each year of the Control Period i.e. from FY 2016-17 to FY 2020-21 for both Unit 2 and Unit 3. This norm may be re-looked based on Petitioner's actual performance during the Control period and as deemed fit by the Commission after due consideration of the actual performance of the Petitioner. In the subsequent APR and True-up Petitions, the Petitioner is directed to also submit details of number of unit-wise start-ups taken after shutdown. Also, details should include monthly quantity of secondary fuel consumed during plant start-up and flame support if required."*

5.24 The Petitioner had filed the review Petition before the Commission against the MYT Order dated February 19, 2018 for revision of targets on specific fuel oil consumption for the 2nd control period. The Commission retain the normative value as approved in the MYT Order dated February 19, 2018 and dispose of the review petition. The relevant abstract is reproduced below.

> *"…. the Commission has fixed 0.5 ml/kWh for each year of the control period at this stage. However, as mentioned in the MYT Order itself, the Commission may re-look into the same during APR and True up of the years to be submitted by the Petitioner subject to the petitioner providing the details of start-ups taken after the shut downs and monthly quantity of secondary fuel consumed during plant start-up"*

5.25 The Commission has examined the details of actual secondary fuel oil consumption for FY 2017-18 which comes out to be ~0.27 ml/kWh and ~0.22 ml/kWh for Unit 2 and Unit 3 respectively which is very less as compared to the approved value of 0.5 ml/kWh for both the Units. Also, the Petitioner had filed the petition before the Hon'ble APTEL against the MYT Order dated February 19, 2018 which is still pending. Since, the matter is sub-judice before the Hon'ble APTEL, the Commission has considered the Specific Fuel Oil Consumption as 0.5 ml/kWh as approved in MYT Order dated February 19, 2018 for both Unit 2 and Unit 3 as shown below.

Table 16: Specific Fuel Oil Consumption as approved by the Commission

Particulars	UoM	MYT Order	Petition	Approved
Specific Fuel Oil Consumption (Unit 2)	ml/kWh	0.5	1.00	0.5
Specific Fuel Oil Consumption (Unit 3)	ml/kWh	0.5	1.00	0.5

Fuel Cost Parameters

Coal Mix and Gross Calorific Value (GCV) of Primary Fuel

Petitioner's Submission

5.26 The Petitioner submits that the coal is primarily sourced from West Bokaro Colliery of Tata Steel (Middling Coal) and Mahanadi Coal Fields, Odisha (MCL Coal). The collieries of West Bokaro is located in Ramgarh district of Jharkhand state which is approximately at a distance of 200 km from plant site by roadways and ~190 km by railway, whereas mines of MCL is situated around 300 km form plant site by railway.

5.27 The Petitioner has further submitted that due to shortfall in supply from the above sources, the Petitioner had arranged coal from other source as shown below.

a. 2-Product and Tailing coal from Collieries of West Bokaro (By products of coal beneficiation process similar to middling coal);
b. Coal India Limited through forward e-auction; and
c. Washed coal from private washeries.

5.28 The key reasons cited by the Petitioner for variation in the weighted average cost of the primary fuel as compared to approved in MYT Order dated February 19, 2018 are as follows:

a. Lower dispatch than agreed Middling quantity from West Bokaro
b. Empty wagon crisis at MCL/West Bokaro/CCL loading points
c. Reduction in monthly coal allocation at MCL
d. Frequently restrictions on coal supply by Ministry/Coal Companies.

5.29 The Petitioner added that to bridge the gap of shortfall in quantity of coal and to meet the requirement of Distribution Licensee, the Petitioner had to deviate from the original plan. Moreover, deviation from approved plan has been duly informed in advance.

5.30 The Annual Weighted Average Gross Calorific Value (GCV) from various sources of coal has been computed as weighted average of monthly GCV of coal (which in turn has been arrived at by computing weighted average of daily GCV of coal from that source with the daily coal consumption as weight) from that source with the monthly consumption as weight. The Petitioner has submitted the month wise and year wise detail of weighted average GCV of all the type of coal as reference.

Commission's Analysis

5.31 The Commission has observed that the Petitioner had procured coal from other sources in addition to sources that are approved by the Commission in the MYT Order dated February 19, 2018 owing to different reasons.

5.32 The Commission in the discrepancy note dated March 07, 2019 directed the Petitioner to submit the statutory audited details of month wise Opening Stock, fuel procured during the month, utilized and balance stock for coal at the end of each month along with sample bills for each fuel source. In addition, the Commission had also directed to provide justification for the deviation from the approved procurement plan. The Petitioner in its reply dated April 12, 2019 submitted the detail of coal along with justification for deviations from the approved procurement plan.

5.33 The Commission further computed the GCV for each type of coal by considering the actual weighted average GCV after scrutinizing the actual monthly GCV submitted by the Petitioner. **The Petitioner is directed to bring to the notice of the Commission for any such changes and shortage in supply of coal on quarterly basis and should ensure the cost effectiveness of such purchase.**

5.34 Considering the facts submitted by the Petitioner and after due diligence, the following tables summarize the coal mix and weighted average GCV of coal as approved by the Commission for Unit 2 and Unit 3 of Jojobera Generation station.

Table 17: Coal Mix and GCV for Unit 2 as approved by the Commission

Particulars	Coal Mix (%)			GCV (kCal/kg)		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Middling Coal	70	42.56	42.56	4149	4239.96	4239.96
MCL Coal	30	17.53	17.53	2662	3141.86	3141.86
2-Product+Tailing (By Rake)	-	6.77	6.77	-	2912.78	2912.78
Tailing (By Road)	-	6.73	6.73	-	4485.30	4485.30
CCL Coal	-	11.00	11.00	-	3829.62	3829.62
Washery Coal	-	13.94	13.94	-	4307.18	4307.18
SBC Coal	-	1.47	1.47	-	2788.93	2788.93

Table 18: Coal Mix and GCV for Unit 3 as approved by the Commission

Particulars	Coal Mix (%)			GCV (kCal/kg)		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Middling Coal	70	37.92	37.92	4149	4221.01	4221.01
MCL Coal	30	24.51	24.51	2662	3093.99	3093.99
2-Product+Tailing (By Rake)	-	6.62	6.62	-	2906.15	2906.15
Tailing (By Road)	-	7.05	7.05	-	4482.62	4482.62
CCL Coal	-	12.03	12.03	-	3832.33	3832.33
Washery Coal	-	10.26	10.26	-	4306.45	4306.45
SBC Coal	-	1.62	1.62	-	2788.82	2788.82

Transit Loss

Petitioner's Submission

5.35 The Petitioner has submitted that coal is procured primarily from two sources i.e. Middling Coal from the West Bokaro Collieries of Tata Steel in Jharkhand and MCL Coal procured from the Mahanadi Coalfields in Orissa. In addition to these, the Petitioner has additionally procured two different by-products of coal from West Bokaro Collieries i.e. Two (2) Product and Tailing in order to cater the demand adequately. The Petitioner emphasis that the coal procured from West Bokaro Collieries are by-products of the Coal Beneficiation process and therefore falls under the category of Washed Coal having high moisture content at the time of loading.

5.36 The Petitioner further highlighted that the actual Transit Loss in Middling Coal, 2-Product+Tailing Coal (by Rake) and washed coal is higher than the normative value and works out to be 2.65%, 4.83% and 1.06 % respectively for FY 2017-18 which is mainly on account of reduction in moisture content during transportation by rake and is beyond the control of the Petitioner and therefore considered the transit loss on actual basis for Middling, 2-Product+Tailing (Rake) coal and washed coal. Apart from washed coal, transit loss for CCL coal stands at 2.02% which is outside the boundary of the plant. Thus, on account of uncontrollable factors, the Petitioner requested the Commission to exercise it power under Regulations 16.4 of Generation Tariff Regulations 2015 to relax the norms for CCL Coal and allow the actual transit loss in case of CCL coal as 2.02%. The transit loss for other category of coal i.e. SBC, MCL and tailing by road has been considered by the Petitioner as per the norms given in Regulation 8.21 of the Generation Tariff Regulations 2015.

5.37 The Petitioner has requested the Commission to approve the actual Transit Loss in case of Middling coal, 2-Product+Tailing coal (by Rake) and washed coal for FY 2017-18 in view of the Judgment of the Hon'ble Tribunal dated November 14, 2013 in Appeal No. 147 of 2012 and normative transit loss for other category of coal.

Commission's Analysis

5.38 The Commission observes that the actual transit loss of coal depends on various factors like category of coal, foreign particles content, moisture content, distance from mines etc. Considering all the factors, the Commission stipulated the weighted average normative transit loss of 0.8% for non-pit head plant and 0.2% for pit head plant in the Generation Tariff Regulations, 2015.

5.39 In accordance with the Clause 8.21 of JSERC Generation Tariff Regulation, 2015, the Commission had approved the normative transit loss as 0.8% in the MYT Order dated February 19, 2018.

5.40 The Petitioner had filed a review petition before the Commission for considering the higher transit loss of washed coal and allows 1.00% transit loss for washed coal i.e. middling coal for 2nd Control period. The Commission disposed of the review petition vide its Order dated January 9, 2019 allowing normative transit loss of 0.8% for 2nd Control period. The extract is reproduced below.

> *"The Commission has approved the Normative Transit Loss of 0.8% irrespective of the coal type as per Regulation 8.21 of the JSERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2015. Normative transit loss under the Regulation accounts for higher loss for some categories of coal such as middling coal and lower transit loss for other types of coals. The Commission may examine the actual transit loss for the year during APR and True-up and will decide on the quantum of transit loss to be passed on".*

5.41 The Commission observes that the Petitioner had filed an Appeal in this matter before the Hon'ble APTEL against the MYT Order dated February 19, 2018 which is still pending. Since, the matter is sub-judice before the Hon'ble APTEL, the Commission approves the transit loss as 0.80% for FY 2017-18 for both the Units for domestic coal.

5.42 In view of the above, the Commission approves the transit loss on normative basis for FY 2017-18 as shown below.

Table 19: Transit Loss as approved by the Commission

Particulars	UoM	MYT Order	Petition	Approved
Middling Coal	%	0.8	2.65	0.8
MCL Coal	%	0.8	0.8	

Particulars	UoM	MYT Order	Petition	Approved
2-Product+Tailing (By Rake)	%	-	4.83	
Tailing (By Road)	%	-	0.80	
CCL Coal	%	-	2.02	
Washery Coal	%	-	1.06	
SBC Coal	%	-	0.8	

Landed Cost of Coal

Petitioner's Submission

5.43 The Petitioner submitted source wise actual landed price from each source. For Middling coal, 2-Product+Tailing coal (by Rake), washed coal and CCL coal, the landed price was calculated considering the actual transit loss however, normative transit loss is considered for other category of coal as per JSERC Generation Tariff Regulations, 2015.

5.44 The Petitioner further submitted that the price and quality of the fuel are uncontrollable in nature for a generating company and requested the Commission to approve the same as proposed by the Petitioner.

Commission's Analysis

5.45 The Commission in its discrepancy note dated March 07, 2019 directed the Petitioner to provide the statutory auditor certificate certifying the landed cost of primary fuel for FY 2017-18. In reply to the Commission query, the Petitioner has provided the landed price of coal from each source duly certified by the auditor.

5.46 The Commission for reasons already stated earlier in this Order approves the normative transit loss for the calculation of landed price of coal.

5.47 After scrutinizing the submission made by the Petitioner, the Commission has arrived at the weighted average landed cost of coal by the following methodology.

a) The audited figures of the base price of coal including sizing charges, applicable tax, transportation charges, handling charges and provisional adjustment/stock adjustment (if any) as submitted by the Petitioner.
b) Normative Transit loss as approved by the Commission.
c) Actual consumption of various types of coal.

5.48 The weighted average landed price of coal as approved in its MYT Order dated February 19, 2018, as submitted by the Petitioner and approved by the Commission for FY 2017-18 is provided in the table below.

Table 20: Landed Price of Coal for Unit 2 as approved by the Commission (Rs./Ton)

Particulars	MYT Order	Petition	Approved
Price of Middling Coal	3830.25	4080.52	4080.52
Price of MCL Coal	2127.80	2471.85	2471.85
Price of 2-Product+Tailing (by rake)	-	2459.98	2459.98
Price of Tailing (by road)	-	4114.70	4114.70
Price of CCL Coal	-	3534.24	3534.24
Price of SBC Coal	-	3264.82	3264.82
Price of Washery Coal	-	5762.47	5762.47
Average Landed Price of Coal including Transit loss	**3319.43**	**3901.00**	**3853.62**

Table 21: Landed Price of Coal for Unit 3 as approved by the Commission (Rs./Ton)

Particulars	MYT Order	Petition	Approved
Price of Middling Coal	3831.73	4061.89	4061.89
Price of MCL Coal	2119.13	2478.19	2478.19
Price of 2-Product+Tailing (by rake)	-	2470.85	2470.85
Price of Tailing (by road)	-	4117.28	4117.28
Price of CCL Coal	-	3525.09	3525.09
Price of SBC Coal	-	3264.23	3264.23
Price of Washery Coal	-	5757.10	5757.10
Average Landed Price of Coal including Transit loss	**3317.95**	**3712.21**	**3668.81**

Calorific value and Cost of Secondary Fuel

Petitioner's Submission

5.49 The Petitioner has submitted the month wise calorific value and landed price of Secondary Fuel for Unit 2 and Unit 3 for FY 2017-18.

5.50 The weighted average calorific value and landed price as claimed by the Petitioner is 9100 kCal/L and Rs. 42144 per litre for Unit 2 and 9100 kCal/L and Rs. 42253 per litre for Unit 3 respectively.

Commission's Analysis

5.51 The Commission in its discrepancy note dated March 07, 2019 directed the Petitioner to provide the statutory auditor certificate certifying the landed cost of secondary fuel for FY 2017-18. In reply to the Commission query, the Petitioner has provided the landed price of secondary fuel duly certified by the auditor.

5.52 The Commission has scrutinized the audited detail submitted by the Petitioner and approved the calorific value and landed price of secondary fuel as shown below.

Table 22: Calorific value & Landed price of Secondary fuel as approved by the Commission

Particulars	Calorific Value (kCal/L)			Landed Price (Rs./kL)		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Unit 2	9100	9100	9100	-	42144.38	42144.38
Unit 3	9100	9100	9100	-	42252.67	42252.67

Energy Charge Rate (ECR)

Petitioner's Submission

5.53 The Petitioner has submitted the Energy Charge Rate (ECR) for FY 2017-18 as Rs. 2.877 per kWh and Rs. 2.823 per kWh for Unit 2 and Unit 3 respectively as per JSERC Generation Tariff Regulations, 2015.

5.54 The Petitioner has further submitted that for calculation of ECR, normative Gross Station Heat Rate of 2567kCal/kWh for Unit 2 and 2577 kCal/kWh for Unit 3respectively, normative Auxiliary Consumption of10.00% and normative secondary fuel oil as 1.00 ml/kWh for both the Units.

Commission's Analysis

5.55 As per Clause 8.17 of JSERC Generation Tariff Regulation, 2015, the energy (variable) charge shall cover primary fuel and secondary fuel costs and shall be payable by every beneficiary for the energy scheduled to be supplied to such beneficiary during the calendar month on an ex-power plant basis, at the specified energy charge rate of the month (with fuel price adjustment).

5.56 The formula for calculation of energy charge payable to a Generating Company is specified in Regulation 8.18 and 8.19 of JSERC Generation Tariff Regulation, 2015 as quoted below.

> *"8.18 Total Energy charge payable to the Generating Company for a month shall be =(Energy charge rate in Rs. /kWh) x {Scheduled energy (ex-bus) for the month in kWh.}*
>
> *8.18 Energy charge rate (ECR) in Rupees per kWh on ex-power plant basis shall be determined to three decimal places in accordance with the following formula: (a) For coal based stations*
>
> *ECR = {(GHR – SFC x CVSF) x LPPF/CVPF+SFCxLPSFi+LCxLPL} x 100/(100 – AUX)}*
>
> *…………..*

Where,
AUX - Normative auxiliary energy consumption in percentage
CVPF –Weighted Average Gross calorific value of coal as received, in KCal per kg, for coal based stations. In case of blending of fuel from different sources, the weighted average Gross calorific value of primary fuel shall be arrived in proportion to blending ratio.
CVSF - Calorific value of secondary fuel, in KCal per ml
ECR - Energy charge rate, in Rupees per kWh sent out.
GHR - Gross station heat rate, in KCal per kWh.
LC - Normative limestone consumption in kg per kWh
LPPF - Weighted average landed price of primary fuel, in Rupees per kg, per litre or per standard cubic metre, as applicable, during the month.(In case of blending of fuel from different sources, the weighted average landed price of primary fuel shall be arrived in proportion to blending ratio)
LPSFi=Weighted Average Landed Price of Secondary Fuel in Rs./ml during the month
LPL = Weighted average landed price of limestone in Rupees per kg
SFC - Specific fuel oil consumption, in ml per kWh".

5.57 The Commission observed that the energy charge of Rs. 2.877 per kWh and Rs. 2.823 per kWh for Unit 2 and Unit 3 respectively claimed by the Petitioner seems to be on higher side due to higher coal purchase price and transit loss.

5.58 **The Commission directs the Petitioner to develop a long term coal procurement plan to ensure the reliability and cost effectiveness of such purchase and submit to the Commission within two months from issuance of this Order.**

5.59 Accordingly, the Commission has calculated the ECR to be charged by the Petitioner as per the formula specified in JSERC Generation Tariff Regulations, 2015 and approved parameters in this Order. The table below details the ECR and Fuel Cost for Unit 2 and Unit 3 as approved by the Commission for FY 2017-18.

Table 23: Energy Charge Rate (ECR) for Unit 2 as approved by the Commission

Particulars	UoM	MYT Order	Petition	Approved
Net Generation	MU	797.92	743.73	743.73
Auxiliary Consumption	%	10.00	10.00	10.00
Gross Station Heat Rate	kCal/kWh	2567	2567	2567
Specific Oil Consumption	mL/kWh	0.50	1.00	0.50
Calorific Value of Oil	kCal/mL	9.10	9.10	9.10
GCV of Primary Fuel	kCal/kg	3702.90	3917.04	3917.04

Particulars	UoM	MYT Order	Petition	Approved
Landed Price of Primary Fuel	Rs./Ton	3319.43	3901.00	3853.62
Landed Price of Secondary Fuel	Rs./kL	-	42144.38	42144.38
Energy Charge Rate (ECR)	**Rs/kWh**	**2.578**	**2.877**	**2.824**

Table 24: Energy Charge Rate (ECR) for Unit 3 as approved by the Commission

Particulars	UoM	MYT Order	Petition	Approved
Net Generation	MU	733.97	732.03	732.03
Auxiliary Consumption	%	10.00	10.00	10.00
Gross Station Heat Rate	kCal/kWh	2577	2577	2577
Specific Oil Consumption	mL/kWh	0.50	1.00	0.50
Calorific Value of Oil	kCal/mL	9.10	9.10	9.10
GCV of Primary Fuel	kCal/kg	3702.90	3815.07	3815.07
Landed Price of Primary Fuel	Rs./Ton	3317.89	3712.21	3668.81
Landed Price of Secondary Fuel	Rs./kL	-	42252.67	42252.67
Energy Charge Rate (ECR)	**Rs/kWh**	**2.587**	**2.823**	**2.772**

Summary of Fuel Cost

5.60 The table below provides the summary of Fuel Cost submitted by the Petitioner and approved by the Commission for True-up of FY 2017-18.

Table 25: Fuel Cost for Unit 2 as approved by the Commission

Particulars	UoM	MYT Order	Petition	Approved
Cost of Primary Fuel	Rs. Cr.			208.32
Cost of Secondary Fuel	Rs. Cr.	-	-	1.74
Energy Cost	**Rs. Cr.**	**205.67**	**213.97**	**210.07**

Table 26: Fuel Cost for Unit 3 as approved by the Commission

Particulars	UoM	MYT Order	Petition	Approved
Cost of Primary Fuel	Rs. Cr.			201.21
Cost of Secondary Fuel	Rs. Cr.	-	-	1.72
Energy Cost	**Rs. Cr.**	**189.85**	**206.66**	**202.93**

Determination of Fixed Cost

Additional Capitalization

Petitioner's Submission

5.61 The Petitioner in the MYT Business Plan and Tariff Petition for FY 2017-21 projected the additional Capitalization Plan for FY 2017-21 in accordance with the JSERC Generation Tariff Regulations, 2015 including spill over schemes from 1st Control Period to 2nd Control Period with detailed justification for the same. The Commission after due diligence and due prudence check approved the various Capital Expenditure Schemes in the MYT Order dated February 19, 2018 including new and carry forward Capex Schemes.

5.62 The Petitioner has now submitted that since MYT Order was issued on February 19, 2018 i.e. nearly at the end of FY 2017-18, so except for urgent and necessary capital works, the Petitioner had kept the original additional capitalization plan of the new Capex Schemes for FY 2016-17 and FY 2017-18 in abeyance till the time it was approved by the Commission.

5.63 The Petitioner has submitted the actual capitalization for Unit 2 and Unit 3 for FY 2017-18 which is broadly categorised under two heads:

i. **Capitalization-Standalone:** This category includes the capitalized costs incurred for assets/schemes exclusively for Unit 2 or Unit 3.

ii. **Capitalization-Common Facilities:** This category includes the assets/schemes which are common to all the Units at the Jojobera Power Plant i.e. Unit-1, Unit-2, Unit-3, Unit-4 of Tata Power and Unit 5 of Industrial Energy Limited (IEL). These assets/schemes provide facilities to all the above Units and therefore the capitalized cost of such assets/schemes are apportioned to derive the GFA part of Unit 2 and Unit 3 appropriately.

5.64 The same methodology has been adopted by the Commission for approving additional capitalization in the MYT Order dated February 19, 2018. The Petitioner further submitted that the apportionment ratio was worked out individually for Unit 2 and Unit 3 and combined based on the installed capacity of these Units with respect to the installed capacity of Unit-1,Unit-2,Unit-3,Unit-4 and IEL Unit-5 of Jojobera Power Plant. The methodology of such apportionment is shown below.

Table 27: Methodology of apportionment as submitted by the Petitioner

Particulars	UoM	MYT Order
Installed Capacity (Unit 1)	MW	67.5
Installed Capacity (Unit 2)	MW	120
Installed Capacity (Unit 3)	MW	120
Installed Capacity (Unit 4)	MW	120
Installed Capacity (Unit 5-IEL)	MW	120
Installed Capacity of Jojobera Power Plant	MW	547.5
Contribution of Unit 2	%	21.92
Contribution of Unit 3	%	21.92
Combined Contribution (Unit 2+Unit 3)	**%**	**43.84**

5.65 The Petitioner further submitted the actual additional capitalization as Rs 0.44 Crore for Unit 2 and Rs. 2.53 Crore for Unit 3 against the approved value of Rs 6.53 Crore and Rs. 10.53 Crore in the MYT Order dated February 19, 2018. The Fixed Assets Register duly certified by the Statutory Auditor was also submitted. The following table summarises the item wise capitalization for Unit 2 and Unit 3 as proposed by the Petitioner.

Table 28: Asset wise Capitalization as submitted by the Petitioner (Rs. Crore)

Particular	MYT Order	Petition	Remark
Unit-2 (Standalone)			
Turbine IPSV Actuator	0.12	0.33	Cost overrun, Actuator is actually installed and Capitalized in Unit 2 and thus the cost of actuator is proposed to be recovered through tariff of Unit 2
Unit-3 (Standalone)			
LTSH Tubes and Bends 50%	1.14	1.59	Cost overrun, no reason is provided by the Petitioner
Steam Cooled Wall Bottom Header	0.81	0.82	Minor Increase
Unit-2 & 3 (Common)			
Anhydrous Ammonia System	0.55	0.23	-
Net- Capitalization	**2.63**	**2.97**	

Table 29: Capitalization as submitted by the Petitioner (Rs. Crore)

Particulars	Unit 2		Unit 3	
	MYT Order	Petition	MYT Order	Petition
Standalone	6.53	0.44	10.53	2.53
Apportioned (Common Facilities)*	-	-	-	-
Net Capitalization	**6.53**	**0.44**	**10.53**	**2.53**

**Petitioner has erroneously considered common capitalisation under Standalone category*

Commission's Analysis

5.66 The Commission has outlined the provisions for the approval of any additional capitalization for a generating station as mentioned in the JSERC Generation Tariff Regulation, 2015. The Clause is outlined below.

> "*Additional Capitalisation*
> *'7.5 The capital expenditure incurred or projected to be incurred, on the following counts within the original scope of work, after the date of commercial operation and up to the cut-off date may be admitted by the Commission, subject to prudence check:*
>
> *(i) Undischarged liabilities;*
>
> *(ii) Works deferred for execution;*
>
> *(iii) Procurement of initial capital spares within the original scope of work, subject to the provisions under clause 7.3,7.4 of these Regulations;*
>
> *(iv) Liabilities to meet award of arbitration or for compliance of the order or decree of a court; and*
>
> *(v) Change in law.*
>
> *Provided that the details of works included in the original scope of work along with estimates of expenditure, undischarged liabilities and the works deferred for execution shall be submitted along with the application for determination of tariff.*
>
> *'7.6 The capital expenditure incurred on the following counts after the cut-off date may, in its discretion, be admitted by the Commission, subject to prudence check:*
>
> *(i) Liabilities to meet award of arbitration or for compliance of the order or decree of a court;*
>
> *(ii) Change in law;*
>
> *(iii) Deferred works relating to ash pond or ash handling system in the original scope of work;*
>
> *(iv) Any additional works/services which have become necessary for efficient and successful operation of the generating station, but not included in the original project cost;*
>
> *(v) Any liability for works executed prior to the cut-off date, after prudence check of the details of such undischarged liability, total estimated cost of package, reasons for such withholding of payment and release of such payments etc.*

(vi) Any capital expenditure found justified after prudence check necessitated on account of modifications required or done in fuel receiving system arising due to non-materialisation of coal supply corresponding to full coal linkage in respect of thermal generating station as result of circumstances not within the control of the generating station:

(vii) In case of hydro generating stations, any expenditure which has become necessary on account of damage caused by natural calamities (but not due to flooding of power house attributable to the negligence of the generating company) including due to ecological reasons after adjusting for proceeds from any insurance scheme, and expenditure incurred due to any additional work which has become necessary for successful and efficient plan operation; and

Provided that in respect sub-clause (vii) above, any expenditure on acquiring the minor items or the assets like tools and tackles, furniture air conditioners, voltage stabilizers, refrigerators, coolers, fans, washing machine, heat convectors, mattresses, carpets etc. brought after the cut-off date shall not be considered for additional capitalization for determination of tariff w.e.f. 01.04.2016 for the Control period.

Provided further that any capital expenditure other than that of the nature specified above in (i) to (vi) in case of coal/lignite-based station shall be met out of compensation allowance as specified in Clause 7.46;

Provided also that if any expenditure has been claimed under Renovation and Modernisation (R&M), repairs and maintenance under (O&M) expenses and Compensation Allowance, same expenditure cannot be claimed under this regulation."

5.67 The Commission directed the Petitioner to furnish the details of de-capitalization carried out during FY 2017-18. The Petitioner submitted that while revisiting the True-up filings of the previous years, they have observed that inadvertently de-capitalization for the past years had not been considered while proposing the net actual additional capitalization for the respective years. Accordingly, unit wise de-capitalization as submitted by the Petitioner for FY 2017-18 as per books is shown below.

Table 30: Detail of De-capitalization as submitted by the Petitioner (Rs. Crore)

Particulars	FY 2017-18
Unit-2	0.09
Unit-3	0.06

5.68 The Petitioner has further divided the above-mentioned detail of de-capitalized assets associated to Unit 2 and Unit 3 based on following categories:

- Standalone assets
- Common assets apportioned to Unit 2 and Unit 3
- Assets (Common or Standalone)either not claimed in the Tariff Petition or disallowed by the Commission.

5.69 The Petitioner further submitted that assets which are not claimed or disallowed by the Commission should not be part of de-capitalization and hence the net effective de-capitalization for Unit 2 and Unit 3 has been submitted as mentioned below:

Table 31: Net De-capitalization as submitted by the Petitioner (Rs. Crore)

Particulars	FY 2017-18
Unit-2	0.05
Unit-3	0.05

5.70 The Commission has gone through the submissions of the Petitioner and is of the view that non-disclosure of de-capitalisation of assets is gross negligence on part of the Petitioner and **directs the Petitioner to ensure that the same is not repeated in its future tariff filings.**

5.71 Further, during scrutinizing the detail of de-capitalization as submitted by the Petitioner, the Commission observed that for the period from FY 2011-12 and FY 2017-18, the approved value of additional capitalization is approx. 110.73 Crore against which the Petitioner has submitted de-capitalisation of only Rs. 0.87 Crore for Unit-2 and Rs. 0.57 Crore for Unit-3. The Commission after due diligence directed the Petitioner to provide the book value/historical value of assets which have been replaced since FY 2011-12.

5.72 For the purpose of finding out Historical Cost, the Petitioner has divided the additional capitalization up to FY 2017-18 under five categories as mentioned below:

a. New asset
b. Up gradation of existing asset
c. Replaced asset have been repaired/refurbished & kept as spares (Replacement/Spare)
d. Replaced asset is scrapped (Replacement)
e. Replaced asset is still under assessment i.e. to be categorized under (c) or (d) are presently placed under this category (Replacement/Under assessment)

5.73 The breakup of these additional capitalization associated to Unit 2 and Unit 3 as submitted by the Petitioner is shown below:

Table 32: Add. Cap. since FY 2011-12 as submitted by the Petitioner (Rs. Crore)

Particular	FY12	FY13	FY14	FY15	FY16	FY17	FY18	Total
Unit-2 & Unit-3 (Combined)								
New Assets	7.70	4.34	11.32	4.65	7.13	7.17	1.38	43.70
Up gradation	1.61	2.88	4.11	2.30	1.70	0.55	-	13.15
Replacement/Spare	1.85	2.80	5.17	3.93	3.75	2.93	1.59	22.02
Replacement	3.67	2.71	3.58	4.38	4.62	0.41	-	19.37
Replacement/Under Assessment	-	1.62	1.92	2.86	3.58	2.51	-	12.48
Net value	**14.82**	**14.36**	**26.11**	**18.12**	**20.77**	**13.56**	**2.97**	**110.73**

5.74 The Petitioner further submitted that out of Rs. 110.73 Crore, replacement totalling to the tune of Rs. 53.87 Crore (Rs. 41.39 Crore either scrapped or kept as spare and Rs. 12.48 Crore still under assessment for future use as spare or scrapping off) and balance additional Capital Expenditure of around Rs. 56.85 Crore are either under new schemes or up gradations wherein no de-capitalization is required. The Petitioner further emphasized that new asset and up gradation of asset do not require any removal of existing assets and hence does not qualify for de-capitalization.

5.75 Further, in terms of Accounting Standards (AS10 replaced with IndAS16), removed assets under replacement/spare category where the removed assets are kept as spares are also not been de-capitalized from books as they entail future economic value to be derived from them and have not been discarded or scrapped.

5.76 The practice of not removing/de-capitalising assets and keeping it as spares under category replacement/spare category which may be repaired/refurbished is an industry practice by Utilities and is accepted by various Regulatory Commissions including Hon'ble CERC (Order dated 15.03.2017 in Petition No. 344/GT/2014) and Hon'ble UERC (Order dated 10th April 2014 on Retail Tariff for UPCL for FY 2014-15).

5.77 Accordingly, the estimate of Historical Cost for all the additional capitalization worked out by discounting at annual inflation rates for the past has been worked out as follows:

Table 33: Historical value of Capex Schemes [Estimate based on de-inflated Cost] as submitted by the Petitioner (Rs. Crore)

Particular	FY12	FY13	FY14	FY15	FY16	FY17	FY18	Total
Unit-2 & Unit-3 (Combined)								
New Assets	-	-	-	-	-	-	-	-
Up gradation	-	-	-	-	-	-	-	-
Replacement/Spare	0.90	1.26	2.17	1.60	1.53	1.16	0.61	**9.23**
Replacement	1.79	1.22	1.51	1.78	1.88	0.16	-	**8.34**
Replacement/Under Assessment	-	0.73	0.81	1.16	1.45	0.99	-	**5.15**
Net value	**2.69**	**3.21**	**4.49**	**4.55**	**4.86**	**2.31**	**0.61**	**22.72**

5.78 The Petitioner further submitted that considering 50% of Historical Cost as de-capitalized in case of replacement in which some part has been already discarded and remaining has been kept as spare for future. Similarly as above, 50% of Historical Cost as de-capitalized in case of replacement in which removed assets have been kept for assessment and part which will be de-capitalized after assessment in coming years; further, considering 100% of the removed assets as Capital spare which has already been assessed of having future economic benefit, estimated Historical Cost for all the additional capitalizations for replaced assets have been worked out as Rs. 14.18 Crore in the table below:

Table 34: Historical value of Capex Schemes under which Decapitalization shall be performed [Weighted Average - 60(WPI):40 (CPI)] as submitted by the Petitioner (Rs. Crore)

Particular	FY12	FY13	FY14	FY15	FY16	FY17	FY18	Total
Unit-2 & Unit-3 (Combined)								
New Asset	-	-	-	-	-	-	-	-
Upgradation	-	-	-	-	-	-	-	-
Replacement/Spare	0.45	0.63	1.03	0.20	0.65	-	0.31	**3.27**
Replacement	1.79	1.22	1.51	1.78	1.88	0.16	-	**8.34**
Replacement/Under Assessment	-	0.36	0.40	0.58	0.73	0.50	-	**2.57**
Net value	**2.24**	**2.22**	**2.94**	**2.56**	**3.25**	**0.66**	**0.31**	**14.18**

5.79 The Petitioner also elaborated that the increase in average value of inflation between the FY 2011-12 to FY 2017-18works out to be ~2.38 times than the price level in FY 2000-01. In other words, the Original Cost of each asset would be around 1/2.38 = 42% of additional capitalization. This de-inflated cost could be considered as the Original/Historical Cost of each part/asset if the entire BTG Unit was commissioned by assembling all such parts/assets purchased individually. The Petitioner added that such cost would be much higher than when entire package is assigned to one contractor as turnkey project, which gives tremendous cost benefits. Hence, the average value of inflation value of 42% derived from individual assets may be anywhere between 3-5 times the embedded costs of such assets created through a package in turnkey project. Because of the above-mentioned reason, the estimate of Historical Cost of Rs. 14.18 Crore cannot be used as a fair estimate of Historical Cost due to inherent overestimation.

5.80 In the absence of better alternative, the Petitioner has relied upon the Order dated 11.01.2010 of Hon'ble CERC in Petition No. 128 of 2009 for NTPC's Korba Super Thermal Power Station, wherein the Hon'ble CERC has approved the value to be considered for decapitalization (where Original/Historical Cost were not available) as 10%

of additional capitalization as per recommendation of Technical Committee of NTPC. The relevant extract of the said Order is as follows:

> *"40….*
>
> *(B) Expenditure under CEA approved schemes: The petitioner has claimed an expenditure of Rs.704.78 lakh against capital addition schemes approved by CEA vide letter dated 22.8.2000. The assets/works covered under this claim are:*
>
> *(i) H2 Purity meter for Stage-I generators- The expenditure of Rs.47.90 lakh incurred by the petitioner on CEA approved capital addition scheme for replacement of purity meters, is allowed as the asset is considered necessary for efficient operation of the generating station. However, in terms of Note-2 under Regulation 18, the expenditure on replacement can be allowed after deducting the gross value of the original asset. In this connection, the petitioner has submitted as under:*
>
> > *"The replacement value of old purity analyzers are "Nil" as assessed by committee of experts. Therefore, nothing is de-capitalized in books though physically asset has been replaced/ discarded."*
>
> *The submission of the Petitioner that the gross value of original purity meters is "nil" cannot be accepted* ***. In terms of Note-2 under Regulation 18, the asset cannot be permitted to be capitalized, in the absence of the original value. It is pertinent to mention that in most of cases under replacement, the gross value of the original asset as evaluated by the technical committee is 10% of the value of new asset. Hence, considering the fact that the asset is necessary for the efficient operation of the generating station, an amount of Rs. 43.11 lakh is allowed after deducting 10% of the value of new asset, considering it to be gross value of the original asset.*** *"*

5.81 Accordingly, the Petitioner proposes 10% of the value of additional capitalization claimed for replaced assets may kindly be treated as Original/Historical Costas shown below.

Table 35: Historical value @10% of replaced assets as submitted by the Petitioner (Rs. Crore)

Particular	FY12	FY13	FY14	FY15	FY16	FY17	FY18	Total
Unit-2 & Unit-3 (Combined)								
New Assets	-	-	-	-	-	-	-	-
Upgradation	-	-	-	-	-	-	-	-
Replacement/Spare	0.09	0.14	0.26	0.20	0.19	0.15	0.08	**1.10**
Replacement	0.37	0.27	0.36	0.44	0.46	0.04	-	**1.94**
Replacement/Under Assessment	-	0.08	0.10	0.14	0.18	0.13	-	**0.62**
Net value	**0.46**	**0.49**	**0.71**	**0.78**	**0.83**	**0.31**	**0.08**	**3.66**

5.82 The Commission has scrutinized the detail and reply submitted by the Petitioner and is of the view that economic cost of any asset which is replaced and kept as spares should not be pass on to Beneficiaries as extra burden in the form of increased tariff as the asset is not put to use. Hence, the Commission has considered 100% value of Historical value as submitted by the Petitioner in case of replacement/spare, replacement and replacement/under assessment for de-capitalization.

5.83 The approved value of de-capitalization as approved by the Commission since FY 2017-18 is tabulated below.

Table 36: De-capitalization for FY 2017-18 as approved by the Commission (Rs. Crore)

Particular	FY2017-18
Unit-2	0.00
Unit-3	0.61

5.84 With regard to the additional capitalisation claimed for FY 2017-18, the Petitioner has claimed the same under following schemes:

a) Turbine IPSV Actuator for Rs. 0.33 Crore against the approved value of 0.11 Crore for Unit 2 with the reason stating that the actuator is actually installed and capitalized in Unit 2 and thus the cost is proposed to be recovered through tariff of Unit 2.

b) LTSH Tubes for Rs. 1.59 Crore against the approved value of 1.14 Crore in MYT Order dated February 19, 2018, without providing any reason for cost overrun.

c) Steam Cooled Wall Bottom Header with minor increase in cost from Rs. 0.81 Crore as approved in the MYT Order dated February 19, 2018, to Rs. 0.82 Crore.

d) Anhydrous Ammonia System common to both Unit 2 and Unit 3 for Rs. 0.23 Crore against the approved value of Rs. 0.55 Crore.

5.85 The Commission observed that in its MYT Order dated February 19, 2018, the Commission has approved the expense towards Turbine IPSV Actuator as Rs. 0.35 Crore equally apportioned to Rs. 0.12 Crore to each Unit 2, Unit 3 and Unit 4 respectively. The reason submitted by the Petitioner that the actuator is actually installed and capitalized in Unit 2 and thus the expense is proposed to be recovered through tariff of Unit 2 is not found rationale to recover the entire cost from Unit 2. Hence, the Commission has approved the expenses towards Turbine IPSV Actuator (Unit 2) to the maximum of Rs. 0.12 Crore as approved in the MYT Order dated February 19, 2018.

5.86 The Petitioner has not provided any reason for increase in the expenses towards LTSH Tubes and Bends 50% and hence, the Commission has approved the expenses in line to value as approved in the MYT Order dated February 19, 2018.

5.87 The Commission observed minor variation in the actual expense and approved expense of Steam Cooled Wall Bottom Header and approved the value based on actual.

5.88 The Anhydrous Ammonia System expense claimed by the Petitioner is well within the value approved in the MYT Order dated February 19, 2018 and hence, the Commission has approved as submitted by the Petitioner.

5.89 The Commission in accordance with above has approved the additional capitalisation and de-capitalisation for FY 2017-18 as shown in the following table.

Table 37: Asset wise Capitalization as approved by the Commission (Rs. Crore)

Particular	MYT Order	Petition	Approved
Unit-2 (Standalone)			
Turbine IPSV Actuator	0.12	0.33	0.12
Unit-3 (Standalone)			
LTSH Tubes and Bends 50%	1.14	1.59	1.14
Steam Cooled Wall Bottom Header	0.81	0.82	0.82
Unit-2 & 3 (Common)			
Anhydrous Ammonia System	0.55	0.23	0.23
Net- Capitalization	**2.63**	**2.97**	**2.32**

Table 38: Gross Fixed Assets (GFA) as approved by the Commission (Rs. Crore)

Particulars	Unit 2			Unit 3		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Opening GFA	491.91	488.67	475.63	475.19	470.73	460.43
Capitalization	6.53	0.44	0.23	10.53	2.53	2.08
De-capitalization	-	-	0.00	-	-	0.61
Closing GFA	498.44	489.11	475.86	485.72	473.26	461.90

Depreciation

Petitioner's Submission

5.90 The Petitioner has submitted the depreciation for FY 2017-18 as summation of the depreciation incurred on the following assets:

- Original Project Cost
- Additional Capitalization approved from FY 2011-12 to FY 2016-17 and
- Actual Additional Capitalization for FY 2017-18.

5.91 The Petitioner submitted that since Unit 2 and Unit 3 commenced their Commercial Operation in the year 2001 and 2002hence, it falls under the category of "Existing Generating Station" or "Existing Project" as per definition in Clause 26 and 27 of JSERC Generation Tariff Regulations, 2015. Considering the above, the methodology prescribed in Clause 7.32 of JSERC Generation Tariff Regulations, 2015 for Existing Generation Station/Existing Project was applied.

5.92 However, going forward with the same methodology the Petitioner highlighted certain difficulties particularly towards the fag end of Useful Life (25 years) of each Unit i.e. FY 2025-26 for Unit 2 and FY 2026-27 for Unit 3. On the other hand continuing with this methodology at the rates specified in the Tariff Regulations 2015, the Petitioner shall not be able to recover full allowable depreciation of 90% till the Useful Life of the Units particularly for additional capitalisation allowed since FY 2011-12.Accordingly, the Petitioner has proposed an alternate methodology for computing the depreciation from FY 2016-17 onwards to overcome such difficulties without impacting much on end consumer tariff.

5.93 Therefore, in order to overcome the above difficulties and to avoid tariff increase in the fag years of the useful Plant life and to even out the recovery of depreciation cost, the Petitioner has proposed that for original project cost and additional capitalization approved from FY 2011-12 to FY 2016-17, balance depreciable value as on April 01, 2017, after deducting the cumulative depreciation as allowed by the Commission up to March 31, 2017 from the gross depreciable value of the assets, may be allowed to be spread equally in balance years of the PPA life having validity of 30 years i.e. tillJanuary31, 2031 for Unit 2 and January 31, 2032 for Unit 3 respectively.

5.94 For additional capitalization during the year, the depreciation for the 1st year is computed from mid-year in accordance with methodology approved by the Commission in recent MYT Order and in Previous Tariff Order. Further, depreciation for the subsequent years has been computed by spreading the Balance depreciable value equally in the balance years of the PPA life of 30 years.

5.95 The Petitioner requested the Commission to exercise its power conferred under Power to remove difficulties under Clause 16.3and Power to Relax under Regulation 16.4 of the Tariff Regulations and allow the Petitioner to recover complete depreciation on assets by the end of the PPA tenure by spreading the balance depreciable value on assets capitalised as on March 31, 2017on remaining PPA tenure. The depreciation as claimed by the Petitioner is shown in the table below.

Table 39: Depreciation as submitted by the Petitioner (Rs. Crore)

Particulars	Unit 2		Unit 3	
	MYT Order	Petition	MYT Order	Petition
Depreciation on Original Capital Cost	3.36	3.38	5.11	5.11
Depreciation on Additional Capitalization FY 12	2.67	0.36	2.36	0.31
Depreciation on Additional Capitalization FY 13		0.49		0.23
Depreciation on Additional Capitalization FY 14		0.49		0.81
Depreciation on Additional Capitalization FY 15		0.74		0.24
Depreciation on Additional Capitalization FY 16		0.56		0.61
Depreciation on Additional Capitalization FY 17		0.39		0.43
Depreciation on Additional Capitalization FY 18	0.92	0.01	1.15	0.07
Net Depreciation	**6.95**	**6.41**	**8.62**	**7.81**

Commission's Analysis

5.96 The JSERC Generation Tariff Regulation, 2015 has specified the following methodology for the calculation of depreciation expense for existing generating station

"7.28 Depreciation shall be calculated for each year of the tariff period, on the amount of Capital Cost of the assets admitted by the Commission;

Provided that depreciation shall not be allowed on assets funded by any capital subsidy/grant.

7.29 The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the capital cost of the asset.
…………..

7.30 Land other than land held under lease and the land for reservoir in case of hydro generating station shall not be a depreciable asset and its cost shall be excluded from the capital cost while computing depreciable value of the asset.

7.31 Depreciation shall be calculated annually based on 'Straight Line Method' and at rates specified in Appendix-I to these Regulations for the assets of the generating station:

Provided that, the remaining depreciable value as on 31st March of the Year closing after a period of 12 Years from the Date of Commercial operation shall be spread over the balance Useful life of the assets.

7.32 In case of existing projects, the balance depreciable value as on 1st April 2016 shall be worked out by deducting the cumulative depreciation as admitted by the Commission upto 31stMarch 2016 from the gross depreciable value of the assets.

The rate of depreciation shall be continued to be charged at the rate specified in Appendix-I till cumulative depreciation reaches 70%. Thereafter the remaining depreciable value shall be spread over the remaining life of the asset such that the maximum depreciation does not exceed 90%.

7.33 Depreciation shall be chargeable from the first Year of commercial operation. In case of commercial operation of the asset for part of the Year, depreciation shall be charged on pro rata basis.

5.97 The Commission observed that the methodology adopted by the Petitioner for calculation of depreciation is not in line to the Generation Tariff Regulations 2015. The reasons cited by the Petitioner of under recovery of assets value in case the rate of depreciation as mentioned in Appendix-I of Generation Tariff Regulations 2015 is considered for calculation is not found satisfactory as the same has not been substantiated with proper workings.

5.98 The Commission is of the view that to substantiate its proposal for change in the methodology for calculation of depreciation, the Petitioner was required to carry out detail study to ascertain the residual life of asset. At present, the Petitioner proposal for accepting the different methodology for calculation of depreciation without any documentary evidence demonstrate only its eagerness to recover the expenditure incurred. Hence, for carrying out the True-up for FY 2017-18, the Commission has approved the deprecation as per rate defined in JSERC Generation Tariff Regulations, 2015. However, the Commission shall look into the issue while framing the tariff regulations for the third control period. The Petitioner is at liberty to submit its proposal at the time of finalising the tariff regulations for Commission's consideration.

5.99 The Commission has approved the value of depreciation for FY 2017-18 as shown below.

Table 40: Depreciation as approved by the Commission (Rs. Crore)

Particulars	Unit 2			Unit 3		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Original Capital Cost	3.36	3.38	2.27	5.11	5.11	3.77
Additional Capitalization FY12	2.67	0.36	0.41	2.36	0.31	0.38
Additional Capitalization FY13		0.49	0.58		0.23	0.32
Additional Capitalization FY14		0.49	0.43		0.81	0.81
Additional Capitalization FY15		0.74	0.73		0.24	0.26
Additional Capitalization FY16		0.56	0.51		0.61	0.59
Additional Capitalization FY17		0.39	0.29		0.43	0.35
Additional Capitalization FY18	0.92	0.01	0.01	1.15	0.07	0.06
Net Depreciation	**6.95**	**6.41**	**5.23**	**8.62**	**7.81**	**6.54**

Operation & Maintenance Expenses

Petitioner's Submission

5.100 The Petitioner has claimed the Operation and Maintenance (O&M) expenses under the following five broad categories.

a. Employee Expenses with Terminal Benefits;
b. Repairs & Maintenance (R&M) Expenses;
c. Administrative and General (A&G) Expenses;
d. Raw water Expenses;
e. Capital Spares.

5.101 The Petitioner has claimed the normative employee expenses as approved in the MYT Order dated February 19, 2018. The terminal liabilities are considered on actuals based on the audited accounts.

5.102 The Petitioner has claimed the normative R&M expenses as approved in the MYT Order dated February 19, 2018 for the purpose of true-up for FY 2017-18 as per Clause 6.14.b read with Clause 6.11 and Clause 6.12 of the JSERC Generation Tariff Regulations, 2015.

5.103 The A&G expenses submitted by the Petitioner comprises of ash disposal expenses, head office expenses & shared services expenses, application fees, and publication expenses and other A&G expenses.

5.104 The Petitioner has claimed the ash disposal expenses, application fees and publication expenses based on the actual as per audited accounts. However, the expenses related to head office expenses & shared services expenses and other A&G expenses are considered on normative basis as approved in the MYT Order dated February 19, 2018.

5.105 The Petitioner submitted that the Commission in the MYT Order dated February 19, 2018 approved the Raw Water Expense for FY 2017-18 considering projected Generation, estimated Specific Raw Water Consumption of 3.18 m^3/MWh and the revised Raw Water charges of Rs 18.84/m^3 as charged by JUSCO to its industrial consumers including the Petitioner. However, the Petitioner emphasis that actual raw water expenses for FY 2017-18is lower than the approved value mainly on the account of lower wet ash disposal and lower Generation. In light of the above, the Petitioner has claimed the actual raw water expenses as per audited accounts.

5.106 As per approved plan, no capital spare is planned for FY 2017-18 and all the capital spares are scheduled for the period between FY 2018-19 to FY 2020-21. Hence, the Petitioner has not claimed any capital spares expenses for FY 2017-18.

5.107 The detail of O&M expenses claimed by the Petitioner is shown in the table below.

Table 41: O&M Expenses as submitted by the Petitioner (Rs. Crore)

Particulars	Unit 2		Unit 3	
	MYT Order	Petition	MYT Order	Petition
Employee Expenses	6.86	6.86	6.86	6.86
Terminal Liabilities	0.25	0.49	0.25	0.49
R&M Expenses	17.80	17.80	12.71	12.71
Ash Disposal Expenses	5.68	4.43	5.25	4.49
HO & SS Expenses	9.36	9.36	8.20	8.20
Other A&G Expenses	4.47	4.47	4.09	4.09
Raw Water Expenses	5.31	4.36	4.89	4.31
Application Fees & Publication Expenses	0.28	0.31	0.27	0.31
Capital Spares	-	-	1.00	-
Net O&M Expenses	**51.01**	**48.08**	**43.52**	**41.46**

Commission's Analysis

5.108 Clauses7.40 and 7.41 of the JSERC Generation Tariff Regulations, 2015 lays out the provision for determination of O&M expenses and the same is quoted below.

> *"7.40 Operation and Maintenance (O&M) expenses shall comprise of the following:*
> *(a) Salaries, wages, pension contribution and other employee costs;*
> *(b) Administrative and General costs;*
> *(c) Repairs and maintenance expenses; and*
> *(d) Other miscellaneous expenses statutory levies and taxes (except corporate income tax).*

7.41 Existing Thermal Generating Stations:

(a) The Applicant shall submit details of O&M expenses as required by the Commission. The O&M expenses excluding terminal liabilities for the Base Year shall be determined based on accounting statements for the base year, estimates of the Generating Company for relevant years and other factors considered relevant.

(b) The O&M expenses excluding terminal liabilities permissible towards determination of tariff for each year of the Control Period shall be determined after a prudency check by the Commission based on submissions of the Generating Company, previous years' actual expenses and any other factor considered relevant.

(c) Terminal Liabilities will be approved as per actual submitted by the Generating Company or be established through actuarial studies.

(d) Increase in O&M charges on account of war, insurgency or changes in laws, or like eventualities where the Commission is of the opinion that an increase in O&M charges is justified, may be considered by the Commission for a specified period."

5.109 The Commission has scrutinized the submission made by the Petitioner and approves the terminal liabilities, ash disposal expenses and Application Fees & Publication Expenses as per audited accounts.

5.110 The Commission has approved the employee cost, R&M expenses, HO & SS expenses and other A&G expenses as per normative value approved in the MYT Order dated February 19, 2018.

5.111 The Petitioner submitted that the Govt. of Jharkhand had increased the water charges vide notification dated April 01, 2011 issued by the Water Resources Department, Government of Jharkhand (GoJ). Tata Steel Limited (TSL) challenged the exorbitant increase in water charges by preferring a writ petition being WPC No. 4544 of 2011 before the Hon'ble High Court of Jharkhand. Hon'ble High Court has passed the Interim Order in favour of TSL directing them to pay Rs. 1.00 Crore per month towards water charges till the pending writ petition was decided. However, the Interim Order does not specify, what part of Rs. 1.00 Crore is associated with the Petitioner's Unit-2 and unit-3 of Jojobera plant.

5.112 As per the submission of the Petitioner, they are billed as per new increased rate and the Petitioner is paying to TSL as per the revised rate. It is observed that while TSL is recovering water charges from TPCL as per the revised rates it is paying the Govt. of Jharkhand only at the rate permitted by Hon'ble High Court. It is also noticed that the

Petitioner being fully aware of this didn't dispute the bills raised by TSL which is not a prudent approach by a commercial entity.

5.113 TSL has submitted the details regarding the water consumption, rate of billing for industrial and municipal consumption as shown below.

Table 42: Water Consumption detail as submitted by TSL

Financial Year	Consumption ('000 Gallons)		Rate (Rs./'000 Gallons)		Industrial Bill (Rs. Cr.)	Municipal Bill (Rs. Cr.)	Total Bill (Rs. Cr.)
	Industrial	Municipal	Industrial	Municipal			
FY 11-12	1,80,12,960	1,13,62,990	26.4	7.9	47.55	8.98	56.53
FY 12-13	1,97,20,920	1,31,01,870	28.38	8.49	55.97	11.12	67.09
FY13-14	2,00,66,000	95,27,570	30.51	9.13	61.22	8.70	69.92
FY14-15	2,02,70,410	1,47,06,500	32.8	9.81	66.49	14.43	80.91
FY15-16	1,82,49,560	1,48,61,190	35.26	10.55	64.35	15.68	80.03
FY 16-17	1,71,63,270	1,39,54,960	37.9	11.34	65.05	15.82	80.87
FY 17-18	**1,67,58,990**	**1,17,63,460**	**40.74**	**12.19**	**68.28**	**14.34**	**82.62**
FY 18-19	1,58,51,270	1,51,00,050	43.8	13.11	69.43	19.80	89.22
Total	**14,60,93,380**	**10,43,78,590**			**498.33**	**108.87**	**607.20**

5.114 The detail of water consumption as submitted by the Petitioner for FY 2017-18 is shown below.

Table 43: Water Consumed by TPCL in FY 2017-18 as submitted by the Petitioner

Particular	UoM	Consumption	
		Unit-2	Unit-3
Water Consumer	'000 Gallons	5,10,215	6,19,624

5.115 The Commission has gone through the submissions of the Petitioner, TSL and observes that the matter is sub-judice before the Hon'ble Jharkhand High Court and also TSL has partially paid the water tax to Government of Jharkhand (GoJ) amounting Rs. 316 Crore against the computed value of Rs. 607.20 Crore, the Commission is therefore of the view that passing the complete raw water charge as claimed by the Petitioner to the consumers at this juncture is not apt. Hence, based on the details presented before the Commission by the Petitioner and TSL, the Commission has approved the raw water in proportion to actual payment made to GoJ by TSL including ad hoc which is subject to final outcome of above-mentioned petition before the Hon'ble Jharkhand High Court. However, it is the responsibility of the Petitioner to make prudent check before making any payment for water charges to TSL. Hence, forth no further payment would be allowed which is beyond the share of the Petitioner actual payment for water as permitted by Hon'ble High Court.

Table 44: Raw water as approved by the Commission (Rs. Crore)

Particular	UoM	Unit-2	Unit-3
Consumption	'000 Gallons	5,10,215	6,19,624
Rate	Rs./'000 Gallons	85.65	85.65
Water Bill	Rs. Cr.	4.37	5.31
TPCL apportion based on actuals	**Rs. Cr.**	**2.27**	**2.76**

5.116 The O&M expense as approved by the Commission for FY 2017-18 is shown below.

Table 45: O&M Expenses (Normative Component) as approved by the Commission (Rs. Crore)

Particulars	Unit 2			Unit 3		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Employee Cost	6.86	6.86	6.86	6.86	6.86	6.86
R&M Expenses	17.80	17.80	17.80	12.71	12.71	12.71
HO & SS Expenses	9.36	9.36	9.36	8.20	8.20	8.20
Other A&G Expenses	4.47	4.47	4.47	4.09	4.09	4.09

Table 46: O&M Expenses (Variable Component) as approved by the Commission (Rs. Crore)

Particulars	Unit 2			Unit 3		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Terminal Liabilities	0.25	0.49	0.49	0.25	0.49	0.49
Ash Disposal Expenses	5.68	4.43	4.43	5.25	4.49	4.49
Raw Water Expenses	5.31	4.36	2.27	4.89	4.31	2.76
Application & Publication Expenses	0.28	0.31	0.31	0.27	0.31	0.31
Capital Spares	-	-	-	1.00	-	-

Table 47: O&M Expenses as approved by the Commission (Rs. Crore)

Particulars	Unit 2			Unit 3		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Employee Cost	6.86	6.86	6.86	6.86	6.86	6.86
Terminal Liabilities	0.25	0.49	0.49	0.25	0.49	0.49
R&M Expenses	17.80	17.80	17.80	12.71	12.71	12.71
Ash Disposal Expenses	5.68	4.43	4.43	5.25	4.49	4.49
HO & SS Expenses	9.36	9.36	9.36	8.20	8.20	8.20
Other A&G Expenses	4.47	4.47	4.47	4.09	4.09	4.09
Raw Water Expenses	5.31	4.36	2.27	4.89	4.31	2.76
Application & Publication Expenses	0.28	0.31	0.31	0.27	0.31	0.31
Capital Spares	-	-	-	1.00	-	-
O&M Expenses	**51.01**	**48.08**	**45.99**	**43.52**	**41.46**	**39.91**

Interest on Loan

Petitioner's Submission

5.117 The Petitioner submitted that the repayment of the long-term loan on Original Project Cost of Unit 2 and Unit 3 has been completed in the year FY 2009-10 and 2010-11 respectively.

5.118 In line with the MYT Order dated February 19, 2018, the Petitioner has considered 70% of the actual capitalization as Normative Loan for FY 2017-18 with interest rate of 13.02% and 12.33% for Unit 2 and Unit 3 respectively.

5.119 The Petitioner has considered the normative repayment of debt equal to the depreciation of the additional capitalization only citing the reason that the interest payment on original project cost is already completed in year FY 2009-10 and FY 2010-11 respectively for Unit 2 and Unit 3 and hence depreciation part on original cost is not considered as part of normative repayment of debt.

5.120 The Interest and Finance Charges claimed by the Petitioner is shown in the table below.

Table 48: Interest on Loan as submitted by the Petitioner (Rs. Crore)

Particulars	Unit 2		Unit 3	
	MYT Order	Petition	MYT Order	Petition
Opening Loan	33.91	31.74	32.59	29.73
Deemed Loan Addition	4.57	0.31	7.37	1.77
Deemed Loan Repayment	3.59	3.04	3.51	2.69
Closing Loan	34.89	29.01	36.45	28.81
Interest Rate	13.02%	13.02%	12.33%	12.33%
Interest on Loan	**4.48**	**3.96**	**4.26**	**3.61**

Commission's Analysis

5.121 The Commission has calculated the gross normative loan for FY 2017-18 as per Clause 7.13 and 7.14 of the JSERC Generation Tariff Regulation, 2015 as quoted below.

> *"7.13 In case of the generating station declared under commercial operation prior to 1.4.2016, debt-equity ratio allowed by the Commission for determination of Tariff for the period ending 31.3.2016 shall be considered for determination of tariff.*

During the control period, debt-equity ratio allowed by the Commission for determination of Tariff for the period ending 31st March 2017 shall be considered for determination of tariff.

7.14 For the project declared under commercial operation on or after 1.04.2016,if the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan:

Provided that where equity deployed is less than 30% of capital cost, the actual equity shall be considered for determination of tariff:

Provided further that the equity invested in foreign currency shall be designated in Indian rupees on the date of each investment:

Explanation: -
i.The premium, if any, raised by the Generating Company, while issuing share capital and investment of internal resources created out of its free reserve, for the funding of the project, shall be reckoned as paid up capital for the purpose of computing return on equity, provided such premium amount and internal resources are actually utilized for meeting the capital expenditure of the generating station.

ii. Provided, further that any consumer contribution, deposit work and grant obtained for the execution of the project shall not be considered as part of the capital structure for the purpose of computation of normative debt: equity.

iii. Any expenditure incurred or projected to be incurred on or after 1stApril 2016 as may be admitted by the Commission as additional capital expenditure for determination of tariff, and renovation and modernization expenditure for life extension shall be serviced in the manner specified in clause 7.14 of this Regulation."

5.122 In reply to Commission's query on asset de-capitalisation, the Petitioner had submitted that while revisiting the True-up filings of previous years, it has been observed that inadvertently de-capitalization for the past years had not been considered while proposing the net actual additional capitalization for the respective years. The Petitioner further stated that out of depreciable value, nearly entire depreciation amount has been recovered on the date of de-capitalization. Hence, there is negligible pending recovery of depreciation on these de-capitalized assets. Further, since most of the assets deleted are from Original project cost as on COD, there was no loan outstanding on these assets.

5.123 The Commission has scrutinized the details submitted by the Petitioner and observed that the actual loan on the Assets Capitalised as on COD has been entirely repaid by the Petitioner. Since the normative loan value approved by the Commission is on the Additional Capitalisation from FY 2011-12, the normative opening loan for FY 2017-18 is considered equal to closing normative loan amount of FY 2016-17 as approved in the previous Order dated December 23, 2019.

5.124 The Commission is continuing with the same methodology as adopted in the earlier Orders for deriving the value of deemed loan repayment for FY 2017-18.

5.125 In accordance to Clause 7.23 of JSERC Generation Tariff Regulations, 2015 and as approved in MYT Order dated February 19, 2018, the Commission has approved the interest rate as 13.02% and 12.33% for Unit 2 and Unit 3 respectively as shown below.

Table 49: Interest on Loan as approved by the Commission (Rs. Crore)

Particulars	Unit 2			Unit 3		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Opening Loan	33.91	31.74	30.65	32.59	29.73	28.17
Deemed Loan Addition	4.57	0.31	0.16	7.37	1.77	1.03
Deemed Loan Repayment	3.59	3.04	2.96	3.51	2.69	2.76
Closing Loan	34.89	29.01	27.86	36.45	28.81	26.44
Interest Rate	13.02%	13.02%	13.02%	12.33%	12.33%	12.33%
Interest on Loan	**4.48**	**3.96**	**3.81**	**4.26**	**3.61**	**3.37**

Interest on Working Capital (IoWC)

Petitioner's Submission

5.126 The Petitioner has submitted the Interest on Working Capital (IoWC) requirement in line with Clause7.34 of the JSERC Generation Tariff Regulations, 2015, is provided below.

Table 50: IoWC as submitted by the Petitioner (Rs. Crore)

Particulars	Unit 2		Unit 3	
	MYT Order*	Petition	MYT Order*	Petition
Coal Stock (30 Days) Coal for Generation (30 Days)	33.74	37.41	33.86	36.70
Cost of Secondary Fuel (60 Days)	0.34	0.63	0.34	0.63
Maintenance Spares (20% O&M)	10.20	9.62	8.70	8.29
O&M Expenses (1 Month)	4.25	4.01	3.63	3.46
Receivables (2 Months)	51.98	55.37	50.88	53.45
Total Working Capital requirement	100.50	107.03	97.40	102.53
Interest rate on WC	12.80%	12.60%	12.80%	12.60%
Interest on Working Capital	**12.86**	**13.49**	**12.47**	**12.92**

** Read with Review Order dated January 09, 2019*

Commission's Analysis

5.127 The Commission has computed the Interest on Working Capital (IoWC) for FY 2017-18 for both Unit 2 and Unit 3 as per Clause 7.34 and 7.37 of JSERC Generation Tariff Regulations, 2015 as reproduced below.

"7.34 The Commission shall determine the Working Capital requirement for coal based generating stations containing the following components:

(a) Cost of coal or lignite and limestone towards stock, if applicable, for 15 days for pit-head generating stations and 30 days for non-pit-head generating stations for generation corresponding to the normative annual plant availability factor or the maximum coal/lignite stock storage capacity whichever is lower;

(b) Cost of coal or lignite and limestone for 30 days for generation corresponding to normative annual plant availability factor;

(c) Cost of secondary fuel oil for two months for generation corresponding to the Normative Annual Plant Availability Factor;

(c) Maintenance spares @ 20% of operation and maintenance expenses;

(d) Operation and Maintenance expenses for 1 month; and

(e) Receivables equivalent to two months of capacity charges and energy charges for sale of electricity calculated on the Normative Annual Plant Availability Factor.

7.37 The cost of fuel in cases covered under clause 7.34 and 7.35 of these Regulations shall be based on the landed cost incurred (taking into account normative transit and handling losses) by the Generating Company and gross calorific value of the fuel as per actual for the three months preceding the first month for which tariff is to be determined and no fuel price escalation shall be provided during the tariff period."

5.128 The Bank Rate as on April 01, 2017is considered for the purpose of computation of Interest on Working Capital (IoWC) as per Clause 7.38 of JSERC Generation Tariff Regulation, 2015.The Interest on Working Capital (IoWC) as approved by the Commission for FY 2017-18 is summarized in the following table.

Table 51: IoWC as approved by the Commission (Rs. Crore)

<table>
<tr><th rowspan="2">Particulars</th><th colspan="3">Unit 2</th><th colspan="3">Unit 3</th></tr>
<tr><th>MYT Order*</th><th>Petition</th><th>Approved</th><th>MYT Order*</th><th>Petition</th><th>Approved</th></tr>
<tr><td>Coal Stock (30 Days)</td><td rowspan="2">33.74</td><td rowspan="2">37.41</td><td>18.77</td><td rowspan="2">33.86</td><td rowspan="2">36.70</td><td>18.42</td></tr>
<tr><td>Coal for Generation (30 Days)</td><td>18.77</td><td>18.42</td></tr>
</table>

Particulars	Unit 2			Unit 3		
	MYT Order*	Petition	Approved	MYT Order*	Petition	Approved
Cost of Secondary Fuel (60 Days)	0.34	0.63	0.31	0.34	0.63	0.31
Maintenance Spares (20% O&M)	10.20	9.62	9.20	8.70	8.29	7.98
O&M Expenses (1 Month)	4.25	4.01	3.83	3.63	3.46	3.33
Receivables (2 Months)	51.98	55.37	51.01	50.88	53.45	48.71
Total Working Capital requirement	100.50	107.03	101.90	97.40	102.53	97.17
Interest rate on WC	12.80%	12.60%	12.60%	12.80%	12.60%	12.60%
Interest on Working Capital	**12.86**	**13.49**	**12.84**	**12.47**	**12.92**	**12.24**

** Read with Review Order dated January 09, 2019*

Return on Equity

Petitioner's Submission

5.129 The Petitioner has stated that the additional capitalization is done from internal accrual and hence has considered the financing of additional capitalization at Normative Debt: Equity ratio of 70:30 for FY 2017-18. The Petitioner has further submitted that for additional capitalization during the FY 2017-18, Return on Equity (RoE) has been computed from mid-year considering capitalization of the assets throughout the year.

5.130 The Petitioner has further submitted that the Minimum Alternate Tax (MAT) rate as 21.34% as approved in the MYT Order dated February 19, 2019 for consideration in calculation of Return on Equity post-tax. Accordingly, the Petitioner has calculated the Return on Equity for FY 2017-18 as shown below.

Table 52: Return on Equity as submitted by the Petitioner (Rs. Crore)

Particulars	Unit 2		Unit 3	
	MYT Order	Petition	MYTOrder	Petition
Opening Equity	147.57	146.60	142.56	141.22
Addition	1.96	0.13	3.16	0.76
Closing Equity	149.53	146.73	145.72	141.98
Rate of Return	15.50%	15.50%	15.50%	15.50%
ROE (Pre-Tax)	23.03	22.73	22.34	21.95
MAT	21.34%	21.34%	21.34%	21.34%
ROE after MAT	19.71%	19.71%	19.71%	19.71%
ROE (Post-Tax)	**29.27**	**28.90**	**28.40**	**27.90**

Commission's Analysis

5.131 The Commission has calculated the Gross Normative Equity for FY 2017-18 as per Clause 7.13 and 7.14 of the JSERC Generation Tariff Regulations, 2015.

"7.13 In case of the generating station declared under commercial operation prior to 1.4.2016, debt-equity ratio allowed by the Commission for determination of

Tariff for the period ending 31.3.2016 shall be considered for determination of tariff.

During the control period, debt-equity ratio allowed by the Commission for determination of Tariff for the period ending 31st March 2017 shall be considered for determination of tariff.

7.14 For the project declared under commercial operation on or after 1.04.2016,if the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan:

Provided that where equity deployed is less than 30% of capital cost, the actual equity shall be considered for determination of tariff:

Provided further that the equity invested in foreign currency shall be designated in Indian rupees on the date of each investment:

Explanation: -
i.The premium, if any, raised by the Generating Company, while issuing share capital and investment of internal resources created out of its free reserve, for the funding of the project, shall be reckoned as paid up capital for the purpose of computing return on equity, provided such premium amount and internal resources are actually utilized for meeting the capital expenditure of the generating station.

ii. Provided, further that any consumer contribution, deposit work and grant obtained for the execution of the project shall not be considered as part of the capital structure for the purpose of computation of normative debt: equity.

iii. Any expenditure incurred or projected to be incurred on or after 1st April 2016 as may be admitted by the Commission as additional capital expenditure for determination of tariff, and renovation and modernization expenditure for life extension shall be serviced in the manner specified in clause 7.14 of this Regulation.”

5.132 The Commission vide letter dated March 07, 2019 directed the Petitioner to submit the actual income tax paid along with the documentary evidence instead of grossing up with MAT rate in the truing up petition for FY 2017-18. The Petitioner vide letter dated April 12, 2019 replied that the income tax on profit earned in a financial year is being paid as a whole based on its financial position across the various assets. For FY 2017-18, the Petitioner had paid total Income Tax of Rs. 163 Crore. The Petitioner has also submitted the quarterly tax payment challans and Profit and Loss (P&L) Statement extracted from Annual Report highlighted profit/(loss)incurred before tax as Rs. (3244.60) Crore. Since, the Petitioner has incurred loss in FY 2017-18, it has paid tax @ MAT rate of book profit for the FY 2017-18. Unit 2 and Unit 3 of Jojobera power plant are part of company's assets and hence, the Petitioner has claimed income tax paid @ MAT rate i.e. 21.3416% which is lower than the Corporate Tax of 34.61% payable on taxable profits. Hence, the Petitioner prays before the Commission to consider the income tax claimed @ MAT rate for FY 2017-18.

5.133 The Commission has noted the reply of the Petitioner and in accordance with Clause 7.16, Clause 7.17 and Clause 7.18 of the JSERC Generation Tariff Regulations, 2015, approved the Return on Equity at15.50% which is grossed up with the MAT rate i.e. 21.34% as applicable for the FY 2017-18 as shown below.

Table 53: Return on Equity as approved by the Commission (Rs. Crore)

Particulars	Unit 2			Unit 3		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Opening Equity	147.57	146.60	142.69	142.56	141.22	138.13
Addition	1.96	0.13	0.07	3.16	0.76	0.44
Closing Equity	149.53	146.73	142.76	145.72	141.98	138.57
Rate of Return	15.50%	15.50%	15.50%	15.50%	15.50%	15.50%
ROE (Pre-Tax)	23.03	22.73	22.12	22.34	21.95	21.44
MAT	21.34%	21.34%	21.34%	21.34%	21.34%	21.34%
ROE after MAT	19.71%	19.71%	19.71%	19.71%	19.71%	19.71%
ROE (Post-Tax)	**29.27**	**28.90**	**28.12**	**28.40**	**27.90**	**27.26**

Tax on Saving on Operational Parameters

Petitioner's Submission

5.134 The Petitioner has submitted that the Income Tax due to gain on account of Secondary Fuel Consumption, Auxiliary Power Consumption and Gross Station Heat Rate (GHR) is recoverable from the Beneficiary as per Clause 7.49 of the JSERC Generation Tariff Regulations, 2015 which has also been clarified and upheld by the Hon'ble Tribunal in their Judgment dated August 10, 2016 in Appeal No. 195 of 2015.

5.135 The Tax liability on gain of operational parameters as claimed by the Petitioner is shown below.

Table 54: Tax Liability on saving in Operation Parameters as submitted by the Petitioner (Rs. Crore)

Particulars	Unit 2		Unit 3	
	MYT Order	Petition	MYT Order	Petition
Tax on Gain on Secondary Fuel	-	0.76	-	0.73
Tax on the Gain on Aux. Consumption	-	0.77	-	0.71
Tax on the Gain on Station Heat Rate	-	0.53	-	0.53

Commission's Analysis

5.136 The Commission has scrutinized the claim of the Petitioner on Tax Liability on saving on operational parameters as per Clause 7.49 of the JSERC Generation Tariff Regulations, 2015 as reproduced below.

> "Tax on Income
> *7.49 Tax on the income streams of the Generating Company shall not be recovered from the Beneficiaries.*
>
> *Provided that the deferred tax liability, excluding Fringe Benefit Tax, for the period up to 31st March, 2016 whenever it materializes, shall be recoverable directly from the beneficiaries and the long-term customers;*
>
> *Provided further that any tax liability on incentives and savings due to improved performance on any parameter, if any, shall be considered for passing onto the Beneficiaries in the ratio of the sharing of the gains as prescribed under these Regulations."*

Tax Liability on Gain on Secondary Fuel

5.137 The Commission observed that the Petitioner has claimed the incentive on 1.00 ml/kWh against the approved value of 0.5 ml/kWh as per MYT Order dated February 19, 2018. The Commission has considered the MYT Order value and calculated the tax liability on gain secondary fuel is shown below.

Table 55: Tax Liability on saving in Secondary Fuel as approved by the Commission (Rs. Crore)

Particulars		Unit 2			Unit 3		
	UoM	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Actual Gross Generation	MU	-	815.39	815.39	-	803.04	803.04
Normative LDO	ml/kWh	-	1.00	0.50	-	1.00	0.50
LDO Consumption	kL	-	886.58	407.69	-	815.52	401.52
Actual LDO Consumption	kL	-	219.00	219.00	-	178.00	178.00
Difference in LDO	kL	-	667.58	188.69	-	637.52	223.52
Landed Price of Oil	Rs./kL	-	42144.00	42144.38	-	42253.00	42252.67

Particulars	UoM	Unit 2			Unit 3		
		MYT Order	Petition	Approved	MYT Order	Petition	Approved
Gain	Rs. Crore	-	2.81	0.80	-	2.69	0.94
Applicable Tax Rate	%	-	21.34%	21.34%	-	21.34%	21.34%
Tax Liability on Secondary Fuel	**Rs. Crore**	**-**	**0.76**	**0.22**	**-**	**0.73**	**0.26**

Tax Liability on Gain on Auxiliary Power Consumption

5.138 The Commission approves the tax liability on gain on auxiliary consumption as tabulated below.

Table 56: Tax Liability on saving in Auxiliary as approved by the Commission (Rs. Crore)

Particulars	UoM	Unit 2			Unit 3		
		MYT Order	Petition	Approved	MYT Order	Petition	Approved
Normative Aux. Consumption	%	-	10.00%	10.00%	-	10.00%	10.00%
Actual Aux. Consumption	%	-	8.79%	8.79%	-	8.84%	8.84%
Units Saved	MU	-	9.88	9.88	-	9.29	9.29
ECR	Rs./kWh	-	2.88	2.82	-	2.82	2.77
Gain due to lower Aux.	Rs. Crore	-	2.84	2.79	-	2.62	2.58
Applicable Tax Rate	%	-	21.34%	21.34%	-	21.34%	21.34%
Tax liability on Auxiliary	**Rs. Crore**	**-**	**0.77**	**0.76**	**-**	**0.71**	**0.70**

Tax Liability on Gain on Station Heat Rate

5.139 In line to the Clause 7.49, the Commission approves the tax liability on gain on Station Heat Rate as shown below.

Table 57: Tax Liability on saving in SHR as approved by the Commission (Rs. Crore)

Particulars	UoM	Unit 2			Unit 3		
		MYT Order	Petition	Approved	MYT Order	Petition	Approved
Normative Heat Rate	kCal/kWh	-	2567	2567	-	2577	2577
Actual Heat Rate	kCal/kWh	-	2543	2543	-	2552	2552
Gain in Heat Rate	kCal/kWh	-	24	24	-	25	25
Actual Gross Generation	MU	-	815.39	815.39	-	803.04	803.04
Total Heat Energy Saved	MkCal	-	19569	19569.31	-	20076	20076.09
Equivalent GCV of Coal	kCal/kg	-	3917	3917.04	-	3815	3815.07
Equivalent Coal Saved	Ton	-	4996	4995.94	-	5262	5262.32
Actual Landed Price of Coal	Rs./Ton	-	3901	3853.62	-	3712	3668.81
Gain on Account of GHR	Rs. Crore	-	1.95	1.93	-	1.95	1.93
Applicable Tax Rate	%	-	21.34%	21.34%	-	21.34%	21.34%
Tax liability on GHR	**Rs. Crore**	**-**	**0.53**	**0.52**	**-**	**0.53**	**0.52**

Summary of Annual Revenue Requirement

Commission's Analysis

5.140 The summary of Annual Revenue Requirement (ARR) for FY 2017-18 as approved by the Commission is shown below.

Table 58: Annual Revenue Requirement (ARR) as approved by the Commission (Rs. Crore)

Particulars	Unit 2			Unit 3		
	MYT Order*	Petition	Approved	MYT Order*	Petition	Approved
O&M Expenses	51.00	48.08	45.99	43.51	41.46	39.91
Depreciation	6.95	6.41	5.23	8.62	7.81	6.54
Interest on Loan	4.48	3.96	3.81	4.26	3.61	3.37
Int. on WC	12.86	13.49	12.84	12.47	12.92	12.24
Return on Equity	29.27	28.9	28.12	28.4	27.9	27.26
Annual Fixed Cost	**104.57**	**100.84**	**95.99**	**97.26**	**93.70**	**89.32**
Availability	85.00%	96.50%	96.50%	85.00%	97.27%	97.27%
AFC after Availability	**104.57**	**100.84**	**95.99**	**97.26**	**93.70**	**89.32**
Energy Cost	**205.67**	**213.97**	**210.07**	**189.85**	**206.66**	**202.93**
Annual Revenue Requirement	**310.24**	**314.81**	**306.06**	**287.10**	**300.35**	**292.25**
Tax on Gain (Secondary Fuel)	-	0.76	0.22	-	0.73	0.26
Tax on Gain (SHR)	-	0.53	0.52	-	0.53	0.52
Tax on Gain (Auxiliary)	-	0.77	0.76	-	0.71	0.70
Annual Revenue Requirement	**310.24**	**316.87**	**307.55**	**287.10**	**302.33**	**293.73**

* *Read with Review Order dated January 09, 2019*

Revenue from Sale of Power

Petitioner's Submission

5.141 The Petitioner has submitted the revenue from sale of power for FY 2017-18 as Rs. 294.39 Crore and Rs. 279.96 Crore for Unit 2 and Unit 3 respectively.

Table 59: Revenue as submitted by the Petitioner (Rs. Crore)

Particulars	Unit 2		Unit 3	
	MYT Order	Petition	MYT Order	Petition
Revenue from Sale of Power	310.18	294.39	286.33	279.96

Commission's Analysis

5.142 The Commission vide letter dated March 07, 2019 directed the Petitioner to clarify the discrepancy between the revenue claimed and reflected in the Audited Accounts. The Commission further directed the Petitioner to submit the copy of monthly bills raised to Beneficiary for FY 2017-18.

5.143 The Petitioner vide letter dated April 12, 2109 replied to the Commission's discrepancy, detailing that the monthly bills pertaining to the period from April 01, 2016 to February 28, 2018 were raised provisionally based on the capacity charges (excluding secondary fuel oil expenses) as approved for FY 2015-16 in MYT Order dated May 31, 2012 with prior information to the Commission.

5.144 With the pronouncement of the MYT Order dated February 19, 2018, the Petitioner re-computed the capacity charges and energy charges for the above said period to get the difference between the provisionally billed amount and the amount approved by the Commission as per the Generation Tariff Regulations, 2015. Upon calculation, the net outstanding for Unit 2 and Unit 3 worked out to be Rs. 35.24 Crore and Rs. 39.50 Crore respectively.

5.145 Further, it is submitted that the Petitioner has recovered the arrear amounts in each Unit through six monthly instalments from TSL. The Petitioner requested the Commission to consider the abovementioned arrear amounts while considering the revenue from billed consumption for truing up for FY 2017-18.The copy of monthly bills raised to beneficiary for FY 2017-18 along with arrear bills raised for the period from April 01, 2016 to February 28, 2018 was also submitted in its reply.

5.146 The Commission has examined the reply of the Petitioner and approves the revenue for FY 2017-18 as shown below.

Table 60: Revenue as approved by the Commission (Rs. Crore)

Particulars	Unit 2			Unit 3		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Revenue from Sale of Power	310.18	294.39	294.39	286.33	279.96	279.96

Gap/Surplus for FY 2017-18

5.147 In accordance to Clause 6.16 and Clause 6.18 of the JSERC Generation Tariff Regulations, 2015 as reproduced below.

> *"6.16 Where after the truing up, the tariff recovered exceeds the tariff approved by the Commission under these regulations, the generating company shall refund to the beneficiaries as the case may be, the excess amount so recovered shall be as specified in the Clause 6.18 of this regulation.*
>
> *6.17 Where after the truing up, the tariff recovered is less than the tariff approved by the Commission under these regulations; the generating company licensee shall*

recover from the beneficiaries the under-recovered amount shall be as specified in the Clause 6.18 of this regulation.

6.18 The amount under-recovered or over-recovered, along with simple interest at the rate equal to the bank rate as on 1st April of the respective year, shall be recovered or refunded by the generating company in six equal monthly instalments starting within three months from the date of the tariff order issued by the Commission."

5.148 Accordingly, the Commission has approved the gap/surplus for FY 2017-18 for Unit 2 and Unit 3 in the following tables.

Table 61: Gap/(Surplus) for Unit 2 as approved by the Commission (Rs. Crore)

Particulars	Unit 2		
	FY 2017-18	FY 2018-19	FY 2019-20
Opening Gap/(Surplus)	0.00	(8.04)	(9.03)
Addition	11.67	0.00	0.00
Closing Gap/(Surplus)	11.67	(8.04)	0.00
Carrying Cost Rate	12.60%	12.20%	12.55%
Interest	0.37	(0.98)	(0.57)
Closing including Carrying Cost	12.04	(9.03)	(9.59)
Revenue Recovered in April, 2018	20.08	0.00	0.00
Net Closing Gap/(Surplus)	(8.04)	(9.03)	(9.59)

Table 62: Gap/(Surplus) for Unit 3 as approved by the Commission (Rs. Crore)

Particulars	Unit 3		
	FY 2017-18	FY 2018-19	FY 2019-20
Opening Gap	0.00	(5.19)	(5.82)
Addition	13.77	0.00	0.00
Closing Gap	13.77	(5.19)	0.00
Carrying Cost Rate	12.60%	12.20%	12.55%
Interest	0.43	(0.63)	(0.37)
Closing including Carrying Cost	14.20	(5.82)	(6.18)
Revenue Recovered in April, 2018	19.39	0.00	0.00
Net Closing Gap/(Surplus)	(5.19)	(5.82)	(6.18)

5.149 The Commission directed the Petitioner to adjust the surplus in the subsequent bills as per Clause 6.18 of JSERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2015.

A 6: ANNUAL PERFORMANCE REVIEW FOR FY 2018-19

6.1 The Petitioner has submitted the Annual Performance Review (APR) petition for FY 2018-19 based on the actual operational performance till October, 2018 and projected for the remaining months of the FY 2018-19. The financial performance was presented by the Petitioner considering the revised capitalization plan; energy charges based on actual coal procurement till October, 2018 and revised estimates for the balance financial year. The Petitioner however vide its submission date April 12, 2019 revised its filing on the basis of un-audited actuals for FY 2018-19.

6.2 The Commission has now carried out the Annual Performance Review for FY 2018-19 taking into consideration the following:

a) JSERC Generation Tariff Regulations, 2015;
b) Methodology adopted by the Commission in its earlier Tariff Orders.

6.3 The same shall be trued-up based on audited accounts for the FY 2018-19 and taking into consideration the provisions of the Tariff Regulations, 2015 and the methodology adopted by the Commission in its earlier Tariff Orders.

Operational Performance

Plant Availability Factor (PAF)

Petitioner's Submission

6.4 The Petitioner has submitted the actual month wise plant availability till October 2018 and projected at normative value i.e. 85% till February, 2019 for Unit 2 and till March, 2019 for Unit 3. The Petitioner submitted that Unit 2 will go under annual overhaul for 28 days in the month of March 2019. Hence, the availability for Unit 2 has been considered as 9.68% for the month of March, 2019. The Petitioner has claimed the average annual plant availability of Unit 2 as 87.30% and that of Unit 3 as 87.53% respectively.

Commission's Analysis

6.5 The Commission in the MYT Order dated February 19, 2018 had approved the Normative Annual Plant Availability Factor (NAPAF) as 85% for 2^{nd} control period in line to Clause 8.4 of JSERC Generation Tariff Regulation, 2015.

6.6 The Petitioner however, vide its reply dated April 12, 2019 to the Commission's query dated March 07, 2019 submitted the actual plant availability as 93.17% and 93.58% for Unit 2 and Unit 3 respectively.

6.7 The Commission has considered the revised submission of the Petitioner and approved the Plant Availability Factor (PAF) as shown below.

Table 63: Plant availability as approved by the Commission

Particulars	UoM	MYT Order	Petition	Approved
Unit-2				
NAPAF	%	85	85	85
Estimated Plant Availability	%	-	93.17	93.17
Unit-3				
NAPAF		85	85	85
Estimated Plant Availability	%	-	93.58	93.58

Auxiliary Consumption

Petitioner's Submission

6.8 The Petitioner has submitted the Auxiliary Consumption as 9.52% and 9.64% for Unit 2 and Unit 3 respectively based on actual till October 2018 and projected as normative value of 10.00% for remaining months of FY 2018-19.

6.9 The Petitioner vide its reply dated April 12, 2019 to the Commission query dated March 07, 2019 had revised the auxiliary consumption and submitted the actual values as 9.11% and 9.27% for Unit 2 and Unit 3 respectively.

Commission's Analysis

6.10 The Commission has scrutinized the Petitioner submission, replies and approves the auxiliary consumption as submitted by the Petitioner for FY 2018-19.

6.11 Further, according to Provision of Clause 6.11 and 6.12 of JSERC Generation Tariff Regulations, 2015, auxiliary consumption is a controllable factor and any financial loss or gain on account of underperformance or over-performance is not recoverable through tariff. Hence, for computation of Energy Charge Rate (ECR), the Commission has considered the normative auxiliary consumption of 10.00% for both the Units as approved in the MYT Order dated February 19, 2018.

6.12 The auxiliary consumption as approved by the Commission in the MYT Order dated February 19, 2018, as submitted by the Petitioner and approved now by the Commission for FY 2018-19 is provided in the table below.

Table 64: Auxiliary Consumption as approved by the Commission

Particulars	UoM	MYT Order	Petition	Approved
Unit-2				
Normative Auxiliary Consumption	%	10	10	10
Estimated Auxiliary Consumption	%	-	9.11	9.11
Unit-3				
Normative Auxiliary Consumption	%	10	10	10
Estimated Auxiliary Consumption	%	-	9.27	9.27

Plant Load Factor and Generation

Petitioner's Submission

6.13 The Petitioner has revised the actual Plant Load Factor (PLF) for Unit 2 as 73.08% and 73.68% for Unit 3 which is less than the PLF of 79.46% for Unit 2 and 85.00% for Unit 3 respectively as approved by the Commission in the MYT Order dated February 19, 2018.

6.14 The Petitioner has claimed the gross generation of Unit 2 and Unit 3 of the Jojobera generating station as 768.20 MU and 774.53 MU respectively. Accordingly, the Petitioner submitted net generation (ex-bus generation) for Unit 2 and Unit 3 as 698.20 MU and 702.77 MU respectively after deducting the auxiliary consumption as estimated above.

Commission's Analysis

6.15 The Commission raised its concern regarding huge gap between the projected Plant Availability Factor (PAF) and Plant Load factor (PLF). During the public hearing held on October 23, 2019, the Beneficiary (TSL) submitted that the energy cost sourced from the Petitioner is too high due to which the TSL prefer to procure power from other sources and back down the schedule from the Petitioner's plant.

6.16 The Commission has scrutinized the detail submitted by the Petitioner and approves the Plant Load Factor, Gross and Net generation as shown below.

Table 65: Plant Load Factor and Generation as approved by the Commission

Particulars	UoM	MYT Order	Petition	Approved
Unit 2				
Gross Generation	MU	835.28	768.20	768.20
Net Generation	MU	751.75	698.20	698.20
Plant Load Factor	%	79.46	73.08	73.08
Unit 3				
Gross Generation	MU	893.52	774.53	774.53
Net Generation	MU	804.17	702.77	702.77
Plant Load Factor	%	85	73.68	73.68

Gross Station Heat Rate (GHR)

Petitioner's Submission

6.17 The Petitioner has revised the actual Gross Station Heat Rate (GHR) as 2538 kCal/kWh for Unit 2 and 2542 kCal/kWh for Unit 3 against the normative approved value of 2567 kCal/kWh and 2577 kCal/kWh for Unit 2 and Unit 3 respectively. However, the Petitioner has considered the normative value of 2567 kCal/kWh for Unit 2 and 2577 kCal/kWh for Unit 3 for computation of energy charges.

Commission's Analysis

6.18 According to Provision of Clause 6.11 and 6.12 of JSERC Generation Tariff Regulations, 2015, Gross Station Heat Rate (GHR) is a controllable factor and any financial loss or gain on account of underperformance or over-performance is not recoverable through tariff.

6.19 In accordance to the Clause 8.4 of JSERC Generation Tariff Regulation, 2015 and in line to MYT Order dated February 19, 2018, the Commission approves the GHR as 2567 kCal/kWh for Unit 2 and 2577 kCal/kWh for Unit 3 respectively for FY 2018-19.

6.20 The Gross Station Heat Rate (GHR) as approved by the Commission for FY 2018-19 is summarized in the table below.

Table 66: Gross Station Heat Rate (GHR) as approved by the Commission

Particulars	UoM	MYT Order	Petition	Approved
Unit 2				
Normative Station Heat Rate	kCal/kWh	2567	2567	2567
Estimated Station Heat Rate	kCal/kWh	-	2538	2538
Unit 3				
Normative Station Heat Rate	kCal/kWh	2577	2577	2577
Estimated Station Heat Rate	kCal/kWh	-	2542	2542

Specific Fuel Oil Consumption

Petitioner's Submission

6.21 The Petitioner has submitted the specific fuel oil consumption as 1.00 ml/kWh for both the Units as specified in Clause 8.4 of JSERC Generation Tariff Regulations, 2015.

Commission's Analysis

6.22 The Commission in its MYT Order dated February 19, 2018 approved the Specific Fuel Oil Consumption as 0.50 ml/kWh for 2nd Control period. The abstract from the MYT Order is reproduced below.

"6.137 The JSERC Generation Tariff Regulations, 2015 specifies the following

16.4 The Commission may in public interest and for reasons to be recorded in writing, relax any of the provision of these Regulations."

6.138 Considering all of the above, the Commission has decided to approve the specific oil consumption (of LDO) at 0.5 ml/kWh for each year of the Control Period i.e. from FY 2016-17 to FY 2020-21 for both Unit 2 and Unit 3. This norm may be re-looked based on Petitioner's actual performance during the Control period and as deemed fit by the Commission after due consideration of the actual performance of the Petitioner. In the subsequent APR and True-up Petitions, the Petitioner is directed to also submit details of number of unit-wise start-ups taken after shutdown. Also, details should include monthly quantity of secondary fuel consumed during plant start-up and flame support if required."

6.23 The Petitioner had filed the review petition before the Commission against the MYT Order dated February 19, 2018 for revision of targets on specific fuel oil consumption for the 2nd control period. The Commission retain the normative value as approved in the MYT Order dated February 19, 2018 and dispose of the review petition. The relevant abstract is reproduced below.

"……. the Commission has fixed 0.5 ml/kWh for each year of the control period at this stage. However, as mentioned in the MYT Order itself, the Commission may re-look into the same during APR and True up of the years to be submitted by the Petitioner subject to the petitioner providing the details of start-ups taken after the shut downs and monthly quantity of secondary fuel consumed during plant start-up"

6.24 The Commission has considered the Specific Fuel Oil Consumption as 0.5 ml/kWh as approved in MYT Order dated February 19, 2018 for both Unit 2 and Unit 3 for Annual Performance Review for FY 2018-19 as shown below.

Table 67: Specific Fuel Oil Consumption as approved by the Commission

Particulars	UoM	MYT Order	Petition	Approved
Specific Fuel Oil Consumption (Unit 2)	ml/kWh	0.5	1.00	0.5
Specific Fuel Oil Consumption (Unit 3)	ml/kWh	0.5	1.00	0.5

Fuel Cost Parameters

Coal Mix and Gross Calorific Value (GCV) of Primary Fuel

Petitioner's Submission

6.25 The Petitioner submits that the coal is primarily sourced from West Bokaro Colliery of Tata Steel (Middling Coal) and Mahanadi Coal Fields, Odisha (MCL Coal). The collieries of West Bokaro is located in Ramgarh district of Jharkhand state which is approximately at a distance of 200 km from plant site by roadways and ~190 km by railway, whereas mines of MCL is situated around 300 km form plant site by railway.

6.26 The Petitioner has further submitted that they had to resort to other sources like 2-Product and Tailing coal from Collieries of West Bokaro, Coal India Limited through forward e-auction, washed coal from private washeries and in the rarest of situations had to also procure imported coal to meet the demand of distribution Licensee in order to provide uninterrupted and reliable supply to industries and household consumers.

6.27 The Petitioner provided the tentative coal procurement plan for Jojobera Units 2 and Unit 3 from upcoming month till March, 2019 considering actual coal receipts till October, 2018, expiry of linkage coal from MCL on April 30, 2018 and further continuation of the supply from MCL even beyond April 30, 2018 for a limited period through MOU route till CIL held fresh auction for coal as per guidelines of CIL dated June 05, 2017. The Petitioner further added that the Petitioner always attempts to keep the actual coal procurement situation close to the original coal procurement plan approved by the Commission. However, they had to harness other sources to meet the shortfall from long term linkage sources for reasons beyond the control of the Petitioner.

6.28 The Petitioner submitted that till October, 2018, they only received ~26% of the contracted quantum from MCL against the Fuel Supply Agreement (FSA) with MCL which expired on April, 2018 although continuous supply was required to be made as per the guidelines of CIL issued vide letter no CIL/S&M/Linkage Auction/424, dated June 05, 2017 which clearly mandates that existing coal supply arrangement may continue till commencement of coal supply under new auction. The supply of coal was drastically reduced from MCL even after regular follow-ups for the reasons beyond the control of the Petitioner. Consequent to above, the Petitioner submitted that they were left with no choice but to rely on other sources like Two (2) Product and Tailing, washery, rejects and e-auction. However, while exploring various sources and securing coal for meeting the demand of the Beneficiary, the Petitioner always continued to attempt to keep the price and quality as close as possible to the approved figures.

Commission's Analysis

6.29 The Commission observe that even after repeated reminders and directions, the Petitioner fails to restrain its fuel cost. The deviation from approved source and drastic increase in the primary fuel shows the mismanagement and negligence on the part of the Petitioner.

Even after said effort and participation in various schemes like E-auction, SHAKTI scheme, the Petitioner is not able to optimise their fuel cost.

6.30 The Commission in the discrepancy note dated March 07, 2019 directed the Petitioner to submit the coal consumption, GCV and landed price till January 2019. The Petitioner in its reply dated April 12, 2019 dated submitted the month wise detail of coal consumption, and GCV for the complete FY 2018-19.

6.31 Further, the Petitioner in its reply dated December 26, 2019, submitted the actual coal mix and GCV of coal consumed for FY 2018-19.

6.32 The Commission in this Order for Annual Performance Review has considered the coal mix and GCV for FY 2018-19 as submitted by the Petitioner dated December 26, 2019. However, the same shall be subject to truing up on the basis of audited accounts and the Commission will carry out due diligence of the efforts and steps carried out by the Petitioner to optimise its fuel cost. The Petitioner is required to submit the documentary evidence of efforts taken by it to minimise the fuel cost.

6.33 Considering the facts submitted by the Petitioner, the following tables summarize the coal mix and weighted average GCV of coal as approved by the Commission for Unit 2 and Unit 3 of Jojobera Generation.

Table 68: Coal Mix and GCV for Unit 2 as approved by the Commission

Particulars	Coal Mix (%)			GCV (kCal/kg)		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Middling Coal	70	33.22	33.22	4149	4057.98	4057.98
MCL Coal	30	8.73	8.73	2662	3243.50	3243.50
Washery Coal	-	22.13	22.13	-	3916.66	3916.66
2-Product+Tailing (By Rake)	-	17.72	17.72	-	2842.96	2842.96
CCL/BCCL Coal	-	10.02	10.02	-	4083.73	4083.73
Tailing (By Road)	-	2.75	2.75	-	4258.26	4258.26
WB Reject Coal	-	2.05	2.05	-	2484.65	2484.65
Imported Coal	-	3.37	3.37	-	4122.05	4122.05

Table 69: Coal Mix and GCV for Unit 3 as approved by the Commission

Particulars	Coal Mix (%)			GCV (kCal/kg)		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Middling Coal	70	34.26	34.26	4149	4050.39	4050.39
MCL Coal	30	7.84	7.84	2662	3236.81	3236.81
Washery Coal	-	19.19	19.19	-	3948.56	3948.56
2-Product+Tailing (By Rake)	-	19.16	19.16	-	2831.59	2831.59
E-Auction	-	7.89	7.89	-	4048.92	4048.92

Particulars	Coal Mix (%)			GCV (kCal/kg)		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Tailing (By Road)	-	2.86	2.86	-	4259.37	4259.37
WB Reject Coal	-	2.66	2.66	-	2465.61	2465.61
Imported Coal	-	5.95	5.95	-	4133.86	4133.86

Transit Loss

Petitioner's Submission

6.34 The Petitioner has submitted that coal is procured primarily from two sources i.e. Middling Coal from the West Bokaro Collieries of Tata Steel in Jharkhand and MCL Coal procured from the Mahanadi Coalfields in Orissa. In addition to these, the Petitioner has additionally procured two different by-products of coal from West Bokaro Collieries i.e. Two (2) Product and Tailing in order to cater the demand adequately. The Petitioner further emphasised that the coal procured from West Bokaro Collieries are by-products of the Coal Beneficiation process and therefore falls under the category of Washed Coal having high moisture content at the time of loading.

6.35 The Petitioner has projected higher transit loss in Middling Coal and 2-Product + Tailing Coal (by Rake) as 3.30% and 5.74% respectively for FY 2018-19. The Petitioner has submitted that the increase in transit loss is mainly on account of reduction in moisture content during transportation by rake and is beyond the control of the Petitioner. The transit loss for other category of coal has been considered as per norms given in Regulation 8.21 of the Generation Tariff Regulations 2015.

6.36 The Petitioner has requested the Commission to approve the transit loss for each source of coal as mentioned above.

Commission's Analysis

6.37 In accordance with the Clause 8.21 of JSERC Generation Tariff Regulation, 2015, the Commission had approved the normative transit loss as 0.8% in the MYT Order dated February 19, 2018.

6.38 The Petitioner had filed a review petition before the Commission for considering the higher transit loss of washed coal and allows 1% transit loss for washed coal i.e. middling coal for 2nd Control period. The Commission disposed off the review petition vide its Order dated January 9, 2019 allowing normative transit loss of 0.8% for 2nd Control period. The extract is reproduced below.

"The Commission has approved the Normative Transit Loss of 0.8% irrespective of the coal type as per Regulation 8.21 of the JSERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2015. Normative transit loss under the Regulation accounts for higher loss for some categories of coal such as middling coal and lower transit loss for other types of coals. The Commission may examine the actual transit loss for the year during APR and True-up and will decide on the quantum of transit loss to be passed on".

6.39 The Commission observes that the Petitioner had filed an Appeal in this matter before the Hon'ble APTEL against the MYT Order dated February 19, 2018 which is still pending. Since, the matter is sub-judice before the Hon'ble APTEL, the Commission approves the transit loss as 0.80% for both the Units for domestic coal and 0.20% for imported coal for FY 2018-19.

6.40 In view of the above, the Commission approves the transit loss on normative basis for FY 2018-19 as shown below.

Table 70: Transit Loss as approved by the Commission

Particulars	UoM	MYT Order	Petition	Approved
Middling Coal	%	0.8	3.30	0.8
MCL Coal	%	0.8	0.8	
Washery Coal	%	-	0.8	
2-Product+Tailing (By Rake)	%	-	5.74	
E-Auction	%	-	0.8	
Tailing (By Road)	%	-	0.8	
WB Reject Coal	%	-	0.8	
Imported Coal	%	0.2	0.2	0.2

Landed Cost of Coal

Petitioner's Submission

6.41 The Petitioner in its petition had projected landed price of coal from each source for FY 2018-19 based on the actual for the period from April 2018 to October 2018 and projected for rest of the months of FY 2018-19. For Middling coal, 2-Product+Tailing coal (by Rake) and CCL/BCCL (E-Auction) coal, the landed price was calculated considering the higher transit loss as projected however, normative transit loss is considered for other category of coal as per JSERC Generation Tariff Regulations, 2015.

6.42 Further, the Petitioner in its reply dated December 26, 2019 has revised the coal mix and landed price from each source based on actual for the period from April 2018 to March 2019.

6.43 The Petitioner submitted that the price and quality of the fuel are uncontrollable in nature for a generating company and requested the Commission to approve the same as proposed by the Petitioner.

Commission's Analysis

6.44 The Commission in its discrepancy note dated March 07, 2019 has directed the Petitioner to provide the audited certificate of the consumption, GCV and landed price of primary fuel for FY 2018-19 till January 2019. In reply to the Commission query, the Petitioner provided the actual coal consumption along with GCV and landed price from each source and prays before the Commission to grant time to obtain the auditor's certificate for consumption and landed price of fuel.

6.45 The Commission observed that there is huge deviation between the value of MYT Order dated February 19, 2018 and submitted in the APR petition.

6.46 The Commission in this Order for Annual Performance Review for FY 2018-19 has approved the landed price of coal from each source based on the data submitted by the Petitioner however; the same shall be subject to truing up based on the actuals as per audited accounts.

6.47 The Commission for reasons already stated earlier in this Order approves the normative transit loss for the calculation of landed price of coal.

6.48 The weighted average landed price of coal as approved by the Commission for Annual Performance Review for FY 2018-19subject to truing up is provided in the table below.

Table 71: Landed Price of Coal for Unit 2 as approved by the Commission (Rs./Ton)

Particulars	MYT Order	Petition	Approved
Middling Coal	3830.25	4181.46	4181.46
MCL Coal	2127.80	2681.75	2681.75
Washery Coal	-	5203.35	5203.35
2-Product+Tailing (By Rake)	-	2976.08	2976.08
CCL/BCCL (E-Auction) Coal	-	4161.10	4161.10
Tailing (By Road)	-	4092.23	4092.23
WB Reject Coal	-	2670.78	2670.78
Imported Coal	-	6116.80	6116.80
Avg. Landed Price of Coal including Transit loss	**3319.43**	**4156.00**	**4092.83**

Table 72: Landed Price of Coal for Unit 3 as approved by the Commission (Rs./Ton)

Particulars	MYT Order	Petition	Approved
Middling Coal	3831.73	4214.33	4214.33
MCL Coal	2119.13	2686.89	2686.89

Particulars	MYT Order	Petition	Approved
Washery Coal	-	5265.01	5265.01
2-Product+Tailing (By Rake)	-	2984.19	2984.19
CCL/BCCL (E-Auction) Coal	-	4360.16	4360.16
Tailing (By Road)	-	4091.39	4091.39
WB Reject Coal	-	2671.33	2671.33
Imported Coal	-	6115.03	6115.03
Avg. Landed Price of Coal including Transit loss	**3317.95**	**4208.00**	**4140.44**

Calorific value and Cost of Secondary Fuel

Petitioner's Submission

6.49 The Petitioner has submitted the estimated calorific value and landed price of Secondary Fuel for Unit 2 and Unit 3 for FY 2018-19. The weighted average calorific value and landed price as claimed by the Petitioner is 9100 kCal/L and Rs. 47397 per litre for Unit 2 and 9100 kCal/L and Rs. 44332 per litre for Unit 3 respectively.

Commission's Analysis

6.50 The Commission in its discrepancy note dated March 07, 2019 has directed the Petitioner to provide the audited certificate of the consumption, GCV and landed price of secondary fuel for FY 2018-19 till January 2019.The Petitioner submitted calorific value and landed price of secondary fuel based on actual as 9100 kCal/L and Rs. 47597 per litre for Unit 2 and 9100 kCal/L and Rs. 44515 per litre for Unit 3 respectively for the complete FY 2018-19. The Petitioner however sought time for submission of auditor certificate.

6.51 The Commission has approved the calorific value and landed price of secondary fuel as submitted by the Petitioner and directs the Petitioner to submit the auditor's certificate at the time of truing up.

Table 73: Calorific value & Landed price of Secondary fuel as approved by the Commission

Particulars	Calorific Value (kCal/L)			Landed Price (Rs./kL)		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Unit 2	9100	9100	9100	-	47597	47597
Unit 3	9100	9100	9100	-	44515	44515

Energy Charge Rate (ECR)

Petitioner's Submission

6.52 The Petitioner has submitted the Energy Charge Rate (ECR) for FY 2018-19 as Rs. 3.048 per kWh and Rs. 3.117 per kWh for Unit 2 and Unit 3 respectively as per JSERC Generation Tariff Regulations, 2015.

6.53 Further, vide its reply dated December 26, 2019, the Petitioner revised the ECR asRs. 3.230 per kWh and Rs. 3.292 per kWh for Unit 2 and Unit 3 respectively based on the actual coal consumption and secondary fuel for FY 2018-19.

6.54 The Petitioner has further submitted that for calculation of ECR, it has considered normative Gross Station Heat Rate of 2567kCal/kWh for Unit 2 and 2577 kCal/kWh for Unit 3, normative Auxiliary Consumption of10.00% and normative secondary fuel oil as 1.00 ml/kWh is considered for both the Units.

Commission's Analysis

6.55 As per Clause 8.17 of JSERC Generation Tariff Regulation, 2015, the energy (variable) charge shall cover primary fuel and secondary fuel costs and shall be payable by every beneficiary for the energy scheduled to be supplied to such beneficiary during the calendar month on an ex-power plant basis, at the specified energy charge rate of the month (with fuel price adjustment).

6.56 The formula for calculation of energy charge payable to a Generating Company is specified in Regulation 8.18 and 8.19 of JSERC Generation Tariff Regulation, 2015 as quoted below.

> *"8.18 Total Energy charge payable to the Generating Company for a month shall be =(Energy charge rate in Rs. /kWh) x {Scheduled energy (ex-bus) for the month in kWh.}*
>
> *8.18 Energy charge rate (ECR) in Rupees per kWh on ex-power plant basis shall be determined to three decimal places in accordance with the following formula:*
> *(a) For coal based stations*
>
> *ECR = {(GHR – SFC x CVSF) x LPPF/CVPF+SFCxLPSFi+LCxLPL} x 100/(100 – AUX)}*
>
> *…………..*
> *Where,*
> *AUX - Normative auxiliary energy consumption in percentage*
> *CVPF –Weighted Average Gross calorific value of coal as received, in KCal per kg, for coal based stations. In case of blending of fuel from different sources, the weighted average Gross calorific value of primary fuel shall be arrived in proportion to blending ratio.*
> *CVSF - Calorific value of secondary fuel, in KCal per ml*
> *ECR - Energy charge rate, in Rupees per kWh sent out.*
> *GHR - Gross station heat rate, in KCal per kWh.*

LC - Normative limestone consumption in kg per kWh

LPPF - Weighted average landed price of primary fuel, in Rupees per kg, per litre or per standard cubic metre, as applicable, during the month.(In case of blending of fuel from different sources, the weighted average landed price of primary fuel shall be arrived in proportion to blending ratio)

LPSFi=Weighted Average Landed Price of Secondary Fuel in Rs./ml during the month

LPL = Weighted average landed price of limestone in Rupees per kg

SFC - Specific fuel oil consumption, in ml per kWh".

6.57 Accordingly, the Commission has calculated the ECR to be charged by the Petitioner as per the formula specified in JSERC Generation Tariff Regulations, 2015 and approved parameters in this Order. The table below detailed the ECR and Fuel Cost for Unit 2 and Unit 3 as approved by the Commission for FY 2018-19 and shall be subject to truing up.

Table 74: Energy Charge Rate (ECR) for Unit 2 as approved by the Commission

Particulars	UoM	MYT Order	Petition	Approved
Net Generation	MU	751.76	698.20	698.20
Auxiliary Consumption	%	10.00	10.00	10.00
Gross Station Heat Rate	kCal/kWh	2567	2567	2567
Specific Oil Consumption	mL/kWh	0.50	1.00	0.50
Calorific Value of Oil	kCal/mL	9.1	9.1	9.1
GCV of Primary Fuel	kCal/kg	3702.90	3718.22	3718.22
Landed Price of Primary Fuel	Rs./Ton	3319.43	4156.00	4092.83
Landed Price of Secondary Fuel	Rs./kL	-	47597.00	47597.00
Energy Charge Rate (ECR)	**Rs/kWh**	**2.578**	**3.230**	**3.160**

Table 75: Energy Charge Rate (ECR) for Unit 3 as approved by the Commission

Particulars	UoM	MYT Order	Petition	Approved
Net Generation	MU	804.17	702.77	702.77
Auxiliary Consumption	%	10.00	10.00	10.00
Gross Station Heat Rate	kCal/kWh	2577	2577	2577
Specific Oil Consumption	mL/kWh	0.50	1.00	0.50
Calorific Value of Oil	kCal/mL	9.1	9.1	9.1
GCV of Primary Fuel	kCal/kg	3702.90	3702.19	3702.19
Landed Price of Primary Fuel	Rs./Ton	3317.89	4208.00	4140.44
Landed Price of Secondary Fuel	Rs./kL	-	44515.00	44515.00
Energy Charge Rate (ECR)	**Rs/kWh**	**2.587**	**3.292**	**3.221**

Summary of Fuel Cost

6.58 The table below provides the summary of Fuel Cost submitted by the Petitioner and approved by the Commission for True-up of FY 2018-19.

Table 76: Fuel Cost for Unit 2 as approved by the Commission

Particulars	UoM	MYT Order	Petition	Approved
Cost of Primary Fuel	Rs. Cr.	-	-	218.82
Cost of Secondary Fuel	Rs. Cr.			1.85
Energy Cost	**Rs. Cr.**	**193.77**	**225.51**	**220.66**

Table 77: Fuel Cost for Unit 3 as approved by the Commission

Particulars	UoM	MYT Order	Petition	Approved
Cost of Primary Fuel	Rs. Cr.	-	-	224.65
Cost of Secondary Fuel	Rs. Cr.			1.74
Energy Cost	**Rs. Cr.**	**208.00**	**231.38**	**226.39**

Determination of Fixed Cost

Additional Capitalization

Petitioner's Submission

6.59 The Petitioner has submitted the actual capitalization for Unit 2 and Unit 3 for FY 2018-19 which is broadly categorised under following two heads:

i. **Capitalization-Standalone:** This category includes the capitalized costs incurred for assets/schemes exclusively for Unit 2 or Unit 3.

ii. **Capitalization-Common Facilities:** This category includes the assets/schemes which are common to all the Units at the Jojobera Power Plant i.e. Unit-1, Unit-2, Unit-3, Unit-4 of Tata Power and Unit 5 of Industrial Energy Limited (IEL). These assets/schemes provide facilities to all the above Units and therefore the capitalized cost of such assets/schemes are apportioned to derive the GFA part of Unit 2 and Unit 3 appropriately.

6.60 The following table summarises the additional capitalization for Unit 2 and Unit 3 as proposed by the Petitioner for FY 2018-19. The major reason for deviation in estimated and approved capitalization is mainly on account of partly or fully deferred in capitalization.

Table 78: Asset wise Capitalization as submitted by the Petitioner (Rs. Crore)

Particular	MYT Order	Petition	Remark
Unit-2 (Standalone)			
Flame Scanner Panel Up gradation	0.50	0.04	Cost overrun. Already approved 0.50 Crore in FY 2016-17
Burner Panel Bends	0.85	0.88	Cost overrun
Centrifugal Compressor for Ash Plant	0.65	0.78	Cost overrun
210 AH UPS battery bank	0.50	0.28	-
6.6 kV Switchboard Replacement	4.00	2.72	-
Up gradation of turbine visory system	2.00	1.17	-
Up-gradation of furnace safeguard, supervisory& BOP control System	12.00	4.97	-
Unit-3 (Standalone)			
HRH & MS Safety Valve	0.28	0.04	-
Centrifugal Compressor for Ash Plant	0.65	0.78	Cost overrun
Unit-2 & 3 (Common)			
Anhydrous Ammonia System	0.55	0.04	-
New Scheme Proposed			
Up gradation of Plant Security System	-	0.11	New Scheme proposed
Capitalization owing to Past Settlements	-	0.10	New Scheme proposed
Minor Assets- Plant & Machinery	-	0.46	New Scheme proposed

Particular	MYT Order	Petition	Remark
IT Assets	-	0.24	New Scheme proposed
Replacement of Dead Tank CT with live Tank CT	-	0.29	New Scheme proposed
Net- Capitalization	**21.99**	**12.44**	

Table 79: Capitalization as submitted by the Petitioner (Rs. Crore)

Particulars	Unit 2		Unit 3	
	MYT Order	Petition	MYT Order	Petition
Capitalization	**14.53**	**11.23**	**8.53**	**1.20**

Commission's Analysis

6.61 The Commission has outlined the following provisions for the approval of any additional capitalization for a generating station in the JSERC Generation Tariff Regulation, 2015.

> "*Additional Capitalisation*
> *'7.5 The capital expenditure incurred or projected to be incurred, on the following counts within the original scope of work, after the date of commercial operation and up to the cut-off date may be admitted by the Commission, subject to prudence check:*
>
> *(i) Undischarged liabilities;*
>
> *(ii) Works deferred for execution;*
>
> *(iii) Procurement of initial capital spares within the original scope of work, subject to the provisions under clause 7.3,7.4 of these Regulations;*
>
> *(iv) Liabilities to meet award of arbitration or for compliance of the order or decree of a court; and*
>
> *(v) Change in law.*
>
> *Provided that the details of works included in the original scope of work along with estimates of expenditure, undischarged liabilities and the works deferred for execution shall be submitted along with the application for determination of tariff.*
>
> *'7.6 The capital expenditure incurred on the following counts after the cut-off date may, in its discretion, be admitted by the Commission, subject to prudence check:*
>
> *(i) Liabilities to meet award of arbitration or for compliance of the order or decree of a court;*
>
> *(ii) Change in law;*
>
> *(iii) Deferred works relating to ash pond or ash handling system in the original scope of work;*

(iv) Any additional works/services which have become necessary for efficient and successful operation of the generating station, but not included in the original project cost;

(v) Any liability for works executed prior to the cut-off date, after prudence check of the details of such undischarged liability, total estimated cost of package, reasons for such withholding of payment and release of such payments etc.

(vi) Any capital expenditure found justified after prudence check necessitated on account of modifications required or done in fuel receiving system arising due to non-materialisation of coal supply corresponding to full coal linkage in respect of thermal generating station as result of circumstances not within the control of the generating station:

(vii) In case of hydro generating stations, any expenditure which has become necessary on account of damage caused by natural calamities (but not due to flooding of power house attributable to the negligence of the generating company) including due to ecological reasons after adjusting for proceeds from any insurance scheme, and expenditure incurred due to any additional work which has become necessary for successful and efficient plan operation; and

Provided that in respect sub-clause (vii) above, any expenditure on acquiring the minor items or the assets like tools and tackles, furniture air conditioners, voltage stabilizers, refrigerators, coolers, fans, washing machine, heat convectors, mattresses, carpets etc. brought after the cut-off date shall not be considered for additional capitalization for determination of tariff w.e.f. 01.04.2016 for the Control period.

Provided further that any capital expenditure other than that of the nature specified above in (i) to (vi) in case of coal/lignite-based station shall be met out of compensation allowance as specified in Clause 7.46;

Provided also that if any expenditure has been claimed under Renovation and Modernisation (R&M), repairs and maintenance under (O&M) expenses and Compensation Allowance, same expenditure cannot be claimed under this regulation."

6.62 In regard to revision in capitalization scheme for FY 2018-19, the Commission has scrutinized the submissions of the Petitioner. The Commission however is of the view that as the audited figures are not available, therefore the Commission has considered only those schemes that have already been approved in the MYT Order. Further, while allowing cost the Commission has considered the minimum of the actual projected expenses and that allowed by the Commission in the MYT Order. The Commission directs the Petitioner to submit detailed reasons for cost escalation and new scheme proposed at the time of filing true up petition for FY 2018-19.

6.63 Further, the Petitioner in its submission dated December 26, 2019 has provided the detail of deletion of assets for the FY 2018-19. The Commission approves the deletion of assets as proposed by the Petitioner subject to prudence check at the time of true-up.

6.64 In view of the above, the Commission approves the additional capitalisation for FY 2018-19 as shown below.

Table 80: Asset wise Capitalization as approved by the Commission (Rs. Crore)

Particular	MYT Order	Petition	Approved	Remark
Unit-2 (Standalone)				
Flame Scanner Panel Up gradation	0.50	0.04	0	Already approved 0.50 Crore in FY 2016-17
Burner Panel Bends	0.85	0.88	0.71	Already approved 0.14 Crore in FY 2016-17
Centrifugal Compressor for Ash Plant	0.65	0.78	0.65	Approved to the value as approved in MYT Order
210 AH UPS battery bank	0.50	0.28	0.28	-
6.6 kV Switchboard Replacement	4.00	2.72	2.72	-
Up gradation of turbine visory system	2.00	1.17	1.17	-
Up-gradation of furnace safeguard, supervisory& BOP control System	12.00	4.97	4.97	-
Unit-3 (Standalone)				
HRH & MS Safety Valve	0.28	0.04	0.04	-
Centrifugal Compressor for Ash Plant	0.65	0.78	0.65	Approved to the value as approved in MYT Order
Unit-2 & 3 (Common)				
Anhydrous Ammonia System	0.55	0.04	0.04	-
New Scheme Proposed				
Up gradation of Plant Security System	-	0.11	0	Disallowed, New Scheme
Capitalization owing to Past Settlements	-	0.10	0	Disallowed, New Scheme
Minor Assets- Plant & Machinery	-	0.46	0	Disallowed, New Scheme
IT Assets	-	0.24	0	Disallowed, New Scheme
Replacement of Dead Tank CT with live Tank CT	-	0.29	0	Disallowed, New Scheme
Net- Capitalization	**21.99**	**12.44**	**11.26**	

Table 81: Capitalization as approved by the Commission (Rs. Crore)

Particulars	Unit 2			Unit 3		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Standalone	14.53	10.84	10.51	8.53	0.83	0.71
Apportioned-Common Facilities	-	0.39	0.02	-	0.39	0.02
Net Capitalization	**14.53**	**11.23**	**10.53**	**8.53**	**1.22**	**0.73**

6.65 The Gross Fixed Assets (GFA) as approved by the Commission for FY 2018-19 is shown below.

Table 82: Gross Fixed Assets (GFA) as approved by the Commission (Rs. Crore)

Particulars	Unit 2			Unit 3		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Opening GFA	498.44	488.24	475.86	485.72	472.68	461.90
Capitalization	14.53	11.23	10.53	8.53	1.20	0.73
Decapitalisation	-	1.39	1.39	-	0.57	0.57
Closing GFA	512.96	498.09	485.00	494.24	473.32	462.06

Depreciation

Petitioner's Submission

6.66 The Petitioner has submitted the depreciation for FY 2018-19as summation of the depreciation on the following assets:

- Original Project Cost
- Additional Capitalization from FY 2011-12 to FY 2017-18 and
- Additional Capitalization estimated for FY 2018-19.

6.67 The Petitioner has proposed the same methodology for calculation of depreciation as proposed for FY 2017-18.

6.68 The Petitioner in its reply dated December 26, 2019 has revised the depreciation based on the revised submission of additional capitalization for FY 2018-19.

6.69 The Petitioner requested the Commission to exercise its power conferred under Power to remove difficulties under Clause 16.3and Power to Relax under Regulation 16.4 of the Tariff Regulations and allow the Petitioner to recover complete depreciation on assets by the end of the PPA tenure by spreading the balance depreciable value on assets capitalised as on March 31, 2018 on remaining PPA tenure. The depreciation as claimed by the Petitioner is shown in the table below.

Table 83: Depreciation as submitted by the Petitioner (Rs. Crore)

<table>
<tr><th rowspan="2">Particulars</th><th colspan="2">Unit 2</th><th colspan="2">Unit 3</th></tr>
<tr><th>MYT Order</th><th>Petition</th><th>MYT Order</th><th>Petition</th></tr>
<tr><td>Depreciation on Original Capital Cost</td><td>3.36</td><td>-</td><td>5.11</td><td>-</td></tr>
<tr><td>Depreciation on Additional Capitalization FY 12</td><td rowspan="5">2.66</td><td>-</td><td rowspan="5">2.36</td><td>-</td></tr>
<tr><td>Depreciation on Additional Capitalization FY 13</td><td>-</td><td>-</td></tr>
<tr><td>Depreciation on Additional Capitalization FY 14</td><td>-</td><td>-</td></tr>
<tr><td>Depreciation on Additional Capitalization FY 15</td><td>-</td><td>-</td></tr>
<tr><td>Depreciation on Additional Capitalization FY 16</td><td>-</td><td>-</td></tr>
<tr><td>Depreciation on Additional Capitalization FY 17</td><td rowspan="3">2.16</td><td>-</td><td rowspan="3">2.24</td><td>-</td></tr>
<tr><td>Depreciation on Additional Capitalization FY 18</td><td>-</td><td>-</td></tr>
<tr><td>Depreciation on Additional Capitalization FY 19</td><td>-</td><td>-</td></tr>
<tr><td>Net Depreciation</td><td>8.18</td><td>6.72</td><td>9.71</td><td>7.88</td></tr>
</table>

Commission's Analysis

6.70 The JSERC Generation Tariff Regulation, 2015 has specified the following methodology for the calculation of depreciation expense for existing generating station.

> *"7.28 Depreciation shall be calculated for each year of the tariff period, on the amount of Capital Cost of the assets admitted by the Commission;*
>
> *Provided that depreciation shall not be allowed on assets funded by any capital subsidy/grant.*
>
> *7.29 The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the capital cost of the asset.*
> *…………..*
>
> *7.30 Land other than land held under lease and the land for reservoir in case of hydro generating station shall not be a depreciable asset and its cost shall be excluded from the capital cost while computing depreciable value of the asset.*
>
> *7.31 Depreciation shall be calculated annually based on 'Straight Line Method' and at rates specified in Appendix-I to these Regulations for the assets of the generating station:*
>
> *Provided that, the remaining depreciable value as on 31st March of the Year closing after a period of 12 Years from the Date of Commercial operation shall be spread over the balance Useful life of the assets.*
>
> *7.32 In case of existing projects, the balance depreciable value as on 1st April 2016 shall be worked out by deducting the cumulative depreciation as admitted by the Commission upto 31st March 2016 from the gross depreciable value of the assets.*

The rate of depreciation shall be continued to be charged at the rate specified in Appendix-I till cumulative depreciation reaches 70%. Thereafter the remaining depreciable value shall be spread over the remaining life of the asset such that the maximum depreciation does not exceed 90%.

7.33 Depreciation shall be chargeable from the first Year of commercial operation. In case of commercial operation of the asset for part of the Year, depreciation shall be charged on pro rata basis."

6.71 The Commission observed that the methodology adopted by the Petitioner for calculation of depreciation is not in line to the Generation Tariff Regulations 2015. The reasons cited by the Petitioner of under recovery of assets value in case the rate of depreciation as mentioned in Appendix-I of Generation Tariff Regulations 2015 is considered for calculation is not found satisfactory as the same has not been substantiated with proper workings.

6.72 The Commission is of the view that to substantiate its proposal for change in the methodology for calculation of depreciation, the Petitioner was required to carry out detail study to ascertain the residual life of asset. At present, the Petitioner proposal for accepting the different methodology for calculation of depreciation without any documentary evidence demonstrate only its eagerness to recover the expenditure incurred. Hence, for carrying out the Annual Performance Review for FY 2018-19, the Commission has approved the deprecation as per rate defined in JSERC Generation Tariff Regulations, 2015. However, the Commission shall look into the issue while framing the tariff regulations for the third control period. The Petitioner may submit its proposal at the time of finalising the tariff regulations for Commission's consideration.

6.73 The Commission has approved the value of depreciation for FY 2018-19 as shown below.

Table 84: Depreciation as approved by the Commission (Rs. Crore)

Particulars	Unit 2			Unit 3		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Depreciation on Original Capital Cost	3.36	-	2.27	5.11	-	3.77
Depreciation on Add. Cap. FY 12	2.66	-	0.41	2.36	-	0.38
Depreciation on Add. Cap. FY 13		-	0.58		-	0.32
Depreciation on Add. Cap. FY 14		-	0.43		-	0.81
Depreciation on Add. Cap. FY 15		-	0.73		-	0.26
Depreciation on Add. Cap. FY 16		-	0.51		-	0.59
Depreciation on Add. Cap. FY 17	2.16	-	0.29	2.24	-	0.35
Depreciation on Add. Cap. FY 18		-	0.01		-	0.11
Depreciation on Add. Cap. FY 19		-	0.54		-	0.004

Particulars	Unit 2			Unit 3		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Net Depreciation	**8.18**	**6.72**	**5.78**	**9.71**	**7.88**	**6.59**

Operation & Maintenance Expenses

Petitioner's Submission

6.74 The Petitioner has claimed the Operation and Maintenance (O&M) expenses under the following five broad categories.

a. Employee Expenses with Terminal Benefits;
b. Repairs & Maintenance (R&M) Expenses;
c. Administrative and General (A&G) Expenses;
d. Raw water Expenses;
e. Capital Spares.

6.75 The Petitioner has claimed the employee expenses on normative basis as approved in the MYT Order dated February 19, 2018 for Annual Performance Review for FY 2018-19. Further, the Petitioner has claimed the terminal liabilities on actual based on the revised submission dated December 26, 2019.

6.76 For R&M expenses, the Petitioner has claimed on normative basis as approved in the MYT Order dated February 19, 2018.

6.77 The A&G expenses submitted by the Petitioner comprises of ash disposal expenses, head office expenses & shared services expenses, application fees, and publication expenses and other A&G expenses.

6.78 While estimating the ash disposal expense for FY 2018-19, the Petitioner has considered the actual ash disposal expenses apportioned and allocated to Unit 2 and Unit 3.

6.79 The Head Office expenses and other A&G expenses is considered on normative basis as approved in the MYT Order dated February 19, 2018.

6.80 The publication expense &application fee is claimed on actual basis for the FY 2018-19.

6.81 The Petitioner submitted the raw water expense for FY 2018-19 considering the actual gross generation and actual specific water consumption and approved raw water charge rate.

6.82 The Petitioner has projected the capital spares in accordance with the revised capitalization plan for FY 2018-19.

6.83 The detail of revised O&M expenses claimed by the Petitioner for FY 2018-19 is shown in the table below.

Table 85: O&M Expenses as submitted by the Petitioner (Rs. Crore)

Particulars	Unit 2		Unit 3	
	MYT Order	Petition	MYT Order	Petition
Employee Expenses	7.35	7.35	7.35	7.35
Terminal Liabilities	0.25	1.02	0.25	1.02
R&M Expenses	19.08	19.08	13.62	13.62
Ash Disposal Expenses	5.64	3.66	6.06	3.71
Raw Water	5.37	4.50	5.76	4.46
HO Expenses	10.03	10.03	8.79	8.79
Application & Publication fee	0.30	0.15	0.29	0.15
Other A&G Exp.	4.8	4.80	4.38	4.38
Capital Spares	1.7	0.64	1.7	0.69
Net O&M Expenses	**54.51**	**51.24**	**48.19**	**44.17**

Commission's Analysis

6.84 Clauses7.40 and 7.41 of the JSERC Generation Tariff Regulations, 2015 lays out the provision for determination of O&M expenses and the same is quoted below.

> *"7.40 Operation and Maintenance (O&M) expenses shall comprise of the following:*
> *(a) Salaries, wages, pension contribution and other employee costs;*
> *(b) Administrative and General costs;*
> *(c) Repairs and maintenance expenses; and*
> *(d) Other miscellaneous expenses statutory levies and taxes (except corporate income tax).*
>
> *7.41 Existing Thermal Generating Stations:*
> *(a) The Applicant shall submit details of O&M expenses as required by the Commission. The O&M expenses excluding terminal liabilities for the Base Year shall be determined based on accounting statements for the base year, estimates of the Generating Company for relevant years and other factors considered relevant.*
> *(b) The O&M expenses excluding terminal liabilities permissible towards determination of tariff for each year of the Control Period shall be determined after a prudency check by the Commission based on submissions of the Generating*

Company, previous years' actual expenses and any other factor considered relevant.

(c) Terminal Liabilities will be approved as per actual submitted by the Generating Company or be established through actuarial studies.

(d) Increase in O&M charges on account of war, insurgency or changes in laws, or like eventualities where the Commission is of the opinion that an increase in O&M charges is justified, may be considered by the Commission for a specified period."

6.85 The Commission has scrutinized the submission made by the Petitioner and approves the employee cost, R&M Expenses, HO & SS Expenses and Other A&G Expenses on normative basis as approved in MYT Order dated February 19, 2018.

6.86 The Commission has approved the terminal liabilitiesand publication expense based on actual submitted by the Petitioner subject to truing up for FY 2018-19.

6.87 While approving the ash disposal, the Commission accept the projected expenses as submitted by the Petitioner vide reply dated December 26, 2019 subject to true up.

6.88 The raw water consumption is calculated based on the actual specific water consumption and gross unit generation as submitted by the Petitioner in its reply dated December 26, 2017. Further, raw water consumption is multiplied by approved rate to calculate the payable water charge. Water charges have been computed in proportion of actual payment made to State Water Department vis-a-vis that collected by TSL.

6.89 The Petitioner has also considered the capital spares as approved in MYT Order dated February 19, 2018 and hence, the Commission approved the capital spares as submitted by the Petitioner.

Table 86: Raw water as approved by the Commission (Rs. Crore)

Particular	UoM	Unit-2	Unit-3
Consumption	'000 Gallons	4,89,938	4,84,868
Rate	Rs./'000 Gallons	92.06	92.06
Water Bill	Rs. Cr.	4.50	4.46
TPCL apportion based on actuals	**Rs. Cr.**	**2.35**	**2.32**

6.90 The O&M expense as approved by the Commission for FY 2018-19 is shown below.

Table 87: O&M Expenses (Normative Component) as approved by the Commission (Rs. Crore)

Particulars	Unit 2			Unit 3		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Employee Cost	7.35	7.35	7.35	7.35	7.35	7.35
R&M Expenses	19.08	19.08	19.08	13.62	13.62	13.62
HO & SS Expenses	10.03	10.03	10.03	8.79	8.79	8.79
Other A&G Expenses	4.80	4.80	4.80	4.38	4.38	4.38

Table 88: O&M Expenses (Variable Component) as approved by the Commission (Rs. Crore)

Particulars	Unit 2			Unit 3		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Terminal Liabilities	0.25	1.02	1.02	0.25	1.02	1.02
Ash Disposal Expenses	5.64	3.66	3.66	6.06	3.71	3.17
Raw Water Expenses	5.37	4.50	2.35	5.76	4.46	2.32
Application & Publication Expenses	0.30	0.15	0.15	0.29	0.15	0.15
Capital Spares	1.7	0.64	0.64	1.7	0.69	0.69

Table 89: O&M Expenses as approved by the Commission (Rs. Crore)

Particulars	Unit 2			Unit 3		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Employee Cost	7.35	7.35	7.35	7.35	7.35	7.35
Terminal Liabilities	0.25	1.02	1.02	0.25	1.02	1.02
R&M Expenses	19.08	19.08	19.08	13.62	13.62	13.62
Ash Disposal Expenses	5.64	3.66	3.66	6.06	3.71	3.71
Raw Water	5.37	4.5	2.35	5.76	4.46	2.32
HO Expenses	10.03	10.03	10.03	8.79	8.79	8.79
Application & Publication fee	0.30	0.15	0.15	0.29	0.15	0.15
Other A&G Exp.	4.80	4.8	4.8	4.38	4.38	4.38
Capital Spares	1.70	0.64	0.64	1.70	0.69	0.69
O&M Expenses	**54.51**	**51.24**	**49.08**	**48.19**	**44.17**	**42.03**

Interest on Loan

Petitioner's Submission

6.91 The Petitioner submitted that the repayment of the long-term loan on Original Project Cost of Unit 2 and Unit 3 has been completed in the year FY 2009-10 and 2010-11 respectively.

6.92 The Petitioner has submitted that the entire additional capitalisation incurred in FY 2018-19 was funded through equity and therefore in line with the MYT Order dated February 19, 2018, the Petitioner has considered 70% of the projected capitalization as Normative

Loan for FY 2018-19 with interest rate of 13.02% and 12.33% for Unit 2 and Unit 3 respectively.

6.93 The Petitioner has considered the normative repayment of debt equal to the depreciation of the additional capitalization only citing the reason that the interest payment on original project cost is already completed in FY 2009-10 and FY 2010-11 respectively for Unit 2 and Unit 3 and hence depreciation part on original cost is not considered as part of normative repayment of debt.

6.94 The Interest and Finance Charges claimed by the Petitioner vide its revised submission dated December 26, 2019 is shown in the table below.

Table 90: Interest on Loan as submitted by the Petitioner (Rs. Crore)

Particulars	Unit 2		Unit 3	
	MYT Order	Petition	MYT Order	Petition
Opening Loan	34.89	29.01	36.45	28.81
Deemed Loan Addition	10.17	7.86	5.97	0.84
Deemed Loan Repayment	4.81	3.34	4.60	2.77
Closing Loan	40.25	33.54	37.82	26.88
Interest Rate	13.02%	13.02%	12.33%	12.33%
Interest on Loan	**4.89**	**4.07**	**4.58**	**3.43**

Commission's Analysis

6.95 The Commission has calculated the gross normative loan for FY 2018-19 as per Clause 7.13 and 7.14 of the JSERC Generation Tariff Regulation, 2015 as quoted below.

"7.13 In case of the generating station declared under commercial operation prior to 1.4.2016, debt-equity ratio allowed by the Commission for determination of Tariff for the period ending 31.3.2016 shall be considered for determination of tariff.

During the control period, debt-equity ratio allowed by the Commission for determination of Tariff for the period ending 31st March 2017 shall be considered for determination of tariff.

7.14 For the project declared under commercial operation on or after 1.04.2016,if the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan:

Provided that where equity deployed is less than 30% of capital cost, the actual equity shall be considered for determination of tariff:

Provided further that the equity invested in foreign currency shall be designated in Indian rupees on the date of each investment:

Explanation: -
i.The premium, if any, raised by the Generating Company, while issuing share capital and investment of internal resources created out of its free reserve, for the funding of the project, shall be reckoned as paid up capital for the purpose of computing return on equity, provided such premium amount and internal resources are actually utilized for meeting the capital expenditure of the generating station.

ii. Provided, further that any consumer contribution, deposit work and grant obtained for the execution of the project shall not be considered as part of the capital structure for the purpose of computation of normative debt: equity. iii. Any expenditure incurred or projected to be incurred on or after 1stApril 2016 as may be admitted by the Commission as additional capital expenditure for determination of tariff, and renovation and modernization expenditure for life extension shall be serviced in the manner specified in clause 7.14 of this Regulation."

6.96 The Commission has scrutinized the detail submitted by the Petitioner and observed that the actual loan on the Assets Capitalised as on COD has been entirely repaid by the Petitioner. Since, the addition during the FY 2018-19 is from internal funding, normative loan corresponding to 70% of additional capitalisation has been considered.

6.97 The Commission is continuing with the same methodology as adopted in the earlier Orders for deriving the value of deemed loan repayment for FY 2018-19.

6.98 In accordance to Clause 7.23 of JSERC Generation Tariff Regulations, 2015 and as approved in MYT Order dated February 19, 2018, the Commission has approved the interest rate as 13.02% and 12.33% for Unit 2 and Unit 3 respectively as shown below.

Table 91: Interest on Loan as approved by the Commission (Rs. Crore)

Particulars	Unit 2			Unit 3		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Opening Loan	34.89	29.01	27.86	36.45	28.81	26.44
Deemed Loan Addition	10.17	7.86	6.40	5.97	0.84	0.11
Deemed Loan Repayment	4.81	3.34	3.50	4.60	2.77	2.82
Closing Loan	40.25	33.54	30.75	37.82	26.88	23.73
Interest Rate	13.02%	13.02%	13.02%	12.33%	12.33%	12.33%
Interest on Loan	**4.89**	**4.07**	**3.82**	**4.58**	**3.43**	**3.09**

Interest on Working Capital (IoWC)

Petitioner's Submission

6.99 The Petitioner in line with Clause 7.34 of the JSERC Generation Tariff Regulations, 2015 has revised the Interest on Working Capital (IoWC) requirement vide its submission dated December 26, 2019, which is as provided in the Table below.

Table 92: IoWC as submitted by the Petitioner (Rs. Crore)

Particulars	Unit 2		Unit 3	
	MYT Order*	Petition	MYT Order*	Petition
Coal Stock (30 Days) Coal for Generation (30 Days)	33.74	42.00	33.86	42.87
Cost of Secondary Fuel (60 Days)	0.34	0.71	0.34	0.66
Maintenance Spares (20% O&M)	10.9	10.25	9.64	8.83
O&M Expenses (1 Month)	4.54	4.27	4.02	3.68
Receivables (2 Months)	52.98	60.92	52.04	60.42
Total Working Capital requirement	102.51	118.14	99.90	116.47
Interest rate on WC	12.80%	12.20%	12.80%	12.20%
Interest on Working Capital	**13.12**	**14.41**	**12.79**	**14.21**

** Read with Review Order dated January 09, 2019*

Commission's Analysis

6.100 The Commission has computed the Interest on Working Capital (IoWC) for FY 2018-19 for both Unit 2 and Unit 3 as per Clause 7.34 and 7.37 of JSERC Generation Tariff Regulations, 2015 as reproduced below.

> *"7.34 The Commission shall determine the Working Capital requirement for coal based generating stations containing the following components:*
> *(a) Cost of coal or lignite and limestone towards stock, if applicable, for 15 days for pit-head generating stations and 30 days for non-pit-head generating stations for generation corresponding to the normative annual plant availability factor or the maximum coal/lignite stock storage capacity whichever is lower;*
> *(b) Cost of coal or lignite and limestone for 30 days for generation corresponding to normative annual plant availability factor;*
> *(c) Cost of secondary fuel oil for two months for generation corresponding to the Normative Annual Plant Availability Factor;*
> *(c) Maintenance spares @ 20% of operation and maintenance expenses;*
> (d) Operation and Maintenance expenses for 1 month; and

(e) Receivables equivalent to two months of capacity charges and energy charges for sale of electricity calculated on the Normative Annual Plant Availability Factor.

7.37 The cost of fuel in cases covered under clause 7.34 and 7.35 of these Regulations shall be based on the landed cost incurred (taking into account normative transit and handling losses) by the Generating Company and gross calorific value of the fuel as per actual for the three months preceding the first month for which tariff is to be determined and no fuel price escalation shall be provided during the tariff period."

6.101 The Bank Rate as on April 01, 2018 has been considered for the purpose of computation of Interest on Working Capital (IoWC) as per Clause 7.38 of JSERC Generation Tariff Regulation, 2015. The Interest on Working Capital (IoWC) as approved by the Commission for FY 2018-19 is summarized in the following table.

Table 93: IoWC as approved by the Commission (Rs. Crore)

Particulars	Unit 2			Unit 3		
	MYT Order*	Petition	Approved	MYT Order*	Petition	Approved
Coal Stock (30 Days)	33.74	42.00	21.00	33.86	42.87	21.42
Coal for Generation (30 Days)			21.00			21.42
Cost of Secondary Fuel (60 Days)	0.34	0.71	0.35	0.34	0.66	0.33
Maintenance Spares (20% O&M)	10.9	10.25	9.82	9.64	8.83	8.41
O&M Expenses (1 Month)	4.54	4.27	4.09	4.02	3.68	3.50
Receivables (2 Months)	52.98	60.92	53.53	52.04	60.42	53.12
Total Working Capital requirement	102.51	118.14	109.80	99.90	116.47	108.20
Interest rate on WC	12.80%	12.20%	12.20%	12.80%	12.20%	12.20%
Interest on Working Capital	**13.12**	**14.41**	**13.40**	**12.79**	**14.21**	**13.20**

* *Read with Review Order dated January 09, 2019*

Return on Equity

Petitioner's Submission

6.102 The Petitioner has stated that the additional capitalization is done from internal accrual and hence has considered the financing of additional capitalization at Normative Debt: Equity ratio of 70:30 for FY 2018-19.

6.103 The Petitioner has further submitted that for additional capitalization during the FY 2018-19, Return on Equity (RoE) has been computed from mid-year considering capitalization of the assets throughout the year.

6.104 The Petitioner has submitted that the Minimum Alternate Tax (MAT) rate as 21.55% as applicable for FY 2018-19 has been considered for calculation of Return on Equity (RoE). Accordingly, the Petitioner has calculated the Return on Equity (RoE) for FY 2018-19 as shown below.

Table 94: RoE as submitted by the Petitioner (Rs. Crore)

Particulars	Unit 2		Unit 3	
	MYT Order	Petition	MYT Order	Petition
Opening Equity	149.53	146.73	145.72	141.98
Addition	4.36	3.37	2.56	0.36
Closing Equity	153.89	150.10	148.28	142.34
Rate of Return	15.50%	15.50%	15.50%	15.50%
ROE (Pre-Tax)	23.52	23.01	22.79	22.03
MAT	21.34%	21.55%	21.34%	21.55%
ROE after MAT	19.71%	19.76%	19.71%	19.76%
ROE (Post-Tax)	**29.89**	**29.32**	**28.97**	**28.09**

Commission's Analysis

6.105 The Commission has calculated the Gross Normative Equity for FY 2018-19 as per Clause 7.13 and 7.14 of the JSERC Generation Tariff Regulations, 2015.

"7.13 In case of the generating station declared under commercial operation prior to 1.4.2016, debt-equity ratio allowed by the Commission for determination of Tariff for the period ending 31.3.2016 shall be considered for determination of tariff.

During the control period, debt-equity ratio allowed by the Commission for determination of Tariff for the period ending 31st March 2017 shall be considered for determination of tariff.

7.14 For the project declared under commercial operation on or after 1.04.2016,if the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan:

Provided that where equity deployed is less than 30% of capital cost, the actual equity shall be considered for determination of tariff:

Provided further that the equity invested in foreign currency shall be designated in Indian rupees on the date of each investment:

Explanation: -

i.The premium, if any, raised by the Generating Company, while issuing share capital and investment of internal resources created out of its free reserve, for the funding of the project, shall be reckoned as paid up capital for the purpose of computing return on equity, provided such premium amount and internal resources are actually utilized for meeting the capital expenditure of the generating station.

ii. Provided, further that any consumer contribution, deposit work and grant obtained for the execution of the project shall not be considered as part of the capital structure for the purpose of computation of normative debt: equity.

iii. Any expenditure incurred or projected to be incurred on or after 1st April 2016 as may be admitted by the Commission as additional capital expenditure for determination of tariff, and renovation and modernization expenditure for life extension shall be serviced in the manner specified in clause 7.14 of this Regulation."

6.106 In accordance with Clause 7.16, Clause 7.17 and Clause 7.18 of the JSERC Generation Tariff Regulations, 2015, the Commission has approved the RoE at 15.50% which is grossed up with the applicable MAT rate i.e. 21.55% for the FY 2018-19. Accordingly, the Commission approves the Return on Equity for FY 2018-19 as shown below.

Table 95: RoE as approved by the Commission (Rs. Crore)

Particulars	Unit 2			Unit 3		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Opening Equity	149.53	146.73	142.76	145.72	141.98	138.57
Addition	4.36	3.37	2.74	2.56	0.36	0.05
Closing Equity	153.89	150.10	145.50	148.28	142.34	138.62
Rate of Return	15.50%	15.50%	15.50%	15.50%	15.50%	15.50%
ROE (Pre-Tax)	23.52	23.01	22.34	22.79	22.03	21.48
MAT	21.34%	21.55%	21.55%	21.34%	21.55%	21.55%
ROE after MAT	19.71%	19.76%	19.76%	19.71%	19.76%	19.76%
ROE (Post-Tax)	**29.89**	**29.32**	**28.48**	**28.97**	**28.09**	**27.38**

Tax on Saving on Operational Parameters

Petitioner's Submission

6.107 The Petitioner has submitted that the Income Tax due to gain on account of Secondary Fuel Consumption, Auxiliary Power Consumption and Gross Station Heat Rate (GHR) is recoverable from the Beneficiary as per Clause 7.49 of the JSERC Generation Tariff

Regulations, 2015 which has alsobeen clarified and upheld by the Hon'ble Tribunal in their Judgment dated August 10, 2016 inAppeal No. 195 of 2015.

6.108 The Tax liability on gain of operational parameters as claimed by the Petitioner vide revised submission dated December 26, 2019 is shown below.

Table 96: Tax Liability on saving in Operation Parameters as submitted by the Petitioner (Rs. Crore)

Particulars	Unit 2		Unit 3	
	MYT Order	Petition	MYT Order	Petition
Tax on Gain (Secondary Fuel)	-	0.80	-	0.71
Tax on Gain (Auxiliary)	-	0.61	-	0.51
Tax on Gain (SHR)	-	0.68	-	0.84

Commission's Analysis

6.109 The Commission is of the view that the Petitioner's claim of tax liability on saving on operational parameters is provisional and based on estimation. Hence, the Commission at this stage is not considering the same and directs the Petitioner to resubmit their claim at the time of true up along with documentary support on the basis of actual audited data.

Summary of Annual Revenue Requirement

Commission's Analysis

6.110 The summary of Annual Revenue Requirement (ARR) for FY 2018-19 as approved by the Commission is shown below.

Table 97: Annual Revenue Requirement (ARR) as approved by the Commission (Rs. Crore)

Particulars	Unit 2			Unit 3		
	MYT Order*	Petition	Approved	MYT Order*	Petition	Approved
O&M Expenses	54.52	51.24	49.08	48.21	44.17	42.03
Depreciation	8.18	6.72	5.78	9.71	7.88	6.59
Interest on Loan	4.89	4.07	3.82	4.58	3.43	3.09
Int. on WC	13.12	14.41	13.40	12.79	14.21	13.20
Return on Equity	29.89	29.32	28.48	28.97	28.09	27.38
Annual Fixed Cost	**110.61**	**105.76**	**100.54**	**104.24**	**97.78**	**92.30**
Availability	85.00%	93.17%	93.17%	85.00%	93.58%	93.58%
AFC after Availability	**110.61**	**105.76**	**100.54**	**104.24**	**97.78**	**92.30**
Energy Cost	**193.77**	**225.51**	**220.66**	**208.00**	**231.38**	**226.39**
Tax on Gain (Secondary Fuel)	-	0.80	-	-	0.71	-
Tax on Gain (Auxiliary)	-	0.61	-	-	0.51	-
Tax on Gain (SHR)	-	0.68	-	-	0.84	-
Annual Revenue Requirement	**304.38**	**333.36**	**321.21**	**312.25**	**331.23**	**318.69**

** Read with Review Order dated January 09, 2019*

Revenue from Sale of Power

Petitioner's Submission

6.111 The Petitioner in its revised submission dated December 26, 2019 submitted revenue from sale of power for FY 2018-19 as Rs. 331.07 Crore and Rs. 330.82 Crore for Unit 2 and Unit 3 respectively.

Table 98: Revenue as submitted by the Petitioner (Rs. Crore)

Particulars	Unit 2		Unit 3	
	MYT Order	Petition	MYT Order	Petition
Revenue from Sale of Power	304.38	331.07	312.25	330.82

Commission's Analysis

6.112 The Commission has scrutinized the detail submitted by the Petitioner and approves the revenue from sale of power for FY 2018-19 as shown below.

Table 99: Revenue as approved by the Commission (Rs. Crore)

Particulars	Unit 2			Unit 3		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Revenue from Sale of Power	304.38	331.07	331.07	312.25	330.82	330.82

Gap/Surplus for FY 2018-19

6.113 The Commission has provisionally calculated the gap/surplus for FY 2018-19 for Unit 2 and Unit 3 in the following tables subject to final true-up.

Table 100: Gap/(Surplus) for Unit 2 as approved by the Commission (Rs. Crore)

Particulars	Unit 2	
	FY 2018-19	FY 2019-20
Opening Gap	-	(10.68)
Addition	(9.86)	0.00
Closing Gap	(9.86)	0.00
Carrying Cost Rate	12.20%	12.55%
Interest	(0.60)	(0.67)
Closing including Carrying Cost	(10.47)	(11.36)
Additional Revenue Recovered	0.22	0.00
Net Closing	(10.68)	(11.36)

Table 101: Gap/(Surplus) for Unit 3 as approved by the Commission (Rs. Crore)

Particulars	Unit 3	
	FY 2018-19	FY 2019-20
Opening Gap	-	(12.87)
Addition	(12.13)	0.00

Particulars	Unit 3	
	FY 2018-19	**FY 2019-20**
Closing Gap	(12.13)	0.00
Carrying Cost Rate	12.20%	12.55%
Interest	(0.74)	(0.81)
Closing including Carrying Cost	(12.87)	(13.68)

A 7: MID-TERM REVIEW FOR FY 2019-20 & FY 2020-21

7.1 The Petitioner has submitted the mid-term review petition for FY 2019-20 and FY 2020-21. The revised projections for operational and financial parameters have been computed by the Petitioner considering the following:

- Norms & Principles as outlined in the JSERC Generation Tariff Regulations 2015
- MYT Order dated February 19, 2018 for 2ndControl Period
- Revised fuel procurement plan after expiry of FSA with MCL in April, 2018
- Petition no. 21 of 2018 dated September 05, 2018 filed before the Commission seeking approval of cost estimates including capex and opex for installation of FGD system consequent to MoEFCC notification dated December 07, 2015 and Central Pollution Control Board letter dated April 06, 2018
- Revised & extended outage plan in FY 2020-21 for integration of the FGD system
- Revised operational plan on account of revision in the outage plan
- Revised capital investment plan owing to revision in capitalization phasing of the approved schemes for FY 2019-20 and FY 2020-21 on account of change in the original outage plan and in view of proposal of some of the new capex schemes with Capitalization phasing in FY 2019-20 and FY 2020-21.

7.2 The Petitioner submitted that MoEFCC has mandated generating companies including the Petitioner to install necessary Emissions Control System (ECS) to meet the revised emissions norms. This has necessitated the Petitioner to install FGD system for their Unit 2 and Unit 3 by December, 2020.Thus, in order to comply with the above requirement it requires additional capitalization and other associated cost in the Annual Revenue Requirement (ARR). The Petitioner further submitted that due to this change it has been compelled to revise the projections approved by the Commission in the MYT Order dated February 19, 2018.

7.3 The Commission has now carried out the mid-term review for FY 2019-20 and FY 2020-21 taking into consideration:

e) JSERC Generation Tariff Regulations, 2015;

f) Methodology adopted by the Commission in its earlier Tariff Orders.

Revised Capitalization Scheme

Petitioner's Submission

7.4 The Petitioner has submitted the revised capitalization plan citing the reason as unavoidable. The summary of approved vis-a-vis revised capitalization plan along with some new capex proposal submitted by the Petitioner is summarised below.

Table 102: Revised capitalization Scheme as submitted by the Petitioner (Rs. Crore)

Carry Forward Scheme (1st Control Period)	FY 17	FY 18	FY 19	FY 20	FY 21	Total
Approved by the Commission	21.27	-	-	-	-	21.27
Revised capitalization plan	13.56	2.97	2.88	-	-	19.42
Additional Capitalization approved in 2nd Control Period						
Approved by the Commission	-	17.05	23.05	9.70	4.20	54.00
Revised capitalization plan	-	-	11.40	5.31	30.69	47.40
Scheme Dropped						6.60
New Scheme proposed in 2nd Control Period						
FGD System	-	-	-	-	220.20	220.20
Other Schemes	-	-	0.13	0.60	4.20	4.93
Total Approved Plan	**21.27**	**17.05**	**23.05**	**9.70**	**4.20**	**75.27**
Total Proposed Now	**13.56**	**2.97**	**14.41**	**5.91**	**255.09**	**291.95**

Change in the Annual Outage Plan FY 2019-20 and FY 2020-21:

7.5 The Petitioner submitted that it has planned a shutdown of 60 days in FY 2020-21 for both the Units compared to the original outage plan of 28 days for Unit 3 in FY 2019-20 and outage of 28 days for Unit 2 in FY 2020-21. The outage of 60 days each for Unit 2 and Unit 3 has been essentially planned for installation and commissioning of FGD System so as to meet the revised emission norms as notified by MoEFCC which constitutes a change in Law event. Thus, deferment of Outage of Unit 3 from FY 2019-20 to FY 2020-21 led to revision of capitalization plan of some of the approved schemes which necessarily requires shutdown for installation and commissioning of the schemes.

Table 103: Revised Shutdown Plan as submitted by the Petitioner

<table>
<tr><th rowspan="2">Units</th><th colspan="2">FY 2019-20</th><th colspan="2">FY 2020-21</th></tr>
<tr><th>Proposed Now</th><th>MYT Order</th><th>Proposed Now</th><th>MYT Order</th></tr>
<tr><td rowspan="2">Unit-2</td><td rowspan="2">-</td><td rowspan="2">-</td><td>60 Days</td><td>28 Days</td></tr>
<tr><td>Integration of FGD System along with Annual Maintenance</td><td>Annual Outage Plan</td></tr>
<tr><td rowspan="2">Unit-3</td><td rowspan="2">Approved outage deferred to FY 2020-21</td><td>28 Days</td><td>60 Days</td><td rowspan="2">-</td></tr>
<tr><td>Annual Outage Plan</td><td>Integration of FGD System along with Annual Maintenance</td></tr>
</table>

Necessity of New Capex Scheme:

7.6 The Petitioner submitted that the new capex schemes which have become critical for the reliable operation of the Units have been identified in the recent past and are accordingly, proposed for the approval before the Commission. The need of new capex requirements is mainly on account of technology obsolescence/non support by OEMs, safety and security of the plant and compliance to direction of MoEFCC. The capitalization against the new schemes are planned in FY 2020-21 except for a scheme of a 220V common station battery charger which is planned in FY 2019-20 as it does not necessarily require outage for installation and commissioning.

Installation of FGD System:

7.7 In respect of installation and commissioning of FGD system, the Petitioner had earlier filed a miscellaneous Petition (Petition no. 21 of 2018) for approval of expenditure in installation of various emission control systems, for compliance of MoEFCC, GoI, Notification dated December 07, 2015 mandating compliance with revised environmental norms for thermal power stations. The Petitioner however, has sought liberty of the Commission to allow the Petitioner to approach the Commission for approval of the actual capital expenditure incurred as per audited accounts for installation of the FGD system at the time of True-up for FY 2020-21.

Commission's Analysis

7.8 The Commission observed that the Petitioner has deviated from the approved capitalization plan and submitted revised capitalization scheme mainly on the ground of compliance to MoEFCC, GoI, Notification dated December 07, 2015 mandating revised environmental norms for thermal power stations.

7.9 The Commission in its letter dated March 07, 2019 directed the Petitioner to provide the Detail Project Report (DPR) along with the requisite reasonability (Technical and Financial) for the proposed FGD scheme. In addition to above, the Commission also directed the Petitioner to provide the basis/justification for the following proposed increase in O&M expenses with the installation of the proposed FGD system:

- Additional manpower & Spare cost (~5% of Capital Cost of the project)
- Increase in consumables i.e. raw water and lime stone
- Cost towards disposal of by products and waste of the FGD Plant
- One time Cost towards auxiliary consumption required for testing the Flue Gas Path while commissioning the FGD System.

7.10 The Petitioner in its reply dated April 12, 2019, submitted the DPR of the proposed FGD system along with estimated cost break based on assumption. In support of its proposed scheme, the Petitioner has submitted the revised environment norms notified by Ministry of Environment Forest & Climate Change (MoEFCC) on December 07, 2015. The Petitioner has projected the levelized tariff impact (both fixed and energy charge) as ~ Rs. 0.47/Unit for the entire life of the PPA till 2030-31 on installation of FGD system.

7.11 The Petitioner further submitted the following counts for justification of additional cost claimed by it:

Additional manpower & Spare cost (~5% of Capital Cost of the project)

The Petitioner has estimated the cost based on assumed manpower and spare required for running the FGD plant and its auxiliaries.

Increase in consumables i.e. raw water and lime stone

The Petitioner has estimated the raw water requirement based on the following assumption:

- Proposed limestone consumption based on wet FGD system requiring 60m3/hr of processed water for flue gas desulphurization process and discharging about 4.5m3/hr as waste for both the units
- Approximately, 30m3/hr clarified water for makeup system
- Clarified water (12m3/hr for both the Units) for gypsum washing
- Total additional raw water requirement for both the Units 42m3/hr (30+12).
- Cost of clarified water is assumed as Rs. 20.25/m3 in DPR. However, for the mid-term review, the Petitioner has considered the water charge rate as Rs. 23.40/m3 as would be applicable for FY 2020-21 considering an annual escalation factor of 7.5%.

Based on the preliminary studies as covered in the DPR, limestone consumption for each Unit is estimated to be approximately 1.30 TPH considering the limestone purity (CaCo3>80%) which translates to approximately 9680 MT/year for a 120 MW capacity operating at Normative PLF of 85%. The landed price of lime stone is estimated as Rs.1900/MT based on prevailing prices as July 2018. Considering the above assumptions, the cost of limestone works out to be approximately Rs. 2.03 Crore per annum/Unit.

Cost towards disposal of by products and waste of the FGD Plant

Based on the initial studies, the Petitioner submitted the gypsum generation as 2.11 TPH with limestone purity (CaCo3>80%) which translates to approximately 15711 MT/year for a 120 MW capacity operating at Normative PLF of 85%. The cost of disposal is estimated as Rs.377/MT based on prevailing prices as on July 2018 and proposed disposal distance of approximately 60km. Accordingly, the Petitioner has submitted that it is required to incur approximately Rs. 0.59 Crore per annum/Unit towards disposal of the by-product/waste.

One time cost towards auxiliary consumption is required for testing the Flue Gas Path while commissioning the FGD System.

The Petitioner submitted that some of the auxiliaries such as ID, FD & PA fans are required to be kept in service for approximately 15 days in full load condition to keep entire flue gas system of boiler in active condition as required by the vendor, to check the functionality of the newly commissioned FGD system. Since, the auxiliary of the Units are connected to the auxiliary bus supplies through station transformer, the Unit will consume ~2% of the auxiliary power in 15 days without having any actual generation. The Petitioner therefore, proposes to recover the cost of 2% of auxiliary power consumed as a onetime O&M cost at a rate equal to the energy charge rate of the Unit.

As per the Petitioner submission, the fans for Unit 2 approximately consume 2110kW energy instantaneously which translates to a consumption of 759600kWh in 15 days. Similarly, Unit 3 fans consumers 2145kW which translates to 772200kWh in span of 15 days. The Petitioner further submitted that in order to get the onetime cost towards auxiliary consumption required for testing the flue gas path is computed by multiplying the estimated consumption with proposed energy charge for the period of December, 2020.

The Petitioner further added the computation of additional O&M expenses is based on initial studies and are subject to change based on actuals after prudence check.

7.12 The Commission vide its letter dated November 21, 2019 further directed the Petitioner to provide the following detail related to FGD system:

- The progress and plan for development of FGD system for the Petitioner's Units which are not regulated by this Commission, if any.

- The Petitioner needs to substantiate its proposal by providing information of generators, if any having Unit size of 120MW or less has installed the FGD system and running it economically and efficiently.
- The Petitioner was also required to furnish information/Notice circular, if any that Central Government has provided relaxation for Units having size less than 150MW and remaining useful life of less than 10 years. In case of TPCL, the Unit size is 120MW and residual life left is only 7 years (FY 2025-26) for Unit 2 and 8 years (FY 2026-27) for Unit 3.

7.13 Further, in compliance to the Commission's query dated November 21, 2019, the Petitioner submitted the following on November 29, 2019.

- The pre-bid process for Unit 4 and Unit 5 is completed and management approval is under progress for award of contract. In respect of Unit-1 quoted price of qualified Bidder was beyond the estimate and therefore, new Bidder is being evaluated. It is expected that FGD system will be completed within 23 months from the issuance of LOI for Unit 1 and 25 months from the date of issue of LOI for Unit 4 and Unit 5.

- The Petitioner further submitted that they have not come across any generating Unit having Unit size of 120MW or less which has installed FGD system. However, there are a number of coal based thermal generating Units of similar or lower size which have started the process of installation of FGD system to meet the target date set for them by CPCB/MoEFCC for meeting the new environment norms.

Table 104: Detail of generating plant at different stage of carrying out FGD as submitted by the Petitioner

Age	No. of Units	Feasibility Study Under Progress	Feasibility Study Completed	NIT issued/ Bidding Under Progress	Bid Opened	Bid Awarded
11<age<=20 years	2	-	-	2	-	-
21<age<=25 years	2	-	-	1	-	1
25<age<=30 years	9	5	-	2	-	2
30<age<=40 years	5	-	-	3	-	2
Age>40 years	5	1	-	4	-	-
Grand Total	**23**	**6**	**0**	**12**	**0**	**5**

Source: CEA Quarterly review Report on Renovation & Modernisation of Thermal Power Stations (Quarter: July-Sep'2019)

7.14 The Petitioner highlighted that plant ranging from 18 years to 54 years old are in the phase to implementing the FGD system and requested the Commission to consider the useful life of Unit as 30 years in line with PPA period instead of 25 years specified in Regulations.

Further, as far as approval of FGD system due to new environment norms by respective Regulations Commission is concerned, the Petitioner submitted that Hon'ble MERC has granted in-principle approval to Adani Power Maharashtra Ltd. and Hon'ble CERC has granted in-principle approval to Maithon Power Limited for implementation of FGD system.

7.15 In Case no. 21 of 2018 & I.A no. 01 of 2019 filed by the Petitioner for approval of capital expenditure on installation of various Emission Control System, for compliance of MoEFCC, GoI, Notification dated December 07, 2015 mandating compliance with revised Environmental norms for Thermal Power Stations, the JSERC had disposed the plea for in principle approval by its Order dated May 13, 2019 stating the following.

> *27. In view of the above observations and findings, and in view of the objections raised by the respondent-Tata Steel Ltd., we are of the view that in the absence of provision for in-principle approval of capital cost in the JSERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2015 the prayers of the petitioner-Tata Power Company Limited as mentioned above including grant of in-principle approval of the capital expenditure for implementation of ECS cannot be allowed in this petition.*

7.16 The Petitioner filed the mid-review petition for FY 2019-20 and FY 2020-21 including the proposal for installation of FGD system in compliance of MoEFCC, GoI, Notification dated December 07, 2015.

7.17 The Petitioner has reproduced the Maithon Power Limited (MPL) case (Petition no. 152/MP/2019) to declare it a Change in Law and sought in principle approval of capital expenditure for incurring expenditure towards installation of FGD. CERC vide its Order dated November 11, 2019 disposed the case according MPL in-principle approval in specific circumstances as per Clause 11 of CERC (Terms & Conditions) Regulations, 2019. The Commission has scrutinized the submission made by the Petitioner. The relevant extract of Order is reproduced below.

"18. The proposed expenditure is to be incurred within the tariff period from 1.4.2019 to 31.3.2024. <u>The admissibility of said expenditure is to be dealt with in the 2019 Tariff Regulations. Regulation 11 of the Tariff Regulations, 2019 in regard to in-principle approval is as under:</u>

> *"11. In-principle approval in specific circumstances: The generating company or the transmission licensee undertaking any additional capitalization on account of*

> *Change in law events or force majeure conditions may file petition for in-principle approval for incurring such expenditure after prior notice to the beneficiaries or the long term customers, as the case may be, along with underlying assumptions, estimates and justification for such expenditure if the estimated expenditure exceeds 10% of the admitted capital cost of the projects or Rs. 100 Crore, whichever is lower."*

The petitioner has already informed the beneficiaries about the estimated expenditure which exceeds the limit of Rs.100 Crore specified under the Regulation. As such, the proposed expenditure on FGD is squarely covered within the Regulation, 11 of the 2019, Tariff Regulations. Accordingly, it is held that proposed expenditure qualifies for the In-principle approval, subject to further scrutiny of the proposed expenditure.

19. Now, we proceed to examine the admissibility of proposed expenditure. CEA vide letter dated 8.1.2019 has made recommendations for the generating station(MRBTPP). Relevant Para of the CEA report is extracted below:

> "*TECHNOLOGY:*
> *The Wet FGD with either "Lime Stone" or "Ammonia based" is suitable for this plant. Both type of FGD have about 60% of common equipment. The nearest source of reagent is about 110km (The actual sources of reagent may be selected during the detail engineering based on availability, cost, quality and logistics by MPL). Additionally Source of limestone should be chosen with life cycle cost analysis comparing "Costs related to Limestone supply to the site Vis Optimum Salability of By-product i.e. Gypsum. In case of Ammonia based FGD, utmost care for handling ammonia is required.*
>
> *Additionally, Sorbent Polymer Catalyst (SPC) based technology may also be explored for FGD at Maithon Power Plant. This technology has advantage of no reagent cost(not consumable), saleable by-product (Diluted sulphuric acid), small space foot print, moderate operating expenditure and low Auxiliary Power consumption compared to Wet FGD-Lime stone and Ammonia based technologies."*

20. The Petitioner has opted for the Wet Limestone based FGD system as the most rational from the list of options in the CEA recommendations. It is observed from the submission that the Petitioner has resorted to a two-part open competitive bidding process for the major packages i.e. "FGD main package" and "Electrical power supply package" which are the major contributors towards hard cost of the project. The break-up of capital expenditure for the Wet Limestone based FGD system for MPL generating station estimated on the basis of bidding results compared to CEA recommended cost is as under:-

........................"

7.18 The Commission also observes that before the above approval CERC in earlier Petition filed by MPL seeking approval of FGD in Petition no. 72/MP/2016 did not give in-principle approval and has disposed the petition stating that there is no provision for in-principle approval in Tariff Regulations and directed MPL to approach the CEA to decide specific optimum technology, associated cost and major issues to be faced in installation of different system like SCR, etc. The extract of Order dated March 20, 2017 is reproduced for the reference:

"10. <u>Since, the 2014 Tariff Regulations do not provide for the grant of in-principle approval for the capital expenditure, the prayer of the petitioner for in-principle approval of the Abstract scheme of capital expenditure by relaxing the provisions of the tariff regulations through invoking Regulation 54 of 2014 Tariff Regulations, is not maintainable.</u> In our view, since, the implementation of new norms in the existing and under construction thermal generating stations would require modification of their existing system and installation of new systems such as Retro-fitting of additional fields in ESP/replacement of ESP, etc. to meet Suspended Particulate Matter norms, installation of FGD system to control SOx and Selective Catalytic Reduction (SCR) systems for DeNox, <u>the petitioner is directed to approach the Central Electricity Authority to decide specific optimum technology, associated cost and major issues to be faced in installation of different system like SCR, etc. The petitioner is also directed to take up the matter with the Ministry of Environment and Forest for phasing of the implementation of the different environmental measures.</u> Accordingly, the petitioner is granted liberty to file appropriate petition at an appropriate stage based on approval of CEA and direction of MoEF which shall be dealt with in accordance with law."

7.19 The Commission observes that the above in-principle approval for capitalization is to be accorded as per Clause 11 of CERC (Terms & Conditions) Regulations, 2019. However, there is no such provision for in-principle approval in JSERC Tariff Regulations, 2015. Also, the Hon'ble CERC has approved the proposed expenditure based on the CEA recommendations for MPL and received price bid from Bidders.

7.20 The Commission observed that neither the JSERC Tariff Regulations, 2015 provide for in-principle approval nor the Petitioner has approached CEA for plant specific recommendations and cost. This is of prime importance specially because this will have huge implication on the cost of electricity generated. The per unit cost estimated by the

Petitioner for FY 2019-20 before the implementation of FGD system is around Rs. 4.76/kWh for Unit 2 & Rs. 4.61/kWh For Unit 3 which after implementation of FGD will go beyond Rs. 5.00/kWh. This is going to have serious implication on the tariff of consumers of TSL which procures substantial quantum of its total power requirement from the Petitioner. The Commission therefore before according in-principle approval needs to look into the feasibility of the technological and commercial implications of the scheme.

7.21 The Petitioner has proposed FGD system and estimated cost on the basis of its own assessment which has not been looked into by any competent technical authority such as CEA. The Commission observes that the per/MW cost allowed by CERC in case of MPL is Rs. 0.47 Cr/MW which is way below the current proposal of Rs. 0.92 Cr/MW and there is huge variation in the cost though the FGD technology adopted for both the plant is same. It is also observed CEA has specified indicative cost of Rs. 0.45 Cr/MW for 210 MW. The Commission is aware of the fact that the unit sizes are on the higher side and per/MW cost will get reduced in case of larger sized units, but to what extent cannot be said with certainty. Further, as per the submissions of the Petitioner no similar plant of 120 MW capacity has gone for FGD implementation and therefore it gets even more imperative that the proposal of Petitioner is analysed by CEA as in the case of MPL.

7.22 Based on the above observations and findings, the Commission is of the view that in the absence of provision for in-principle approval in the JSERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2015, the prayers of the Petitioner for in-principle approval of the capital expenditure for implementation of Emission Control System cannot be allowed at this juncture. The Petitioner is at liberty to approach the Central Electricity Authority and get recommendations on specific optimum technology, feasibility of implementation of such technology in view of current cost of generation as mentioned in Clause 7.20 and associated cost of FGD. Accordingly, the Petitioner is granted liberty to file appropriate petition at an appropriate stage after due analysis and recommendations by the CEA which have to be dealt with in accordance with law.

Operational Performance

Plant Availability Factor (PAF)

Petitioner's Submission

7.23 The Petitioner has revised the operational performance mainly on account of the change in original shutdown plan of Unit 3 in FY 2019-20 and the revised outage Plan for both the Units in FY 2020-21. As the installation and commissioning of the FGD system for Unit 2 and Unit 3 is likely to take 60 days, therefore, a shutdown of 60 days has been envisaged from September2020 to October 2020 for Unit 3 and November 2020 to December 2020 for Unit 2.

7.24 The Petitioner has projected the average annual plant availability for FY 2019-20 as 88.99% and 87.76% for FY 20202-21 respectively for both the Units.

Commission's Analysis

7.25 The Commission in the MYT Order dated February 19, 2018 had approved the Normative Annual Plant Availability Factor (NAPAF) as 85% for 2nd Control period in line to Clause 8.4 of JSERC Generation Tariff Regulation, 2015.

7.26 Since, the FGD is not considered at this stage; the Commission finds no merit for shutdown of the plant for installation of FGD system. However, the Petitioner has proposed shutdown for integration of FGD system along with annual maintenance. So, it is difficult to demark between them. Hence, the Commission has considered the availability as projected by the Petitioner subject to scrutiny at the time to true-up.

Table 105: Plant availability as approved by the Commission

Availability Factor	UoM	FY 2019-20			FY 2020-21		
		MYT Order	Petition	Approved	MYT Order	Petition	Approved
Unit 2							
Normative	%	85.00	85.00	85.00	85.00	85.00	85.00
Projected	%	-	88.99	88.99	-	87.76	87.76
Unit 3							
Normative	%	85.00	85.00	85.00	85.00	85.00	85.00
Projected	%	-	88.99	88.99	-	87.76	87.76

Auxiliary Consumption
Petitioner's Submission

7.27 The Petitioner has projected that the installation & commissioning of FGD System will significantly increase the auxiliary consumption. According to the initial studies and explanation provided in the Detailed Feasibility Report, the FGD system would consume approximately 2% of Unit rated output. Therefore, for the purpose of projection of auxiliary consumption, the Petitioner has considered auxiliary as 10% for FY 2019-20 for both the Units. Since shutdown of the Unit 2 is envisaged from the month of November 2020 to December 2020, the auxiliary for Unit 2 is projected as 10% for the month between April 2020 and December 2020 and at 12% for rest of the months. Similarly, for Unit 3, at normative value for till October 2020 and at 12% for November 2020 onwards.

7.28 The Petitioner further submitted that the projection of additional 2% auxiliary consumption for FGD System is a quick estimation based on initial studies and would differ from the actual recorded post commissioning of FGD System. In view of the above, the Petitioner humbly seeks liberty of the Commission to approach with actual power consumption at the time of true-up for FY 2020-21 and impact of actual auxiliary consumption as recorded for each of the Unit should be allowed over and above the Normative Auxiliary Power Consumption of 10% as specified in the Generation Tariff Regulations 2015 for Unit 2 and Unit 3 in order to restore the Petitioner to same economic position as if installation of FGD system has not occurred.

Commission's Analysis

7.29 The Commission has not considered the FGD implementation at this stage for reasons detailed in this Order. Therefore, the Commission has not approved any impact on account of the same. Hence, the Commission has considered the auxiliary consumption as approved in the MYT Order dated February 19, 2018.

Table 106: Auxiliary Consumption as approved by the Commission

Auxiliary Consumption	UoM	FY 2019-20			FY 2020-21		
		MYT Order	Petition	Approved	MYT Order	Petition	Approved
Unit 2							
Normative	%	10.00	10.00	10.00	10.00	10.00	10.00
Projected	%	-	9.68	9.68	-	11.98	10.00
Unit 3							
Normative	%	10.00	10.00	10.00	10.00	10.00	10.00
Projected	%	-	9.72	9.72	-	11.99	10.00

Plant Load Factor and Generation

Petitioner's Submission

7.30 The Petitioner has submitted that the generation has undergone a change mainly on account of change in outage plan and projected the Plant Load Factor (PLF) for Unit 2 as

84.58% and 70.63% and for Unit 3 as 80.17% and 70.64% for FY 2019-20 and FY 2020-21 respectively.

7.31 The Petitioner has projected the net generation (ex-bus generation) for Unit 2 as 802.39 MU and 663.86 MU and that of Unit 3 as 760.56 MU and 660.96 MU for FY 2019-20 and FY 2020-21 respectively after deducting the auxiliary consumption.

Commission's Analysis

7.32 The Normative Plant Load Factor will be same as approved in the MYT Order dated February 19, 2018.

7.33 The Commission observed that the Petitioner has projected low plant load factor and generation for FY 2019-20 and 2020-21.

7.34 The Petitioner in its revised submission dated December 26, 2019 revised the PLF, gross generation and net generation considering shutdown for installation and commissioning of FGD scheme.

7.35 The Commission has not considered the FGD implementation at this stage for reasons detailed in this Order. Therefore, the Commission is of the view that there is no requirement for such long shutdown for installation and commissioning of FGD Scheme.

7.36 For FY 2019-20, the Commission has approved the Plant Load Factor, Gross and Net Generation as projected by the Petitioner. However, the Commission has approved the considered the value of MYT Order dated February 19, 2018 while approving the values of Plant Load Factor, Gross and Net Generation for FY 2020-21 as shown below.

Table 107: Plant Load Factor and Generation as approved by the Commission

Particulars	UoM	FY 2019-20			FY 2020-21		
		MYT Order	Petition	Approved	MYT Order	Petition	Approved
Unit 2							
Gross Generation	MU	890.71	806.33	806.33	830.97	742.46	830.97
Net Generation	MU	801.64	728.31	728.31	747.88	663.86	747.88
Plant Load Factor	%	84.50	76.77	76.77	79.05	70.63	79.05
Unit 3							
Gross Generation	MU	832.40	825.33	825.33	893.52	742.54	893.52
Net Generation	MU	749.16	745.09	745.09	804.17	660.96	804.17
Plant Load Factor	%	78.97	78.54	78.54	85.00	69.86	85.00

Gross Station Heat Rate (GHR)

Petitioner's Submission

7.37 The Petitioner has projected the GHR on normative basis as approved in the MYT Order dated February 19, 2018 and further, pleaded before the Commission to submit the actual impact on Heat Rate on account of commissioning of FGD System for both the Units at the time of truing up of FY 2020-21 and to seek compensation for the actual impact ascertained once the FGD System becomes operational.

Commission's Analysis

7.38 In accordance to the Clause 8.4 of JSERC Generation Tariff Regulation, 2015 and in line to MYT Order dated February 19, 2018 the Commission approves the GHR as 2567 kCal/kWh for Unit 2 and 2577 kCal/kWh for Unit 3 respectively as shown below.

Table 108: Gross Station Heat Rate (GHR) as approved by the Commission

Gross Station Heat Rate	UoM	FY 2019-20			FY 2020-21		
		MYT Order	Petition	Approved	MYT Order	Petition	Approved
Unit 2	kCal/kWh	2567	2567	2567	2567	2567	2567
Unit 3	kCal/kWh	2577	2577	2577	2577	2577	2577

Specific Fuel Oil Consumption

Petitioner's Submission

7.39 The Petitioner has submitted the specific fuel oil consumption as 1.00 ml/kWh for both Unit 2 and Unit 3 as specified in Clause 8.4 of JSERC Generation Tariff Regulations, 2015.

Commission's Analysis

7.40 The Commission in its MYT Order dated February 19, 2018 approved the Specific Fuel Oil Consumption as 0.50 ml/kWh for 2nd Control period. The abstract from the MYT Order is reproduced below.

> *"6.137 The JSERC Generation Tariff Regulations, 2015 specifies the following:*
>
> > *16.4 The Commission may in public interest and for reasons to be recorded in writing, relax any of the provision of these Regulations."*
>
> *6.138 Considering all of the above, the Commission has decided to approve the specific oil consumption (of LDO) at 0.5 ml/kWh for each year of the Control Period i.e. from FY 2016-17 to FY 2020-21 for both Unit 2 and Unit 3. This norm may be re-looked based on Petitioner's actual performance during the Control*

period and as deemed fit by the Commission after due consideration of the actual performance of the Petitioner. In the subsequent APR and True-up Petitions, the Petitioner is directed to also submit details of number of unit-wise start-ups taken after shutdown. Also, details should include monthly quantity of secondary fuel consumed during plant start-up and flame support if required."

7.41 The Petitioner had filed the review Petition before the Commission against the MYT Order dated February 19, 2018 for revision of targets on specific fuel oil consumption for the 2nd control period. The Commission retain the normative value as approved in the MYT Order dated February 19, 2018 and disposed the review petition. The relevant abstract is reproduced below.

"………. the Commission has fixed 0.5 ml/kWh for each year of the control period at this stage. However, as mentioned in the MYT Order itself, the Commission may re-look into the same during APR and True up of the years to be submitted by the Petitioner subject to the petitioner providing the details of start-ups taken after the shut downs and monthly quantity of secondary fuel consumed during plant start-up"

7.42 The Commission has considered the specific oil consumption as 0.5 ml/kWh as approved in MYT Order dated February 19, 2018 for both Unit 2 and Unit 3 as shown below.

Table 109: Specific Fuel Oil Consumption as approved by the Commission

Specific Oil Consumption	UoM	FY 2019-20			FY 2020-21		
		MYT Order	Petition	Approved	MYT Order	Petition	Approved
Unit 2	ml/kWh	0.50	1.00	0.50	0.50	1.00	0.50
Unit 3	ml/kWh	0.50	1.00	0.50	0.50	1.00	0.50

Fuel Cost Parameters

Coal Mix and Gross Calorific Value (GCV) of Primary Fuel

Petitioner's Submission

7.43 The Petitioner submitted that due to various challenges associated with coal supply chain like expiry of FSA with MCL on April 30, 2018, decrease in the production from West Bokaro, the Petitioner has sought other means to meet its coal requirement.

7.44 The Petitioner was able to secure 4,64,300 Ton of coal per annum for Unit 2 and Unit 3 provisionally at a levellised discount of 4 paisa per Unit in tariff or units generated from the coal under SHAKTI Policy.

7.45 Further in light of SHAKTI Policy, the Petitioner has revised the coal mix vide dated December 26, 2019 and requested the Commission to consider the same while approving the mid-term for FY 2019-20 and FY 2020-21.

Commission's Analysis

7.46 The Commission has scrutinized the detail of coal sourcing as submitted by the Petitioner. The Commission is of the view that it is the prime responsibility of the Petitioner to ensure coal from economical source. The expiry of FSA with MCL and low production of middling coal from West Bokaro mine are well known to the Petitioner as such instances already occurred in the past.

7.47 The Commission has scrutinized the revised submission of the Petitioner dated December 26, 2019 and is of the view benefit of SHAKTI Scheme coal should be pass on to the Consumers.

7.48 Hence, the Commission has considered the plea of the Petitioner while approving coal mix in the mid-term review and also directed the Petitioner to ensure economical coal souring in the future.

7.49 The following tables summarize the coal mix and weighted average GCV of coal as approved by the Commission for Unit 2 and Unit 3 of Jojobera Generation station subject to prudence check at the time of truing up.

Table 110: Coal Mix and GCV for Unit 2 for FY 2019-20 as approved by the Commission

Particulars	Coal Mix (%)			GCV (kCal/kg)		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Middling Coal	70	50.82	50.82	4149	4057.58	4057.58
ECL Coal	-	2.14	2.14	-	5116.01	5116.01
MCL Coal	30	5.23	5.23	2662	3353.17	3353.17
Washery Coal	-	4.80	4.80	-	4405.02	4405.02
2-Product+Tailing (By Rake)	-	18.94	18.94	-	2596.61	2596.61
CCL Coal	-	2.91	2.91	-	3250.00	3250.00
BCCL (E-Auction) Coal	-	0.57	0.57	-	4133.43	4133.43
Tailing Coal (By Road)	-	0.99	0.99	-	4296.42	4296.42
WB Reject Coal	-	1.88	1.88	-	2473.60	2473.60
Imported Coal	-	11.67	11.67	-	4170.32	4170.32

Table 111: Coal Mix and GCV for Unit 3 for FY 2019-20 as approved by the Commission

Particulars	Coal Mix (%)			GCV (kCal/kg)		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Middling Coal	70	51.59	51.59	4149	4062.69	4062.69
ECL Coal	-	1.90	1.90	-	5087.31	5087.31

Particulars	Coal Mix (%)			GCV (kCal/kg)		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
MCL Coal	30	4.75	4.75	2662	3318.28	3318.28
Washery Coal	-	4.85	4.85	-	4403.42	4403.42
2-Product+Tailing (By Rake)	-	18.66	18.66	-	2595.78	2595.78
CCL Coal	-	2.84	2.84	-	3250.00	3250.00
BCCL (E-Auction) Coal	-	0.64	0.64	-	4178.74	4178.74
Tailing Coal (By Road)	-	1.31	1.31	-	4295.33	4295.33
WB Reject Coal	-	2.00	2.00	-	2471.65	2471.65
Imported Coal	-	11.40	11.40	-	4169.33	4169.33

7.50 The Commission approved the coal mix based on the weighted average as proposed by the Petitioner for FY 2020-21 subject to truing up as shown below.

Table 112: Coal Mix and GCV for Unit 2 for FY 2020-21 as approved by the Commission

Particulars	Coal Mix (%)				GCV (kCal/kg)			
	MYT Order	Petition		Approved	MYT Order	Petition		Approved
		Apr'20 to Oct'20	Jan'21 to Mar'21			Apr'20 to Oct'20	Jan'21 to Mar'21	
Middling Coal	70	54.64	53.51	54.30	4149	4057.58	4057.58	4057.58
MCL Coal	30	18.20	18.60	18.29	2662	2950.00	2950.00	2950.00
CCL Coal	-	18.90	19.30	19.00	-	3250.00	3250.00	3250.00
ECL Coal	-	8.40	8.60	8.42	-	4848.00	4848.00	4848.00

Table 113: Coal Mix and GCV for Unit 3 for FY 2020-21 as approved by the Commission

Particulars	Coal Mix (%)				GCV (kCal/kg)			
	MYT Order	Petition		Approved	MYT Order	Petition		Approved
		Apr'20 to Aug'20	Sep'20 to Mar'21			Apr'20 to Aug'20	Sep'20 to Mar'21	
Middling Coal	70	54.79	54.08	54.37	4149	4062.69	4062.69	4062.69
MCL Coal	30	18.10	18.40	18.26	2662	2950.00	2950.00	2950.00
CCL Coal	-	18.80	19.09	18.97	-	3250.00	3250.00	3250.00
ECL Coal	-	8.30	8.50	8.40	-	4848.00	4848.00	4848.00

Transit Loss

Petitioner's Submission

7.51 The Petitioner has project the transit loss as 0.80% for each source of coal for FY 2019-20 and FY 2020-21 in line to approved in MYT Order dated February 19, 2018.

Commission's Analysis

7.52 The Commission has approved the transit loss as 0.8% as approved in the MYT Order dated February 19, 2018 and in line to JSERC Generation Tariff Regulations, 2015 as shown below.

Table 114: Transit Loss as approved by the Commission

Particulars	UoM	MYT Order	Petition	Approved
Domestic Coal	%	0.8	0.8	0.8
Imported Coal	%	0.2	0.2	0.2

Landed Cost of Coal

Petitioner's Submission

7.53 The Petitioner has projected landed price from each source. The landed price is calculated considering normative transit loss.

7.54 The Petitioner further submitted that the price and quality of the fuel are uncontrollable in nature for a generating company and requested the Commission to approve the same as proposed by the Petitioner.

Commission's Analysis

7.55 The Commission has considered the fuel mix as projected by the Petitioner and transit loss on normative basis as approved in MYT Order dated February 19, 2018.

7.56 The weighted average landed price of coal as approved by the Commission subject to prudence check at the time of truing up is provided in the table below.

Table 115: Landed Price of Coal for FY 2019-20 as approved by the Commission (Rs./Ton)

Particulars	Unit 2			Unit 3		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Middling Coal	3830.25	4388.51	4388.51	3830.25	4389.01	4389.01
ECL Coal	2127.80	5612.38	5612.38	2127.80	5590.25	5590.25
MCL Coal	-	2900.97	2900.97	-	2885.61	2885.61
Washery Coal	-	5377.78	5377.78	-	5373.07	5373.07
2 Product+Tailing (By Rake)	-	3098.74	3098.74	-	3098.94	3098.94
CCL Coal	-	2788.49	2788.49	-	2788.49	2788.49
BCCL (E-Auction) Coal	-	5363.37	5363.37	-	5334.55	5334.55
Tailing Coal (By Road)	-	4467.24	4467.24	-	4467.77	4467.77
WB Reject Coal	-	2726.28	2726.28	-	2721.92	2721.92
Imported Coal	-	5723.16	5723.16	-	5742.65	5742.65
Avg. Landed Price including Transit loss	**3319.43**	**4224.82**	**4224.82**	**3319.43**	**4230.34**	**4230.34**

Table 116: Landed Price of Coal for FY 2020-21 as approved by the Commission (Rs./Ton)

Particulars	Unit 2			Unit 3		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Middling Coal	3830.25	4388.51	4388.51	3830.25	4389.01	4389.01
MCL Coal	2127.80	2723.52	2723.52	2127.80	2723.52	2723.52
CCL Coal	-	2788.49	2788.49	-	2788.49	2788.49
ECL Coal	-	5441.29	5441.29	-	5441.29	5441.29
Avg. Landed Price including Transit loss	**3319.43**	**3868.70**	**3868.70**	**3319.43**	**3869.78**	**3869.78**

Calorific value and Cost of Secondary Fuel

Petitioner's Submission

7.57 The Petitioner has revised the weighted average calorific value and landed price as 9100 kCal/L and Rs. 49749 per litre for Unit 2 for both the financial years. Similarly, for Unit 3, the estimated weighted average calorific value and landed price is 9100 kCal/L and Rs. 49562 per litre.

Commission's Analysis

7.58 The Commission has scrutinized the submission made by the Petitioner and observed that the landed price of secondary fuel has increased drastically as compared to the previous years.

7.59 Considering the fact that the landed price of secondary fuel is volatile and depend on the market supply and demand. Hence, the Commission in this Order has approved the calorific value and landed price of Secondary Fuel as submitted by the Petitioner. However, the Petitioner directed the Petitioner to ensure the price discipline while purchasing the secondary fuel and also provide the auditor's certificate at the time of true up.

Table 117: Calorific value & Landed price of Secondary fuel for FY 2019-20 and FY 2020-21 as approved by the Commission

Particulars	Calorific Value (kCal/L)			Landed Price (Rs./kL)		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Unit 2	9100	9100	9100	-	49749	49749
Unit 3	9100	9100	9100	-	49562	49562

Energy Charge Rate (ECR)

Petitioner's Submission

7.60 The Petitioner has revised the Energy Charge Rate (ECR) for Unit 2 as Rs. 3.258 per kWh for FY 2019-20 and Rs. 2.958 per kWh for the period from April 2020 to October 2020 and Rs. 3.044 per kWh for the period from Jan'2021 to Mar'2021.Similarly, the Petitioner has projected the Energy Charge Rate (ECR) for Unit 3 as Rs. 3.271 per kWh for FY 2019-20 and Rs.2.968 per kWh for the period from April 2020 to August 2020 and Rs. 3.056 per kWh for remaining months of FY 2020-21.

7.61 The Petitioner has projected the ECR after considering the benefit of economical coal under SHAKTI scheme and discount factor of 4 paisa/kWh and requested the Commission to consider the revised submission for calculation of Energy Charge Rate.

Commission's Analysis

7.62 As per Clause 8.17 of JSERC Generation Tariff Regulation, 2015, the energy (variable) charge shall cover primary fuel and secondary fuel costs and shall be payable by every beneficiary for the energy scheduled to be supplied to such beneficiary during the calendar month on an ex-power plant basis, at the specified energy charge rate of the month (with fuel price adjustment).

7.63 The Commission has scrutinized the revised submission of the Petitioner date December 26, 2019 and observed that the impact of SHAKTI Coal and discount leads to reduction in the price of energy charge.

7.64 The Commission has calculated the ECR to be charged by the Petitioner as per the formula specified in JSERC Generation Tariff Regulations, 2015 and approved parameters in this Order. The table below detailed the ECR and Fuel Cost for Unit 2 and Unit 3 as approved by the Commission for FY 2019-20 and FY 2020-21.

Table 118: Energy Charge Rate (ECR) for FY 2019-20 as approved by the Commission

Particulars	UoM	Unit 2			Unit 3		
		MYT Order	Petition	Approved	MYT Order	Petition	Approved
Net Generation	MU	801.63	728.31	728.31	749.16	745.09	745.09
Normative Auxiliary	%	10	10	10	10	10	10
Gross Station Heat Rate	kCal/kWh	2567	2567	2567	2567	2577	2577
Specific Oil Consumption	mL/kWh	0.50	1.00	0.50	0.50	1.00	0.50
Calorific Value of Oil	kCal/mL	9.1	9.1	9.1	9.1	9.1	9.1
GCV of Primary Fuel	kCal/kg	3702.90	3746.24	3746.24	3702.90	3750.68	3750.68
Landed Price of Primary Fuel	Rs./Ton	3319.43	4224.82	4224.82	3317.89	4230.34	4230.34

Particulars	UoM	Unit 2			Unit 3		
		MYT Order	Petition	Approved	MYT Order	Petition	Approved
Landed Price of Secondary Fuel	Rs./kL	-	49749.00	49749.00	-	49562.00	49562.00
Energy Charge Rate (ECR)	**Rs/kWh**	**2.578**	**3.260**	**3.239**	**2.587**	**3.273**	**3.251**

Table 119: Energy Charge Rate (ECR) for FY 2020-21 as approved by the Commission

Particulars	UoM	Unit 2			Unit 3		
		MYT Order	Petition	Approved	MYT Order	Petition	Approved
Net Generation	MU	747.90	663.86	747.90	804.17	660.96	804.17
Normative Auxiliary	%	10.00	11.98	10.00	10.00	11.99	10.00
Gross Station Heat Rate	kCal/kWh	2567	2567	2567	2577	2577	2577
Specific Oil Consumption	mL/kWh	0.50	1.00	0.50	0.50	1.00	0.50
Calorific Value of Oil	kCal/mL	9.1	9.1	9.1	9.1	9.1	9.1
GCV of Primary Fuel	kCal/kg	3702.90	3768.15	3768.15	3702.90	3771.38	3771.38
Landed Price of Primary Fuel	Rs./Ton	3319.43	3868.70	3868.70	3317.89	3869.77	3869.77
Landed Price of Secondary Fuel	Rs./kL	-	49749.00	49749.00	-	49562.00	49562.00
Energy Charge Rate (ECR)	**Rs/kWh**	**2.578**	**3.00**	**2.951**	**2.587**	**3.027**	**2.960**

7.65 The Petitioner further submitted that due to discount of Rs. 0.04/kWh on sale of SHAKTI scheme coal, there will be reduction in energy cost by Rs. 0.20 Crore and Rs. 0.19 Crore in Unit 2 and Unit 3 respectively for FY 2019-20.

7.66 The Commission has scrutinized the submission of the Petitioner and approved the reduction as submitted by the Petitioner as shown below subject to prudence check at the time of truing up.

Table 120: ECR for FY 2019-20 approved by the Commission after considering the impact of Discounting on SHAKTI Scheme Coal

Particulars	UoM	Unit 2		Unit 3	
		Petition	Approved	Petition	Approved
Sales due to ECL Coal	MU	12.68	12.68	12.56	12.56
Sales due to CCL Coal	MU	18.18	18.18	18.11	18.11
Sales due to MCL Coal	MU	18.06	18.06	17.80	17.80
Discount Amount (@0.04/kWh)	Rs. Cr.	0.20	0.20	0.19	0.19
Net Energy Charge after Discount	**Rs. Cr.**	**237.27**	**235.67**	**243.69**	**242.06**
Energy Charge Rate after Discount	**Rs./kWh**	**3.258**	**3.236**	**3.271**	**3.249**

7.67 Similarly, the Petitioner further submitted that due to discount of Rs. 0.04/kWh on sale of SHAKTI scheme coal, there will be reduction in energy cost by Rs. 1.10 Crore and Rs.1.09 Crore in Unit 2 and Unit 3 respectively for FY 2020-21.

7.68 The Commission has scrutinized the submission of the Petitioner and approved the reduction as submitted by the Petitioner as shown below subject to prudence check at the time of truing up.

Table 121: ECR for FY 2020-21 approved by the Commission after considering the impact of Discounting on SHAKTI Scheme Coal

Particulars	UoM	Unit 2		Unit 3	
		Petition	Approved	Petition	Approved
Sales due to ECL Coal	MU	71.60	71.60	71.01	71.01
Sales due to CCL Coal	MU	108.36	108.36	107.45	107.45
Sales due to MCL Coal	MU	94.69	94.69	93.89	93.89
Discount Amount (@0.04/kWh)	Rs. Cr.	1.11	1.11	1.09	1.09
Net Energy Charge after Discount	**Rs. Cr.**	**198.02**	**219.59**	**199.02**	**236.97**
Energy Charge Rate after Discount	**Rs./kWh**	**2.983**	**2.936**	**3.011**	**2.947**

Summary of Fuel Cost

7.69 The table below provides the summary of Fuel Cost submitted by the Petitioner and approved by the Commission for FY 2019-20 and FY 2020-21 subject to true up.

Table 122: Fuel Cost for FY 2019-20 as approved by the Commission

		Unit 2			Unit 3		
Particulars	**UoM**	**MYT Order**	**Petition**	**Approved**	**MYT Order**	**Petition**	**Approved**
Cost of Primary Fuel	Rs. Cr.	-	-	233.66			240.01
Cost of Secondary Fuel	Rs. Cr.			2.01			2.05
Energy Cost	**Rs. Cr.**	**206.62**	**237.27**	**235.67**	**193.77**	**243.69**	**242.06**

Table 123: Fuel Cost for FY 2020-21 as approved by the Commission

		FY 2019-20			FY 2020-21		
Particulars	**UoM**	**MYT Order**	**Petition**	**Approved**	**MYT Order**	**Petition**	**Approved**
Cost of Primary Fuel	Rs. Cr.	-	-	217.52	-	-	234.76
Cost of Secondary Fuel	Rs. Cr.			2.07			2.21
Energy Cost	**Rs. Cr.**	**192.77**	**198.03**	**219.59**	**208.00**	**199.02**	**236.97**

Determination of Fixed Cost

Additional Capitalization

Petitioner's Submission

7.70 The Petitioner has submitted the revised capitalization plan citing various reasons as unavoidable. Pursuant to the apportionment methodology as approved by the Commission, the Petitioner has estimated asset wise additional capitalization for FY 2019-20 and FY 2020-21 showing standalone and apportioned common facilities for Unit 2 and Unit 3.

Table 124: Asset wise Capitalization as submitted by the Petitioner (Rs. Crore)

Particular	MYT Order	FY 2019-20 Petition	FY 2020-21 Petition
Unit-2 (Standalone)			
Up gradation of Metering System	0.55	0.28	
Oil filtration system for Coal Mill	0.50	0.50	
Compressed air system for fly ash handling system	1.75		1.75
Hydraulic Augur for CHP	1.00		1.00
210 AH UPS battery bank	0.50	0.12	
6.6 kV Switchboard Replacement	4.00	1.28	
2X 60 KVA UPS	0.40		0.40
Up-gradation of furnace safeguard, supervisory& BOP control System	12.00		7.03
Unit-3 (Standalone)			
210 AH UPS battery bank	0.50		0.40
6.6 kV Switchboard Replacement	4.00	1.46	2.54
Up gradation of Metering System	0.55	0.28	
2X 60 KVA UPS	0.40		0.40
Oil filtration system for Coal Mill	050	0.50	
Compressed air system for fly ash handling system	1.75		1.75
Hydraulic Augur for CHP	1.00		1.00
Up-gradation of furnace safeguard, supervisory& BOP control System	12.00		12.00
Unit 2 & 3 (Common)			
Relining of Ash Ponds	4.24		0.44
Up gradation of Plant Security System	-	0.03	
New Schemes & FGD System			
Up gradation U#2 220V DC Unit Battery Charger	-		0.60
Upgradation U#2&3 220V DC Station Battery Charger	-		0.60
Up gradation U#3 220V DC Unit Battery Charger	-		0.60
FGD System - Machinery & Piping work	-		175.77
FGD System - Site Clearing, Civil & Foundation Works	-		30.04
FGD System - Electrical Works	-		14.40

Particular	MYT Order	FY 2019-20	FY 2020-21
		Petition	Petition
Refurbishment of AC System for Control Panel Room	-		3.00
Replacement of Dead Tank CT with live Tank CT	-	0.18	0.12
Net- Capitalization	**-**	**4.62**	**253.84**

7.71 The Petitioner in its revised submission dated December 26, 2019 has revised the additional capitalization during the FY 2019-20 and FY 2020-21 as mentioned below.

Table 125: Revised Capitalization for Unit 2 as submitted by the Petitioner (Rs. Crore)

Particulars	FY 2019-20		FY 2020-21	
	MYT Order	Petition	MYT Order	Petition
Capitalization- Standalone	2.75	2.18	4.20	10.18
Capitalization- Apportioned (Common Facilities)	-	0.10	-	112.78
Net Capitalization	**2.75**	**2.28**	**4.20**	**122.96**

Table 126: Revised Capitalization for Unit 3 as submitted by the Petitioner (Rs. Crore)

Particulars	FY 2019-20		FY 2020-21	
	MYT Order	Petition	MYT Order	Petition
Capitalization- Standalone	6.95	2.24	-	18.09
Capitalization- Apportioned (Common Facilities)	-	0.10	-	112.78
Net Capitalization	**6.95**	**2.34**	**-**	**130.87**

Commission's Analysis

7.72 The Commission has outlined the provisions for the approval of any additional capitalization for a generating station as mentioned in the JSERC Generation Tariff Regulation, 2015. The Clause is outlined below.

> "*Additional Capitalisation*
> *'7.5 The capital expenditure incurred or projected to be incurred, on the following counts within the original scope of work, after the date of commercial operation and up to the cut-off date may be admitted by the Commission, subject to prudence check:*
>
> *(i) Undischarged liabilities;*
>
> *(ii) Works deferred for execution;*
>
> *(iii) Procurement of initial capital spares within the original scope of work, subject to the provisions under clause 7.3,7.4 of these Regulations;*
>
> *(iv) Liabilities to meet award of arbitration or for compliance of the order or decree of a court; and*

(v) Change in law.

Provided that the details of works included in the original scope of work along with estimates of expenditure, undischarged liabilities and the works deferred for execution shall be submitted along with the application for determination of tariff.

'7.6 The capital expenditure incurred on the following counts after the cut-off date may, in its discretion, be admitted by the Commission, subject to prudence check:

(i) Liabilities to meet award of arbitration or for compliance of the order or decree of a court;

(ii) Change in law;

(iii) Deferred works relating to ash pond or ash handling system in the original scope of work;

(iv)Any additional works/services which have become necessary for efficient and successful operation of the generating station, but not included in the original project cost;

(v) Any liability for works executed prior to the cut-off date, after prudence check of the details of such undischarged liability, total estimated cost of package, reasons for such withholding of payment and release of such payments etc.

(vi) Any capital expenditure found justified after prudence check necessitated on account of modifications required or done in fuel receiving system arising due to non-materialisation of coal supply corresponding to full coal linkage in respect of thermal generating station as result of circumstances not within the control of the generating station:

(vii) In case of hydro generating stations, any expenditure which has become necessary on account of damage caused by natural calamities (but not due to flooding of power house attributable to the negligence of the generating company) including due to ecological reasons after adjusting for proceeds from any insurance scheme, and expenditure incurred due to any additional work which has become necessary for successful and efficient plan operation; and

Provided that in respect sub-clause (vii) above, any expenditure on acquiring the minor items or the assets like tools and tackles, furniture air conditioners, voltage stabilizers, refrigerators, coolers, fans, washing machine, heat convectors, mattresses, carpets etc. brought after the cut-off date shall not be considered for additional capitalization for determination of tariff w.e.f. 01.04.2016 for the Control period.

Provided further that any capital expenditure other than that of the nature specified above in (i) to (vi) in case of coal/lignite-based station shall be met out of compensation allowance as specified in Clause 7.46;

Provided also that if any expenditure has been claimed under Renovation and Modernisation (R&M), repairs and maintenance under (O&M) expenses and Compensation Allowance, same expenditure cannot be claimed under this regulation."

7.73 The Commission scrutinized the detail submitted by the Petitioner dated December 26, 2019 and carried out prudence check while approving the asset wise additional capitalization for FY 2019-20 and FY 2020-21as shown below subject to truing up based on actual and approved scheme in MYT Order dated February 19, 2018.

7.74 Further, the Petitioner has not provided any detail of assets which are de-capitalized in FY 2019-20 and FY 2020-21. The Commission directs the Petitioner to provide the detail of de-capitalized assets at the time of true-up.

Table 127: Asset wise Capitalization as approved by the Commission (Rs. Crore)

Particular	MYT Order	FY 2019-20		FY 2020-21	
		Petition	Approved	Petition	Approved
Unit-2 (Standalone)					
Up gradation of Metering System	0.55	0.28	0.28		-
Oil filtration system for Coal Mill	0.50	0.50	0.50		-
Compressed air system for fly ash handling system	1.75			1.75	1.75
Hydraulic Augur for CHP	1.00			1.00	1.00
210 AH UPS battery bank	0.50	0.12	0.12		-
6.6 kV Switchboard Replacement	4.00	1.28	1.28		-
2X 60 KVA UPS	0.40		-	0.40	0.40
Up-gradation of furnace safeguard, supervisory& BOP control System	12.00		-	7.03	7.03
Unit-3 (Standalone)			-		-
210 AH UPS battery bank	0.50		-	0.40	0.40
6.6 kV Switchboard Replacement	4.00	1.46	1.46	2.54	2.54
Up gradation of Metering System	0.55	0.28	0.28		-
2X 60 KVA UPS	0.40		-	0.40	0.40
Oil filtration system for Coal Mill	050	0.50	0.50		-
Compressed air system for fly ash handling system	1.75		-	1.75	1.75
Hydraulic Augur for CHP	1.00		-	1.00	1.00
Up-gradation of furnace safeguard, supervisory& BOP control System	12.00		-	12.00	12.00
Unit 2 & 3 (Common)					

Particular	MYT Order	FY 2019-20		FY 2020-21	
		Petition	Approved	Petition	Approved
Relining of Ash Ponds	4.24		-	0.44	0.44
Up gradation of Plant Security System	-	0.03	-		-
New Schemes & FGD System					
Up gradation U#2 220V DC Unit Battery Charger	-		-	0.60	-
Upgradation U#2&3 220V DC Station Battery Charger	-		-	0.60	-
Up gradation U#3 220V DC Unit Battery Charger	-		-	0.60	-
FGD System - Machinery & Piping work	-		-	175.77	-
FGD System - Site Clearing, Civil & Foundation Works	-		-	30.04	-
FGD System - Electrical Works	-		-	14.40	-
Refurbishment of AC System for Control Panel Room	-		-	3.00	-
Replacement of Dead Tank CT with live Tank CT	-	0.18	-	0.12	-
Net- Capitalization	**-**	**4.62**	**4.41**	**253.84**	**28.71**

7.75 The Gross Fixed Assets (GFA) as approved by the Commission for Unit 2 and Unit 3 is shown below.

Table 128: Gross Fixed Assets (GFA) for Unit 2 as approved by the Commission (Rs. Crore)

Particulars	FY 2019-20			FY 2020-21		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Opening GFA	512.96	498.08	485.00	515.71	500.37	487.18
Capitalization	2.75	2.28	2.18	4.20	122.96	10.41
Closing GFA	515.71	500.37	487.18	519.91	623.33	497.58

Table 129: Gross Fixed Assets (GFA) for Unit 3 as approved by the Commission (Rs. Crore)

Particulars	FY 2019-20			FY 2020-21		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Opening GFA	494.24	473.32	462.06	501.19	475.66	464.29
Capitalization	6.95	2.34	2.24	0.00	130.87	18.31
Closing GFA	501.19	475.66	464.29	501.19	606.53	482.60

Depreciation

Petitioner's Submission

7.76 The Petitioner while calculated the depreciation for FY 2019-20 and FY 2020-21 based on the methodology as proposed for earlier financial years. The depreciation as claimed by the Petitioner is shown in the table below.

Table 130: Depreciation for Unit 2 as submitted by the Petitioner (Rs. Crore)

<table>
<tr><th rowspan="2">Depreciation</th><th colspan="2">FY 2019-20</th><th colspan="2">FY 2020-21</th></tr>
<tr><th>MYT Order</th><th>Petition</th><th>MYT Order</th><th>Petition</th></tr>
<tr><td>Original Capital Cost</td><td>3.36</td><td>3.38</td><td>3.36</td><td>3.38</td></tr>
<tr><td>Add. Cap in FY 12</td><td rowspan="5">2.65</td><td rowspan="8">3.69</td><td rowspan="5">2.63</td><td rowspan="9">3.87</td></tr>
<tr><td>Add. Cap in FY 13</td></tr>
<tr><td>Add. Cap in FY 14</td></tr>
<tr><td>Add. Cap in FY 15</td></tr>
<tr><td>Add. Cap in FY 16</td></tr>
<tr><td>Add. Cap in FY 17</td><td rowspan="4">2.93</td><td rowspan="5">3.11</td></tr>
<tr><td>Add. Cap in FY 18</td></tr>
<tr><td>Add. Cap in FY 19</td></tr>
<tr><td>Add. Cap in FY 20</td><td>0.09</td></tr>
<tr><td>Add. Cap in FY 21</td><td>-</td><td>-</td><td>5.27</td></tr>
<tr><td>Net Depreciation</td><td>8.94</td><td>7.16</td><td>9.10</td><td>12.52</td></tr>
</table>

Table 131: Depreciation for Unit 3 as submitted by the Petitioner (Rs. Crore)

<table>
<tr><th rowspan="2">Depreciation</th><th colspan="2">FY 2019-20</th><th colspan="2">FY 2020-21</th></tr>
<tr><th>MYT Order</th><th>Petition</th><th>MYT Order</th><th>Petition</th></tr>
<tr><td>Original Capital Cost</td><td>5.11</td><td>5.11</td><td>5.11</td><td>5.11</td></tr>
<tr><td>Add. Cap in FY 12</td><td rowspan="5">2.35</td><td rowspan="8">2.79</td><td rowspan="5">2.33</td><td rowspan="9">2.95</td></tr>
<tr><td>Add. Cap in FY 13</td></tr>
<tr><td>Add. Cap in FY 14</td></tr>
<tr><td>Add. Cap in FY 15</td></tr>
<tr><td>Add. Cap in FY 16</td></tr>
<tr><td>Add. Cap in FY 17</td><td rowspan="4">2.94</td><td rowspan="5">3.12</td></tr>
<tr><td>Add. Cap in FY 18</td></tr>
<tr><td>Add. Cap in FY 19</td></tr>
<tr><td>Add. Cap in FY 20</td><td>0.08</td></tr>
<tr><td>Add. Cap in FY 21</td><td>-</td><td>-</td><td>5.12</td></tr>
<tr><td>Net Depreciation</td><td>10.40</td><td>7.98</td><td>10.56</td><td>13.19</td></tr>
</table>

Commission's Analysis

7.77 The JSERC Generation Tariff Regulation, 2015 has specified the following methodology for the calculation of depreciation expense for existing generating station

> *"7.28 Depreciation shall be calculated for each year of the tariff period, on the amount of Capital Cost of the assets admitted by the Commission;*

Provided that depreciation shall not be allowed on assets funded by any capital subsidy/grant.

7.29 The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the capital cost of the asset.
…………..

7.30 Land other than land held under lease and the land for reservoir in case of hydro generating station shall not be a depreciable asset and its cost shall be excluded from the capital cost while computing depreciable value of the asset.

7.31 Depreciation shall be calculated annually based on 'Straight Line Method' and at rates specified in Appendix-I to these Regulations for the assets of the generating station:

Provided that, the remaining depreciable value as on 31stMarch of the Year closing after a period of 12 Years from the Date of Commercial operation shall be spread over the balance Useful life of the assets.

7.32 In case of existing projects, the balance depreciable value as on 1stApril 2016 shall be worked out by deducting the cumulative depreciation as admitted by the Commission upto 31stMarch 2016 from the gross depreciable value of the assets.

The rate of depreciation shall be continued to be charged at the rate specified in Appendix-I till cumulative depreciation reaches 70%. Thereafter the remaining depreciable value shall be spread over the remaining life of the asset such that the maximum depreciation does not exceed 90%.

7.33 Depreciation shall be chargeable from the first Year of commercial operation. In case of commercial operation of the asset for part of the Year, depreciation shall be charged on pro rata basis."

7.78 The Commission observed that the methodology adopted by the Petitioner for calculation of depreciation is not in line to the Generation Tariff Regulations 2015. The reasons cited by the Petitioner of under recovery of assets value in case the rate of depreciation as mentioned in Appendix-I of Generation Tariff Regulations 2015 is considered for calculation is not found satisfactory as the same has not been substantiated with proper workings.

7.79 The Commission is of the view that to substantiate its proposal for change in the methodology for calculation of depreciation, the Petitioner was required to carry out detail study to ascertain the residual life of asset. At present, the Petitioner proposal for accepting the different methodology for calculation of depreciation without any documentary evidence demonstrate only its eagerness to recover the expenditure incurred. Hence, the Commission has approved the deprecation as per rate defined in JSERC

Generation Tariff Regulations, 2015. However, the Commission shall look into the issue while framing the tariff regulations for the third control period. The Petitioner may submit its proposal at the time of finalising the tariff regulations for Commission's consideration.

7.80 The Commission has adopted the methodology for calculation of deprecation as specified in the JSERC Generation Tariff Regulations, 2015as shown below.

Table 132: Depreciation for Unit 2 as approved by the Commission (Rs. Crore)

<table>
<tr><th rowspan="2">Depreciation</th><th colspan="3">FY 2019-20</th><th colspan="3">FY 2020-21</th></tr>
<tr><th>MYT Order</th><th>Petition</th><th>Approved</th><th>MYT Order</th><th>Petition</th><th>Approved</th></tr>
<tr><td>Original Capital Cost</td><td>3.36</td><td>3.38</td><td>2.27</td><td>3.36</td><td>3.38</td><td>2.27</td></tr>
<tr><td>Add. Cap in FY 12</td><td rowspan="5">2.65</td><td rowspan="8">3.69</td><td>0.41</td><td rowspan="5">2.63</td><td rowspan="9">3.87</td><td>0.41</td></tr>
<tr><td>Add. Cap in FY 13</td><td>0.58</td><td>0.51</td></tr>
<tr><td>Add. Cap in FY 14</td><td>0.42</td><td>0.42</td></tr>
<tr><td>Add. Cap in FY 15</td><td>0.73</td><td>0.69</td></tr>
<tr><td>Add. Cap in FY 16</td><td>0.51</td><td>0.51</td></tr>
<tr><td>Add. Cap in FY 17</td><td rowspan="4">2.93</td><td>0.29</td><td rowspan="5">3.11</td><td>0.29</td></tr>
<tr><td>Add. Cap in FY 18</td><td>0.01</td><td>0.01</td></tr>
<tr><td>Add. Cap in FY 19</td><td>1.08</td><td>1.08</td></tr>
<tr><td>Add. Cap in FY 20</td><td>0.09</td><td>0.06</td><td>0.12</td></tr>
<tr><td>Add. Cap in FY 21</td><td>-</td><td>-</td><td>-</td><td>5.27</td><td>0.64</td></tr>
<tr><td>Net Depreciation</td><td>8.94</td><td>7.16</td><td>6.37</td><td>9.10</td><td>12.52</td><td>6.95</td></tr>
</table>

Table 133: Depreciation for Unit 3 as approved by the Commission (Rs. Crore)

<table>
<tr><th rowspan="2">Depreciation</th><th colspan="3">FY 2019-20</th><th colspan="3">FY 2020-21</th></tr>
<tr><th>MYT Order</th><th>Petition</th><th>Approved</th><th>MYT Order</th><th>Petition</th><th>Approved</th></tr>
<tr><td>Original Capital Cost</td><td>5.11</td><td>5.11</td><td>3.77</td><td>5.11</td><td>5.11</td><td>3.77</td></tr>
<tr><td>Add. Cap in FY 12</td><td rowspan="5">2.35</td><td rowspan="8">2.79</td><td>0.38</td><td rowspan="5">2.33</td><td rowspan="9">2.95</td><td>0.38</td></tr>
<tr><td>Add. Cap in FY 13</td><td>0.32</td><td>0.23</td></tr>
<tr><td>Add. Cap in FY 14</td><td>0.81</td><td>0.81</td></tr>
<tr><td>Add. Cap in FY 15</td><td>0.26</td><td>0.22</td></tr>
<tr><td>Add. Cap in FY 16</td><td>0.59</td><td>0.59</td></tr>
<tr><td>Add. Cap in FY 17</td><td rowspan="4">2.94</td><td>0.35</td><td rowspan="5">3.12</td><td>0.35</td></tr>
<tr><td>Add. Cap in FY 18</td><td>0.11</td><td>0.11</td></tr>
<tr><td>Add. Cap in FY 19</td><td>0.01</td><td>0.01</td></tr>
<tr><td>Add. Cap in FY 20</td><td>0.08</td><td>0.06</td><td>0.12</td></tr>
<tr><td>Add. Cap in FY 21</td><td>-</td><td>-</td><td>-</td><td>5.12</td><td>1.07</td></tr>
<tr><td>Net Depreciation</td><td>10.40</td><td>7.98</td><td>6.65</td><td>10.56</td><td>13.19</td><td>7.64</td></tr>
</table>

Operation & Maintenance Expenses

Petitioner's Submission

7.81 The Petitioner has adopted the below mentioned methodology for recovering the Operation and Maintenance (O&M) expenses.

Table 134: Methodology followed for recovered for O&M Expenses

Particular	Methodology	Applicable Provision & Previous Judgements of the Hon'ble Tribunal
Staff Expenses		
Employee Expenses	Normative	Regulation 6.14 read with Regulation 6.11
Terminal Liabilities	Actual	Regulation 7.14(c) read with observation of the Commission in para 6.78(b) of the MYT Order dated 19.02.2018
R&M Expenses	Normative	Regulation 6.14 read with Regulation 6.11
A&G Expenses		
Ash Disposal	Actual	Judgement of the Hon'ble Tribunal dated 10.08.2016 and the observation of the Commission in para 6.87 of the MYT Order dated 19.02.2018
Raw Water Expenses	Actual	Regulation 7.46
HO & SS Expenses	Normative	Regulation 6.14 read with Regulation 6.11
Other A&G Expenses	Normative	Regulation 6.14 read with Regulation 6.11
Applicable Fees & Publication Expenses	Actual	Regulation 11.7 read with the observation of the Commission
Capital Spares	Actual	Regulation 7.46

7.82 Accordingly, the Petitioner has projected the employee expenses including terminal liabilities on normative basis as approved in the MYT Order dated February 19, 2018 for FY 2019-20 and FY 2020-21 respectively. However, in accordance with the clause 7.41 of Generation Tariff Regulations 2015, the actual terminal liabilities shall be provided during the True-up exercise.

7.83 Similarly, the Petitioner has claimed the R&M Expenses on normative basis as approved by the Commission in the MYT Order dated February 19, 2018 for both the Units.

7.84 The ash disposal expenses has been revised based on the following assumptions:

- revised operational performance
- revised coal procurement plan
- projected contract rate of disposal of Fly Ash/Pond Ash. The prevailing contract rate, i.e. rate applicable for October 2018, is escalated with approved escalation factor of 7.22% to arrive at the projected contract rate for FY 2019-20 and FY 2020-21
- Utilization(%)of fly ash under different avenues based on the actual utilization (%) in the month of April 2018 to October 2018
- Ash(%) in coal based on the actual ash (%) as recorded for the months of April 2018 to September 2018.

7.85 Further, while computing the ash disposal expenses for FY 2019-20 and FY 2020-21 additional disposal of 15% of the accumulated pond ash has also been considered against the approval of 10% in the MYT Order dated February 19, 2018. The additional 5% is considered mainly to create enough space in the pond to avoid a situation of overflow or other eventualities which may emerge when daily disposal of pond ash is stopped/curtailed due to natural/uncontrollable factors.

7.86 The Petitioner has proposed HO&SS expense, Other A&G expenses and Application fee and Publication expenses on normative basis as approved in the MYT Order dated February 19, 2018.

7.87 For the purpose of computing the revised estimates of raw water expense for FY 2019-20 and FY 2020-21, the Petitioner has considered the revised gross generation of the financial year for Unit 2 and Unit 3 and the specific water consumption of Rs. 3.18 m3/MWh as approved in the MYT Order dated February 19, 2018. The raw water charge rate for FY 2019-20 and FY 2020-21 is considered at Rs 21.77/m3 and Rs 23.4/m3 respectively as approved in the MYT Order dated February 19, 2018.

7.88 The Petitioner has revised the capital spares based on the revised procurement plan due to additional capitalization of new schemes and FGD system.

7.89 In addition to above, the Petitioner has claimed additional O&M expenses due to installation of FGD system as mentioned below.

- Additional manpower cost & spare cost
- Additional raw water consumption
- Gypsum disposal expenses
- Additional auxiliary consumption.

The facility requires sufficient no of manpower (Outsourced/Permanent) to operate and carry out the routine, preventive and breakdown maintenance of the facility to ensure the availability and reliability of the System. It also includes the cost towards procurement of maintenance spares. It is estimated that O&M Manpower and Spare Cost will be approximately 5% of the Capital Cost of the project.

Purchase of consumables viz. Water and Lime Stone: It is estimated that FGD System will require 21 m3/hr of process water per unit. This is after considering 15m3/hr will be supplied from cooling tower blow down of the existing Units. The cost of Lime stone shall form part of the energy charges as per Generation Tariff Regulations 2015.

Cost towards disposal of by-products and wastes of the FGD Plant: It is estimated that 2.11 Ton/hr of Gypsum will be generated with a lime stone purity (CaCo3>80%). Thus, the Petitioner is required to incur recurring cost at Rs 377/Ton towards disposal of the Gypsum to designated place as per the guideline of Statutory Bodies.

One time Cost towards Auxiliary Consumption required for testing the Flue Gas Path while commissioning the FGD System: It is noteworthy to mention that some of the auxiliaries such as ID, FD and PA fans are required to be kept in service for approximately 15 days in full load condition to keep entire flue gas system of boiler in active condition as required by the vendor and customer to check the functionality of the newly commissioned FGD system. Since, auxiliary system of the Units are connected to the auxiliary bus supplied through station transformer, the Unit will consume nearly 2% of auxiliary power in 15 days without having any actual generation. The Petitioner, therefore, proposes to recover the cost of 2% of auxiliary power consumed as a one-time O&M cost at a rate equal to the energy charge rate of the Unit which is in service and supplying auxiliary power for the Unit which is under shutdown for commissioning of FGD System.

7.90 As per the record, (Number of ID Fan:2, Number of FD Fan: 2, Number of PA Fan: 2) for Unit 2 approximately consume 2110 kW instantaneously which translates to a consumption of 759600 kW in 15 days. Similarly, the said consumption in Unit 3 is recorded at 2145 kW which translates into a consumption of 772200 kW in span of 15 days.

Table 135: O&M expenses for FGD System for Unit 2 for FY 2020-21 (Jan'21-Mar'21) (Rs. Crore)

Particular	MYT Order	Petition
R&M expenses inclusive of manpower cost	-	1.36
Raw water expenses	-	0.09
Gypsum disposal expenses	-	0.15
Auxiliary for testing the FGD system	-	0.24
O&M expenses for FGD System	**-**	**1.84**

Table 136: O&M expenses for FGD System for Unit 3 for FY 2020-21 (Nov'20-Mar'21) (Rs. Crore)

Particular	MYT Order	Petition
R&M expenses inclusive of manpower cost	-	2.28
Raw water expenses	-	0.16
Gypsum disposal expenses	-	0.25
Auxiliary for testing the FGD system	-	0.24
O&M expenses for FGD System	**-**	**2.68**

7.91 The detailed component-wise summary of the O&M Expenses for Unit 2 and Unit 3 including FGD System has been shown below.

Table 137: O&M Expenses for Unit 2 as submitted by the Petitioner (Rs. Crore)

Particulars	FY 2019-20		FY 2020-21	
	MYT Order	Petition	MYT Order	Petition
Employee Expenses	7.88	7.88	8.45	8.45
Terminal Liabilities	0.25	0.25	0.25	0.25
R&M Expenses	20.46	20.46	21.94	21.94
Ash Disposal Expenses	6.5	3.63	6.33	4.84
Raw Water Expenses	6.16	4.89	6.18	5.53
HO & SS Expenses	10.76	10.76	11.53	11.53
Application Fees & Publication Expenses	0.31	0.31	0.33	0.33
Other A&G Expenses	5.14	5.14	5.51	5.51
Capital Spares	1.7	0.70	-	3.00
O&M expenses for FGD system	-	-	-	1.82
Net-O&M Expenses	**59.16**	**54.03**	**60.52**	**63.21**

Table 138: O&M Expenses for Unit 3 as submitted by the Petitioner (Rs. Crore)

Particulars	FY 2019-20		FY 2020-21	
	MYT Order	Petition	MYT Order	Petition
Employee Expenses	7.88	7.88	8.45	8.45
Terminal Liabilities	0.25	0.25	0.25	0.25
R&M Expenses	14.61	14.61	15.66	15.66
Ash Disposal Expenses	6.1	3.71	6.84	4.87
Raw Water Expenses	5.77	5.01	6.66	5.53
HO & SS Expenses	9.43	9.43	10.11	10.11
Application Fees & Publication Expenses	0.30	0.30	0.32	0.32
Other A&G Expenses	4.70	4.70	5.04	5.04
Capital Spares	1.70	0.70	-	3.00
O&M expenses for FGD system	-	-	-	2.91
Net-O&M Expenses	**50.74**	**46.59**	**53.33**	**56.15**

Commission's Analysis

7.92 The Commission has approved the O&M expenses as per provisions laid down in the JSERC Generation Tariff Regulations, 2015.

7.93 The Commission has scrutinized the submission made by the Petitioner and approves the employee cost including terminal liabilities, R&M expenses, HO&SS expenses, Other A&G expenses and application fees & publication expenses on normative basis as approved in the MYT Order dated February 19, 2018.

7.94 For the mid-term review, the Commission has approved the ash disposal expenses as submitted by the Petitioner subject to true-up prudence check based on the actual.

7.95 The capital spares is approved as per MYT Order dated February 19, 2018 considering spillage from earlier financial year.

7.96 With regards to raw water as the matter is sub-judice before the Hon'ble Jharkhand High Court. Based on the partial payment of Rs. 316 Crore made by TSL to Government of Jharkhand (GoJ) against the projected value of Rs. 607.20 Crore, the Commission is of the view that passing the complete raw water charge as claimed by the Petitioner to the consumers at this juncture is not apt. Hence, based on the detail presented before the Commission by the Petitioner dated December 26, 2019, the Commission has approved the raw water in proportion to actual payment made to GoJ by TSL including ad hoc which is subject to final outcome of above-mentioned petition before the Hon'ble Jharkhand High Court.

Table 139: Raw water expenses for FY 2019-20 as approved by the Commission (Rs. Crore)

Particular	UoM	Unit-2	Unit-3
Consumption	'000 Gallons	494,859	506,519
Rate	Rs./'000 Gallons	98.97	98.97
Water Bill	Rs. Cr.	4.90	5.01
TPCL apportion based on actuals	**Rs. Cr.**	**2.55**	**2.61**

7.97 The raw water expenses is projected based on the approved gross generation, specific water consumption as projected for FY 2019-20, rate approved in MYT Order dated February 19, 2018 and in proportion to actual payment made to GoJ by TSL including ad hoc. The raw water expenses approved for FY 2020-21 is subject to final outcome of above-mentioned petition before the Hon'ble Jharkhand High Court.

Table 140: Raw water expenses for FY 2020-21 as approved by the Commission (Rs. Crore)

Particular	UoM	Unit-2	Unit-3
Consumption	'000 Gallons	509,978	548,366
Rate	Rs./'000 Gallons	106.38	106.38
Water Bill	Rs. Cr.	5.43	5.83
TPCL apportion based on actuals	**Rs. Cr.**	**2.82**	**3.04**

7.98 The Commission has not considered the FGD implementation at this stage for reasons detailed in this Order. Therefore, it has not approved any impact on account of the same.

7.99 The O&M expense as approved by the Commission for FY 2019-20 and FY 2020-21 for Unit 2 and Unit 3 is shown below.

Table 141: O&M Expenses for Unit 2 as approved by the Commission (Rs. Crore)

Particulars	FY 2019-20			FY 2020-21		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Employee Expenses	7.88	7.88	7.88	8.45	8.45	8.45
Terminal Liabilities	0.25	0.25	0.25	0.25	0.25	0.25
R&M Expenses	20.46	20.46	20.46	21.94	21.94	21.94
Ash Disposal Expenses	6.5	3.63	3.63	6.33	4.84	5.00
Raw Water Expenses	6.16	4.89	2.55	6.18	5.53	2.82
HO & SS Expenses	10.76	10.76	10.76	11.53	11.53	11.53
Application & Publication Expenses	0.31	0.31	0.31	0.33	0.33	0.33
Other A&G Expenses	5.14	5.14	5.14	5.51	5.51	5.51
Capital Spares	1.7	0.70	0.70	-	3.00	3.00
O&M expenses for FGD system	-	-	-	-	1.82	-
Net O&M Expenses	**59.16**	**54.03**	**51.68**	**60.52**	**63.20**	**58.83**

Table 142: O&M Expenses for Unit 3 as approved by the Commission (Rs. Crore)

Particulars	FY 2019-20			FY 2020-21		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Employee Expenses	7.88	7.88	7.88	8.45	8.45	8.45
Terminal Liabilities	0.25	0.25	0.25	0.25	0.25	0.25
R&M Expenses	14.61	14.61	14.61	15.66	15.66	15.66
Ash Disposal Expenses	6.1	3.71	3.71	6.84	4.87	4.87
Raw Water Expenses	5.77	5.01	2.61	6.66	5.53	3.04
HO & SS Expenses	9.43	9.43	9.43	10.11	10.11	10.11
Application & Publication Expenses	0.3	0.30	0.30	0.32	0.32	0.32
Other A&G Expenses	4.7	4.70	4.7	5.04	5.04	5.04
Capital Spares	1.7	0.70	0.70	-	3.00	3.00
O&M expenses for FGD system	-	-	-	-	2.91	-
Net O&M Expenses	**50.74**	**46.59**	**44.19**	**53.33**	**56.14**	**50.74**

Interest on Loan

Petitioner's Submission

7.100 The Petitioner submitted that the repayment of the long-term loan on Original Project Cost of Unit 2 and Unit 3 has been completed in the year FY 2009-10 and 2010-11 respectively.

7.101 For the purpose of the computation of interest on loan, the Petitioner has considered the additional capitalization on normative basis i.e. 70% of the additional capitalization as loan for FY 2019-20 and FY 2020-21.

7.102 The Petitioner further submitted that they are planning to finance the additional Capitalization for FY 2019-20 and FY 2020-21 through its internal accruals except for the scheme of FGD system which require substantial investment for which the Petitioner is yet to finalize the source of financing. The tentative schedule of installation and commissioning of FGD system for Unit 3 and Unit 2 is October31, 2020 and December 31, 2020 respectively.

7.103 In absence of any firm financing plan, the interest rate for Unit 2 and Unit 3 has been considered in accordance with third proviso of the Regulation 7.23 of Generation Tariff Regulations and the same shall be effective for both the Units till the FGD System is capitalized. Hence, the interest rate till October 2020 has been considered at 13.02% for Unit 2and till December 2020as 12.33% for Unit 3 respectively as approved by the Commission in the MYT Order dated February 19, 2018.

7.104 The interest rate of 10.95%(SBI base rate effective from 01.07.2018 (8.95%)+200%) from November2020 to March 2021. Thus, the weighted average interest for 2020-21 for Unit 2 works out to be 12.16% and 11.76% for Unit 3 respectively.

Table 143: Interest on Loan for Unit 2 as submitted by the Petitioner (Rs. Crore)

Particulars	FY 2019-20		FY 2020-21	
	MYT Order	Petition	MYT Order	Petition
Opening Loan	40.25	33.54	36.60	31.35
Deemed Loan Addition	1.93	1.60	2.94	86.07
Deemed Loan Repayment	5.58	3.78	5.74	9.14
Closing Loan	36.60	31.35	33.80	108.28
Interest Rate	13.02%	13.02%	13.02%	11.96%
Interest on Loan	**5.00**	**4.22**	**4.58**	**8.35**

Table 144: Interest on Loan for Unit 3 as submitted by the Petitioner (Rs. Crore)

Particulars	FY 2019-20		FY 2020-21	
	MYT Order	Petition	MYT Order	Petition
Opening Loan	37.82	26.88	37.40	25.65
Deemed Loan Addition	4.87	1.64	0.00	91.61
Deemed Loan Repayment	5.29	2.87	5.45	8.08
Closing Loan	37.40	25.65	31.95	109.18
Interest Rate	12.33%	12.33%	12.33%	11.55%
Interest on Loan	**4.64**	**3.24**	**4.27**	**7.79**

Commission's Analysis

7.105 The Commission has approved the Interest on Loan (IoL) in accordance to Clause 7.23 of JSERC Generation Tariff Regulations, 2015 and in line to MYT Order dated February 19, 2018.

7.106 Since, no additional capitalization is approved, in addition to already approved in MYT Order dated February 19, 2018, the Commission has considered the interest rate as

13.02% and 12.33% for Unit 2 and Unit 3 respectively as approved in MYT Order dated February 19, 2018 for both the FY 2019-20 and FY 2020-21 as shown below.

Table 145: Interest on Loan for Unit 2 as approved by the Commission (Rs. Crore)

Particulars	FY 2019-20			FY 2020-21		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Opening Loan	40.25	33.54	30.75	36.60	31.35	28.18
Deemed Loan Addition	1.93	1.60	1.52	2.94	86.07	7.28
Deemed Loan Repayment	5.58	3.78	4.09	5.74	9.14	4.68
Closing Loan	36.60	31.35	28.18	33.80	108.28	30.78
Interest Rate	13.02%	13.02%	13.02%	13.02%	11.96%	13.02%
Interest on Loan	**5.00**	**4.22**	**3.84**	**4.58**	**8.35**	**3.84**

Table 146: Interest on Loan for Unit 3 as approved by the Commission (Rs. Crore)

Particulars	FY 2019-20			FY 2020-21		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Opening Loan	37.82	26.88	23.73	37.40	25.65	22.42
Deemed Loan Addition	4.87	1.64	1.56	0.00	91.61	12.82
Deemed Loan Repayment	5.29	2.87	2.87	5.45	8.08	3.87
Closing Loan	37.40	25.65	22.42	31.95	109.18	31.37
Interest Rate	12.33%	12.33%	12.33%	12.33%	11.55%	12.33%
Interest on Loan	**4.64**	**3.24**	**2.85**	**4.27**	**7.79**	**3.32**

Interest on Working Capital (IoWC)

Petitioner's Submission

7.107 The Petitioner submitted that due to installation of FGD System to comply with the revised emission norms, it is required to maintain enough stock of lime stone for continuous operation. As per the proposed configuration, storage area equivalent to storing lime stone required for 15 days of operation has been considered. The same has been considered for the purpose to work out the revised working capital requirement and interest on working capital. Further, the Petitioner seeks the liberty to submit the actual storage area post installation of the FGD system before the Commission for computing the working capital and interest thereon.

7.108 In view of installation and commissioning of FGD system in the existing facility, the Working Capital is considered as sum of the following in accordance with Regulation 7.34 of the Generation Tariff Regulations 2015:

- Coal cost (60 days)
- Secondary fuel cost (2 months)
- Lime stone cost (45 days)

- Maintenance Spares @20% of O&M Expenses
- O&M Expenses (1 month)
- Receivables (2 months)

7.109 For the purpose of computing revised IoWC for FY 2019-20 and FY 2020-21, coal cost and LDO has been considered as per the revised fuel parameter. The cost of limestone is worked out considering the estimated limestone consumption (CaCo3>80%) of 1.30 ton/hour per Unit with a projected price of Rs 1900/ton prevailing for FY 2018-19. However, the Petitioner seeks liberty to submit the actual specific limestone consumption and price of the limestone before the Commission at the end of financial year for working out the revised working capital requirement and interest thereon.

7.110 Further, rate of interest has been considered as the bank Rate as approved in the MYT Order for FY 2019-20 and FY 2020-21 for the purpose of computation of interest on working capital since FY 2019-20 and FY 2020-21 is yet to commence. However, actual interest rate as on 1st April of each financial year shall be considered as per 1st proviso of Regulation 7.38 for the purpose of true-up exercise.

Table 147: IoWC for Unit 2 as submitted by the Petitioner (Rs. Crore)

Particulars	FY 2019-20		FY 2020-21	
	MYT Order*	Petition	MYT Order*	Petition
Coal Stock (30 Days) Coal for Generation (30 Days)	33.65	42.37	33.74	38.59
Cost of Secondary Fuel (60 Days)	0.34	0.74	0.34	0.74
Maintenance Spares (20% O&M)	11.83	10.81	12.11	12.64
O&M Expenses (1 Month)	4.93	4.50	5.04	5.27
Receivables (2 Months)	54.04	61.95	54.27	61.72
Cost of Lime stone (45 Days)	-	-	-	0.06
Total Working Capital requirement	104.79	120.37	105.50	119.01
Interest rate on WC	12.80%	12.55%	12.80%	12.80%
Interest on Working Capital	**13.41**	**15.11**	**13.50**	**15.23**

** Read with Review Order dated January 09, 2019*

Table 148: IoWC for Unit 3 as submitted by the Petitioner (Rs. Crore)

Particulars	FY 2019-20		FY 2020-21	
	MYT Order*	Petition	MYT Order*	Petition
Coal Stock (30 Days) Coal for Generation (30 Days)	33.76	42.54	33.86	38.72
Cost of Secondary Fuel (60 Days)	0.34	0.74	0.34	0.74
Maintenance Spares (20% O&M)	10.15	9.32	10.67	11.23
O&M Expenses (1 Month)	4.23	3.88	4.44	4.68
Receivables (2 Months)	52.69	60.54	53.15	60.41
Cost of Lime stone (45 Days)	-	-	-	0.10

Particulars	FY 2019-20		FY 2020-21	
	MYT Order*	Petition	MYT Order*	Petition
Total Working Capital requirement	101.17	117.02	102.46	115.88
Interest rate on WC	12.80%	12.55%	12.80%	12.80%
Interest on Working Capital	**12.95**	**14.69**	**13.11**	**14.83**

* *Read with Review Order dated January 09, 2019*

Commission's Analysis

7.111 The Commission has computed the Interest on Working Capital (IoWC) for FY 2019-20 and FY 2020-21 for both Unit 2 and Unit 3 as per Clause 7.34 and 7.37 of JSERC Generation Tariff Regulations, 2015.

7.112 The Commission has not considered the FGD implementation at this stage for reasons detailed in this Order. Therefore, it has not approved any impact on account of the same..

7.113 The Bank Rate as on April 01, 2019 is considered for the purpose of computation of Interest on Working Capital (IoWC) as per Clause 7.38 of JSERC Generation Tariff Regulation, 2015 for the FY 2019-20 and the latest available bank rate for FY 2020-21 subject to final true up based on the actual. The Interest on Working Capital (IoWC) as approved by the Commission is summarized in the following table.

Table 149: IoWC for Unit 2 as approved by the Commission (Rs. Crore)

Particulars	FY 2019-20			FY 2020-21		
	MYT Order*	Petition	Approved	MYT Order*	Petition	Approved
Coal Stock (30 Days)	33.65	42.37	21.52	33.74	38.59	19.59
Coal for Generation (30 Days)			21.52			19.59
Cost of Secondary Fuel (60 Days)	0.34	0.74	0.37	0.34	0.74	0.37
Maintenance Spares (20% O&M)	11.83	10.81	10.34	12.11	12.64	11.77
O&M Expenses (1 Month)	4.93	4.50	4.31	5.04	5.27	4.90
Receivables (2 Months)	54.04	61.95	56.55	54.27	61.72	55.04
Cost of Lime stone (45 Days)	-	-	-	-	0.06	-
Total Working Capital requirement	104.79	120.37	114.60	105.50	119.01	111.26
Interest rate on WC	12.80%	12.55%	12.55%	12.80%	12.80%	11.95%
Interest on Working Capital	**13.41**	**15.11**	**14.38**	**13.50**	**15.23**	**13.30**

* *Read with Review Order dated January 09, 2019*

Table 150: IoWC for Unit 3 as approved by the Commission (Rs. Crore)

Particulars	FY 2019-20			FY 2020-21		
	MYT Order*	Petition	Approved	MYT Order*	Petition	Approved
Coal Stock (30 Days)	33.76	42.54	21.60	33.86	38.72	19.65
Coal for Generation (30 Days)			21.60			19.65
Cost of Secondary Fuel (60 Days)	0.34	0.74	0.37	0.34	0.74	0.37
Maintenance Spares (20% O&M)	10.15	9.32	8.84	10.67	11.23	10.15
O&M Expenses (1 Month)	4.23	3.88	3.68	4.44	4.68	4.23

Particulars	FY 2019-20			FY 2020-21		
	MYT Order*	Petition	Approved	MYT Order*	Petition	Approved
Receivables (2 Months)	52.69	60.54	55.98	53.15	60.41	56.42
Cost of Lime stone (45 Days)	-	-	-	-	0.10	-
Total Working Capital requirement	101.17	117.02	112.08	102.46	115.88	110.48
Interest rate on WC	12.80%	12.55%	12.55%	12.80%	12.80%	11.95%
Interest on Working Capital	**12.95**	**14.69**	**14.07**	**13.11**	**14.83**	**13.20**

** Read with Review Order dated January 09, 2019*

Return on Equity

Petitioner's Submission

7.114 The Petitioner revised the Return on Equity (RoE) considering MAT rate as 17.47% as applicable for FY 2019-20 and the revised projection of additional capitalization for FY 2019-20 and FY 2020-21 for Unit 2 and Unit 3 as shown below.

Table 151: RoE for Unit 2 as submitted by the Petitioner (Rs. Crore)

Particulars	FY 2019-20		FY 2020-21	
	MYT Order	Petition	MYT Order	Petition
Opening Equity	153.89	150.10	154.72	150.79
Addition	0.83	0.68	1.26	36.89
Closing Equity	154.72	150.79	155.98	187.68
Rate of Return	15.50%	15.50%	15.50%	15.50%
ROE (Pre-Tax)		-		-
MAT		17.47%		17.47%
ROE after MAT	19.71%	18.78%	19.71%	18.78%
ROE (Post-Tax)	**30.41**	**28.26**	**30.61**	**31.78**

Table 152: RoE for Unit 3 as submitted by the Petitioner (Rs. Crore)

Particulars	FY 2019-20		FY 2020-21	
	MYT Order	Petition	MYT Order	Petition
Opening Equity	148.28	142.34	150.37	143.04
Addition	2.09	0.70	0	39.26
Closing Equity	150.37	143.04	150.37	182.30
Rate of Return	15.50%	15.50%	15.50%	15.50%
ROE (Pre-Tax)		-		-
MAT		17.47%		17.47%
ROE after MAT	19.71%	18.78%	19.71%	18.78%
ROE (Post-Tax)	**29.42**	**26.80**	**29.63**	**30.55**

Commission's Analysis

7.115 The Commission has considered the approved additional capitalization on normative basis i.e. 30% of the approved additional capitalization is considered as equity addition during the financial year.

7.116 In accordance with Clause 7.16, Clause 7.17 and Clause 7.18 of the JSERC Generation Tariff Regulations, 2015, the Commission has approved the RoE at 15.50% which is grossed up with the MAT rate i.e. 15% plus Surcharge (12%) and Health and Education Cess (4%) as applicable for the FY 2019-20.

7.117 The Commission has approved the Return on Equity (RoE) for FY 2019-20 and FY 2020-21 as shown below.

Table 153: RoE for Unit 2 as approved by the Commission (Rs. Crore)

Particulars	FY 2019-20			FY 2020-21		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Opening Equity	153.89	150.10	145.50	154.72	150.79	146.15
Addition	0.83	0.68	0.65	1.26	36.89	3.12
Closing Equity	154.72	150.79	146.15	155.98	187.68	149.28
Rate of Return	15.50%	15.50%	15.50%	15.50%	15.50%	15.50%
ROE (Pre-Tax)		-	22.60		-	22.90
MAT		17.47%	17.47%		17.47%	17.47%
ROE after MAT	19.71%	18.78%	18.78%	19.71%	18.78%	18.78%
ROE (Post-Tax)	**30.41**	**28.26**	**27.39**	**30.61**	**31.78**	**27.74**

Table 154: RoE for Unit 3 as approved by the Commission (Rs. Crore)

Particulars	FY 2019-20			FY 2020-21		
	MYT Order	Petition	Approved	MYT Order	Petition	Approved
Opening Equity	148.28	142.30	138.62	150.37	143.04	139.29
Addition	2.09	1.06	0.67	-	39.26	5.49
Closing Equity	150.37	143.36	139.29	150.37	182.30	144.78
Rate of Return	15.50%	15.50%	15.50%	15.50%	15.50%	15.50%
ROE (Pre-Tax)		22.14	21.54		-	22.02
MAT		21.55%	17.47%		17.47%	17.47%
ROE after MAT	19.71%	19.76%	18.78%	19.71%	18.78%	18.78%
ROE (Post-Tax)	**29.42**	**28.22**	**26.10**	**29.63**	**30.55**	**26.68**

Tax on Saving on Operational Parameters

Petitioner's Submission

7.118 The Petitioner has submitted that the Income Tax due to gain on account of Secondary Fuel Consumption, Auxiliary Power Consumption and Gross Station Heat Rate (GHR) is recoverable from the Beneficiary as per Clause 7.49 of the JSERC Generation Tariff Regulations, 2015 as shown below.

Table 155: Tax Liability on saving in Operation Parameters for FY 2019-20 as submitted by the Petitioner (Rs. Crore)

Particulars	Unit 2		Unit 3	
	MYT Order	Petition	MYT Order	Petition
Tax on Gain (Secondary Fuel)	-	0.25	-	0.35
Tax on Gain (Auxiliary)	-	0.18	-	0.16
Tax on Gain (SHR)	-	0.30	-	0.45

Commission's Analysis

7.119 The Commission is of the view that the Petitioner claim of tax liability on saving on operational parameters is provisional and based on the assumption which is to be occurred in the future. Hence, the Commission directed the Petitioner to resubmit their claim at the time of true up along with documentary support.

Summary of Annual Revenue Requirement

Commission's Analysis

7.120 Based on the above approved parameters, the Commission approved the unit wise Annual Revenue Requirement (ARR) for FY 2019-20 and FY 2020-21as mentioned below.

Table 156: Annual Revenue Requirement for Unit 2 as approved by the Commission (Rs. Crore)

Particulars	UoM	FY 2019-20			FY 2020-21		
		MYT Order*	Petition	Approved	MYT Order*	Petition	Approved
O&M Expenses	Rs. Cr.	59.17	54.03	51.68	60.53	63.21	58.83
Depreciation	Rs. Cr.	8.94	7.16	6.37	9.1	12.52	6.95
Interest on Loan	Rs. Cr.	5.00	4.22	3.84	4.58	8.35	3.84
Int. on WC	Rs. Cr.	13.41	15.11	14.38	13.5	15.23	13.30
Return on Equity	Rs. Cr.	30.41	28.26	27.39	30.61	31.78	27.74
Annual Fixed Cost	**Rs. Cr.**	**116.93**	**108.77**	**103.65**	**118.33**	**131.10**	**110.66**
Availability	Rs. Cr.	85.00%	88.99%	88.99%	85.00%	87.76%	87.76%
AFC after Availability	**Rs. Cr.**	**116.93**	**108.77**	**103.65**	**118.33**	**131.10**	**110.66**
Energy Cost	Rs. Cr.	**206.62**	**237.27**	**235.67**	**192.77**	**198.03**	**219.59**
Tax on Gain (Secondary Fuel)	Rs. Cr	**-**	**0.25**	**-**	**-**	**-**	**-**
Tax on Gain (Auxiliary)	Rs. Cr	**-**	**0.18**	**-**	**-**	**-**	**-**
Tax on Gain (SHR)	Rs. Cr	**-**	**0.30**	**-**	**-**	**-**	**-**
Annual Revenue Requirement	**Rs. Cr.**	**323.56**	**346.78**	**339.32**	**311.10**	**329.13**	**330.25**
Energy Charge Rate	**Rs./kWh**	**2.578**	**3.258**	**3.236**	**2.578**	**2.983**	**2.936**

* *Read with Review Order dated January 09, 2019*

Table 157: Annual Revenue Requirement for Unit 3 as approved by the Commission (Rs. Crore)

Particulars	UoM	FY 2019-20			FY 2020-21		
		MYT Order*	Petition	Approved	MYT Order*	Petition	Approved
O&M Expenses	Rs. Cr.	50.74	46.59	44.19	53.33	56.15	50.74
Depreciation	Rs. Cr.	10.4	7.98	6.65	10.56	13.19	7.64
Interest on Loan	Rs. Cr.	4.64	3.24	2.85	4.27	7.79	3.32
Int. on WC	Rs. Cr.	12.95	14.69	14.07	13.11	14.83	13.20
Return on Equity	Rs. Cr.	29.42	26.80	26.10	29.63	30.55	26.68
Annual Fixed Cost	**Rs. Cr.**	**108.15**	**99.29**	**93.85**	**110.90**	**122.50**	**101.57**
Availability	Rs. Cr.	85.00%	88.99%	88.99%	85.00%	87.76%	87.76%
AFC after Availability	**Rs. Cr.**	**108.15**	**99.29**	**93.85**	**110.90**	**122.50**	**101.57**
Energy Cost	Rs. Cr.	**193.77**	**243.69**	**242.06**	**208.00**	**199.02**	**236.97**
Tax on Gain (Secondary Fuel)	Rs. Cr	-	0.35	-	-	-	-
Tax on Gain (Auxiliary)	Rs. Cr	-	0.16	-	-	-	-
Tax on Gain (SHR)	Rs. Cr	-	0.45	-	-	-	-
Annual Revenue Requirement	**Rs. Cr.**	**301.93**	**343.95**	**335.91**	**318.91**	**321.52**	**338.55**
Energy Charge Rate	**Rs./kWh**	**2.587**	**3.271**	**3.249**	**2.587**	**3.011**	**2.947**

* *Read with Review Order dated January 09, 2019*

A 8: STATUS OF EARLIER DIRECTIVES

8.1 The Commission has time and again issued various directives in order to improve the functioning of the Petitioner. However, the Commission notes with concern that the Petitioner has repeatedly failed to comply with the directives of the Commission. The Commission directs the Petitioner to comply with the directives with utmost sincerity failing which penal action may be taken.

Directives	Status	Views of the Commission
Filling of True up petition for FY 2016-17 and APR for FY 2017-18		
The Commission directs the Petitioner to submit the petition for truing up of FY 2016-17 and APR for FY 2017-18. The Petitioner should adhere to the timelines as provided in the JSERC Generation tariff Regulations 2015.	The Petitioner has submitted the true-up Petition for FY 2016-17 along with APR for FY 2017-18. The Petitioner has also submitted the mid-term review petition for revised ARR and generation tariff for FY 2019-20 to FY 2020-21 including true-up for FY 2017-18 and APR for FY 2018-19.	The Commission note the submission of the Petitioner. **The Commission directs the Petitioner to adhere to the timelines as specified in the JSERC Generation tariff Regulations 2015 failing which attract penalty for non-compliance of directive.**
Data Adequacy in next Tariff Petition		
The Commission directs the Petitioner to note the data deficiencies highlighted throughout the present petition and submit the required details and certificates along with the next petition while submitting the true up for FY 2016-17.	The Petitioner has submitted that it has followed the directives as highlighted and tried to comply. However, the Petitioner requests the Commission to condone inadvertent miss-out, if any.	The Commission noted the compliance of the Petitioner.
Transit Loss		
The Commission is concerned regarding the year on year increasing trend of Transit loss due to various reasons as mentioned in the petition. The Commission directs the Petitioner to devise ways to control the expenses and maintain transit loss at the levels specified as per Generation Tariff regulations, 2015.	The Petitioner submits that they have identified probable reasons for high transit loss and continuously working along with coal suppliers to contain the transit loss. Some of the reasons identified are non-timely calibrations of static weighbridge, speed of wagons at the time of weighing, high moisture content in coal etc. In addition, the regular visit is ensured at a loading point for frequent interaction with the handling agent and officials of West Bokaro.	The Commission noted the compliance of the Petitioner. **The Commission directs the Petitioner to devise ways to control the expenses and maintain transit loss at the levels specified as per Generation Tariff regulations, 2015.**
Fuel Mix		
The Commission has observed that due to various reasons, the	The Petitioner submits that the details of various coal sources	The Commission noted the compliance of the Petitioner.

Directives	Status	Views of the Commission
Petitioner has procured coal from sources other than what had been approved. Such variations lead to a change in the fuel mix and the landed cost. The Petitioner is directed to bring to the notice of the Commission any such changes during the APR order in case coal is to be procured from sources other than what has been approved.	other than the approved along with the corresponding GCV and landed price. They have also submitted that such procurement of coal is done due to a shortfall in supply of coal from the major source i.e. West Bokaro Colliery of Tata Steel (Middling Coal).The Petitioner also apprise that similar situation may also arise in the remaining years of the control period. However, the Petitioner highlighted that for any deviation from the approved plan, Tata Steel is duly informed and consent is obtained in advance.	**The Petitioner is directed to bring to the notice of the Commission any such changes with regard to change in coal mix with proper justification on Quarterly basis.**
Specific Fuel Consumption		
The Petitioner is directed to submit monthly details of number of unit-wise start-ups taken after shutdown. Also, details should include monthly quantity of secondary fuel consumed during plant start-up and flame support if required. The same should be submitted with subsequent APR and True-up Petitions.	The Petitioner has submitted the unit wise start-ups taken along with the consumption details of secondary fuel during the unit start-ups and while taking flame support (as & when required) for FY 16-17 & FY 17-18.	The Commission noted the compliance of the Petitioner. The Petitioner should ensure submitting such data in the subsequent petition also.
Ash disposal		
The Petitioner is directed to submit status report of actions taken for disposal of ashes generated from the plant as per the statutory guidelines specified by MoEF and JSPCB and submit quarterly reports to the Commission. Such reports should also form part of the subsequent APR and True-up Petitions.	The Petitioner has submitted the quarterly ash generation and utilization report for FY 2016-17, FY 2017-18 and Q1 of FY 18-19.	The Commission noted the compliance of the Petitioner. The Petitioner should ensure submitting such data in the subsequent petition also.
Detailed Project Report (DPR)		
The Petitioner has submitted DPR of schemes that has been proposed along with the Petition. In the DPRs the Petitioner has submitted details about the project along with costs and has also worked out the impact of such schemes. The Commission has	With regards to the process of awarding contracts on various projects, the Petitioner submits that they follow a well-defined procurement process while placing Orders for supply and services. To substantiate the same the petitioner hereby submits the	The Commission noted the compliance of the Petitioner.

Directives	Status	Views of the Commission
observed that such analysis and costs have not been supported by rate reasonability and should have approval of the competent authority of Tata Power. The Petitioner should provide supporting documents in the form of ordered rates, order for work carried out previously, quotations etc. The Petitioner is directed to ensure compliance.	selection and award documents for an Order placed under one of our approved CAPEX schemes. Additionally, the Petitioner submitted that the award documents are available at Jojobera Power Plantand shall be made available if desired by the Commission.	
New Addition/ Increase in the Scope of Work during the Execution of Approved Schemes		
The Petitioner is hereby directed that during execution of work pertaining to any pre-approved schemes, any increase in scope of work, procurement, services etc. should be brought to the notice of the Commission immediately.	The Petitioner submits that detailed justification has been provided against the Capex schemes where there is cost over-run or has been carried forward due to inevitable reasons. The Petitioner also submitted that due to various unforeseen and unavoidable circumstances, there is a deviation between the actual plan and approved MYT business plan.	The Commission noted the compliance of the Petitioner. The Commission is of the view that various instance was observed where there is variation from the original scope of work. **The Commission is of the view that any change in scope of work, procurement, services, price/cost etc. should be brought to the notice with proper justification to the Commission immediately.**

A 9: DIRECTIVES

Data adequacy in next Tariff petition

9.1 The Commission directs the Petitioner to note the data deficiencies highlighted in this petition and submit the required details and certificates while submitting the next Tariff Petition.

Transit Loss

9.2 The Commission directs the Petitioner to devise ways to control the expenses and maintain transit loss at the levels specified as per Generation Tariff regulations, 2015.

Fuel Mix

9.3 The Commission has observed that due to various reasons, the Petitioner has procured coal from sources other than what had been approved. Such variations lead to a change in the fuel mix and the landed cost. The Petitioner is directed to bring to the notice of the Commission any such changes with regard to coal mix with proper justification on Quarterly basis**.** Further, the Petitioner is directed to carry out techno-commercial audit to identify the reasons for high energy charge and submit the report within six months of issuance of this Order.

Specific Fuel Consumption

9.4 The Petitioner is directed to submit monthly details of a number of unit-wise start-ups taken after shutdown. Also, details should include the monthly quantity of secondary fuel consumed during plant start-up and flame support if required. The same should be submitted with subsequent APR and True-up Petitions.

Detailed Project Report (DPR)

9.5 The Petitioner has submitted DPR of schemes that have been proposed along with the Petition. In the DPRs the Petitioner has submitted details about the project along with costs and have also worked out the impact of such schemes. The Commission has observed that such analysis and costs have not been supported by rate reasonability and should have the approval of the competent authority of Tata Power. The Petitioner should provide supporting documents in the form of ordered rates, order for work carried out previously, quotations etc. The Petitioner is directed to ensure compliance.

New addition/ increase in the scope of work during the execution of approved schemes

9.6 The Petitioner is hereby directed that during the execution of work pertaining to any preapproved schemes, any increase in the scope of work, procurement, services, price/cost etc. should be brought to the notice of the Commission immediately.

This Order is signed and issued by the Jharkhand State Electricity Regulatory Commission on February 14, 2020.

Date: 14.02.2020
Place: Ranchi

Sd/-	**Sd/-**	**Sd/-**
(P. K. Singh)	**(R. N. Singh)**	**(Arbind Prasad)**
MEMBER (Legal)	**MEMBER (Engg.)**	**CHAIRPERSON**

ANNEXURE

Annexure-1: List of participating members of the public in the public hearing

Sr. No.	Name	Address/Organization
Golmuri Club, Golmuri, Jamshedpur		**Date & Time: October23, 2019 02:30 PM**
1	Rajesh Kumar	Sonari, Jamshedpur
2	Bishwajeet Kumar	Tata Steel
3	BobanChocko	Tata Power
4	Ramesh Kumar	Aadarsh Colony yasoda Nagar, Govindpur
5	Bablu Kumar Singh	DayacityChhotaGovindpur, Jamshedpur
6	DikerMelyanali	Khairbani
7	Niraj Kr Singh	Adarsh Nagar
8	Barun Kumar	Uijaya Garden
9	Ritesh Kr Jain	Jugsalai
10	Pankaj Prakash	Tata Power Company Ltd.
11	R.K. Sinha	Golmuri
12	Soumendre Mandal	Tata Power Company Ltd.
13	S.D. Bhattachajee	Tata Power Company Ltd.
14	Daitari Swain	Tata Power Company Ltd.
15	N.B. Srivastava	Tata Power Company Ltd.
16	U.S. Mishra	Tata Power Company Ltd.
17	A.N. Choudhary	JUSCO
18	Naresh Kr. Choudhary	Tata Power Company Ltd.
19	Vijay Prakash Singh	Power Services, JUSCO
20	Shekhar Mukherjee	Tata Power Company Ltd.
21	Rajesh Dayal	Tata Power Company Ltd.
22	S. Anand Rao	H.No. 24. Fouja Bagan Bhridih
23	S.B. Bohora	Joy Guru Colony, Baridih
24	Deepak Sharma	11, Fauza Bagan Baridih
25	Nayan Kumar Modk	Tata Power Company Ltd.
26	Anshun de	Vijay Gardens
27	S.S.P. Shrivastava	Vijay patinagar
28	S. Sanyaz	Tata Power
29	B.K. Singh	Fouja Bagan Baridih, JSR
30	K.D. Mishra	Fouja Bagan Baridih, JSR
31	A.N. Das	Tata Power
32	Pintu Srivastava	Tata Power
33	D.R. Sharma	Vijaya Gardens Baridih
34	Rakesh Kumar	Baridih, Fouza Bagan
35	V. Ranjan	Kadma
36	Saroj Kumar	Adityapur
37	Bimal Kumar	Tata Power Jojobera
38	Chandra Sekhar Goswami	Vijaya Gardens Baridih
39	Jawaharlal Sharma	402, Road No. 8, Sonari West
40	Devendra Prasad Singh	Fouja Bagan Baridih, JSR
41	Peyush Tandon	Tata Power, Mumbai

Sr. No.	Name	Address/Organization
42	Sanjiv Kumar	Tata Power
43	Koustav Banerjee	JUSCO
44	Rajesh Pumar	Tata Power
45	Manoj Kumar	Tata Power
46	J.P. Singh	Tata Power