Jharkhand State Electricity Regulatory Commission

Order

on

Petition for

Approval of Capital Cost,

True Up of ARR for FY 2014-15

and

Annual Performance Review for FY 2015-16

and

ARR and Tariff Determination for the period

FY 2016-17 to FY 2020-21

for

Inland Power Ltd. (IPL)

Ranchi

May 2017

TABLE OF CONTENTS

List of Abbreviations

Abbreviation	Description
A&G	Administrative and General
ARR	Aggregate Revenue Requirement
COD	Commercial Operation Date
CFBC	Circulating Fluidized Bed Combustion
FY	Financial Year
GCV	Gross Calorific Value
GFA	Gross Fixed Assets
GoI	Government of India
JSERC	Jharkhand State Electricity Regulatory Commission
Kcal	Kilocalorie
Kg	Kilogram
kWh	Kilowatt-hour
MAT	Minimum Alternative Tax
Ml	Millilitre
MT	Million Tonnes
MUs	Million Units
MW	Megawatt
NAPAF	Normative Annual Plant Availability Factor
O&M	Operations and Maintenance
PLF	Plant Load Factor
PPA	Power Purchase Agreement
R&M	Repair and Maintenance
RoE	Return on Equity
Rs	Rupees
SBI	State Bank of India
SERC	State Electricity Regulatory Commission
SLM	Straight Line Method

BEFORE

Jharkhand State Electricity Regulatory Commission, Ranchi

Case No.: 06 and 11 of 2016

In the matter of:

Approval of Capital Cost,

True up for FY 2014-15,

Annual Performance Review for FY 2015-16

and

Multi Year Tariff for FY 2016-17 to FY 2020-21;

In the matter:

Inland Power Limited,
3A Auckland Place, Suite No. 5A, 5th Floor, Kolkata - 700017

PRESENT

Hon'ble Mr Justice Narendra Nath Tiwari - Chairperson

Hon'ble Mr R. N. Singh - Member (T)

Order dated 16 May 2017

In this Petition, Inland Power Ltd. (hereinafter referred to as IPL) has prayed for Approval of Capital Cost for 63 MW of Coal based thermal Power Plant based on CFBC technology, True up for FY 2014-15, Annual Performance Review of FY 2015-16 and Tariff Determination for the MYT control period FY 2016-17 to FY 2020-21.

A1: 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. The Electricity Act, 2003 (hereinafter referred to as "the Act" or "EA, 2003") came into force with effect from June 10, 2003; and the Commission is now deemed to have been constituted and functioning under the provisions of the Act.

1.2 The Government of Jharkhand vide its notification dated August 22, 2002 defined the functions of JSERC as per Section 22 of the Electricity Regulatory Commission Act, 1998 to be the following, namely:-

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(b) promotion of investment in electricity industry;

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

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

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

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

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

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

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

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

Inland Power Limited (IPL)

1.8 Inland Power Limited (hereinafter referred to as "the Petitioner" or "IPL") is a company incorporated under the provisions of the Indian Companies Act, 1956.

1.9 IPL was originally incorporated on June 22, 1993 as a Private Limited Company and was subsequently converted to a Public Limited Company on April 03, 2008.

1.10 IPL signed a Memorandum of Understanding (hereinafter referred to as "the MoU") with Government of Jharkhand to develop a 126 MW (± 20%) (2x 63 MW) power project in October 2011.

1.11 Accordingly, IPL is setting up a 2x63 MW thermal power plant based on CFBC technology in two stages in Gola, District Ramgarh, Jharkhand. The commercial operation date of the first unit of 63 MW is May 21, 2014.

1.12 As per the provisions of the MOU, the Government of Jharkhand or Distribution Licensees authorized by it will have the first right of claim on purchase up to 25% of power delivered to the system by the proposed power plant. Further, the MoU stipulates that out of the 25% under first right of refusal to the State, the rate of 12% share will be on variable cost.

1.13 Pursuant to the MoU signed between Government of Jharkhand and IPL, IPL signed a Power Purchase Agreement (hereinafter also referred to as "the PPA") with Jharkhand State Electricity Board (now Jharkhand Urja Vikash Nigam Limited or "JUVNL") on February 23, 2012 for supplying 35 MW of 63 MW from Stage 1 of the Project on long term basis. Subsequently, IPL signed a supplementary PPA with JSEB (now JUVNL) on April 22, 2013 for purchase and sale of entire quantity of power to be generated from Unit 1 of 63 MW inclusive of quantity mentioned in earlier Principal PPA.

1.14 JSERC on May 27, 2014 issued a Tariff Order provisionally approving the tariff for the years FY 2014-15 and FY 2015-16 respectively based on the Petition of Inland Power Limited.

Scope of the Present Order

1.15 The Petitioner in its tariff petition dated May 24, 2016 has prayed before the Commission the following:

a) To accept the petition for approval of Capital cost of the project, True-up of FY 2014-15 and Annual Performance Review of FY 2015-16

b) To accept the petition for approval of tariff for the control period of FY 2016-17 to FY 2020-21 for power generation from IPL's power generation plant for sale to JUVNL in the state of Jharkhand.

1.16 The Petitioner filed for the truing up for FY 2014-15 based on the actual information and audited accounts (including the requisite auditor certifications).

Basis of consideration

1.17 The Commission in this order has conducted the truing up for FY 2014-15 and tariff determination for the MYT control period FY 2016-17 to FY 2020-21 after thorough scrutiny of the information submitted by the Petitioner.

1.18 While conducting the exercise, the Commission has taken into consideration the following

(a) Provisions of the Electricity Act, 2003,

(b) Provisions of the National Electricity Policy,

(c) Provisions of the National Tariff Policy,

(d) Principles and provisions laid down in the JSERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2010 (hereinafter referred to as 'JSERC Generation Tariff Regulations, 2010),

(e) Principles and provisions laid down in the JSERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2015 (hereinafter referred to as 'JSERC Generation Tariff Regulations, 2015)

A2: PROCEDURAL HISTORY

Background

2.1 The Petitioner started construction of the project on December 20, 2011 post the signing of the MoU with Government of Jharkhand. The commercial operation of its Stage 1 of 63 MW was achieved on May 21, 2014.

2.2 The JSERC Generation Tariff Regulations 2010 require the Petitioner to file before the Commission a Business Plan and MYT application for the Control Period.

2.3 The Petitioner filed a petition with the Commission for approval of the tariff for the MYT control period (FY 2013-14 to FY 2015-16) on July 17, 2013.

2.4 The JSERC on May 27, 2014 issued a Tariff Order provisionally approving the tariff for the years FY 2014-15 and FY 2015-16 respectively.

2.5 As mandated by the JSERC Generation Tariff Regulations, 2010 and the JSERC Generation Tariff Regulations 2015, in the current petition, the Petitioner has filed for Approval of Capital cost of Unit-I (63 MW), True-up of the ARR for the year FY 2014-15, Annual Performance Review for the year FY 2015-16 and Tariff for the MYT control period FY 2016-17 to FY 2020-21.

Information Gaps in the Petition

2.6 In accordance with Section 64(3) of the Act, the State Electricity Regulatory Commission, within one hundred and twenty days of the filing of application for determination of tariff, is required to either accept it and issue a Tariff Order or reject the application for reasons to be recorded in writing. The Commission accepted the application submitted by the Petitioner for determination of tariff. As part of tariff determination exercise for the Control Periods, several deficiencies/information gaps were observed in the tariff petition submitted by the Petitioner.

2.7 These information gaps were communicated to the Petitioner vide letter no.

(a) JSERC/ Case (Tariff) No. 06 and 11 of 2016/ 340 dated August 11, 2016

(b) JSERC/ Case (Tariff) No. 06 and 11 of 2016/ 595 dated December 21, 2016

(c) JSERC/ Case (Tariff) No. 06 and 11 of 2016/ 704 dated February 08, 2017

2.8 The Petitioner subsequently submitted its response to the aforesaid letters and provided the requisite additional data/ information vide following letters:

(a) Letter dated September 26, 2016

(b) Letter dated January 03, 2017

(c) Letter dated February 20, 2017

2.9 The Commission scrutinized the additional data/information and upon its validation, has passed this Order on the petition filed by the Petitioner.

Inviting Public Comments/Suggestions

2.10 The Commission directed the Petitioner to make available copies of the petition to the members of general public on request, and also issue a public notice inviting comments/ suggestions on the petition.

2.11 The aforesaid public notice was issued by the Petitioner in various newspapers on November 23, 24 and 26, 2016 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 on which the public notice by IPL appeared

Sl. No.	Newspaper	Date of Publication
1	Sanmarg (Hindi)	November 23 and 24, 2016
2	Rastriya Sahara (Hindi)	November 23 and 24, 2016
3	Morning India (English)	November 23 and 24, 2016
4	Pioneer (English)	November 23 and 24, 2016
5	Hindustan Times (English)	November 26, 2016
6	Hindustan (Hindi)	November 26, 2016

2.12 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 where the notice was issued by the Commission are as under:

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

Sl. No.	Newspaper	Date of Publication
1	Prabhat Khabar	April 05, 2017
2	Dainik Jagran	April 05, 2017
3	Morning India	April 05, 2017
4	Naya India	April 05, 2017
5	Dainik Bhaskar	April 06, 2017
6	Hindustan	April 06, 2017
7	Sanmarg	April 06, 2017
8	Pioneer	April 06, 2017

Submission of Comments/Suggestions and Conduct of Public Hearing

2.13 A public hearing was held on April 12, 2017 at Ranchi and respondents voiced their views on the petition filed by the Petitioner. The comments/suggestions voiced by the respondents and the Petitioner's response thereon along with the Commission's analysis on the response provided by the Petitioner are detailed in the Section A4: of this Order.

A3: SUMMARY OF THE PETITION

Overview of the Thermal Station

3.1 The Petitioner is setting up a 126 MW Circulating Fluidized Bed Combustion (CFBC) based power plant in two stages. In Stage –I it has developed a 1x63 MW CFBC based power plant and in Stage –II it shall be developing another 1x63 MW CFBC based power plant.

Table 3: Overview of thermal station

S. No.	Unit	Installed Capacity	Status of Operation	Commercial date of Operation
1.	1	63 MW	Operational	May 21, 2014

Summary of Capital cost

3.2 The summary of Capital Cost for 1 x 63 MW power plant as submitted by the Petitioner is given in the following table

Table 4: Summary of Capital cost for 63MW as submitted by Petitioner

Particulars	Estimate (Rs. Cr.)	Original Petition (Rs. Cr.)	Capital cost up to CoD (Rs. Cr.)
Land	7.60	7.43	7.43
Site Development & Civil Works	30.94	39.93	39.93
Plant & Machinery	238.28	246.87	246.87
Preliminary expenses / Preoperative Expenses	12.43	22.27	22.27
Interest during construction (IDC)	25.40	29.49	29.49
Working capital margin	5.19	23.82	0.00
Total	**319.84**	**369.81**	**345.99**

Summary of True-up for FY 2014-15 and APR for FY 2015-16

3.3 The summary of operational parameters and annual revenue requirement for stage I of the project for the period FY 2014-15 as submitted by the Petitioner is given below

Table 5: Operational parameters, fixed cost, energy charges and ARR for FY 2014-15 and FY 2015-16

Particulars	Unit	True-up FY 2014-15 Submitted	APR FY 2015-16 Submitted
Operational parameters			
Capacity	MW	63.00	63.00
Plant Load Factor	%	64.83%	87.80%
Availability	%	67.60%	91.42%
Gross Generation	MUs	308.78	484.55
Auxiliary Consumption	%	11.25%	11.26%
Auxiliary Consumption	MUs	34.75	54.57
Net Generation	MUs	274.03	429.98
Weighted Average GCV of primary fuel	kCal/kg	2,222.96	2,515.58
Station Heat Rate	kcal/kWh	3019.98	2,931.21
Calorific value of secondary fuel	Kcal/litre	10,000	10,000
Primary fuel consumption	Tons	417816.90	562,953.70
Secondary oil consumption	kL	371.91	416.16
Annual cost of fuel per ton	Rs./Ton	1817.92	1735.93
Annual Revenue Requirement			
Depreciation	Rs. Cr.	13.63	15.54
Interest on Loan	Rs. Cr.	31.45	33.20
Return on Equity	Rs. Cr.	12.76	14.78
Interest on working Capital	Rs. Cr.	2.82	6.56
O&M Expenses	Rs. Cr.	16.49	24.83
Cost of Secondary fuel oil	Rs. Cr.	2.10	2.07
Annual Fixed Cost	Rs. Cr.	79.25	97.29
Annual Fixed cost after PLF/PAF adjustment	Rs. Cr.	**73.98**	**107.94**
Fuel Cost	Rs. Cr.	76.57	98.51
Total Variable Cost	Rs. Cr.	**76.57**	**98.51**
Annual Revenue Requirement	Rs. Cr.	**155.81**	**195.81**

Summary of the MYT Petition for the period FY 2016-17 to FY 2020-21

3.4 The summary of operational performance, fixed cost, energy charges and annual revenue requirement for Unit-1 as submitted by the Petitioner in its tariff petition is given below:

Table 6: Operational parameters, fixed cost, energy charges and ARR for FY 2016-17 and FY 2020-21

Particulars	Unit	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Operational parameters						
Capacity	MW	63.00	63.00	63.00	63.00	63.00
Plant Load Factor	%	82.50%	82.50%	82.50%	82.50%	82.50%
Availability	%	82.50%	82.50%	82.50%	82.50%	82.50%
Gross Generation	MUs	455.30	455.30	455.30	455.30	455.30
Auxiliary Consumption	%	11.50%	11.50%	11.50%	11.50%	11.50%
Auxiliary Consumption	MUs	52.36	52.36	52.36	52.36	52.36
Net Generation	MUs	402.94	402.94	402.94	402.94	402.94
Weighted Average GCV of primary fuel	kCal/kg	3101.00	3101.00	3101.00	3101.00	3101.00
Station Heat Rate	kcal/kWh	2902.00	2902.00	2902.00	2902.00	2902.00
Calorific value of secondary fuel	kCal/litre	10000.00	10000.00	10000.00	10000.00	10000.00
Primary fuel consumption	Tons	424614.80	424614.80	424614.80	424614.80	424614.80
Secondary oil consumption	kL	455.30	455.30	455.30	455.30	455.30
Annual cost of fuel per ton	Rs./Ton	1989.35	1989.35	1989.35	1989.35	1989.35
Annual Revenue Requirement						
Depreciation	Rs. Cr.	15.88	15.88	15.88	15.88	15.88
Interest on Loan	Rs. Cr.	26.98	25.04	23.11	21.17	19.23
Return on Equity	Rs. Cr.	20.00	20.48	20.48	20.48	20.48
Interest on working Capital	Rs. Cr.	6.18	6.21	6.24	6.27	6.30
O&M Expenses	Rs. Cr.	17.01	18.08	19.22	20.43	21.72
Total Fixed Cost	Rs. Cr.	**86.06**	**85.70**	**84.93**	**84.23**	**83.62**
Annual Fixed cost after PLF/PAF adjustment	Rs. Cr.	86.06	85.70	84.93	84.23	83.62
Cost of Primary fuel	Rs. Cr.	85.15	85.15	85.15	85.15	85.15
Cost of Secondary fuel	Rs. Cr.	2.28	2.28	2.28	2.28	2.28
Total Variable Cost	Rs. Cr.	**87.43**	**87.43**	**87.43**	**87.43**	**87.43**
Annual Revenue Requirement	Rs. Cr.	**173.49**	**173.13**	**172.36**	**171.66**	**171.04**

Tariff for supply of energy to JUVNL

3.5 The tariff for supply of Regulated Capacity to JUVNL (erstwhile JSEB) for the Control Period as submitted by the Petitioner in its petition is summarised in the table below:

Table 7: Fixed charges and rate of energy charges for JUVNL for Unit 1

Particulars	Unit	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Fixed Charges	Rs Cr	86.06	85.70	84.93	84.23	83.62
Rate of Energy Charges	Rs/kWh	2.17	2.17	2.17	2.17	2.17

3.6 IPL will supply to JUVNL in accordance with the provisions of the MoU with Government of Jharkhand and as per the provisions of the PPA with JUVNL.

A4: PUBLIC CONSULTATION PROCESS

4.1 The public hearing was held on April 12, 2017 at Ranchi. The list of participants is attached in Annexure -1

4.2 The comments and suggestion of the members of the public along with the response thereon of the Petitioner and the views of the Commission are detailed hereunder:

Cost of Site development and Civil works

Public Comments/Suggestions

4.3 JBVNL has commented that there has been an increase in the cost of site development and civil works from an estimated amount of Rs. 30.94 Cr to the actual incurred amount of Rs. 39.93 Cr. Such exorbitant hike of 29% will increase the power cost abnormally. The Petitioner has failed to estimate the works properly and is trying to pass on its inefficiency to the end consumers.

4.4 Further, the JBVNL mentioned that the construction of the RCC Chimney had always required specialized manpower and should have been estimated accordingly in DPR. The inability to estimate the cost during the conceptualizing stage raises questions on the DPR that has been prepared. It also mentioned that the erection of the boiler as per seismic zone 3 in place of Seismic zone 2 was done to avail the guarantee of the manufacturer which directly benefits the Petitioner in terms of reduced O&M. The extra cot should not be passed on to the Respondent.

4.5 The estimate prepared in 2011 should have taken into account the normal inflation and any burden on this account should not to be passed on to the consumers.

Petitioner's response

4.6 The Petitioner submitted that the overall project cost was raised by only 8% even though the input cost across all parameters had increased. The cost of the RCC chimney increased as both the material and manpower costs took a quantum jump during the construction years. As objected, the cost increase was not only due to increase in manpower costs, but was also due to increase in material costs. The Petitioner has already submitted in the Petition the respective % increase in rates of labour, machine tools, industrial machines etc. and these increases are beyond the normal increase in inflation.

4.7 Further, the Petitioner mentioned that the construction of the boiler as per Seismic Zone 3 requirements are done on the insistence of the boiler manufacturer to avail guarantee. Since it is a civil construction, it has no bearing on O&M cost of the plant. The construction will increase the longevity and will ensure safe and reliable operation of the plant ensuring generation of power at competitive rates.

4.8 The Petitioner reiterated that the increase in capital costs were due to factors beyond the control of the Petitioner and it is committed to provide cost effective power to the state.

Commission's views

4.9 The Commission has taken note of the Objectors comments and the response of the Petitioner. The Commission is concerned with the increase in costs during construction and directs that all Petitioners should undertake estimations considering the anticipated challenges, based on past experiences and as per prevalent industry standards. Such increase in costs are non-acceptable and should be controlled by the Petitioner during construction.

Interest during Construction

Public Comments/Suggestions

4.10 JBVNL mentioned that the increase in the interest rate from estimated 12.75 % to 14.25 % appears to be the result of avoidable delay in getting the loan. And hence any burden on this account should not to be passed on to the consumers of the respondent and should be disallowed.

Petitioner's response

4.11 The Petitioner submitted that the loan for the plant was obtained at a floating rate of interest and during construction, the interest rate was around ~14% and subsequently came down to ~13% in FY 16 and further to ~ 12% for FY 17. The gain due to the difference in interest rates has been passed on to the respondent by way of lower tariff. The details and documents has been provided by the Petitioner to the Commission. The Petitioner further submitted that the CoD of the plant was achieved within the timelines and there was no delay in getting loan approval or in completion of the plant.

Commission's views

4.12 The Commission has taken note of the Objectors comments and the response of the Petitioner. The Commission has addressed the same in paragraph 6.66 of the order.

Preliminary and Pre-operative expenses

Public Comments/Suggestions

4.13 JBVNL mentioned that there has been an unprecedented increase in the Preliminary and Pre-operative expenses of 79% on the grounds of manpower cost, consultancy fees, insurance etc. Since, this expense is pre-operative and must be available with the petitioner at the time of filing original petition. Hence, such expenses must be controlled by the Petitioner and any increase from the original petition must not be allowed.

Petitioner's response

4.14 The Petitioner submitted that the costs incurred were beyond the control of the Petitioner. The costs like insurance, lender's engineer fee, owner's engineer fee are unavoidable and the Petitioner has submitted the invoice copies of the actual costs incurred before the Commission. The Petitioner has ensured a robust project management and hence the overall costs have only raised by 8%.

Commission's views

4.15 The Commission has noted the observation of the objector and the response of the Petitioner and has addressed the concern in paragraph 5.6 of the order.

O&M expense

Public Comments/Suggestions

4.16 JBVNL mentioned that the O&M costs should be allowed only as per the regulatory norms by the Commission. Also, the Petitioner has submitted that due to replacement of the brick lining, the boiler profile has changed resulting in increased O&M expenses. These are regular maintenance of the plant and hence should not be considered as a case for increasing O & M cost from the norms. Any inefficiency on this account should not to be passed on to the consumers and should be disallowed.

Petitioner's response

4.17 The Petitioner submitted that the boiler brick lining was damaged due to drastic change in the fuel mix and due to low GCV of the fuel. The brick lining was changed to bring it back to its original condition. This is a one-time activity and not part of any regular maintenance. The Petitioner requested the Commission to reject the objection.

Commission's views

4.18 The Commission has taken note of the Objectors comments and the response of the Petitioner. The concern has been dealt with in paragraph 6.55 of the order.

Variable cost

Public Comments/Suggestions

4.19 JBVNL mentioned that the Petitioner has not submitted the details of the % of procurement from different sources and may have incurred higher costs in the procurement of coal. The objector requested that the details and the effort made by the Petitioner to procure cheaper coal be made available.

Petitioner's response

4.20 The Petitioner submitted that the details of % of fuel procurement from different sources were submitted before the Commission. Also, IPL has been submitting details of coal grade, coal price and quantity of coal purchased from the parties with the FPA bill to JBVNL every month. Further the Petitioner mentioned that it has been continuously trying to optimize the coal cost and as a part of the initiative, the procurement of coal from special e-auction of Coal India and procurement of coal rejects from Tata Steel has helped in cost savings.

Commission's views

4.21 The Commission has dealt with the issue raised in paragraph 6.22 of the order. The Commission has specifically directed that the Petitioner should develop a fuel procurement plan and explore options with its suppliers in order to reduce the cost of coal.

Gross station Heat rate and Auxiliary consumption

Public Comments/Suggestions

4.22 JBVNL objected that the higher claim of SHR and Auxiliary consumption should not be allowed by the Commission as it will result in increase in tariff for the end consumers.

Petitioner's response

4.23 The Petitioner submitted that post the achievement of CoD, the plant faced various stabilization issues which resulted in higher usage of secondary oil in the furnace to maintain the parameters of the power plant. Also, the change in fuel mix and the associated low GCV also resulted in the increased use of secondary oil and required changing of the brick lining. All these factors are uncontrollable in nature and has resulted in higher SHR. The Petitioner further submitted that the same issues resulted in higher Auxiliary consumption of the Plant.

4.24 The Petitioner further mentioned that it has already submitted copy of recommendations of CEA to substantiate the claim of higher auxiliary consumption for CFBC plants and has also mentioned about the approvals accorded by various State Commissions to plants with similar technology for higher auxiliary consumption.

4.25 In view of the above, the Petitioner submitted that increase in SHR and Auxiliary consumption were due to factors beyond the control of the Petitioner and may be approved by the Commission as per actual.

Commission's views

4.26 The Commission has dealt with the issue raised in paragraph 6.10 and paragraph 6.17 of the order.

A5: CAPITAL COST OF THE PROJECT

Capital Cost

Petitioner's submission

5.1 The Petitioner submitted the total capital cost as on COD was Rs 369.81 Cr for Unit-I of the power project. The major components of the capital cost submitted by the Petitioner are detailed hereunder:

a) Land

b) Site development and Civil Works

c) Plant and Machinery

d) Preliminary Expenses and Pre-operative expenses

e) Interest during construction

f) Working capital

5.2 The break up summary of the total capital cost for 1x63 MW as on May 21, 2014 as submitted is shown in the table below:

Table 8 Summary of the Capital Cost submitted by the Petitioner (Rs Cr)

Particulars	Estimated (Rs. Cr)	Actual (Rs. Cr)	Variation (Rs. Cr)	Variation (%)
Land	7.60	7.43	-0.17	-2%
Site development and Civil Works	30.94	39.93	8.99	29%
Plant & Machinery	238.28	246.87	8.59	4%
Preliminary and Pre-operative Expenses	12.43	22.27	9.84	79%
Interest during construction	25.40	29.49	4.09	16%
Working capital margin	5.19	23.82	18.63	359%
Total Project Cost	**319.84**	**369.81**	**49.97**	**16%**

5.3 The Petitioner mentioned that almost all the input costs have gone up from what was envisaged during project planning in FY 2009-10 up to completion of the project in FY 2014-15, and such increase are beyond the control of the Petitioner. The labour costs increased by ~22% over the period, metal prices by ~7%, machine tools by ~14% and industrial machines by ~7% respectively.

5.4 The reasons for segment wise increase in capital cost as submitted by the Petitioner is as follows:

a) Land, Site development and Civil works

The Petitioner submitted that variations in quantities during execution and specific site requirements led to increase in costs under this segment.

i. During project planning, a timber fence was planned whereas during actual construction, to ensure security of the plant and manpower, a cemented boundary was constructed which lead to additional expenditure of Rs. 4.25 Cr.

ii. For construction of RCC chimney, there was requirement of specialised manpower which require high wages to be paid. Additional expenditure of Rs. 1.69 Cr was incurred on the same.

iii. During planning, drawings and costs were approved based on the land of the Petitioner's power station falling under Seismic Zone 2. However during the execution, due to insistence of the manufacturer, execution of civil works was undertaken as per Seismic Zone 3 which resulted in higher costs for both chimney and boiler civil works.

iv. Prices of steel, cement and labour rates escalated by 15-20% over the construction period.

b) Plant and Machinery (P&M)

i. The exchange rate depreciated from Rs. 44.07/ US Dollars during planning stage to Rs. 62.61/ US Dollars when the Plant and Machinery were actually received.

ii. Import duty increased from 21% to 24%. The counter vailing duty also increased from 10% to 12% over three years of FY 2010-11 to FY 2014-15

iii. The transport costs and steel costs also increased which resulted in higher cost of Plant and Machinery.

c) Interest during construction (IDC)

i. The interest rate approved in the Provisional Order by the Hon'ble Commission was 12.75% whereas the actual loan drawl was done at 14.25% due to increase in the base rate of banks.

d) Preliminary and Pre-operative expenses

i. The increase was due to unforeseen costs which had to be incurred during project execution. The fees for services rendered by lender's engineer, various consultants etc. also increased during the period. There was also an increase in insurance charges and employee expenses.

e) Working capital

i. The increase in working capital was due to the project requirements of the Petitioner. The Petitioner managed the requirements by taking loan from Banks and other sources.

5.5 The Petitioner in a subsequent submission to the Commission submitted that the capital cost incurred as on CoD for Unit 1 is Rs. 345.99 Cr, which was duly certified by the statutory auditors of the Petitioner. The submitted details are given in the following table

Table 9: Capital cost of Unit 1 as on CoD (Rs. Cr)

Particulars	Estimated (Rs. Cr)
As per submission in the original Petition	369.81
Less: **Working capital not capitalized**	23.82
Capitalisation as on CoD for Unit 1	**345.99**
Add: **Assets purchased post CoD**	0.22
Add: **Land for Unit 2**	2.59
Gross Block as per note 11 of Audited accounts of FY 2014-15	348.80

Commission's Analysis

5.6 As per the provisions specified in Regulation 7.3 of the JSERC Generation Tariff Regulations, 2010 (quoted below), the Commission shall approve the capital cost of a power project based on the actual expenditure incurred by the developer (including IDC) up to COD subject to prudence check by the Commission:

"7.3 Capital cost for a Project shall include:

(a) the expenditure incurred or projected to be incurred, including interest during construction and financing charges, any gain or loss on account of foreign exchange risk variation during construction on the loan - (i) being equal to 70% of the funds deployed, in the event of the actual equity in excess of 30% of the funds deployed, by treating the excess equity as normative loan, or (ii) being equal to the actual amount of loan in the event of the actual equity less than 30% of the funds deployed, - up to the date of commercial operation of the project, as admitted by the Commission, as admitted by the Commission after prudence check shall form the basis for determination of tariff;

(b) capitalised initial spares subject to the ceiling norms specified as under:

i. Coal-based/lignite fired thermal generating stations – 2.5 % of original project cost

ii. Gas Turbine/Combined Cycle thermal generating stations- 4.0% of original project cost

iii. Hydro Generating stations – 1.50% of the original project cost

Provided that where the benchmark norms for initial spares have been published as part of the benchmark norms for capital cost under first proviso to clause 7.4 of these Regulations, such norms shall apply to the exclusion of the norms specified herein.

(c) additional capital expenditure determined under clause 7.5 and 7.6 of these Regulation

Provided that the assets forming part of the Project, but not in use shall be taken out of the capital cost:

7.4 The capital cost admitted by the Commission after prudence check shall form the basis for determination of tariff:

Provided that in case of the thermal generating station prudence check of capital cost may be carried out based on the benchmark norms to be specified by the Central Commission from time to time:

Provided further that in cases where benchmark norms have not been specified by the Central Commission, the Commission may specify the benchmark norms or allow the capital cost on the basis of a prudence check which shall include scrutiny of the reasonableness of the capital expenditure, financing plan, interest during construction, use of efficient technology, cost over-run and time over-run, and such other matters as may be considered appropriate by the Commission for determination of tariff:

Provided also that the Commission may issue guidelines for vetting of capital cost of hydro-electric projects by independent agency or expert and in that event the capital cost as vetted by such agency or expert may be considered by the Commission while determining the tariff for the hydro generating station:

...

Provided also that where the power purchase agreement entered into between the Generating Company and the Beneficiaries, provide for a ceiling of actual expenditure, the capital expenditure admitted the Commission shall take into consideration such ceiling for determination of tariff:"

5.7 The Petitioner submitted the capital cost as on CoD at Rs 345.99 Cr. In order to verify the actual expenditure incurred by the Petitioner, the Commission directed the Petitioner to submit work orders, invoices, audited balance sheets of the company and the auditor's certification for capital cost incurred. In response, the Petitioner submitted the audited annual accounts for FY 2014-15 and FY 2015-16 and other documents as required by the Commission. The Petitioner also submitted the statutory auditor's certificate for capital cost incurred as on CoD date May 21, 2014 i.e. Rs 345.99 Cr.

5.8 The Commission observed that the audited accounts of FY 2014-15 states an amount of Rs. 348.80 Crore as gross block as on March 31, 2015. The Commission directed the Petitioner to clarify the mismatch. The Petitioner subsequently submitted a certificate from statutory auditors clarifying the mismatch. The details is given as under:

Table 10: Capital cost up to CoD (Rs. Cr)

Particulars	Estimated (Rs. Cr)
Gross Block as per note 11 of Audited accounts of FY 2014-15	348.80
Less: **Assets purchased post CoD**	0.22
Less: **Land for Unit 2**	2.59
Capital cost upto CoD for Unit 1	**345.99**

5.9 As part of prudence check, the Commission vide letter dated JSERC/ Case (Tariff) No. 06 and 11 of 2016/ 595 dated December 21, 2016 and JSERC/ Case (Tariff) No. 06 and 11 of 2016/ 704 dated February 08, 2017 directed the Petitioner to submit justifications and details of expenditures incurred under Pre-operative and Preliminary expenses, along with copy of purchase orders, bills, invoices, payment proofs etc. to support its claims.

5.10 Based on the above, the Petitioner submitted a set of details with respect to the queries of the Commission along with certain justifications and proofs. The Commission scrutinized these submissions and observed that many of the expenses incurred under preliminary and pre-operative expenses could not be suitably justified by the Petitioner even in its additional submissions.

5.11 The Commission after undertaking due prudence checks has disallowed such claims of the Petitioner. Accordingly such claims have been deducted from the submitted capital cost of Rs. 345.99 to arrive at the approved capital cost of Unit 1 of the power plant. The details of the submitted and approved capital cost for Unit-I are given in the following table:

Table 11: Submitted and Approved Capital cost for Unit 1 (Rs. Cr)

Particulars	Submitted by the Petitioner (Rs. Cr)	Approved by the Commission (Rs. Cr)
Land	7.43	7.43
Site development and Civil Works	39.93	39.93
Plant & Machinery	246.87	246.87
Preliminary and Pre-operative Expenses	22.27	17.52
Interest during construction	29.49	29.49
Total Project Cost	**345.99**	**341.24**

A6: TRUING UP FOR FY 2014-15

6.1 The Petitioner in its earlier Petition had prayed for determination of tariff for the period FY 2013-14 to FY 2015-16. The Commission after due scrutiny had approved a provisional tariff for FY 2014-15 to FY 2015-16 in its MYT Order dated May 27, 2014 based on submission of the anticipated date of COD of the plant as May 2014.

6.2 The Petitioner has now sought approval from the Commission for True-up of the ARR for FY 2014-15.

6.3 The Commission has analysed the submission of the Petitioner with respect to the ARR for FY 2014-15, and has undertaken the true up exercise of ARR components. The component-wise description of the Petitioner's submission and the Commission's analysis thereof is provided hereunder:

Operational Performance

Plant Availability

Petitioner's submission

6.4 The Petitioner submitted the month wise actual plant availability of Unit 1 at 67.60% during FY 2014-15.

Commission's Analysis

6.5 The Commission in the provisional MYT Order dated May 27, 2014 had approved the Normative Annual Plant Availability Factor (NAPAF) at 75.00%. As the norms for CFBC plants were not specified in the JSERC Generation Tariff Regulation 2010, the Commission while approving the norms had relied on the recommendations of CEA, the technology specific norms specified by CERC and the order of APTEL in Appeal no. 182 of 2010. The Commission had also mentioned that the approved norms may be reviewed at the time of true-up after considering the actual performance of the plant.

6.6 Based on the submission of the Petitioner, the Commission after scrutinising the certification of SLDC approved the availability of Unit 1 at 67.66%.

Auxiliary Consumption

Petitioner's submission

6.7 The Petitioner submitted that the actual auxiliary consumption for the year is 11.25% as against the approved auxiliary consumption of 10.50%. The reasons cited by the Petitioner for the increase in auxiliary consumption pertain to issues during stabilization, boiler brick re-lining and transmission losses. The Petitioner has considered the transmission loss from the ex-bus point to the delivery point at the sub-station.

6.8 The Petitioner also submitted the recommendations of CEA report titled Recommendations on Operation Norms for Thermal Power Stations for Tariff Period beginning April 01, 2009 to substantiate the claim for approval of higher auxiliary consumption.

"14.6 The CFBC boilers involve higher auxiliary consumption due to higher pressure drops and consequently higher fan power as compared to the pulverized fuel fired units. Also, these units involve additional power consumption for lime stone handling, crushing and firing for control of SOx emissions. However, CFBC units do not require pulverizers as the fuel is fed in crushed form and thus there is a corresponding saving in the power consumption in pulverizers as compared to the pulverized fuel technology.

14.7 NLC have asked for an additional AEC of 1% on account of CFBC boiler technology and additional 0.5% on account of uncertainty etc that may be faced as the CFBC units are being implemented by them for the first time and past operation data is not available. Thus they have asked for an AEC of 11% for TPS Expn II and 12% for Barsingsar TPS on account of additional AEC of 0.67% for cooling water pumping from a distant source (60 kms).

An assessment of incremental auxiliary consumption for CFBC units has been made and it is found that the CFBC units entail higher auxiliary energy consumption of 0.7% to 1%. However, in the present case of NLC stations, the limestone is being procured in the powder form and consequently the power consumption for limestone crushing is eliminated and thus the incremental consumption should be on the lower side. <u>Thus, an additional auxiliary energy consumption of 1.0% may be allowed to NLC stations with CFBC boilers.</u>"

6.9 The Petitioner submitted that SERCs in other states had allowed higher auxiliary consumptions for plants operating on CFBC technology.

Commission's Analysis

6.10 The Commission while dealing with the matter of approving the Auxiliary consumption in the provisional MYT order dated May 27, 2014 had relied on the technology specific norms in CERC Tariff Regulations 2014 and the recommendations of CEA.

6.11 Regulation 36 (E) of the CERC Tariff Regulations 2014 provides for relaxation of auxiliary energy consumption norms for lignite fired generation stations using CFBC technology:

"Provided that for the lignite fired stations using CFBC technology, the auxiliary energy consumption norms shall be 1.5 percentage point more than the auxiliary energy consumption norms of coal-based generating stations at (E) (a) above"

6.12 The recommendation of CEA regarding Auxiliary energy consumption as given in Clause 10 of Section 2 of the report on "Operations norms for thermal power stations for Tariff period FY 2014-19" are:

"Present AEC norms of 0.5 % higher than coal based units with PC technology and 1.5 % higher for CFBC technology are considered adequate and may continue."

6.13 The Commission after considering the above recommendations had approved a higher auxiliary consumption of 1.5% over the coal based stations. At this stage, the Commission doesn't find any merit in approving the norms based on the submission of the Petitioner and hereby approves the Auxiliary consumption of Unit 1 of the plant at 10.50% for the year FY 2014-15.

Generation

Petitioner's submission

6.14 The Petitioner submitted that the actual gross generation of Unit 1 of the plant was 308.78 MU for FY 2013-14.

Commission's Analysis

6.15 The Commission in the MYT Order dated May 27, 2014 had approved Gross generation at 343.60 MU for Unit 1 after considering PLF at of 75%. The Petitioner has now submitted that the actual PLF for FY 2013-14 as 64.83% for Unit 1. Hence for the purpose of truing up for FY 2013-14, the Commission has considered actual PLF and accordingly approved the gross generation at 308.77 MU for the period from CoD up to March 31, 2015.

Station Heat Rate

Petitioner's submission

6.16 The Petitioner submitted that the actual Station Heat Rate (SHR) achieved is 3019.98 kCal/kWh which is higher than the approved rate of 2902 kCal/kWh. The variation is due to various stabilization issues which started in the plant after achieving CoD.

Commission's Analysis

6.17 The Regulation 8.6 of the JSERC Generation Tariff Regulations, 2010 prescribes the norm for approving the operational parameters including gross station heat rate of a generating station

"8.6 (b) Gross Station Heat Rate:

(i) Coal-based and lignite-fired Thermal Generating Stations = 1.065 X Design

Heat Rate (kCal/kWh)

Where, the Design Heat Rate of a unit means the unit heat rate guaranteed by the supplier at conditions of 100% MCR, zero percent make up, design coal and design cooling water temperature/ back pressure"

6.18 The Commission in the MYT order dated May 27, 2014 had approved the Station Heat Rate of 2902 kCal/kWh based on the above formula after validating the boiler efficiency from an independent technical expert.

6.19 For the purpose of true-up, the Commission has considered the same and has accordingly approved the Station Heat Rate of 2902 kCal/kWh.

Fuel Cost Parameters

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

Petitioner's submission

6.20 The Petitioner submitted that Inland Power Ltd. doesn't have any fuel linkage due to which fuel was procured from various sources as mentioned below:

i. e-Auction of CIL coal

ii. Coal from JSMDC

iii. Coal from forward auctions

iv. Washery rejects of CCL

v. Rejects from Tata

vi. Dolochar from the open market

vii. Coal from open market

6.21 Depending on the availability of coal input, the blending ratio of coal, dolochar and coal rejects has significantly deviated from the norms approved by the Commission. The details as submitted by the Petitioner is given in the following table:

Table 12: Coal mix and GCV of fuel as submitted by Petitioner

Particulars	FY 2014-15	
	Approved	Actual
Blending ratio (%) Coal – Coal Rejects - Dolochar	70 : 0 : 30	34 : 46 : 20
GCV of Coal (kCal/kg)	3200.00	3459.28
GCV of Coal Reject (kCal/kg)	-	1837.27
GCV of Dolochar (kCal/kg)	1500.00	1025.64

Commission's Analysis

6.22 The Commission has observed that there has been significant deviation in the actual GCV values and also in the blending ratio, which has resulted in lowering of the overall GCV leading to more consumption of primary fuel for the plant than what was approved. The Petitioner has mentioned scarcity of fuel as the reason behind the change in blending mix of primary fuel.

6.23 The Commission in their MYT order dated May 27, 2014 had directed the Petitioner to prioritize the procurement of primary fuel from the least cost source. The Commission reiterates that the Petitioner should develop a fuel procurement plan so as to ensure that the primary fuel as per the approved blending ratio is procured. The Petitioner should also take up the issue with the fuel suppliers to address the issue of fuel scarcity.

6.24 For the purpose of true-up, the Commission has considered the submissions of the Petitioner including supporting documents certified by statutory auditors. The Commission computed the "as fired" GCV for each type of primary fuel by considering the actual average GCV for FY 2014-15 after scrutinizing the actual monthly GCV submitted by the Petitioner.

6.25 The following tables summarize the weighted average GCV as submitted by the Petitioner and approved by the Commission and the Coal Mix submitted and approved by the Commission for Unit 1 of the station:

Table 13: Weighted average GCV submitted by Petitioner and as approved by the Commission

Particulars	Coal Mix (%)			GCV(kCal/ kg)		
	Approved in MYT	Submitted by IPL	Approved in True up	Approved in MYT	Submitted by IPL	Approved in True up
Coal	70.00	34.00	34.00	3200.00	3459.28	3459.28
Coal rejects	0.00	45.58	45.58	0.00	1837.27	1837.27
Dolochar	30.00	20.42	20.42	1500.00	1025.64	1025.64

Transit Loss

Petitioner's submission

6.26 The Petitioner submitted that the price of primary fuel is inclusive of applicable transit loss.

Commission's Analysis

6.27 The Commission in the MYT order had approved a transit loss at 0.8% for Unit 1 for FY 2014-15 in accordance with the norms specified in the JSERC Generation Tariff Regulation, 2010.

6.28 The Commission vide letter no. JSERC/ Case (Tariff) No. 06 and 11 of 2016/ 340 dated August 11, 2016 had directed the Petitioner to submit detailed breakup of the landed price of each type of fuel. The Petitioner vide letter dated September 26, 2016 had submitted the details duly verified by statutory auditors. However, the additional submission of month wise breakup of landed cost did not show the transit loss considered by the Petitioner.

6.29 The Commission vide letter JSERC/ Case (Tariff) No. 06 and 11 of 2016/ 704 dated February 08, 2017 again directed the Petitioner to clearly highlight in their breakup the transit loss considered. The Petitioner in their response submitted that the landed cost is inclusive of permissible transit loss.

6.30 The Commission has considered the submissions of the Petitioner. The Commission is concerned with the Petitioner's inability to properly segregate base cost and transit loss of primary fuel. The Commission on verification of auditor certificates and submissions of the Petitioner approves transit loss of 0.8% in line with JSERC Generation Tariff Regulations 2010.

6.31 The Commission directs the Petitioner to develop and implement procedures to record data on actual transit loss and make it available month wise and fuel source wise along with its next Tariff Petition.

Landed cost of Coal

Petitioner's submission

6.32 The Petitioner has submitted the landed cost of Coal at Rs./Ton 3236.94, Coal Reject at Rs./Ton 1324.29 and Dolochar at Rs./Ton 557.37 for Unit 1 of the plant. The landed cost submitted are inclusive of permissible transit loss as mentioned by the Petitioner.

6.33 In a subsequent submission in reply to a discrepancy note raised by the Commission, the Petitioner had submitted the break-up of landed cost duly certified by statutory auditors. However, the transit loss was not highlighted separately in the submission.

Commission's Analysis

6.34 The Commission has verified the statutory auditor's certificate on month wise landed price of coal submitted by the Petitioner. The Commission now approves the landed cost of coal which is given in the following table:

Table 14: Landed cost of coal as approved by the Commission (Rs./ ton)

Particulars	Weighted Average Landed Price of the coal (Rs./ ton)		
	Approved in MYT order	Submitted by IPL	Approved in True up
Coal	2100.00	3236.94	3128.31
Coal rejects	-	1324.29	1346.24
Dolochar	750.00	557.37	457.18
Transit loss	0.8%	Inclusive	0.8%
Weighted average landed cost	1708.56	1817.92	1784.76

Energy Charge Rate (ECR)

Petitioner's submission

6.35 The Petitioner has submitted the energy charge rate for FY 2014-15 at Rs. 2.79 per Kwh.

Commission's Analysis

6.36 The formula for calculation of energy charge and energy charge rate (ECR) payable to a Generating Company is specified in Regulation 8.17 and 8.18 of the Generation Tariff Regulation, 2010 as quoted below:

"8.17 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 x 100/ {CVPF x (100 – AUX)}

Where, AUX - Normative auxiliary energy consumption in percentage

CVPF - Gross calorific value of primary fuel as fired, in KCal per kg, per litre or per standard cubic metre, as applicable.

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.

LPPF - Weighted average landed price of primary fuel, in Rupees per kg, per litre or per standard cubic metre, as applicable, during the month.

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

6.37 Accordingly, the Commission has calculated the ECR to be charged by the Petitioner as per the formula specified in the JSERC Generation Tariff Regulations, 2010. The table below details the ECR and Fuel Cost for Unit 1 for truing up of FY 2014-15 as submitted by the Petitioner and as approved by the Commission.

Table 15: Energy Charge Rate Approved by the Commission

Parameters	Unit	Approved in MYT order	Submitted by IPL	Approved in True up
Gross Generation	MU	343.60	308.78	308.77
Auxiliary Consumption	%	10.50	11.25	10.50
Heat Rate	kCal/kWh	2902	3020	2902
Specific Oil Consumption	ml/kWh	1.0	1.20	1.0
Calorific Value of Oil	kCal/l	10000	10000	10000
Landed price of Primary fuel	Rs/Ton	1708.56	1817.99	1784.76
Calorific value of Primary fuel	kCal/kg	2690	2223	2223
Energy Charge Rate	Rs/kWh	2.05	2.77	2.59
Fuel Cost	Rs Cr	63.11	75.96	71.69

Determination of Fixed cost

Additional Capitalization

Petitioner's submission

6.38 The Petitioner submitted that it had incurred additional capitalization of Rs. 21.55 Lakh after CoD. The details are given in the following table:

Table 16 Additional Capitalization details submitted by the Petitioner

Particulars	Unit	FY 2014-15
Dumper	Rs. Lakh	15.55
Ambulance	Rs. Lakh	6.00
Total	Rs. Lakh	21.55

Commission's Analysis

6.39 The Commission has outlined the provisions for approval of any additional capitalization, for a generating station in Regulation 7.5 and 7.6 of the JSERC Generation Tariff Regulation, 2010. 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;*"

6.40 The Commission vide letter JSERC/ Case (Tariff) No. 06 and 11 of 2016/ 704 dated February 08, 2017 had directed the Petitioner to submit details of the additional capitalization incurred after CoD along with justifications as specified by Clause 7.5 and 7.6 of the JSERC Generation Tariff Regulations 2010.

6.41 The Petitioner vide letter dated February 20, 2017 submitted that the dumper was purchased to help feed fuel to the boiler post CoD as the existing vehicles were found to be inadequate for feeding fuel due to increased requirement. The ambulance was purchased for the workers, staff and others to ensure safety during emergency. The Petitioner submitted that the vehicles were procured for efficient and successful operation of the generating stations.

6.42 The Commission after due scrutiny of the submissions has decided to disallow the claim of the Petitioner. The justification provided by the Petitioner pertains to Regulation 7.6 (iv) of the JSERC Generation Tariff Regulations, 2010, which will be applicable after the cut-off date. The Cut-off Date as defined in the Regulations means 31st March of the year closing after two years of the year of commercial operation of the project, and in case the project is declared under commercial operation in the last quarter of a year, the cut-off date shall be 31st March of the year closing after three years of the year of commercial operation;

6.43 For claim of additional capitalisation up to the cut-off date, the relevant norms are provided in Regulation 7.5 of the JSERC Generation Tariff Regulations, 2010. Also the Petitioner has not taken any prior approval of the Commission before purchasing the assets mentioned in the claim. Hence, in view of the reasons mentioned above, the Commission has disallowed the claim of the Petitioner.

Depreciation

Petitioner's submission

6.44 The Petitioner submitted that depreciation has been calculated as per the provisions of the JSERC Generation Tariff Regulations 2010. The depreciation submitted by the Petitioner is given in the table below:

Table 17: Depreciation schedule for Unit 1 for the year FY 2014-15

Particulars	Unit	FY 2014-15
Opening balance of gross fixed asset (GFA)	Rs. Cr	345.99
Additional Capitalization	Rs. Cr	0.22
Closing Balance of Gross Fixed Assets (GFA)	Rs. Cr	346.21
Depreciation	Rs. Cr	13.63

Particulars	Unit	FY 2014-15
Net Fixed Assets (NFA)	Rs. Cr	332.59

Commission's Analysis

6.45 The provisions laid out in the JSERC Generation Tariff Regulations, 2010 for approval of depreciation are given below:

"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.

7.31 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.

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."

6.46 Accordingly, the Commission calculated the depreciation for Unit 1 of the plant by considering the approved capital cost and the depreciation rates specified in Appendix-I of JSERC Generation Tariff Regulations, 2010.

6.47 Further, the Commission calculated the depreciation for the plant for FY 2014-15 on pro-rata basis (for 315 days) considering the COD of Unit 1 of the plant as May 21, 2014.

6.48 The following table shows the depreciation for the Plant as calculated by the Commission as against that submitted by the Petitioner:

Table 18: Depreciation as approved by the Commission for Unit 1

Particulars	Unit	Approved in MYT order	Submitted by IPL	Approved in True up
Total depreciation	Rs. Cr	13.20	13.63	13.46

Operation & Maintenance (O&M) Expenses

Petitioner's submission

6.49 The Petitioner submitted that the actual O&M Expenses has varied from the expenses as approved by the Commission in the MYT order dated May 27, 2014. The details as submitted are given in the following table:

Table 19: O&M Expense as submitted for FY 2014-15

Particulars	Unit	Approved in MYT order	Submitted by IPL
Operation and Maintenance (O&M) expenses	Rs. Cr	12.57	16.49

6.50 The Petitioner mentioned that the variation in the O&M expense is due to increase in the costs related to handling and disposal of high quantity of ash produced. The ash output increased due to change in the fuel mix and subsequent lowering of the average GCV of primary fuel.

6.51 The Petitioner further submitted that the O&M charges also include water charges being paid by the Petitioner to the concerned state authorities for use of water in the plant.

6.52 The Petitioner has also quoted para no. 22 from Hon'ble APTEL ruling No. 244 of 2012 between DPSCL vs WBERC and others, regarding allowance of ash disposal expenses due to uncontrolled increase in the ash content and on any increase in haulage of ash to the disposal area.

6.53 The Petitioner also submitted that the brick lining of the Boiler was replaced in the month of October 2014 and was subsequently recharged. The replacement has resulted in change of the boiler profile which led to increased O&M costs for the Petitioner. The Petitioner expects such increases in the future also.

6.54 In view of the reasons stated above, the Petitioner has prayed to the Commission to allow the increase in the O&M expenses.

Commission's Analysis

6.55 The provisions laid out in the JSERC Generation Tariff Regulations, 2010 for approval of O&M expenses are as under:

"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).

...

New Generating Stations:

7.44 The O&M expenses (in Rs. lakhs/ MW) permissible towards determination of tariff for Coal and Lignite fired (including those based on CFBC technology) shall be as follows:

Year	*200/ 210/ 250 MW sets*	*300/330/350 MW sets*	*500 MW sets*	*500 MW and above sets*
2011-12	*20.34*	*17.88*	*14.53*	*13.08*
2012-13	*21.51*	*18.91*	*15.36*	*13.82*
2013-14	*22.74*	*19.99*	*16.24*	*14.62*
2014-15	*24.04*	*21.13*	*17.17*	*15.46*
2015-16	*25.42*	*22.34*	*18.15*	*16.34*

6.56 Since, the JSERC Generation Tariff Regulations, 2010 do not specify norms specifically for 63 MW sets based on CFBC technology, the Commission had considered the O&M norms for 200/210/250 MW capacity CFBC Technology based thermal plants in the MYT order dated May 27, 2014. Accordingly, the Commission had approved the O&M expenses based on the norms specified for 200/210/250 MW sets for FY 2014-15.

6.57 The provisions laid out in the JSERC Generation Tariff Regulations, 2010 for true-up during the control period is given as under:

"6.14 The true up across various controllable parameters shall be conducted as per principles stated below:-

(a) any surplus and deficit on account of O&M expenses shall be to the account of the generating company and shall not be trued up in ARR; and"

6.58 The Commission has noted the submissions of the Petitioner regarding the increase in the O&M costs and is of the opinion that the primary reason for the increase is the change in the fuel mix of the primary fuel which has resulted in lowering of overall GCV, increase in ash output and subsequently led to increased ash handling expenses. Also, as per the report of technical consultant submitted by the Petitioner, the boiler refractory lining also failed due to change in heating because of change in the fuel mix.

6.59 The Commission in the MYT order dated May 27, 2014 had mentioned the following

"7.46 Accordingly, the Commission after scrutinizing the submissions made by the Petitioner provisionally approves the GCV, blending ratio and price of coal and dolochar as per the submissions of the Petitioner. Further the Commission directs the Petitioner to prioritize procurement of primary fuel from the least cost source."

6.60 Thus it is clear from above, that the Commission had approved the blending ratio after considering the submissions of the Petitioner. The Petitioner has submitted that the fuel supply with JSMDC did not materialize due to scarcity of fuel and higher landed cost. However, it is the responsibility of the Petitioner to ensure that the approved blending ratio is maintained by procuring the primary fuel accordingly from alternate sources. The increase in O&M expense seems to be caused by the inability of the Petitioner to maintain the appropriate blending ratio. Regulations 6.14 (a) of JSERC Generation Tariff Regulations, 2010 clearly provides that any surplus / deficit on account of O&M expenses shall be to be the account of generating company and shall not be trued up in the ARR. Accordingly, claims of such additional expenses are not passed on to the beneficiaries.

6.61 The Commission has considered the norms specified in the JSERC Generation Tariff Regulations, 2010 for 200/210/250 MW sets and accordingly has approved the O&M expenses for FY 2014-15 on pro-rata basis considering the COD of Unit 1 of the Plant.

Table 20: Approved O&M expenses

Particulars	Unit	Approved in MYT order	Submitted by IPL	Approved in True up
Approved O&M expenses	Rs. Cr	12.57	16.49	13.07

Return on Equity (RoE)

Petitioner's submission

6.62 The Petitioner in the petition submitted that it has calculated return on equity considering a post-tax return of 16.00% as per JSERC Generation Tariff Regulations, 2010. The Petitioner submitted that the Petitioner's board had accorded investment approval on August 11, 2011 for setting up of 126 MW CFBC plant. The COD of Unit 1 is May 21, 2014 i.e 36 months of the investment approval. Thus the Petitioner has claimed a RoE at the rate of 16%.

6.63 The RoE as submitted by the Petitioner is given in the table below:

Table 21: RoE submitted by the Petitioner

Particulars	Unit	FY 2014-15
Opening Equity	Rs. Cr	92.40
Addition/ Withdrawal	Rs. Cr	-
Closing Equity	Rs. Cr	92.40
Average Equity	Rs. Cr	92.40
Rate of Equity	%	16.00%
Applicable MAT rate	%	-
Gross Return on Equity	%	16.00%

Particulars	Unit	FY 2014-15
Return on Equity	Rs. Cr	12.76

Commission's Analysis

6.64 The provisions laid out in the JSERC Generation Tariff Regulations, 2010 for approval of Return on Equity are as under:

"7.15 Return on equity shall be computed in rupee terms, on the equity base determined in accordance with clause 7.13, 7.14 of these Regulations.

7.16 Return on equity shall be computed on pre-tax basis at the base rate of 15.50%, to be grossed up as per clause 7.17 of these Regulations.

……………

Provided that in case of Projects commissioned on or after 1st April, 2011, an additional return of 0.5% shall be allowed if such Projects are completed within the timeline specified in Appendix-II to these Regulations:

Provided further that the additional return of 0.5% shall not be admissible if the Project is not completed within the timeline specified above for reasons whatsoever:

7.17 The rate of return on equity shall be computed by grossing up the base rate with the normal tax rate applicable to the Generating Company as per details shown as under:

(i)……….

(ii) MYT period: Base rate to be grossed by the applicable tax rate for the Year 2011-12

Provided that return on equity with respect to the actual tax rate applicable to the Generating Company, in line with the provisions of the relevant Finance Acts of the respective year during the Control period shall be trued up separately for each year of the Control period along with the tariff petition filed for the next Control period.

7.18 Rate of return on equity shall be rounded off to three decimal points and be computed as per the formula given below:

Rate of pre-tax return on equity = Base rate / (1-t)

Where 't' is the applicable tax rate in accordance with clause 7.17 of these Regulations."

Appendix-II Timeline for completion of Projects

1. The completion time schedule shall be reckoned from the date of investment approval by the Board (of the Generating Company), up to the Date of Commercial Operation of the Units or Block of units.

2. The time schedule has been indicated in months in the following paragraphs and tables:

(i) Thermal Power Projects - Coal/Lignite Power Plant

Unit size 200/210/250/300/330 MW and 125 MW CFBC technology

(a) 33 months for Green Field Projects. Subsequent Units at an interval of 4 months each.
(b) 31 months for Extension Projects. Subsequent Units at an interval of 4 months

6.65 The Commission has worked out the Return on Equity of the Plant as per provisions of the JSERC Generation Tariff Regulation, 2010 and has considered the return on equity at 15.50%. Since the Petitioner did not have any tax liability during the year, the approved RoE rate has not been grossed up by the Commission.

6.66 With regards to the claim of the Petitioner for additional 0.5% of equity, the Commission has calculated the period from the date of Board approval for the project i.e. August 11, 2011 upto the COD of Unit 1 of the plant i.e. May 21, 2014. The duration of the project is 33 months and 10 days which is more than the 33 months stipulated for Unit size of 125 MW CFBC technology plant as specified in the regulations. Hence the Commission has approved a RoE of 15.50% for the year FY 2014-15. The details are given as under.

Table 22: RoE approved by the Commission

Particulars	Unit	Approved in MYT order	Submitted by IPL	Approved in True up
Opening Equity balance	Rs. Cr	92.40	92.40	92.40
Net additions	Rs. Cr	-	-	-
Closing Equity balance	Rs. Cr	92.40	92.40	92.40
Average Equity	Rs. Cr	92.40	92.40	92.40
RoE (Pre-tax)	%	15.50%	16.00%	15.50%
Applicable tax rate	%	20.008%	-	-
RoE (Post-tax)	%	19.377%	16.00%	15.50%
Return on Equity *(adjusted pro-rata based on no. of days of operation)*	Rs. Cr	14.86	12.76	12.36

Interest on Loan

Petitioner's submission

6.67 The Petitioner has computed the interest on long term loan in line with the actual interest amount paid during the control period. The interest on loan for the period FY 2014-15 is Rs. 31.45 Cr.

Commission's Analysis

6.68 The provisions laid out in the JSERC Generation Tariff Regulations, 2010 for approval of Interest on Debt is quoted as under:

"7.19 The loans arrived at in the manner indicated in clause 7.13, 7.14 of these Regulations shall be considered as gross normative loan for calculation of interest on loan.

7.21 The repayment for any year during the Tariff Period shall be deemed to be equal to the depreciation allowed for that Year.

7.22 Notwithstanding any moratorium period availed by the Generating Company, the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the annual depreciation allowed.

7.23 The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each year applicable to the Project:

Provided that if there is no actual loan for a particular year but normative loan is still outstanding, the last available weighted average rate of interest shall be considered:

Provided further that if the generating station does not have actual loan, then the weighted average rate of interest of the Generating Company as a whole shall be considered

7.24 The interest on loan shall be calculated on the normative average loan of the year by applying the weighted average rate of interest.

6.69 The Commission has calculated the opening balance of normative debt for the year based on the approved capital cost. The approved depreciation has been considered as repayment in line with the methodology specified in JSERC Generation Tariff Regulations, 2010 to arrive at the closing balance of normative debt component.

6.70 The rate of interest has been considered as the weighted average rate of interest as per submission made by the Petitioner. The details are given in the following table:

Table 23: Interest on Loan approved by the Commission

Particulars	Unit	Approved in MYT order	Submitted by IPL	Approved in True up
Opening Debt balance	Rs. Cr	227.44	253.59	248.84
Net additions	Rs. Cr	0.00	46.18	0.00
Repayment	Rs. Cr	13.20	34.27	13.46
Closing Debt balance	Rs. Cr	214.24	265.50	235.38
Rate of Interest	%	12.75%	14.38%	12.39%
Interest on Debt	Rs. Cr	23.37	31.45	25.89

Cost of Secondary fuel

Petitioner's submission

6.71 The Petitioner has submitted the details of secondary fuel oil which are given in the following table. The Petitioner mentioned that the high consumption is due to problems faced by the plant during stabilization period.

Table 24: Details of Secondary Fuel Oil submitted by the Petitioner

Particulars	Unit	FY 2014-15
Gross units generated	MU	308.78
Calorific value of Oil	kCal/L	10,000
Specific Oil Consumption	ml/kWh	1.20
Oil Consumption	kL	371.91
Base price of oil	Rs./kL	56,464.67
Cost of Secondary fuel oil	Rs. Cr	2.10

Commission's Analysis

6.72 The provisions laid out in the JSERC Generation Tariff Regulations, 2010 for approval of cost of secondary fuel oil are as under:

"7.49 Expenses on secondary fuel oil in Rupees shall be computed corresponding to normative secondary fuel oil consumption (SFC) specified in clause 8.4, 8.6 of these Regulations, in accordance with the following formula:

= SFC x LPSFi x NAPAF x 24 x NDY x IC x 10

Where,

SFC – Normative Specific Fuel Oil consumption in ml/kWh

LPSFi – Weighted Average Landed Price of Secondary Fuel in Rs./ml considered initially

NAPAF – Normative Annual Plant Availability Factor in percentage

NDY – Number of days in a year

IC - Installed Capacity in MW

7.51 The secondary fuel oil expenses shall be subject to fuel price adjustment at the end of the each year of Control period as per following formula:

= SFC x NAPAF x 24 x NDY x IC x 10 x (LPSFy – LPSFi)

Where,

LPSFy – Weighted average landed price of secondary fuel oil for the year in Rs./ml

6.73 The Commission vide letter JSERC/ Case (Tariff) No. 06 and 11 of 2016/ 340 dated August 11, 2016 had directed the Petitioner to submit the details of month wise consumption and average landed price of secondary fuel duly certified by statutory auditors. The Petitioner vide submissions dated September 26, 2016 had submitted the required details.

6.74 The Commission worked out the weighted average landed price of secondary fuel after due prudence check of Petitioner's submission and approved the cost of secondary fuel, the details of which is given in the table below:

Table 25: Cost of Secondary Fuel as approved by the Commission

Particulars	Unit	Approved in MYT order	Submitted by IPL	Approved in True up
Gross Generation at Normative plant availability	MU	343.60	308.78	308.77
Normative Specific Fuel Oil consumption	ml/kWh	1.00	1.20	1.00
Oil Consumption	kL	343.60	371.91	308.77
Weighted average landed price of secondary fuel	Rs./kL	50,000	56,464.67	52,868
Number of days in the year	Days	303	315	315
Cost of Secondary Fuel Oil	Rs. Cr	1.72	2.10	1.63

Interest on Working Capital

Petitioner's submission

6.75 The Petitioner submitted that the working capital requirement has been computed as per the provisions of JSERC Generation Tariff Regulations, 2010. The details are given in the table below:

Table 26: Interest on working capital submitted by Petitioner

Particulars	Unit	FY 2014-15
Coal Cost for 2 months	Rs. Cr	12.76
Cost of secondary fuel oil for 2 months	Rs. Cr	0.35
O&M Expenses for 1 month	Rs. Cr	1.37
Maintenance Spares (20% of O&M)	Rs. Cr	3.30
Receivables for 2 months	Rs. Cr	25.97
Total Working Capital	Rs. Cr	43.75
Rate of Interest	%	13.50
Interest on Working Capital *(adjusted pro-rata based on no. of days of operation)*	Rs. Cr	5.10

6.76 The Petitioner mentioned that the working capital has increased because JUVNL has not paid the Petitioner as per the bills raised. The Petitioner has prayed to the Commission to direct JUVNL to clear the dues.

Commission's Analysis

6.77 The working capital requirement for the Petitioner has been determined by considering the following components as per Regulation 7.34 of the JSERC Generation Tariff Regulation, 2010:

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

(a) *Cost of Coal for two months for generation corresponding to the Normative Annual Plant Availability Factor;*

(b) *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. "*

6.78 The Commission also outlines the provisions laid out in the JSERC Generation Tariff Regulations, 2010 for approval of Interest on Working Capital as under:

"7.38 Rate of interest on working capital shall be on normative basis and shall be equal to the short-term Prime Lending Rate of State Bank of India as on April 1, 2011 or April 1 of the year in which the generating station or a unit thereof, is declared under commercial operation, whichever is later during Transition period.

During Control Period rate of interest on working capital shall be on normative basis and shall be equal to the short-term Prime Lending Rate of State Bank of India as on April 1, 2012 or April 1 of the year in which the generating station or a unit thereof, is declared under commercial operation.

7.39 The interest on working capital shall be payable on normative basis notwithstanding that the generating company has not taken working capital loan from any outside agency or has exceeded the working capital loan based on the normative figures."

6.79 Accordingly the Commission calculated the Interest on Working Capital on the rates prevailing on the April 1, 2014 i.e. at 14.75% for the Plant. The detailed calculation made by the Commission is shown in the tables below:

Table 27: Interest on Working Capital as Approved by the Commission

Particulars	Unit	Approved in MYT order	Submitted by IPL	Approved in True up
Coal Cost for 2 months	Rs. Cr	10.52	12.76	11.95
Cost of secondary fuel oil for 2 months	Rs. Cr	0.29	0.35	0.27
O&M Expenses for 1 month	Rs. Cr	1.26	1.37	1.09
Maintenance Spares (20% of O&M)	Rs. Cr	2.51	3.30	2.61
Receivables for 2 months	Rs. Cr	22.38	25.97	23.86
Total Working Capital	Rs. Cr	36.96	43.75	39.79
Rate of Interest	%	14.75%	13.50%	14.75%
Interest on Working Capital *(adjusted pro-rata based on no. of days of operation)*	Rs. Cr	5.45	5.10	5.06

Annual Fixed Charges

6.80 Regulation 8.2 of the Generation Tariff Regulations, 2010 states that the annual fixed charges of a thermal generating station shall consist of the following

(a) Return on Equity;

(b) Interest and Financing Charges on Loan Capital;

(c) Depreciation;

(d) Operation and Maintenance Expenses;

(e) Interest Charges on Working Capital; and

(f) Cost of Secondary Fuel Oil

6.81 The following table shows the annual fixed charges submitted by the Petitioner for the Plant and approved by the Commission for the Control Period:

Table 28: Annual Fixed Charges approved by the Commission

Particulars	Unit	Approved in MYT order	Submitted by IPL	Approved in True up
O&M Expenses	Rs. Cr	12.57	16.49	13.07
Depreciation	Rs. Cr	13.20	13.63	13.46
Interest on Loan	Rs. Cr	23.37	31.45	25.89
Return on Equity	Rs. Cr	14.86	12.76	12.36
Cost of Secondary Fuel	Rs. Cr	1.72	2.10	1.63
Interest on Working Capital	Rs. Cr	5.45	2.82*	5.06
Total Fixed Cost	Rs. Cr	**71.17**	**79.25**	**71.47**

*Incorrect value of Interest on Working Capital has been submitted by Petitioner

Recovery of Capacity charges

Petitioner's submission

6.82 The Petitioner has submitted that the recovery of fixed charges has been calculated as per clause 8.10 to 8.12 of the JSERC Generation Tariff Regulations, 2010. As the Plant Availability Factor (PAF) of the plant for the year FY 2014-15 is 67.60%, the Petitioner has used the formula as given below:

"8.12 (a)…

Provided that in case the plant availability factor achieved during a financial year (PAFY) is less than 70%, the total capacity charge for the year shall be restricted to:

=AFC x (0.5 + 35 / NAPAF) x (PAFY / 70) (in Rupees)

6.83 The capacity charges submitted by the Petitioner after PAF adjustment is given in the table below:

Table 29: Capacity charges submitted by Petitioner after PAF adjustment

Particulars	Unit	FY 2014-15
Fixed cost as computed	Rs. Cr	79.25
Fixed cost after PAF adjustment	Rs. Cr	73.98

Commission's analysis

6.84 The provisions laid out in the JSERC Generation Tariff Regulations, 2010 for approval of recovery of fixed charges are as under:

"8.10 The fixed cost of a thermal generating station shall be computed on annual basis, based on norms specified under these Regulations, and recovered o monthly basis under capacity charge. The total capacity charge payable for a generating station shall be shared by its Beneficiaries as per their respective percentage share/ allocation in the capacity of the generating station.

8.11 Full Capacity Charges shall be recoverable at Normative Annual Plant Availability Factor (NAPAF) specified in clause 8.4, 8.6 of these Regulations. Recovery of Capacity Charges below the level of Normative Annual Plant Availability Factor (NAPAF) will be on a pro-rata basis. At zero availability, no Capacity Charges shall be payable.

8.12 The capacity charge (inclusive of incentive) payable to a thermal generating station for a calendar month shall be calculated in accordance with the following formulae:

(a) Generating stations in commercial operation for less than ten (10) years on 1^{st} April of the financial year:

= (AFC x (NDM / NDY) x (0.5 + 0.5 x PAFM / NAPAF) (in Rupees)

Provided that in case the plant availability factor achieved during a financial year (PAFY) is less than 70%, the total capacity charge for the year shall be restricted to:

=AFC x (0.5 + 35 / NAPAF) x (PAFY / 70) (in Rupees)

(b) For generating stations in commercial operation for ten (10) years or more on 1^{st} April of the year:

= (AFC x NDM / NDY) x (PAFM / NAPAF) (in Rupees)

Where,

AFC - Annual fixed cost specified for the year, in Rupees;

NAPAF – Normative annual plant availability factor in percentage;

NDM – Number of days in the month;

NDY – Number of days in the year;

PAFM – Plant availability factor achieved during the month, in percent;

PAFY – Plant availability factor achieved during the year, in percent

6.85 The Commission has approved the recovery of fixed charges as per the above provisions. The details are given in the table below:

Table 30: Approved capacity charges

Particulars	Unit	FY 2014-15
Fixed cost as computed	Rs. Cr	71.47
Fixed cost after PAF adjustment	Rs. Cr	66.78

Total Cost

6.86 The table below shows the total cost recoverable by the Petitioner for Unit 1

Table 31: Total cost recoverable by the Petitioner

Particulars		Units	FY 2014-15
Total Fixed cost after PAF Adjustment	A	Rs. Cr	66.78
Total Variable cost	B	Rs. Cr	71.69
Annual Revenue Requirement (ARR)	C = A+B	Rs. Cr	138.48

Gap/ Surplus for FY 2014-15

6.87 In accordance with Regulation 6.18 of JSERC Generation Tariff Regulations, 2010, the amount under-recovered or over-recovered, along with simple interest at the rate equal to short term prime lending rate of State Bank of India 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

6.88 The Commission has calculated the gap taking into account the carrying cost for the period from mid FY 2014-15 upto the mid of FY 2016-17 and accordingly has approved the revenue gap/surplus for FY 2014-15 in table below

Table 32: Gap/Surplus for FY 2014-15 of Unit-1

Particulars		Units	FY 2014-15
Total Fixed cost after PAF Adjustment	A	Rs. Cr	66.78
Total Variable cost	B	Rs. Cr	71.69
Annual Revenue Requirement (ARR)	C = A+B	**Rs. Cr**	**138.48**
Total Amount Billed by IPL	D	Rs. Cr	143.69
Delay payment surcharge billed	E	Rs. Cr	2.26
Net amount billed (Capacity + Energy + FPA charges)	F = D - E	**Rs. Cr**	**141.43**
Gap/ (Surplus) for the year	G = C - F	Rs. Cr	(2.95)
Carrying cost	H	Rs. Cr	(0.86)
Total Amount to be recovered	I = G + H	**Rs. Cr**	**(3.81)**

A7: ANNUAL PERFORMANCE REVIEW FOR FY 2015-16

Petitioner's submission

7.1 In its petition the Petitioner has requested for the Review of Operational Performance of FY 2015-16 based on the actual performance.

Commission's analysis

7.2 As per Regulation 15 of the JSERC Generation Tariff Regulations, 2010 (as quoted below) the Commission is required to carry out periodic reviews of performance of a generation company during the control period.

"Review during Control period
15.1 To ensure smooth implementation of the Multi Year Tariff (MYT) framework, the Commission may undertake periodic reviews of Generating Company's performance during the Control Period, to address any practical issues, concerns or unexpected outcomes that may arise.

15.2 The Generating Company shall submit information as part of annual performance review on actual performance to assess the performance vis-à-vis the targets approved by the Commission at the beginning of the Control Period. This shall include annual statements of its performance and accounts including latest available accounting statements, norms achieved and the tariff worked out in accordance with these Regulations.

15.3 The Commission may also direct any modifications to the forecast of the Generating Company for the remainder of the Control Period, with detailed reasons for the same."

7.3 Since FY 2015-16 is already over, the Commission does not find it prudent to revise the tariff for the year at this stage. Hence, the Commission directs the Petitioner to submit a petition for truing up of FY 2015-16.

A8: APPROVAL OF BUSINESS PLAN FOR CONTROL PERIOD (FY 2016-17 TO FY 2020-21)

Petitioner's submission

8.1 The Petitioner in its MYT Business Plan has covered the financial projections and performance targets for the Control Period. The Petitioner has broadly classified the Business Plan into the following Categories:

a) Capital Investment Plan

b) Capital Structure

c) Operation and Maintenance Expenses

d) Depreciation

e) Performance Targets

Capital Investment Plan

Petitioner's submission

8.2 The Petitioner in its business plan has submitted the investment details of Unit 1 which is already commissioned.

8.3 No capital investment plan for the period FY 2017-21 has been proposed in the business plan.

Commission's Analysis

8.4 The Commission has already approved the original capital expenditure for the plant in paragraph 5.10 of this order. No additional capital expenditure has been proposed by the Petitioner.

Capital Structure

Petitioner's submission

8.5 The Petitioner has submitted the capital structure of the original investment of Rs. 253.59 Cr of Unit 1 of which ~ 73% is debt component. The balance Rs. 92.40 Cr is equity contribution.

8.6 The Petitioner mentioned that the equity has been raised from Rs. 92.40 Cr to Rs. 101.90 Cr from the July quarter of FY 2016-17.

Commission's Analysis

8.7 The provisions laid out in the JSERC Generation Tariff Regulations, 2015 for approval of Debt Equity Ratio are quoted below:

"7.13 In case of the generating station declared under commercial operation prior to 1st April 2016, the debt-equity ratio allowed by the Commission for determination of Tariff for the period ending 31st March 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.

…

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"

8.8 Accordingly the Commission has worked out the debt- equity ratio and the approved details are given in the following table:

Table 33: Debt Equity Ratio as approved by the Commission

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Capital cost	Rs. Cr	341.24	341.24	341.24	341.24	341.24
Opening Equity	Rs. Cr	92.40	101.90	101.90	101.90	101.90
Addition/ Subtraction	Rs. Cr	9.50	0.00	0.00	0.00	0.00
Closing Equity	Rs. Cr	101.90	101.90	101.90	101.90	101.90
Average Equity	Rs. Cr	99.13	101.90	101.90	101.90	101.90
Debt	Rs. Cr	242.12	239.34	239.34	239.34	239.34
Debt Equity ratio	%	71 : 29	70 : 30	70 : 30	70 : 30	70 : 30

Interest on Debt

Petitioner's submission

8.9 The Petitioner has submitted the terms of loan agreements which it has entered into with banks namely, State Bank of India, State Bank of Bikaner and Jaipur, State Bank of Patiala, Bank of Baroda and ICICI Bank. Also, the Petitioner has submitted letters and schedules for unsecured loans which were taken from promoters and project creditors.

8.10 The Petitioner has submitted that actual rate of interest of outstanding loans i.e. 12.17% has been considered for projecting the interest on loan. The details of the interest schedule is given in the following table:

Table 34: Details of Interest on debt as submitted by the Petitioner

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Opening balance for long term loans	Rs. Cr	229.61	213.73	197.85	181.97	166.09
Additions during the year	Rs. Cr	-	-	-	-	-
Repayment (equal to depreciation)	Rs. Cr	15.88	15.88	15.88	15.88	15.88
Closing balance for long term loans	Rs. Cr	213.73	197.85	181.97	166.09	150.21
Weighted Average Interest Rate (%)	%	12.17%	12.17%	12.17%	12.16%	12.16%
Interest on Loan	Rs. Cr	26.98	25.04	23.11	21.17	19.23

Commission's Analysis

8.11 The provisions laid out in the JSERC Generation Tariff Regulations, 2015 for approval of Interest on Debt is quoted as under:

"7.19 The loans arrived at in the manner indicated in clause 7.13, 7.14 of these Regulations shall be considered as gross normative loan for calculation of interest on loan.

7.20 The normative loan outstanding as on 1st April 2016 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to 31st March 2016 from the gross normative loan.

7.21 The repayment for any year during the Tariff Period shall be deemed to be equal to the depreciation allowed for that Year.

7.23 The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each year applicable to the Project:

Provided that if there is no actual loan for a particular year but normative loan is still outstanding, the last available weighted average rate of interest shall be considered:

Provided further that if the generating station does not have actual loan, then the weighted average rate of interest of the Generating Company as a whole shall be considered

7.24 The interest on loan shall be calculated on the normative average loan of the year by applying the weighted average rate of interest.

8.12 The Commission has considered the loan outstanding for the beginning of the MYT period after deducting the required depreciation as on March 31, 2016. The rate of interest has been considered as the weighted average rate of interest as per the submission made by the Petitioner. The interest on loan as approved by the Commission is given in the following table:

Table 35: Interest on Loan as approved by the Commission

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Opening balance for long term loans	Rs. Cr	213.06	197.46	181.87	166.27	150.67
Additions during the year	Rs. Cr	0.00	0.00	0.00	0.00	0.00
Repayment (equal to depreciation)	Rs. Cr	15.60	15.60	15.60	15.60	15.60
Closing balance for long term loans	Rs. Cr	197.46	181.87	166.27	150.67	135.08
Average Normative Loan	Rs. Cr	205.26	189.66	174.07	158.47	142.87
Rate of Interest	%	12.17%	12.17%	12.17%	12.16%	12.16%
Interest on normative loans (debt)	Rs. Cr	24.98	23.08	21.18	19.28	17.37

Return on Equity (RoE)

Petitioner's submission

8.13 The Petitioner has determined the RoE at the rate of 16% and has grossed it up with applicable MAT rate. Since the equity has been raised from second quarter of FY 2016-17, the RoE for FY 2016-17 has been taken at old equity for 3 months and at increased equity for next 9 months. The details as submitted are given in the following table:

Table 36: RoE as submitted by the Petitioner

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Opening Equity	Rs. Cr	92.40	92.40	101.90	101.90	101.90
Addition/ Subtraction	Rs. Cr	9.50	0.00	0.00	0.00	0.00
Closing Equity	Rs. Cr	101.90	101.90	101.90	101.90	101.90
Average Equity	Rs. Cr	99.53	101.90	101.90	101.90	101.90
Rate of Equity	%	16.00	16.00	16.00	16.00	16.00
Applicable MAT rate	%	20.39	20.39	20.39	20.39	20.39
Gross Rate of Equity	%	20.10	20.10	20.10	20.10	20.10
Return on Equity	Rs. Cr	20.00	20.48	20.48	20.48	20.48

Commission's Analysis

8.14 The provisions laid out in the JSERC Generation Tariff Regulations, 2015 for approval of Return on equity are as under:

"7.15 Return on equity shall be computed in rupee terms, on the equity base determined in accordance with clause 7.13, 7.14 of these Regulations.

7.16 Return on equity shall be computed on pre-tax basis at the base rate of 15.50%, for thermal generating stations … to be grossed up as per clause 7.17 of these Regulations.

…

7.17 The rate of return on equity shall be computed by grossing up the base rate with the normal tax rate applicable to the Generating Company as per details shown as under:

8.15 The Commission vide letter JSERC/ Case (Tariff) No. 06 and 11 of 2016/ 340 dated August 11, 2016 directed the Petitioner to submit the document of Board approval pertaining to infusion of additional equity of Rs. 9.5 Cr. The Petitioner vide letter dated September 26, 2016 submitted the same as additional information. After scrutiny of the same, the Commission considered the date of Board approval i.e. July 15 2016 and has accordingly worked out the weighted average equity of the year FY 2016-17 by considering 3.5 months for old equity and 8.5 months for the new equity balance.

8.16 With regards to the claim of the Petitioner for additional 0.5% of equity, the Commission has calculated the period from the date of Board approval for the project i.e. August 11, 2011 upto the COD of Unit 1 of the plant i.e. May 21, 2014. The duration of the project is 33 months and 10 days which is more than the 33 months stipulated for Unit size of 125 MW CFBC technology plant as specified in the regulations. Hence the Commission has approved a RoE of 15.50% for the year FY 2014-15. The details as approved by the Commission is given on the following table:

Table 37: RoE as approved by the Commission

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Opening Equity	Rs. Cr	92.40	101.90	101.90	101.90	101.90
Addition/ Subtraction	Rs. Cr	9.50	0.00	0.00	0.00	0.00
Closing Equity	Rs. Cr	101.90	101.90	101.90	101.90	101.90
Average Equity	Rs. Cr	99.13	101.90	101.90	101.90	101.90
Rate of Equity	%	15.50	15.50	15.50	15.50	15.50
Applicable MAT rate	%	20.389	20.389	20.389	20.389	20.389
Gross Rate of Equity	%	19.47	19.47	19.47	19.47	19.47
Return on Equity	Rs. Cr	19.30	19.84	19.84	19.84	19.84

Operation and Maintenance (O&M) Expenses

Petitioner's submission

8.17 The Petitioner has submitted that the trajectory of O&M Expenses has been considered at normative levels. An annual escalation factors of 6.30% has been considered. The Petitioner mentioned that any extra-ordinary expenditure due to change in fuel mix, increased ash production or other reasons will be claimed during True-up. The details of O&M expenses submitted by the Petitioner is given in the following table:

Table 38: Details of O&M submitted by the Petitioner

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
O&M expenses for 200/210/250 MW sets	Rs. Lakh/MW	27.00	28.70	30.51	32.43	34.48
O&M Expenses	Rs. Cr	17.01	18.08	19.22	20.43	21.72

Commission's Analysis

8.18 The provisions laid out in the JSERC Generation Tariff Regulations, 2015 for approval of O&M expenses are as under:

"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.

8.19 The Petitioner in their submission has considered the normative rate of O&M expenses for 200/210/250 MW sets as given in Regulation 7.44 of the JSERC Generation Tariff Regulations 2015 and has arrived at the estimated O&M expenses for the 63MW plant for the MYT period.

8.20 In the MYT order dated May 27, 2015 for the period FY 2014-15 up to FY 2015-16, the Commission had approved the O&M expenses after considering the O&M norms for 200/210/250 MW capacity CFBC Technology since there was no specific provision in JSERC Generation Tariff Regulations, 2010 for 63 MW plants based on CFBC technology.

8.21 The JSERC Generation Tariff Regulations, 2015 do not specify norms specifically for 63 MW sets based on CFBC technology. Hence for the current MYT period also, the Commission has considered the O&M norms for 200/210/250 MW capacity CFBC Technology based thermal plants for approving the O&M expenses.

8.22 The Petitioner has also mentioned that any extra-ordinary expenditure due to change in fuel mix, increased ash production or for other reasons will be claimed during True-up. However the Petitioner has not provided any estimate of the same in their submission of O&M expenses for the MYT period. Hence the same cannot be allowed at this point and may be considered during True-up as per the submission of the Petitioner and after due prudence check and as per the provisions given in the JSERC Generation Tariff Regulations 2015.

8.23 Further, as given in the Regulations 7.46 of the JSERC Generation Tariff Regulations 2015, water charges and capital spares for thermal generating station will be allowed separately based on actuals during true-up after due prudence check. The Petitioner is directed to adhere to the O&M norms as approved in the MYT order.

8.24 The O&M expenses approved by the Commission for the MYT period is given below

Table 39: O&M Expenses as Approved by the Commission

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
O&M expenses for 200/210/250 MW sets	Rs. Lakh/MW	27.00	28.70	30.51	32.43	34.48
O&M Expenses	Rs. Cr	17.01	18.08	19.22	20.43	21.72

8.25 The Commission also directs the Petitioner to ensure and undertake all necessary measures to facilitate the smooth operation and maintenance of the plant. The Petitioner should consider the O&M expenses approved in this Order as ceiling norms and should optimize such expenditure to the extent possible.

Depreciation

Petitioner's submission

8.26 The Petitioner submitted that the depreciation for the plant has been computed as per the rates provided in JSERC Generation Tariff Regulations, 2010. The details of year wise depreciation submitted by the Petitioner are provided in the following table:

Table 40: Details of Depreciation as submitted by the Petitioner

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Opening balance of GFA	Rs. Cr	318.66	302.78	286.89	271.01	255.12
Additional capitalization	Rs. Cr	0.00	0.00	0.00	0.00	0.00
Closing balance of GFA	Rs. Cr	318.66	302.78	286.89	271.01	255.12
Depreciation	Rs. Cr	15.88	15.88	15.88	15.88	15.88
Avg. depreciation rate	%	5.25%	5.54%	5.86%	6.23%	6.64%

Commission's Analysis

8.27 The provisions laid out in the JSERC Generation Tariff Regulations, 2015 for approval of depreciation are given below:

"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.

7.31 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:

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.

8.28 Accordingly, the Commission calculated the depreciation for Unit 1 of the plant by considering the approved capital cost and the depreciation rates specified in Appendix-I of JSERC Generation Tariff Regulations, 2015. The following table shows the depreciation for the Plant as approved by the Commission:

Table 41: Depreciation as approved by the Commission

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Depreciation	Rs. Cr	15.60	15.60	15.60	15.60	15.60

Performance Targets

8.29 The Petitioner has submitted the trajectory of few performance parameters for the control period starting from FY 2016-17 to FY 2020-21. Submissions are listed below:

Station Heat Rate

Petitioner's submission

8.30 The Petitioner in the Business Plan submitted the Station Heat Rate for the power plant at 2902 kCal/kWh for the control period FY 2016-17 to FY 2020-21.

Commission's Analysis

8.31 The Regulation 8.6 (c) a) of the JSERC Generation Tariff Regulations, 2015 (quoted below) prescribes the norm for approving the operational parameters including gross station heat rate of a generating station:

"8.6 (b) Gross Station Heat Rate:

(i) Coal-based and lignite-fired Thermal Generating Stations = 1.065 X Design

Heat Rate (kCal/kWh)

Where, the Design Heat Rate of a unit means the unit heat rate guaranteed by the supplier at conditions of 100% MCR, zero percent make up, design coal and design cooling water temperature/back pressure"

8.32 The Commission in the MYT order dated May 27, 2015 for the period FY 2014-15 to FY 2015-16 had approved the station heat rate after considering the report of independent study to verify the boiler efficiency of 79.5% and in accordance with the formula specified in Regulation 8.6 (c) of the JSERC Generation Tariff Regulations 2010.

8.33 For the current MYT period also, the Commission has approved the station heat rate after considering the report of the independent study and as per the Regulations 8.6 (c) a) of the JSERC Generation Tariff Regulations. The approved station heat rare for the MYT period is given in the table below:

Table 42: Station Heat Rate approved by the Commission

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Depreciation	kCal/kWh	2902	2902	2902	2902	2902

Auxiliary Consumption

Petitioner's submission

8.34 The Petitioner in the Business Plan submitted the Auxiliary Consumption for the power plant at 11.50%. Further, the Petitioner mentioned that CFBC boilers involve higher fan power as compared to the pulverized fuel fired units resulting in higher auxiliary power.

Commission's Analysis

8.35 The Commission had assessed this matter in detail in Paragraph 7.19 of the MYT Order dated May 27, 2014 and approved the norms for auxiliary consumption for the applicable years during the previous control period giving due consideration to the submissions of the Petitioner, CEA Recommendations and technology specific norms specified by CERC. The Commission has also trued-up the auxiliary consumption for FY 2014-15 in paragraph 6.13 of this Tariff Order.

8.36 During the public consultation process for finalizing the JSERC Generation Tariff Regulations 2015, such relaxation was not sought by the Petitioner for the ensuing control period.

8.37 As the Regulations have been notified, the Commission is of the opinion that the Petitioner had adequate time and should already have undertaken appropriate efficiency improvement measures to improve upon the auxiliary consumption of its power station so as to bring actual auxiliary consumption in line within the applicable norms.

8.38 The norms have been provided for in the JSERC Tariff Regulations 2015 and as such the norms should not be normally revised only on the basis of actual performance of the Petitioner in a past period. Moreover the submission of the Petitioner with respect to higher fan power for CFBC boilers, is not adequate to provide relaxation with respect to auxiliary consumption at this stage

8.39 Hence, for the MYT control period, the Commission approves the auxiliary norm at 10.50%.

Secondary Fuel Oil Consumption

Petitioner's submission

8.40 The Petitioner in the Business Plan submitted the secondary fuel oil consumption for the power plant at 1.00 ml/kWh as per JSERC Generation Tariff Regulations, 2015.

8.41 The details as submitted by the Petitioner is given in the following table:

Table 43: Details of Secondary fuel oil as submitted

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Gross Units generated	MU	455	455	455	455	455
Calorific value of Secondary fuel	kCal/L	10,000	10,000	10,000	10,000	10,000
Specific fuel oil consumption	ml/kWh	1.00	1.00	1.00	1.00	1.00
Oil consumption	kL	455	455	455	455	455
Landed price of oil	Rs./kL	50,000	50,000	50,000	50,000	50,000
Cost of Secondary fuel oil	Rs. Cr	2.28	2.28	2.28	2.28	2.28

Commission's Analysis

8.42 The Regulations 8.21 of JSERC Generation Tariff Regulations specifies the following:

"8.21 The landed fuel cost of primary fuel and secondary fuel for tariff determination shall be based on actual weighted average cost of primary fuel and secondary fuel of the three preceding months, and in the absence of landed costs for the three preceding months, latest procurement price of primary fuel and secondary fuel for the generating station, before the start of the tariff period for existing stations and immediately preceding three months in case of new generating stations shall be taken into account."

8.43 The Commission directed the Petitioner to submit details of quantity and landed price of secondary fuel for the preceding three months before the start of the MYT period. Subsequently the Petitioner submitted the required details duly certified by the statutory auditors.

8.44 The Commission vide letter. JSERC/ Case (Tariff) No. 06 and 11 of 2016/ 340 dated August 11, 2016 and JSERC/ Case (Tariff) No. 06 and 11 of 2016/ 595 dated December 21, 2016 directed the Petitioner to submit details regarding the quantity and landed price of secondary fuel for the preceding three months before the beginning of the MYT period. The Petitioner vide letter dated January 03, 2017 submitted additional information duly certified by statutory auditors.

8.45 The Commission after scrutinizing the submission of the Petitioner calculated the weighted average landed price of secondary fuel.

8.46 The specific fuel consumption has been considered as 1.0 ml/kWh as specified in the JSERC Generation Tariff Regulations, 2015.

8.47 The Commission has worked out the cost of the secondary fuel as given in the following table:

Table 44: Cost of Secondary fuel oil as approved by the Commission

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Gross Units generated	MU	455	455	455	455	455
Calorific value of Secondary fuel	kCal/L	10,000	10,000	10,000	10,000	10,000
Specific fuel oil consumption	ml/kWh	1.00	1.00	1.00	1.00	1.00
Oil consumption	kL	455	455	455	455	455
Landed price of oil	Rs./kL	47472	47472	47472	47472	47472
Cost of Secondary fuel oil	Rs. Cr	2.16	2.16	2.16	2.16	2.16

Normative PAF

Petitioner's submission

8.48 The Petitioner in the Business Plan submitted the Normative PAF for the power plant at 82.50%. The Petitioner submitted that the plant shall run at 90% PAF for 11 months and one month of maintenance shutdown will be undertaken.

8.49 The Petitioner has further submitted that JSERC Generation Tariff Regulations, 2015 do not have an explicit provision for CFBC technology and provides normative PAF of 85% for all thermal generating stations. The Petitioner has considered the CERC and other SERC norms, along with the existing performance of the power station.

Commission's Analysis

8.50 Regulation 8.6 of the JSERC Generation Tariff Regulations, 2015 prescribes the norm for approving the availability of a thermal generating station:

"8.6 The norms of operation for generating stations other than existing stations shall be as under:

(a) Normative Annual Plant Availability Factor (NAPAF): All thermal generating stations, NAPAF shall be 85%."

8.51 The Commission in the MYT order dated May 27, 2015 for the period FY 2014-15 and FY 2015-16 had approved the NAPAF at 75% after considering the recommendations of CEA and as per CERC Generation Tariff Regulations 2014-19.

8.52 Regulation 36 A (e) of the CERC Generation Tariff Regulations 2014-19 specifies NAPAF for lignite fired generation stations using CFBC technology:

"Lignite fired Generating Stations using Circulatory Fluidized Bed Combustion (CFBC) Technology and Generating stations based on coal rejects

1. First Three years from COD – 75%

2. For next year after completion of three years of COD – 80%"

8.53 After considering the above, the Commissions finds the submission of the Petitioner appropriate and has considered the same for approving the NAPAF for the current MYT period. The NAPAF as approved by the Commission is given in the table below:

Table 45: NAPAF approved by the Commission

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Plant availability factor	%	82.50%	82.50%	82.50%	82.50%	82.50%

Interest on Working Capital

Petitioner's submission

8.54 The Petitioner has raised the issue of increase in working capital due to failure on part of JUVNL to clear the dues of IPL. The Petitioner submitted that the actual working capital has increased significantly due to non-payment of dues and IPL has been able to sustain till date only due to reduction in the interest rates. If the non-payment continues, it will be difficult for the Petitioner to maintain its Finances.

8.55 The details of interest on working capital submitted by the Petitioner is given in the following table. The Petitioner has considered the bank rate as on April 1, 2016 which is 12.80% to work out the interest on working capital

Table 46: Details of Interest on Working Capital submitted

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Interest on working capital	Rs. Cr	6.18	6.21	6.24	6.27	6.30

Commission's Analysis

8.56 The Commission has approved the interest of working capital in paragraph 9.50 of this order.

A9: TARIFF DETERMINATION FOR THE CONTROL PERIOD FY 2016-17 TO FY 2020-21

9.1 The Petitioner submitted the petition for determination of generation tariff for the MYT Control Period on the basis of the projection of operational and financial figures for the year.

9.2 The Commission has scrutinized the petition for determination of Generation Tariff for the MYT Control Period and approved the ARR and Tariff in accordance with the principles and norms specified under the JSERC Generation Tariff Regulations, 2015.

9.3 The component-wise description of the Petitioner's submission and the Commission's analysis has been summarised in following sub-sections:

Norms of operation and fuel cost

Normative Annual Plant Availability Factor (NAPAF)

Petitioner's submission

9.4 The Petitioner submitted that the JSERC Generation Tariff Regulations, 2015 do not provide the normative PAF for the Petitioner's plant. The Petitioner also submitted that higher PAF was achieved in FY 2015-16 as the plant was new and did not require an annual shut down. The Petitioner also submitted that it has planned 1 month of annual maintenance shut down for the MYT control period to prolong the life of the plant.

9.5 The Petitioner plans to run the power plant at 90% PAF for 11 months in a year followed by 1 month annual maintenance shut down for the MYT control period. In line with the above, the Petitioner proposed PAF of 82.50% for the MYT control period. The table below shows the proposed PAF for the MYT control period:

Table 47: Details of PAF as submitted

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Plant Availability factor	%	82.50%	82.50%	82.50%	82.50%	82.50%

9.6 The Petitioner further submitted that the relaxation for CFBC boilers is provided in CERC Tariff Regulations 2009-14. The extract of the same has been reproduced below:

"26. (i). Normative Annual Plant Availability Factor (NAPAF)….

(f) Lignite-fired Generating Stations using Circulatory Fluidized Bed Combustion (CFBC) Technology –

1. First three years from COD – 75%

2. From next year after completion of 3 years of COD – 80%"

9.7 The Petitioner submitted that in other States also, such relaxation has been provided for CFBC boilers. For instance, in Rajasthan, as per RERC Tariff Regulations, 2009, the availability for CFBC Plants is gradually increased to 80% during a period of five years.

9.8 The Petitioner submitted that during the year FY 2014-15 and FY 2015-16, the respondent had asked the Petitioner to back down its plant during peak hours which resulted in lower PLF. The Petitioner has prayed to the Commission to approve the norms as proposed by the Petitioner.

Commission's Analysis

9.9 The Commission has approved the norms for NAPAF in paragraph 8.48 of this order.

Auxiliary consumption

Petitioner's submission

9.10 The Petitioner submitted that the actual auxiliary consumption for the year FY 2015-16 is 11.25%. The Petitioner has proposed an auxiliary consumption of 11.50% keeping in line with the actuals.

9.11 The Petitioner also submitted an extract from the recommendations of CEA report titled Recommendations on Operation Norms for Thermal Power Stations for Tariff Period beginning April 01, 2009 to substantiate the claim for approval of higher auxiliary consumption.

"14.6 The CFBC boilers involve higher auxiliary consumption due to higher pressure drops and consequently higher fan power as compared to the pulverized fuel fired units. Also, these units involve additional power consumption for lime stone handling, crushing and firing for control of SOx emissions. However, CFBC units do not require pulverizers as the fuel is fed in crushed form and thus there is a corresponding saving in the power consumption in pulverizers as compared to the pulverized fuel technology.

14.7 NLC have asked for an additional AEC of 1% on account of CFBC boiler technology and additional 0.5% on account of uncertainty etc that may be faced as the CFBC units are being implemented by them for the first time and past operation data is not available. Thus they have asked for an AEC of 11% for TPS Expn II and 12% for Barsingsar TPS on account of additional AEC of 0.67% for cooling water pumping from a distant source (60 km).

An assessment of incremental auxiliary consumption for CFBC units has been made and it is found that the CFBC units entail higher auxiliary energy consumption of 0.7% to 1%. However, in the present case of NLC stations, the limestone is being procured in the powder form and consequently the power consumption for limestone crushing is eliminated and thus the incremental consumption should be on the lower side. Thus, an additional auxiliary energy consumption of 1.0% may be allowed to NLC stations with CFBC boilers."

9.12 The Petitioner maintained that the CEA's assessment was in regard to the CFBC technology and therefore the auxiliary consumption norms of Lignite based CFBC may also be made applicable to the generating station of IPL.

9.13 The Petitioner also submitted norms as approved by the Commissions of other states.

(a) In case of Raj West Power Limited, RERC has allowed an Auxiliary Consumption of 11.5%

(b) In case of Gujarat Industries Power Company Ltd, GERC has allowed an Auxiliary Consumption of 12.5% for 3 years and 11.5% from 4th year

(c) In case of Bajaj Energy Pvt Ltd, UPERC has allowed an Auxiliary Consumption of 11.5% during stabilization and 11% - post stabilization period.

9.14 The Petitioner has prayed to the Commission to approve auxiliary consumption at 11.50 %.

Commission's Analysis

9.15 The Commission has approved the norms for Auxiliary consumption in paragraph 8.35 of this order.

Station Heat Rate

Petitioner's submission

9.16 The Petitioner submitted that the Station Heat Rate (SHR) considered is 2902 kCal/ kWh for the control period FY 2016-17 to FY 2020-21.

Commission's Analysis

9.17 The Commission has approved the norms for Station Heat Rate in paragraph 8.29 of this order.

Primary Fuel Mix, Primary fuel Cost, Transit loss and Gross Calorific Value

Petitioner's submission

9.18 The Petitioner submitted that as it does not have any fuel linkage, it is procuring fuel from various sources like:

i. e-Auction of Coal India Limited (CIL) coal

ii. Coal from JSMDC

iii. Coal from forward auctions

iv. Washery rejects of CCL

v. Rejects from Tata

vi. Dolochar from the open market

vii. Coal from open market

9.19 The Petitioner submitted that it is making efforts to get a coal linkage from CIL, and expects to receive a confirmation. The Petitioner further submitted at the time of filing of this petition, CIL had reduced the coal prices by 10%-40% for higher grade linkage coal and CIL also plans to conduct various large scale e-auctions to liquidate its coal stocks. Hence, the Petitioner envisages increase in use of coal in primary fuel mix and increase in GCV of the fuel purchased.

9.20 The details of mix, GCV, price of coal as proposed by the Petitioner is given in the following table

Table 48: Details of Coal Mix, GCV and Price of Coal as submitted by the Petitioner

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
GCV of Coal	kCal/kg	4100	4100	4100	4100	4100
GCV of Coal rejects	kCal/kg	2000	2000	2000	2000	2000
GCV of Dolochar	kCal/kg	900	900	900	900	900
Price of Coal	Rs./Ton	2825	2825	2825	2825	2825
Price of Coal rejects	Rs./Ton	1025	1025	1025	1025	1025
Price of Dolochar	Rs./Ton	770	770	770	770	770
Blending ratio	%	54:43:3	54:43:3	54:43:3	54:43:3	54:43:3

9.21 The Petitioner has not proposed any escalation in the price of primary fuel as the same will be recovered as Fuel Price Adjustment on monthly basis as per Regulation 8.22 of the JSERC Generation Tariff Regulations, 2015. Also, the prices proposed by the Petitioner are inclusive of transit loss.

Commission's Analysis

9.22 The JSERC Generation Tariff Regulations, 2015 specifies the following:

"8.21 The landed fuel cost of primary fuel and secondary fuel for tariff determination shall be based on actual weighted average cost of primary fuel and secondary fuel of the three preceding months, and in the absence of landed costs for the three preceding months, latest procurement price of primary fuel and secondary fuel for the generating station, before the start of the tariff period for existing stations and immediately preceding three months in case of new generating stations shall be taken into account.

The landed cost of fuel for the month shall include price of fuel corresponding to the grade and quality of fuel inclusive of royalty, taxes and duties as applicable, transportation cost by rail / road or any other means, and, for the purpose of computation of energy charge, and in case of coal/lignite shall be arrived at after considering normative transit and handling losses as percentage of the quantity of coal or lignite dispatched by the coal or lignite supply company during the month as given below:

Pithead generating stations: 0.2%

Non-pithead generating stations: 0.8%"

Further Regulation 8.24 of the JSERC Generation Tariff Regulations, 2015 states that

"8.24 Initially the Base value of gross calorific value of fuel oils and gross calorific value of coal incurred by the Generating Company/ generating Station shall be taken based on actuals of the weighted average gross calorific value of the three preceding months and in the absence of weighted average gross calorific value for the three preceding months, latest weighted average gross calorific value for the generating station, before the start of the year."

9.23 The Commission vide letter JSERC/ Case (Tariff) No. 06 and 11 of 2016/ 595 dated December 21, 2016 directed the Petitioner to submit details regarding the break-up of coal price and GCV for preceding three months prior to the beginning of the MYT period. The Petitioner vide letter dated January 03, 2017 submitted the details as additional information.

9.24 The Commission after considering the submission of the Petitioner approves the blending ratio, GCV and landed price of primary below as given in the following table:

Table 49: Details of Coal Mix, GCV and Price of Coal as Approved by Commission

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
GCV of Coal	kCal/kg	4078.68	4078.68	4078.68	4078.68	4078.68
GCV of Coal rejects	kCal/kg	1937.31	1937.31	1937.31	1937.31	1937.31
GCV of Dolochar	kCal/kg	855.39	855.39	855.39	855.39	855.39
Price of Coal	Rs./Ton	2830.32	2830.32	2830.32	2830.32	2830.32
Price of Coal rejects	Rs./Ton	851.02	851.02	851.02	851.02	851.02

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Price of Dolochar	Rs./Ton	543.40	543.40	543.40	543.40	543.40
Blending ratio	%	54:43:3	54:43:3	54:43:3	54:43:3	54:43:3
Normative Transit loss	%	0.8%	0.8%	0.8%	0.8%	0.8%

Secondary fuel oil consumption

Petitioner's submission

9.25 The Petitioner has proposed the secondary fuel oil consumption as given in the following table below:

Table 50: Details of Secondary fuel oil as submitted

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Gross Units generated	MU	455.30	455.30	455.30	455.30	455.30
Calorific value of Oil	kCal/L	10,000	10,000	10,000	10,000	10,000
Specific oil consumption	ml/kWh	1.00	1.00	1.00	1.00	1.00
Oil consumption	kL	455.30	455.30	455.30	455.30	455.30
Base price of oil	Rs./kL	50,000	50,000	50,000	50,000	50,000
Cost of secondary fuel oil	Rs. Cr	2.28	2.28	2.28	2.28	2.28

Commission's Analysis

9.26 The Commission has approved the norms for secondary fuel oil consumption in paragraph 8.42 of the current order.

Energy Charge Rate (ECR)

Petitioner's submission

9.27 The Petitioner has submitted the energy charge rate for the period FY 2017-21 at Rs. 2.17 per Kwh. The details submitted by the Petitioner is given in the table below

Table 51: Energy Charge Rate as submitted by the Petitioner

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Gross Generation	MU	455.30	455.30	455.30	455.30	455.30
Auxiliary consumption	%	11.50%	11.50%	11.50%	11.50%	11.50%
Heat Rate	kCal/L	2902.00	2902.00	2902.00	2902.00	2902.00
Specific Oil Consumption	ml/kWh	1.00	1.00	1.00	1.00	1.00

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Calorific Value of primary fuel	kCal/kg	3101.00	3101.00	3101.00	3101.00	3101.00
Calorific Value of secondary fuel	kCal/ml	10.00	10.00	10.00	10.00	10.00
Landed price – Primary fuel	Rs./kL	2005.39	2005.39	2005.39	2005.39	2005.39
Landed price – Secondary fuel	Rs./mL	0.05	0.05	0.05	0.05	0.05
Energy Charge Rate	Rs/kWh	2.17	2.17	2.17	2.17	2.17

Commission's Analysis

9.28 The JSERC Generation Tariff Regulation, 2015 specifies the following Regulations regarding calculation of Energy Charge rate

"8.17 The energy (variable) charge shall cover primary fuel and secondary fuel costs and limestone consumption (where applicable), shall be payable by every Beneficiary for the total energy scheduled to be supplied to such Beneficiary during the calendar month on ex-power plant basis, at the specified energy charge rate of the month (with fuel price adjustment and limestone adjustment).

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.}

8.19 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 formulae:

(a) For coal based stations

ECR = {(GHR – SFC x CVSF) x LPPF/CVPF+SFC x LPSFi+ LC x LPL} x 100/ (100 – AUX)}

…"

9.29 Accordingly, the Commission has calculated the ECR to be charged by the Petitioner as per the formula specified in the JSERC Generation Tariff Regulations, 2015. The table below details the ECR for the MYT period as approved by the Commission.

Table 52: Energy Charge Rate (ECR) as approved by the Commission

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Gross Generation	MU	455.30	455.30	455.30	455.30	455.30
Auxiliary consumption	%	10.50%	10.50%	10.50%	10.50%	10.50%
Heat Rate	kCal/L	2902.00	2902.00	2902.00	2902.00	2902.00

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Specific Oil Consumption	ml/kWh	1.00	1.00	1.00	1.00	1.00
Calorific Value of primary fuel	kCal/kg	3061.19	3061.19	3061.19	3061.19	3061.19
Calorific Value of secondary fuel	kCal/ml	10.00	10.00	10.00	10.00	10.00
Landed price – Primary fuel	Rs./kL	1926.02	1926.02	1926.02	1926.02	1926.02
Landed price – Secondary fuel	Rs./mL	0.047	0.047	0.047	0.047	0.047
Energy Charge Rate	Rs/kWh	2.09	2.09	2.09	2.09	2.09

9.30 The Energy Charge Rate (ECR) approved by the Commission as above shall be the base energy charge rate for the year. Any variation in fuel prices on account of change in the Gross Calorific Value (GCV) of coal shall be adjusted on a monthly basis on the basis of weighted average GCV of coal and weighted average landed cost incurred by the Petitioner for procurement of coal, oil etc. utilizing the fuel price adjustment mechanism in the JSERC Generation Tariff Regulations, 2015.

Determination of Fixed Charges

Debt Equity Ratio

Petitioner's submission

9.31 The Petitioner submitted that the total equity as on Commercial operation Date (CoD) was Rs. 92.40 and the balance amount was considered as debt. However, the Petitioner has raised the equity by Rs.9.50 Cr from July 2016 and final equity in Unit 1 was Rs. 101.90 Cr.

9.32 The Petitioner while arriving at the balance of equity considered opening three months of the year with the old equity and the balance nine months with the revised equity. The debt equity ratio submitted by the Petitioner is given in the following table:

Table 53: Debt Equity ratio as submitted

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Capital cost	Rs. Cr	345.99	345.99	345.99	345.99	345.99
Average Equity	Rs. Cr	99.53	101.90	101.90	101.90	101.90
Debt	Rs. Cr	246.47	244.09	244.09	244.09	244.09
Debt: Equity Ratio	%	71 : 29	71 : 29	71 : 29	71 : 29	71 : 29

Commission's Analysis

9.33 The Commission has approved the debt equity ratio in paragraph 8.8 of this Order.

Depreciation

Petitioner's submission

9.34 The Petitioner has submitted that depreciation has been calculated as per the provisions of the JSERC Generation Tariff Regulations 2015. The depreciation submitted by the Petitioner is given in the table below:

Table 54: Depreciation as submitted by the Petitioner

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Opening balance of NFA	Rs. Cr	318.66	302.78	286.89	271.01	255.12
Additional capitalization	Rs. Cr	0.00	0.00	0.00	0.00	0.00
Depreciation	Rs. Cr	15.88	15.88	15.88	15.88	15.88
Closing balance of NFA	Rs. Cr	302.78	286.89	271.01	255.12	239.24

Commission's Analysis

9.35 The Commission has approved the depreciation in paragraph 8.24 of this order.

Operation & Maintenance (O&M) Expenses

Petitioner's submission

9.36 The O&M Expenses submitted by the Petitioner is given in the following table:

Table 55: O&M expenses as submitted by the Petitioner

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
O&M Expenses	Rs. Cr	17.01	18.08	19.22	20.43	21.72

Commission's Analysis

9.37 The Commission has approved the operation & maintenance expenses in paragraph 8.20 of this order.

Return on Equity (RoE)

Petitioner's submission

9.38 The Petitioner submitted that the return on equity has been calculated by considering a RoE of 16.00% which has been further grossed up by the applicable MAT rate. The details is given in the following table:

Table 56: Details of Return on Equity as submitted by the Petitioner

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Opening Equity	Rs. Cr	92.40	101.90	101.90	101.90	101.90
Addition/ Subtraction	Rs. Cr	9.50	0.00	0.00	0.00	0.00
Closing Equity	Rs. Cr	101.90	101.90	101.90	101.90	101.90
Average Equity	Rs. Cr	99.53	101.90	101.90	101.90	101.90
Rate of Equity	%	16.00	16.00	16.00	16.00	16.00
Applicable MAT rate	%	20.39	20.39	20.39	20.39	20.39
Gross Rate of Equity	%	20.10	20.10	20.10	20.10	20.10
Return on Equity	Rs. Cr	20.00	20.48	20.48	20.48	20.48

Commission's Analysis

9.39 The Commission has approved the amount of return on equity in paragraph 8.12 of this order.

Interest on Debt

Petitioner's submission

9.40 The Petitioner has submitted the terms of loan agreements which it has entered into with banks namely, State Bank of India, State Bank of Bikaner and Jaipur, State Bank of Patiala, Bank of Baroda and ICICI Bank. Also, the Petitioner has submitted letters and schedules for unsecured loans which were taken from promoters and project creditors.

9.41 The Petitioner has also submitted that actual rate of interest of outstanding loans i.e. 12.17% has been considered for projecting the interest on loan. The details of the interest schedule is given in the following table:

Table 57: Details of Interest on Loan for FY 2017-21

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Opening balance for long term loans	Rs. Cr	229.61	213.73	197.85	181.97	166.09
Additions during the year	Rs. Cr	-	-	-	-	-
Repayment (equal to depreciation)	Rs. Cr	15.88	15.88	15.88	15.88	15.88
Closing balance for long term loans	Rs. Cr	213.73	197.85	181.97	166.09	150.21
Weighted Average Interest Rate (%)	%	12.17%	12.17%	12.17%	12.16%	12.16%
Interest on Loan	Rs. Cr	26.98	25.04	23.11	21.17	19.23

Commission's Analysis

9.42 The Commission has approved the interest on debt in paragraph 8.12 of this order.

Interest on Working Capital

Petitioner's submission

9.43 The Petitioner submitted that the working capital requirement has been computed as per the provisions of JSERC Generation Tariff Regulations, 2015. The rate of interest on working capital has been considered as per the Bank rate (SBI Base rate + 3.50%) as of April 01, 2016. The details are given in the table below:

Table 58: Details of Interest of Working Capital as submitted by the Petitioner

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Coal Cost for 2 months	Rs. Cr	14.19	14.19	14.19	14.19	14.19
Cost of secondary fuel oil for 2 months	Rs. Cr	0.38	0.38	0.38	0.38	0.38
O&M Expenses for 1 month	Rs. Cr	1.42	1.51	1.60	1.70	1.81
Maintenance Spares (20% of O&M)	Rs. Cr	3.40	3.62	3.84	4.09	4.34
Receivables for 2 months	Rs. Cr	28.91	28.86	28.73	28.61	28.51
Total Working Capital	Rs. Cr	48.31	48.55	48.74	48.97	49.23
Rate of Interest	%	12.80	12.80	12.80	12.80	12.80
Interest on Working Capital	Rs. Cr	6.18	6.21	6.24	6.27	6.30

Commission's Analysis

9.44 The Regulation 7.34 of the JSERC Generation Tariff Regulations, 2015 specifies the norms for determination of working capital.

"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, and in case of use of more than one secondary fuel oil, cost of fuel oil stock for the main secondary fuel oil;

(d) Maintenance spares @ 20% of Operation and maintenance expenses specified in clauses 7.40 to 7.48 of these regulations;

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

(f) Receivables equivalent to 2 months of capacity charges and energy charges for sale of electricity calculated on the Normative Annual Plant Availability Factor."

9.45 Since the Petitioner's plant is non-pit head, the Commission has considered the coal stock for 60 days while arriving at the working capital.

9.46 The Interest on working capital has been considered as per the bank rate as on April 01, 2016 which is defined in the Regulations as the base rate of SBI plus 3.50%. The SBI base rate as of April 01, 2016 was 9.30%. The effective rate of interest of working capital considered is 12.80%.

9.47 The details of working capital approved by the Commission is given in the following table:

Table 59: Interest of working capital as approved by the Commission

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Cost of coal for 60 days	Rs. Cr	13.62	13.62	13.62	13.62	13.62
Cost of secondary fuel oil for 2 months	Rs. Cr	0.36	0.36	0.36	0.36	0.36
O&M Expenses for 1 month	Rs. Cr	1.42	1.51	1.60	1.70	1.81
Maintenance Spares (20% of O&M)	Rs. Cr	3.40	3.62	3.84	4.09	4.34
Receivables for 2 months	Rs. Cr	27.98	27.94	27.81	27.70	27.61
Total Working Capital	Rs. Cr	46.78	47.04	47.24	47.43	47.74
Rate of Interest	%	12.80	12.80	12.80	12.80	12.80
Interest on Working Capital	Rs. Cr	5.99	6.02	6.05	6.07	6.11

Annual Fixed Charges

Petitioner's submission

9.48 The summary of fixed cost submitted by the Petitioner for the MYT period is given in the following table

Table 60: Summary of Fixed cost submitted by the Petitioner

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
O&M Expenses	Rs. Cr	17.01	18.08	19.22	20.43	21.72
Depreciation	Rs. Cr	15.88	15.88	15.88	15.88	15.88
Interest on Loan	Rs. Cr	26.98	25.04	23.11	21.17	19.23
Return on Equity	%	20.00	20.48	20.48	20.48	20.48
Interest on Working Capital	Rs. Cr	6.18	6.21	6.24	6.27	6.30
Total Fixed Cost	Rs. Cr	86.06	85.70	84.93	84.23	83.62

Commission's Analysis

9.49 The summary of fixed cost approved by the Commission for the MYT period is given in the following table

Table 61: Fixed cost approved by the Commission

Particulars	Unit	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
O&M Expenses	Rs. Cr	17.01	18.08	19.22	20.43	21.72
Depreciation	Rs. Cr	15.60	15.60	15.60	15.60	15.60
Interest on Loan	Rs. Cr	24.98	23.08	21.18	19.28	17.37
Return on Equity	%	19.30	19.84	19.84	19.84	19.84
Interest on Working Capital	Rs. Cr	5.99	6.02	6.05	6.07	6.11
Total Fixed Cost	Rs. Cr	82.88	82.62	81.88	81.21	80.64

Generation Tariff for Unit 1 for control period FY 2016-17 to FY 2020-21

9.50 Inland Power Limited shall recover the tariff from JUVNL in accordance with the provisions of the MoU with Government of Jharkhand and as per the provisions of the PPA with JUVNL.

Tariff for 12% of total net capacity

9.51 The tariff for 12% of the total net capacity shall be the variable cost (subject to fuel price adjustment in accordance with JSERC Generation Tariff Regulations, 2015) approved by the Commission in this order and as noted below:

Table 62: Approved Tariff for 12% of the net capacity

Particulars	Units	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Approved Variable cost/ Energy Charge Rate	Rs./kWh	2.09	2.09	2.09	2.09	2.09

Tariff for 88% of total net capacity

9.52 The tariff for 88% of the total net capacity shall be the total tariff i.e. variable cost (subject to fuel price adjustment in accordance with Generation Tariff Regulations, 2015) and fixed charges as approved by the Commission in this order as noted below:

Table 63: Approved Tariff for 88% of the net capacity

Particulars	Units	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Approved Variable cost/ Energy Charge Rate	Rs./kWh	2.09	2.09	2.09	2.09	2.09
Approved Annual fixed charges	Rs. Cr	82.88	82.62	81.88	81.21	80.64

This Order is signed and issued by the Jharkhand State Electricity Regulatory Commission on the 16th of May, 2017.

Date: 16th May, 2017
Place: Ranchi

(R. N. Singh)
MEMBER (T)

(N.N. Tiwari, J)
CHAIRPERSON

A10: COMPLIANCE TO DIRECTIVES

Directives as per APR Order dated May 31, 2015	Status	Views of the Commission
Date of commercial operation The Petitioner is directed to notify the Commission of the date of final COD achieved for Unit 1 of 1 X 63 MW at the earliest.	As directed by the Hon'ble Commission, the Petitioner has already notified to the Commission about the CoD of the unit 1 of the Petitioner's plant i.e. 21st May 2014 and has submitted a confirmation letter from SLDC dated 20.06.2014.	The Commission notes compliance of this directive
Capital Cost The Petitioner is directed to file for approval of final capital cost of the Unit-I of the generation station along with the Annual Performance Review (APR) petition for FY 2014-15. The Petitioner should also submit the certificate from SLDC regarding CoD of the plant, audited capital cost as on CoD of the plant, all relevant documents including Schedule of disbursement of loans, repayment schedule, equity invested and revenue from sale of infirm power.	The Petitioner has submitted the Petition for approval of final capital cost of the Unit-I along with the Annual Performance Review (APR) petition for FY 2015-16. The Petition includes the certificate from SLDC regarding CoD of the plant, audited capital cost as on CoD of the plant and other relevant documents including schedule of disbursement of loans, repayment schedule, equity invested and revenue from sale of infirm power.	The Commission notes compliance of this directive
Data adequacy in next Tariff petition and timelines The Commission observes with concern that the Petitioner did not submit a number of formats that are required to be submitted along with MYT Petition. The Petitioner had also not submitted the Business Plan for the Control Period along with the MYT Petition. The Commission directs the Petitioner to come up with the next tariff petition after removing the various data deficiencies highlighted throughout the Tariff Order.	The Petitioner has complied with the direction of the Commission and has submitted the Business plan and other relevant documents.	The Petitioner has failed to submit adequate data on transit loss even after such discrepancies have been brought to its notice during the scrutiny of the Petition. The Commission directs the Petitioner to immediately implement processes to record and maintain data on fuel source wise transit loss on actual basis and supply the same to the Commission along with the next tariff petition.

Directives as per APR Order dated May 31, 2015	Status	Views of the Commission
Report on operational performance parameters The Commission directs the Petitioner to submit a report on month wise actual achievement of all operational performance parameters including NAPAF, SHR, SFC, Auxiliary Consumption and Transit Losses along with the next Tariff petition.	The Petitioner has submitted month wise actual data of all operational performance parameters like NAPAF, SHR, SFC, Auxiliary Consumption and Transit Losses. The same has been attached as an annexure to the Petition.	The Petitioner has not completely complied with the directive. Report of operational performance parameters along with the actual transit loss needs to be submitted along with the next tariff petition.
Status of Commissioning of Unit II (1 x 63 MW) The Commission directs the Petitioner to submit a status Report on the time lines for commissioning of Unit-II (Stage-II) of 1 X 63 MW of the power plant. The Commission further directs that Petitioner to file an application for the regulated tariff pertaining to Unit II (Stage II) as soon as the COD for this stage is finalized to ensure implementation of the MOU with the Government of Jharkhand..	The Petitioner submitted that the initial plan was to develop 2 x 63 MW coal based IPP. The dual unit model was conceptualized for bringing in efficiencies in OPEX, capital cost, overheads and also to contribute in improving the power quality position of Jharkhand. The intent of IPL was to focus whole heartedly on commencing works for unit 2 once the unit 1 operations and revenue stream streamlined. However, the Petitioner submitted that currently the project is facing financial distress due to non-payment of dues by JSEB/JUVNL. In such circumstances, it is unable to secure commitment from the lenders and the equity sponsors. The Petitioner however reiterated its commitment at the phase 2 of the project once the current challenges are suitably addressed.	The Commission notes with concern the statements made by the Petitioner regarding setting up of the second Unit. While the plant was conceptualized as a dual unit to bring in efficiencies, in written submissions made by the Petitioner as a reply to a discrepancy, the Petitioner has stated that it has incurred the costs solely for Unit 1 with no costs incurred towards common assets. The Petitioner's submission with respect to efficiencies from commissioning of the second unit thus seems ambiguous. To bring in clarity for all stakeholders, the Commission hereby directs the Petitioner to conduct a techno-commercial study from an Independent consultant for achieving the following objectives a. To identify and ascertain whether common facilities for Unit-1 and Unit-2 have been created for the plant e.g. administrative building, cooling system along with chimney, ash disposal system, coal feeding system, roads, boundary wall, water intake pipe and land corridor etc. b. To ascertain and segregate the common costs to the Units and propose allocation to Unit-1.

Directives as per APR Order dated May 31, 2015	Status	Views of the Commission
Segregation of common costs between Unit I and Unit II The Commission directs the Petitioner to submit a report on the segregation and allocation of common costs (of capital expenditure) between Unit-I and proposed Unit-II of the generation station.	The Petitioner submitted that work has not started for the proposed Unit 2. Hence no expenses have been incurred for unit 2 except land procurement which has already been shown separately in the Petition. The Petitioner further submitted that the cost incurred for Land for Unit 2 has been funded out of additional share capital infused by the company.	The Petitioner is directed to comply with the directive as per the direction given in the previous point above.

A11: DIRECTIVES

Data on operational performance parameters

11.1 The Petitioner is directed to submit Month wise data of all operational parameters to the Commission with subsequent petitions.

Development of a fuel procurement plan

11.2 The Petitioner is directed to develop a fuel procurement plan and explore options with its suppliers in order to reduce the cost of coal. The Petitioner should prioritize the procurement of primary fuel from the least cost source.

Transit loss

11.3 The Commission directs the Petitioner to immediately implement processes to record and maintain data on fuel source wise transit loss on actual basis and supply the same to the Commission along with the next tariff petition. The Petitioner is required to comply with the directive failing which the Commission may disallow a portion of the variable costs incurred by the Petitioner.

Techno-commercial study to segregate common costs

11.4 The Commission hereby directs the Petitioner to conduct a techno-commercial study from an Independent consultant to identify and segregate the costs for the Common facilities that has been created for the plant e.g. administrative building, cooling system along with chimney, ash disposal system, coal feeding system, roads, boundary wall, water intake pipe and land corridor etc. A mechanism should also be developed to segregate the common costs between the units and propose allocation to Unit 1.

Data adequacy in the next Petition

11.5 The Commission observes with concern that the Petitioner has not submitted the required data and proofs in support of its claims made in the current Petition. The submissions were made only after the discrepancies were raised by the Commission. the Petitioner is hereby directed to remove all the discrepancies which were highlighted throughout the tariff order and provide all data and proofs along with next the Petition.

A12: ANNEXURES

Annexure 1: List of participating members of public in the public hearing

Sl No.	Name /Shri	Address/ Organization if any
1.	M. L. Khetan	Chief Financial Officer, 3A, auchland Place, Suit No. 5, 5th Floor, Kolkata - 700017
2.	Sanjay Singh	Kilburn Colony, Hinoo, Ranchi
3.	Shailendra Singh	Ashtha Regency, Hehal, Ranchi
4.	A. Sen Gupta	Harmu, Ranchi
5.	Abhinash Kumar	News 11
6.	Vinit Singh	Harmu, Ranchi
7.	Rajesh Kumar	Ranchi
8.	Rajesh	Ranchi
9.	Dablu Kumar	Ranchi
10.	Anita Prasad	JBVNL
11.	Rishi Nandan	ESE/C&R, JBVNL
12.	S. B. Saran	JBVNL