

# **Jharkhand State Electricity Regulatory Commission**



Order on  
Petition for Multi Year Tariff  
For the period  
FY 2017-21  
(Including truing-up  
For FY 2014-15 & provisional true-up of  
FY 2015-16)  
For  
Tenughat Vidyut Nigam Limited  
(TVNL)

Ranchi

28<sup>th</sup> February 2020

## TABLE OF CONTENTS

<b>A1: INTRODUCTION.....</b>	<b>6</b>
JHARKHAND STATE ELECTRICITY REGULATORY COMMISSION (JSERC) .....	6
TENUGHAT VIDYUT NIGAM LIMITED (TVNL) .....	8
THE PETITIONER’S PRAYERS .....	8
SCOPE OF THE PRESENT ORDER.....	9
<b>A2: PROCEDURAL HISTORY .....</b>	<b>10</b>
BACKGROUND .....	10
INFORMATION GAPS IN THE PETITION .....	10
INVITING COMMENTS/SUGGESTIONS FROM THE PUBLIC.....	11
SUBMISSION OF COMMENTS/ SUGGESTIONS AND CONDUCT OF PUBLIC HEARING.....	12
<b>A3: SUMMARY OF THE PETITION .....</b>	<b>13</b>
OVERVIEW OF THE THERMAL STATIONS .....	13
TRUE UP FOR FY 2014-15 .....	13
TRUE UP FOR FY 2015-16 .....	14
SUMMARY OF ARR FOR PERIOD FROM FY 2016-17 TO FY 2020-21.....	15
<b>A4: PUBLIC CONSULTATION PROCESS .....</b>	<b>17</b>
<b>A5: TRUE UP FOR FY 2014-15 .....</b>	<b>19</b>
OPERATIONAL PERFORMANCE .....	19
PLANT AVAILABILITY FACTOR (PAF) AND PLANT LOAD FACTOR (PLF).....	19
GROSS GENERATION .....	20
AUXILIARY CONSUMPTION .....	20
NET GENERATION .....	20
STATION HEAT RATE (SHR) .....	21
SECONDARY FUEL OIL CONSUMPTION.....	21
GROSS CALORIFIC VALUE (GCV) OF PRIMARY AND SECONDARY FUEL.....	23
PRICE OF PRIMARY FUEL.....	23
TRANSIT LOSS.....	24
SUMMARY OF PLANT PARAMETERS & FUEL COST DETERMINANTS .....	24
DETERMINATION OF FIXED COST .....	25
OPERATION & MAINTENANCE (O&M) EXPENSES.....	25
DEPRECIATION .....	27
INTEREST ON DEBT.....	29
RETURN ON EQUITY .....	30
COST OF SECONDARY FUEL OIL.....	31
INTEREST ON WORKING CAPITAL.....	32
NON-TARIFF INCOME .....	33
SUMMARY OF FIXED COST DETERMINANTS .....	33
GAP/SURPLUS FOR FY 2014-15.....	34
<b>A6: PROVISIONAL TRUE UP FOR FY 2015-16.....</b>	<b>36</b>
OPERATIONAL PERFORMANCE .....	36
PLANT AVAILABILITY FACTOR (PAF) AND PLANT LOAD FACTOR (PLF).....	36
GROSS GENERATION .....	37
AUXILIARY CONSUMPTION .....	37
NET GENERATION .....	38

Order on True-up for FY15, Provisional True-up for FY16 and MYT for FY 2017-21

---

STATION HEAT RATE (SHR) .....	38
SECONDARY FUEL OIL CONSUMPTION .....	39
GROSS CALORIFIC VALUE (GCV) OF PRIMARY AND SECONDARY FUEL.....	40
PRICE OF PRIMARY FUEL.....	40
TRANSIT LOSS.....	41
SUMMARY OF PLANT PARAMETERS & FUEL COST DETERMINANTS .....	41
DETERMINATION OF FIXED COST .....	42
OPERATION & MAINTENANCE (O&M) EXPENSES .....	42
DEPRECIATION .....	44
INTEREST ON DEBT.....	46
RETURN ON EQUITY .....	46
COST OF SECONDARY FUEL OIL.....	47
INTEREST ON WORKING CAPITAL.....	49
NON-TARIFF INCOME .....	50
SUMMARY OF FIXED COST DETERMINANTS .....	50
PROVISIONAL ARR FOR FY 2015-16.....	51
<b>A7: TARIFF DETERMINATION FOR THE CONTROL PERIOD FY 2016-17 TO FY 2020-21 .....</b>	<b>52</b>
OPERATIONAL PERFORMANCE .....	52
PLANT AVAILABILITY FACTOR (PAF).....	52
PLANT LOAD FACTOR (PLF) .....	53
GROSS GENERATION .....	53
AUXILIARY CONSUMPTION .....	54
NET GENERATION .....	54
STATION HEAT RATE (SHR) .....	55
DETERMINATION OF ENERGY CHARGE.....	56
SECONDARY FUEL OIL CONSUMPTION.....	56
GROSS CALORIFIC VALUE (GCV) OF PRIMARY AND SECONDARY FUEL.....	57
PRICE OF PRIMARY FUEL.....	57
TRANSIT LOSS.....	59
ENERGY CHARGE RATE (ECR) .....	59
DETERMINATION OF FIXED COST .....	62
CAPITAL INVESTMENT AND ADDITIONAL CAPITALIZATION.....	62
DEPRECIATION .....	63
OPERATION & MAINTENANCE (O&M) EXPENSES.....	65
INTEREST ON DEBT.....	66
RETURN ON EQUITY .....	68
INTEREST ON WORKING CAPITAL.....	69
NON-TARIFF INCOME.....	71
SUMMARY OF FIXED COST DETERMINANTS .....	71
<b>A8: STATUS OF EARLIER DIRECTIVES .....</b>	<b>73</b>
<b>A9: ACCORDINGLY, IT IS ORDERED .....</b>	<b>74</b>
<b>A10: FURTHER DIRECTIVES.....</b>	<b>75</b>
<b>A11: ANNEXURE-I .....</b>	<b>76</b>

## **BEFORE**

### **Jharkhand State Electricity Regulatory Commission, Ranchi**

**Case (Tariff) No.: 04 and 12 of 2017**

**In the matter of:**

**Petition for determination of Tariff for MYT period FY 2016-17 to  
FY 2020-21**

**including True-up for FY 2014-15**

**and**

**Provisional True-up for FY 2015-16**

**In the matter:**

Tenughat Vidyut Nigam Limited (TVNL),

Hinoo, Doranda, Ranchi ..... Petitioner

#### **PRESENT**

**Hon'ble Dr. Arbind Prasad - Chairperson**

**Hon'ble Mr. R. N. Singh - Member (Engg.)**

**Hon'ble Mr. P. K. Singh - Member (Legal)**

**Order dated 28<sup>th</sup> February 2020**

In this Petition, Tenughat Vidyut Nigam Limited (hereinafter referred to as TVNL) has prayed for True-up of Aggregate Revenue Requirement (ARR) for FY 2014-15 and for True-up for FY 2015-16 and determination of ARR for the MYT period FY 2016-17 to FY 2020-21.

**List of Abbreviations**

Abbreviation	Description
A&G	Administrative and General
APR	Annual Performance review
ARR	Aggregate Revenue Requirement
ATE	Appellate Tribunal for Electricity
COD	Commercial Operation Date
Cr	Crore
CWIP	Capital Work in Progress
ECR	Energy Charge Rate
FY	Financial Year
GCV	Gross Calorific Value
GFA	Gross Fixed Assets
GoI	Government of India
JSEB	Jharkhand State Electricity Board
JSERC	Jharkhand State Electricity Regulatory Commission
kCal	Kilocalorie
Kg	Kilogram
kWh	Kilowatt-hour
LPPF	Landed Price of Primary Fuel
ml	Millilitre
MAT	Minimum Alternate Tax
MT	Million Tonnes
MUs	Million Units
MW	Megawatt
NAPAF	Normative Annual Plant Availability Factor
O&M	Operations and Maintenance
PAF	Plant Availability Factor
PLF	Plant Load Factor
PPA	Power Purchase Agreement
R&M	Repair and Maintenance
RoE	Return on Equity
SBI	State Bank of India
SERC	State Electricity Regulatory Commission
SLM	Straight Line Method
TVNL	Tenughat Vidyut Nigam Limited
UoM	Unit of measurement

## **A1: INTRODUCTION**

### **Jharkhand State Electricity Regulatory Commission (JSERC)**

- 1.1 The Jharkhand State Electricity Regulatory Commission (hereinafter referred to as the “JSERC” or “the Commission”) was established by the Government of Jharkhand under Section 17 of the Electricity Regulatory Commission Act, 1998 on August 22, 2002. The Commission became operational with effect from April 24, 2003.
- 1.2 The Government of Jharkhand vide its notification dated August 22, 2002 had defined the functions of JSERC as per Section 22 of the Electricity Regulatory Commission Act, 1998 to be the following, namely: -
- to determine the tariff for electricity, wholesale, bulk, grid or retail, as the case may be, in the manner provided in section 29;
  - to determine the tariff payable for the use of the transmission facilities in the manner provided in section 29;
  - to regulate the 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;
  - to promote competition, efficiency and economy in the activities of the electricity industry to achieve the objects and purposes of this Act.
- 1.3 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 as the earlier Electricity Regulatory Commission Act of 1998 stands repealed and the functions of SERCs are now defined under Section 86 of the Act.
- 1.4 In accordance with Section 86 (1) of the Act, the JSERC discharges the following functions: -
- 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;
- regulate the 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;
- facilitate intra-state transmission and wheeling of electricity;
- issue licences to persons seeking to act as transmission licensees, distribution licensees and electricity traders with respect to their operations within the State;
- 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;
- adjudicate upon the disputes between the licensees and generating companies; and to refer any dispute for arbitration;
- levy a fee for the purposes of this Act;
- specify the State Grid Code consistent with the Grid Code specified under Clause (h) of sub-section (1) of Section 79;
- specify or enforce standards with respect to quality, continuity and reliability of services by the licensees;
- fix the trading margin in the intra-state trading of electricity, if considered necessary;
- discharge such other functions as may be assigned to it under this Act.

1.5 The Commission has to also advise the State Government as per sub section 2 of Section 86 of the Act, on all or any of the following matters, namely:-

- promotion of competition, efficiency and economy in activities of the electricity industry;
- promotion of investment in electricity industry;

- reorganisation and restructuring of electricity industry in the State;
  - 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 the discharge of its functions, the State Commission is also guided by the National Tariff Policy and its amendments, as brought out by GoI in compliance to Section 3 of the Act. The objectives of the National Tariff Policy are to:
- ensure availability of electricity to consumers at reasonable and competitive rates;
  - ensure financial viability of the sector and attract investments;
  - promote transparency, consistency and predictability in regulatory approaches across jurisdictions and minimize perceptions of regulatory risks;
  - promote competition, efficiency in operations and improvement in quality of supply.

### **Tenughat Vidyut Nigam Limited (TVNL)**

- 1.8 The Tenughat Vidyut Nigam Limited (TVNL) (hereinafter referred to as ‘the Petitioner’) is a wholly owned Generating Company of Government of Jharkhand and was constituted in 1987 under the Indian Company’s Act, 1956.
- 1.9 The Petitioner operates two Units (Units I and II) of Tenughat Thermal Power Station that are the subject of tariff determination in the petition filed by it. Each unit has an installed power generation capacity of 210 MW. Unit I commenced its operations in September 1996 and Unit II in September 1997. With the creation of State of Jharkhand on November 15, 2000, the Petitioner is an undertaking of Government of Jharkhand.
- 1.10 The total cost of the project at the time of CoD, including interest during construction (IDC), was approved as Rs. 1247.04 Cr by the Commission in its previous Tariff Orders.

### **The Petitioner’s Prayers**

- 1.11 This Petitioner in its Petition for True-up of Aggregate Revenue Requirement (ARR) for FY 2014-15 and FY 2015-16 and ARR for MYT period FY 2016-17 to FY 2020-21 has prayed before the Commission:
- To admit the Petition for True Up for FY 2014-15, FY 2015-16 and ARR for MYT period FY 2016-17 to FY 2020-21.



- To approve the operational and financial parameters as proposed by TVNL considering the constraints of the old machines and consider the same for recovery of full fixed cost.
- To approve the Station's operating parameters viz. PAF, Auxiliary Consumption, Station Heat Rate, Transit Loss, Specific Oil Consumption and actual fuel rate for recovery of variable cost considering the constraints of the old machines as well as site specific constraints.
- To grant any other relief as the Commission may consider appropriate.
- The Petitioner craves leave of the Hon'ble Commission to allow further submissions, addition and alteration to this Petition as may be necessary from time to time.
- Pass any other order as the Hon'ble Commission may deem fit and appropriate under the circumstances of the case and in the interest of justice

### **Scope of the present order**

1.12 The Commission in this Order has reviewed the Petition submitted by the Petitioner and the additional submissions. Out of FY 2014-15 and FY 2015-16, audited accounts have been submitted by Petitioner only for FY 2014-15 and provisional accounts have been submitted for FY 2015-16. Hence Commission has approved the True-up of ARR for FY 2014-15 only based on the audited accounts submitted by the Petitioner.

1.13 While approving this order, the Commission has taken into consideration:

- Material placed on record by the Petitioner
- Provisions of the Electricity Act, 2003;
- Provisions of the National Electricity Policy;
- Provisions of the Tariff Policy;
- Principles and provisions laid down in the JSERC (Terms and Conditions for Determination of the Generation Tariff) Regulations, 2010 (hereinafter referred to as the 'Generation Tariff Regulations, 2010');
- Principles and provisions laid down in the JSERC (Terms and Conditions for the Determination of Generation Tariff) Regulations, 2015 (hereinafter referred to as the 'Generation Tariff Regulations, 2015');

1.14 Accordingly, the Commission has scrutinized the Petition in detail and hereby issues the Tariff Order on True-up for FY 2014-15, Provisional True-up for FY 2015-16 and ARR for MYT period FY 20-16-17 to FY 2020-21.

## **A2: PROCEDURAL HISTORY**

### **Background**

- 2.1 The Commission had approved the Business Plan and Aggregate Revenue Requirement (ARR) for the first Multi Year Tariff control period FY 2012-13 to FY 2015-16 in its Order dated May 2012.
- 2.2 Subsequently the Commission had issued the Tariff Order for TVNL in July 2014 for approval of True-up of FY 2011-12 and APR of FY 2012-13.
- 2.3 Further, the Commission had issued the Tariff Order for TVNL for approval of True-up of FY 2012-13 and FY 2013-14 including Annual Performance Review for FY 2014-15 on 30<sup>th</sup> September 2016.
- 2.4 The Petitioner also submitted the Business Plan and ARR for the MYT period FY 2016-17 to FY 2020-21 on April 2017.
- 2.5 Subsequently, the Petitioner has also submitted the Petition for approval of the true up of the ARR for FY 2014-15 & FY 2015-16 and review of Operational parameters for FY 2016-17 on November 2017.

### **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 after initial scrutiny of the Petition for True-up of the Aggregate Revenue Requirement (ARR) for FY 2014-15 and FY 2015-16, Business Plan and MYT Petition for the year FY 2016-17 to FY 2020-21 accepted the Petition submitted by the Petitioner.
- 2.7 The information gaps observed in the petition were communicated to the Petitioner through written communication vide–
  - Letter No. JSERC/Case(T) No. 04 of 2017/149 dated May 24, 2017;
  - Letter No. JSERC/Case(T) No. 04 of 2017/230 dated. July 03, 2017;
  - Letter No. JSERC/Case(T) No. 12 of 2017/605 dated December 28, 2017;
  - Letter No. JSERC/Case(T) No. 12 of 2017/78 dated May 02, 2018.
- 2.8 The Petitioner subsequently submitted its response and provided the data vide the following additional submission –

- Letter No. 383/17-18 dated June 15, 2017;
- Letter No. 198/18-19 dated May 14, 2018;
- Letter No. 614 & 615/17-18 dated July 26, 2018;
- Letter No. 1149/19-20 dated October 14, 2019.

- 2.9 In the discrepancy notes sent to TVNL, the Petitioner was directed to submit the Audited Accounts for the year FY 2014-15 and FY 2015-16 for the completion of the True-up. However, the Petitioner could not submit the Audited Accounts of the said years due to a delay in the completion of the Audit. Subsequently, audited accounts of FY 2014-15 were submitted on October 14, 2019 along with provisional accounts of FY 2015-16. Hence, for FY 2015-16, provisional True-up has been carried out in this order. The Petitioner is directed to submit a revised Petition for True-up of FY 2015-16 once Audited Accounts are available.
- 2.10 The Commission scrutinized the additional data/information submitted and considered the same while passing this Order on the Petition filed by the Petitioner. The Commission has examined the replies and supporting documents as submitted by the Petitioner on the discrepancies pointed out to it only on material already on record in the Petition filed by the Petitioner.
- 2.11 In order to provide adequate opportunities to all stakeholders and general public, as mandated under Section 64(3) of the Electricity Act 2003 and in relevant provisions of Regulation(s) framed by the Commission, and in order to ensure transparency in the process of tariff determination, the Commission held a public hearing at the Petitioner's plant in Lalpania.

### **Inviting Comments/Suggestions from the Public**

- 2.12 The Commission directed the Petitioner to make available copies of the petition to the members of the general public on request, and also issue a public notice inviting comments/suggestions on the petitions.
- 2.13 The aforesaid public notice was issued by the Petitioner in various newspapers and a period of twenty-one (21) days was given to the members of the general public for submitting their comments/suggestions.

**Table 1: List of newspapers and dates on which the public notice by TVNL appeared**

Newspaper	Date
Prabhat Khabar	01-06-2018, 02-06-2018
Dainik Bhaskar	01-06-2018, 03-06-2018

Hindustan Times	01-06-2018, 03-06-2018
The Telegraph	02-06-2018

2.14 Subsequently, the Commission also issued a notice on its website [www.jserc.org](http://www.jserc.org) and in various newspapers for conducting the public hearing on the Petition filed by TVNL. The details of the newspapers wherein the notice was issued by the Commission are as under:

**Table 2: List of newspapers and dates on which the public notice was issued by JSERC**

Newspaper	Date
Prabhat Khabar	07.09.2018
Dainik Bhaskar	07.09.2018
The Hindustan Times	07.09.2018
Morning India	07.09.2018
Taneem News	07.09.2018

### **Submission of Comments/ Suggestions and Conduct of Public Hearing**

2.15 In order to provide adequate opportunities to all the stakeholders and general public, as mandated under Section 64 (3) of the Electricity Act 2003 and in relevant provisions of Regulation(s) framed by the Commission, and in order to ensure transparency in the process of tariff determination, the Commission held a public hearing on September 26, 2018 at Lalpania, Jharkhand.

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

### A3: SUMMARY OF THE PETITION

#### Overview of the Thermal Stations

3.1 The Petitioner operates two Units (Units I and II) of Tenughat Thermal Power Station (TTPS) that are the subject of tariff determination in the petition filed by it. Each unit has an installed power generation capacity of 210 MW. Unit I commenced its operations in September 1996 and Unit II in September 1997. With the creation of State of Jharkhand on November 15, 2000, the Petitioner became an undertaking of the Government of Jharkhand.

#### True up for FY 2014-15

3.2 The Petitioner has requested for a true up of FY 2014-15 and has submitted the actual performance of the Units I & II for FY 2014-15 on various operational and financial parameters.

3.3 The energy charges and fixed cost as proposed by the Petitioner for FY 2014-15 are summarised in the following table:

**Table 3: Submitted Plant parameters and Fuel cost determinants for FY 2014-15**

Parameters	FY 2014-15
Capacity in MW	420
PLF (Overall in %) Unit-I & Unit-II	79.91%
Gross Generation (MUs) - Unit-I & Unit-II	2380.46
Auxiliary Consumption (%)	11.34%
Net Generation (MUs) - Overall	2110.42
Station Heat Rate (kCal/ kW h)	2843
Gross Calorific Value of Coal (Kcal/Kg)	3602
Specific Oil Consumption (ml/kWh)	1.49
Gross Calorific Value of Oil (Kcal/KL)	9,359
Transit Loss (%)	0.20%
Total Coal Consumption including transit losses (MT)	18,69,968
Cost of Oil (Rs/Kl)	57,006
Cost of Coal (Rs/MT)	2,020
Total Cost of Oil (Rs Cr)	20.22
Total Cost of Coal (Rs Cr)	377.73
Energy Charge Rate (Rs/Kwh)	1.79

**Table 4: Submitted Fixed Charges for FY 2014-15 (Rs. Cr)**

Parameters	FY 2014-15
O&M Expenses (INR Cr)	118.69
Depreciation (INR Cr)	75.23
Interest on Loan (INR Cr)	103.06
Return on Equity (INR Cr)	26.54
Interest on Working Capital (INR Cr)	30.92
Income Tax (INR Cr)	0.00
Cost of Secondary Fuel Oil (INR Cr)	20.22
Fixed Cost (INR Cr)	374.64
Inefficient fixed cost disallowed (INR Cr)	0.00
<b>Total Fixed Cost (INR Cr)</b>	<b>374.64</b>

### True up for FY 2015-16

- 3.4 The Petitioner has requested for a true up of FY 2015-16 and has submitted the actual performance of the Units I & II for FY 2015-16 on various operational and financial parameters.
- 3.5 The energy charges and fixed cost as proposed by the Petitioner for FY 2015-16 are summarised in the following table:

**Table 5 : Submitted Plant Parameters & Fuel Cost Determinants for FY 2015-16**

Parameters	FY 2015-16
Capacity in MW	420
PLF (Overall in %) Unit-I & Unit-II	87.36%
Gross Generation (MUs) - Unit-I & Unit-II	2636.31
Auxiliary Consumption (%)	11.68%
Net Generation (MUs) – Overall	2328.28
Station Heat Rate (kCal/kW h)	2753
Gross Calorific Value of Coal (Kcal/Kg)	3602
Specific Oil Consumption (ml/kWh)	1.88
Gross Calorific Value of Oil (Kcal/KL)	9,359
Transit Loss (%)	0.20%
Total Coal Consumption including transit losses (MT)	1995494.61
Cost of Oil (Rs/Kl)	48771
Cost of Coal (Rs/MT)	2619
<b>Total Cost of Oil (Rs Cr)</b>	<b>14.82</b>

Parameters	FY 2015-16
Total Cost of Coal (Rs Cr)	522.58
Energy Charge Rate (Rs/Kwh)	2.24

**Table 6 : Submitted Fixed Charges for FY 2015-16**

Parameters	FY 2015-16
O&M Expenses (INR Cr)	90.45
Depreciation (INR Cr)	70.83
Interest on Loan (INR Cr)	324.87
Return on Equity (INR Cr)	26.30
Interest on Working Capital (INR Cr)	30.67
Income Tax (INR Cr)	0.00
Cost of Secondary Fuel Oil (INR Cr)	27.63
Fixed Cost (INR Cr)	570.75
Inefficient fixed cost disallowed (INR Cr)	0.00
Total Fixed Cost (INR Cr)	570.75

### Summary of ARR for period from FY 2016-17 to FY 2020-21

3.6 In its petition, the Petitioner has requested for the review of the operational performance of FY 2014-15 based on the actual performance from April 2014 to March 2015.

3.7 The plant parameters and Fuel Cost Determinants as submitted by the Petitioner for FY 2014-15 are shown in the table below –

**Table 7: Submitted Plant Parameters & Fuel Cost Determinants for FY 2016-17 to FY 2020-21 (Rs. Cr)**

Parameters	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Capacity in MW	420	420	420	420	420
PLF (Overall in %)	85%	85%	85%	85%	85%
Gross Generation (MUs)	3127	3127	3127	3127	3127
Auxiliary Consumption (%)	9.5%	9.5%	9.5%	9.5%	9.5%
Net Generation (MUs)	2830	2830	2830	2830	2830
Station Heat Rate (kCal/kWh)	3043	2908	2772	2638	2503
Gross Calorific Value of Coal (Kcal/Kg)	3615	3615	3615	3615	3615
Specific Oil Consumption (ml/kWh)	1	1	1	1	1
Gross Calorific Value of Oil (Kcal/KL)	9359	9359	9359	9359	9359

Order on True-up for FY15, Provisional True-up FY16 and MYT for FY 2017-21

Parameters	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Transit Loss (%)	0.20%	0.20%	0.20%	0.20%	0.20%
Total Coal Consumption including transit losses (MT)	2629469	2512455	2395441	2278427	2161413
Cost of Oil (Rs/Kl)	36005	36005	36005	36005	36005
Cost of Coal (Rs/MT)	2458	2458	2458	2458	2458
Total Cost of Oil (Rs Cr)	11.26	11.26	11.26	11.26	11.26
Total Cost of Coal (Rs Cr)	646.35	617.59	588.83	560.06	531.30
Energy Charge Rate (Rs/Kwh)	2.32	2.22	2.12	2.02	1.92

**Table 8: Submitted Fixed Charges for FY 2015-16 (INR Cr)**

Parameters	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
O&M Expenses (INR Cr)	171.09	188.76	198.23	206.96	217.65
Depreciation (INR Cr)	82.78	88.62	94.02	100.16	105.97
Interest on Loan (INR Cr)	144.68	149.25	152.75	156.91	160.09
Return on Equity (INR Cr)	50.07	55.21	59.96	65.37	70.48
Interest on Working Capital (INR Cr)	40.64	40.92	40.69	40.45	40.30
Water Charges (INR Cr)	12.00	12.00	12.00	12.00	12.00
Less: Non-Tariff income	(34.29)	(34.29)	(34.29)	(34.29)	(34.29)
Total Fixed Cost (INR Cr)	466.97	500.47	523.37	547.56	572.19



#### **A4: PUBLIC CONSULTATION PROCESS**

- 4.1 The Petition filed by the Petitioner evoked responses from several stakeholders. The Public Hearing was held on September 26, 2018 at TTPS Lalpani to ensure maximum public participation and transparency. The list of the attendees is attached as Annexure-1 to this Order.
- 4.2 The comments and suggestions of the members of the public along with the response thereon of the Petitioner and the views of the Commission are detailed hereunder

#### **Issue related to Audit of Accounts for the True-up period**

##### ***Public Comments/ Suggestion***

- 4.3 The stakeholder stated that the audit of the years FY 2014-15 and FY 2015-16 is pending and requested Hon'ble Commission to direct TVNL to submit the same.

##### ***Petitioner's response***

- 4.4 The Petitioner submitted that the statutory audit is ongoing and will be submitted to the Commission as soon as it is prepared.

##### ***Commission's views***

- 4.5 The Commission mentioned that the petitioner had been directed on several occasions by letters and also directed verbally to complete the Audit of the accounts and submit the audited accounts to the Commission. The Commission again directed the Petitioner to submit the same at the earliest.

#### **Issue related to high auxiliary consumption and consumption of secondary fuel**

##### ***Public Comments/ Suggestion***

- 4.6 The stakeholder stated that the Petitioner has submitted very high values of auxiliary consumption and the consumption of secondary fuel oil is also on higher side for FY 2014-15 and FY 2015-16. The Petitioner requested Hon'ble Commission to approve the parameters normatively.

***Petitioner's response***

- 4.7 The Petitioner submitted that the actual auxiliary consumption for both units for FY 2014-15 was 11.34% and 11.68% for FY 2015-16. The Petitioner also submitted that it is trying its best to reduce the auxiliary consumption, however, due to constraints like ageing, partial loading, quality of coal etc. it is not able to achieve the desired value.
- 4.8 The Petitioner also submitted that the actual consumption of secondary fuel oil is higher due to operational reasons and also due to multiple start stops of the plant. The petitioner requested the Commission to approve the parameters on actuals and also mentioned that efficiency measures are underway to optimize the consumption to normative values.

***Commission's views***

- 4.9 The Commission has noted the values submitted by the Petitioner and has dealt with the parameters in the subsequent sections of the order.

**Issue related to minimization of outages and strengthening of evacuation arrangement of TTPS**

***Public Comments/ Suggestion***

- 4.10 The stakeholder mentioned that the evacuation arrangement of TTPS has to be strengthened for effective evacuation and to minimise outages.

***Petitioner's response***

- 4.11 The Petitioner mentioned that the works for 400 kV S/C Bihar Sharif Transmission line has been completed except certain sections. The matter is under regular follow-up and raised in ERPC also.

***Commission's views***

- 4.12 The Commission has noted the submission and directs the Petitioner for follow-up action for completion of upgradation work of above mentioned 400 kV Tenughat Bihar Sharif Transmission line and early commissioning of the 220 kV Tenughat - Govindpur transmission line.

## **A5: TRUE UP FOR FY 2014-15**

- 5.1 The Commission in its MYT Tariff Order dated 30<sup>th</sup> May, 2012 approved the ARR for FY 2014-15. The Petitioner has now sought approval from the Commission for the true up of variation in certain items in the ARR for FY 2014-15 on the basis of the audited accounts.
- 5.2 The Commission has analysed the submission of the Petitioner with respect to the True-up for FY 2014-15 and has undertaken the true up exercise of various components in accordance with the applicable regulations and methodology adopted by the Commission in the previous Tariff orders, as the case may be. The component-wise description of the Petitioner's submission and the Commission's analysis thereof is provided hereunder.

## **Operational Performance**

### **Plant Availability Factor (PAF) and Plant Load Factor (PLF)**

#### *Petitioner's submission*

- 5.3 The Petitioner in its Tariff Petition submitted that the PAF for FY 2014-15 as per actual data now available for FY 2014-15 was 79.91% against the normative PAF of 85% approved by the Commission in its MYT Order.
- 5.4 The Petitioner also submitted that the actual PLF for the mentioned period has been 64.70% as against 85% approved by the Commission.
- 5.5 The Petitioner requested the Commission to allow the actual PLF/ PAF keeping in mind their continuous effort to improve efficiency.

#### *Commission's analysis*

- 5.6 As per Regulation 8.4 of the Generation Tariff Regulations, 2010, the normative availability allowable for the Power Plant for FY 2014-15 is 85%, as also approved by the Commission in the MYT Tariff Order.
- 5.7 The Commission has verified the actual availability during FY 2014-15 from SLDC certificates and accordingly approves a final availability of 79.91% for TVNL.
- 5.8 The Commission also approves the actual PLF of 64.70% for FY 2014-15 based on scrutiny of the information submitted by the Petitioner.

## **Gross Generation**

### *Petitioner's submission*

5.9 The Petitioner in its ARR & Tariff Petition, submitted that the actual gross generation for both units was 2380.46 MUs based on the PLF of 64.70% for FY 2014-15.

### *Commission's analysis*

5.10 The Commission approves gross generation of 2380.46 MUs for FY 2014-15 based on the approved PLF of 64.70%.

## **Auxiliary Consumption**

### *Petitioner's submission*

5.11 The Petitioner submitted that the actual auxiliary consumption for both units for FY 2014-15 was 11.34%.

5.12 The Petitioner also submitted that it is trying its best to reduce the auxiliary consumption, however, due to constraints like ageing, partial loading, quality of coal etc. it is not able to achieve the desired value.

### *Commission's analysis*

5.13 Regulation 8.4 of the Generation Tariff Regulations, 2010 specifies the norm for auxiliary consumption for the Petitioner for FY 2014-15 as 9.50%. Further, as per the said regulations, auxiliary consumption is a "controllable parameter". Therefore, the Commission has considered the auxiliary consumption at 9.50% for the calculation of energy charge rate for the year.

5.14 However, for the computation of actual net generation for the year, the Commission has considered the actual Auxiliary Consumption for FY 2014-15 i.e. 11.34% as submitted by the Petitioner.

## **Net Generation**

### *Petitioner's submission*

5.15 The Petitioner submitted a net generation of 2110.42 MU on the basis of gross generation of 2380.46 MU and 11.34% auxiliary consumption.

*Commission's analysis*

- 5.16 The Commission approves a net generation of 2110.42 MUs for FY 2014-15 based on the approved gross generation of 2380.46 MU and actual auxiliary consumption of 11.34% for FY 2014-15.

**Station Heat Rate (SHR)**

*Petitioner's submission*

- 5.17 The Petitioner submitted that the actual SHR for TVNL was 2843 kcal/kWh as against the Commission approved SHR of 2638 kCal/kWh for FY 2014-15.
- 5.18 The Petitioner requested the Commission to approve the actual SHR of 2843 kcal/kWh for FY 2014-15.

*Commission's analysis*

- 5.19 The Commission specified the norms of operation for the two Units of TVNL in the Regulation 8.4 of the 'Generation Tariff Regulations, 2010'. As already noted by the Commission in its MYT Order dated May 30, 2012, the norms of operation were fixed by the Commission after study of the past performance for each plant in the state and as per the data made available by the Generation companies including the Petitioner for the two units. Before finalization of the norms, the Commission had also conducted a public hearing in which all the stakeholders including the Petitioner participated. The Commission after due deliberation finalized the Regulations.
- 5.20 The Regulations have been notified accordingly, and the norms of operation are applicable and binding on each of the generation plants covered under the Regulations. Accordingly, the Commission does not find any merit in allowing relaxation of the norms fixed for SHR in the Generation Tariff Regulations, 2010. Hence, SHR approved is 2638 kCal/kWh for FY 2014-15.

**Secondary Fuel Oil Consumption**

*Petitioner's submission*

- 5.21 The Petitioner has submitted actual secondary fuel oil consumption of 1.49 ml/kWh for both Units as against the normative consumption of 1 ml/kWh for FY 2014-15. The Petitioner submitted that historically the actual specific oil consumption for TVNL has been in the range of 2.5-3.5 ml/kWh.

- 5.22 The Petitioner submitted that consumption of auxiliary fuel is higher because of frequent tripping and grid breakdown by JBVNL. The Petitioner further submitted that these factors are not in the hands of the Petitioner and requested the Commission to allow relaxation of norms with respect to secondary fuel oil consumption.

*Commission's analysis*

- 5.23 Regulation 6.12 and Regulation 6.13 of the Generation Tariff Regulations, 2010 specify:

*“6.12 The Commission shall set targets for each year of the Control Period for the items or parameters that are deemed to be “controllable” and which includes:*

- (a) Gross Station Heat Rate;*
- (b) Normative Annual Plant Availability Factor;*
- (c) Auxiliary Energy Consumption;*
- (d) Secondary Fuel Oil Consumption;*
- (e) Operation and Maintenance Expenses;*
- (f) Financing Cost which includes cost of debt (interest), cost of equity (return);*  
*and*
- (g) Depreciation.*

*6.13 Any financial loss on account of underperformance on targets for parameters specified in clause 6.12 (a) to (e) of these Regulations is not recoverable through tariffs. Similarly, any financial gain on account of over-performance with respect to these parameters is to the Generating Company's benefit and shall not be adjusted in tariffs”.*

- 5.24 The actual specific oil consumption of 1.49 ml/kWh is higher than the norm of 1 ml/kWh specified in Regulation 8.4 of the Generation Tariff Regulations, 2010 and MYT Order for the financial year.
- 5.25 Regulation 6.12 read with Regulation 6.13 of the Generation Tariff Regulations, 2010 specifies that any financial loss on account of underperformance on targets of Secondary Fuel Oil consumption is not recoverable through tariffs. Accordingly, the Commission approves the normative specific oil consumption of 1 ml/kWh for FY 2014-15 as per applicable regulations.

## **Gross Calorific Value (GCV) Of Primary and Secondary Fuel**

### *Petitioner's submission*

5.26 The gross calorific value of coal and oil were submitted as 3602 kcal/kg and 9359 kcal/kl respectively for FY 2014-15.

### *Commission's analysis*

5.27 The Commission directed the Petitioner to submit information on the monthly consumption and GCV of coal and secondary fuel oil for the complete year of FY 2014-15 as part of additional data requirements during the process of initial scrutiny of the Petition.

5.28 The Commission has analysed the month wise coal quantity and GCV "as fired" data submitted by the Petitioner and accordingly approves the GCV of coal as 3601.78 kCal/kg and GCV of oil as 9359 kCal/kL respectively for FY 2014-15.

5.29 The Petitioner has submitted the month wise quantity of secondary fuel consumed but has not submitted the actual GCV of the secondary fuel. In its place, it has submitted the GCV value of 9359 kCal/l approved in MYT order. The Commission has also approved the value of 9359kCal/l.

## **Price of Primary Fuel**

### *Petitioner's submission*

5.30 The Petitioner submitted the landed coal price as Rs 2020/MT for FY 2014-15.

### *Commission's analysis*

5.31 The Commission had directed the Petitioner to submit month-wise details of coal purchased, coal consumed for the plant and landed rate of coal. The Petitioner has submitted the details as directed.

5.32 As per Petitioner's revised submission, for 1682816.970 MT coal purchased in FY 2014-15, the total landed cost submitted is Rs. 2094.27/MT.

5.33 In the same submission, the Petitioner has also submitted month-wise coal fired for the plant in FY 2014-15, which is 1869967.57 MT. Using the submitted month-wise landed cost, and considering the coal quantity as fired by the Petitioner, the weighted average landed cost of coal comes out to be Rs. 2072.44/MT.

- 5.34 The Commission also checked the Audited Accounts of FY 2014-15 submitted by the Petitioner for cost of coal consumed. As per Note 19 and Note 55 of the Audited Accounts, the coal consumption is 1872710.36 MT at a total cost of Rs. 366.89 Cr. The average landed cost of fuel arrived is Rs. 1959.14/ MT.
- 5.35 The Commission has also observed that under Note 13 of the Audited accounts of FY 2014-15 under Inventories, the Auditor has highlighted that there is a discrepancy in the stock of coal as per store records maintained by CHP department. Such variation in submission by the company creates doubt about the authenticity of the data. Under such circumstances, the Commission is constrained to approve the cost of coal as per the Audited accounts of FY 2014-15 i.e. at Rs. 1959.14/MT.

## Transit loss

### *Petitioner's submission*

- 5.36 The Petitioner has submitted that a transit loss of 0.2% to be considered.

### *Commission's analysis*

- 5.37 The Generation Tariff Regulations, 2010 allow a transit loss of 0.2% for pithead generating stations and since the Petitioner is a pit head generating station therefore the Commission in the MYT order had approved the transit loss of 0.2% for FY 2012-13 to FY 2015-16.
- 5.38 For the year FY 2014-15, the Commission approves the transit loss of 0.2%.

## Summary of Plant Parameters & Fuel Cost Determinants

- 5.39 The summary of plant parameters and fuel cost determinants for the two Units of Tenughat Thermal Power Station as approved by the Commission in the previous MYT Order, as submitted by the Petitioner in its present Tariff Petition and now approved by the Commission for FY 2014-15 is given in the below table:

**Table 9: Approved Plant parameters & Fuel Cost Determinants for FY 2014-15**

Parameters	Formula	Unit	Unit 1 and 2		
			Approved by the Commission in MYT	Submitted by TVNL in the Petition	Now Approved by the Commission
Capacity	A	MW	420	420	420
Availability	B	%	85%	79.91%	79.91%
PLF	C	%	85%	64.70%	64.70%



Parameters	Formula	Unit	Approved by the Commission in MYT	Unit 1 and 2 Submitted by TVNL in the Petition	Now Approved by the Commission
Gross Generation	$D = A \times 1000 \times 8760 \times C / 10^6$	MU	3127.32	2380.46	2380.46
Heat Rate	E	kcal/kWh	2638	2843	2638
Specific oil consumption	F	ml/kWh	1.00	1.49	1.00
Calorific value of oil	G	kcal/kl	9359	9359	9359
Normative Auxiliary Consumption	H	%	9.50%		9.50%
Actual Auxiliary Consumption	H1	%	-	11.34%	-
Net Generation	$I = D \times (1 - H)$	MU	2830.22	2110.42	2110.42
Calorific value of coal	J	kcal/kg	4368.44	3602	3601.78
Cost of coal per MT without transit loss	L	Rs/MT	1659.53	2020	1959.14
Transit Loss	K	%	0.20%	0.20%	0.20%
Energy Charge Rate (INR/kWh)		Rs/Kwh	<b>1.103</b>	<b>1.793</b>	<b>1.583</b>

## Determination of Fixed Cost

### Operation & Maintenance (O&M) Expenses

*Petitioner's submission*

5.40 The Petitioner submitted the O&M Expenses for FY 2014-15 at Rs 118.69 Cr.

5.41 The Petitioner further submitted the details of the O&M Expenses divided into A&G Expenses, R&M Expenses and Employee Expenses.

**Table 10 : Submitted O&M Expenses for FY 2014-15 (INR Cr)**

O&M Expenses	Approved in MYT Tariff Order	Actuals Submitted Now
A&G Expenses	22.29	14.71
R&M Expenses	107.90	53.39
Employee Expenses	36.30	50.59
Total	166.50	118.69
CSR		-
Total O&M Expenses	166.50	118.69

*Commission's analysis*

5.42 Regulation 7.41 of the Generation Tariff Regulations 2010 specifies:

*7.41 Existing Thermal Generating Stations:*

*(a) The O&M expenses for the Transition Period shall be approved by the Commission as per the JSERC (Terms and condition of Determination of Generation Tariff) Regulations, 2004.*

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

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

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

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

5.43 Regulation 6.14 of Generation Tariff Regulations 2010 specifies -

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

*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;"*

5.44 The Petitioner has claimed the O&M expenses as per its actual for the year. The Commission has considered the actual R&M expenses as per audited accounts as the Petitioner has not incurred the R&M expenses on its generation units in line with approval granted in the MYT Order.

5.45 The Commission has reviewed the O&M expenses and terminal liabilities as per the

audited accounts for FY 2014-15. The Commission approves the O&M expenses as per the audited accounts after giving due consideration to the submissions of the Petitioner, interest of all stakeholders and assessment of the actual costs incurred by the Petitioner during the year.

- 5.46 Accordingly, the Commission approves the total O&M expenses of Rs 102.32 Cr for FY 2014-15, in place of that approved in the MYT Order.

**Table 11 : Approved O&M Expenses for FY 2014-15 (INR Cr)**

O&M Expenses	Approved in MYT Tariff Order	Actuals Submitted Now	Approved now True-up FY 2012-13
A&G Expenses	22.29	14.71	14.89
R&M Expenses	107.90	53.39	35.35
Employee Expenses	36.30	50.59	36.55
Terminal Liabilities	-	-	15.53
Total	166.50	118.69	102.32
CSR		-	-
<b>Total O&amp;M Expenses</b>	<b>166.50</b>	<b>118.69</b>	<b>102.32</b>

## Depreciation

### *Petitioner's submission*

- 5.47 The Petitioner submitted the depreciation expenses for FY 2014-15 at Rs. 74.47 Cr. The break-up of the total expenditure submitted is detailed in the following table:

**Table 12 : Submitted Depreciation Expenses for FY 2014-15 (INR Cr)**

Depreciation	Approved in MYT Tariff Order	Actuals Submitted Now
Depreciation for Plant	68.53	69.28
Depreciation for Head Office	0.12	0.18
Depreciation for Ranchi office	-	-
Depreciation for additional Assets during the year	2.27	5.77
<b>Total Depreciation</b>	<b>70.92</b>	<b>75.23</b>

### *Commission's analysis*

- 5.48 Regulation 6.8 and Regulation 6.9 of the Generation Tariff Regulations 2010 specifies that:

*“6.8 The Commission shall review the actual capital investment at the end of each year of the Control Period as a part of the Annual Performance Review of the*

*Generating Company. The Generating Company shall submit the actual capital expenditure incurred along with the Annual Performance Review Filing*

*6.9 The Commission shall not revisit the approved Capital Investment Plan during the Control Period and any adjustment to depreciation, interest on working capital and return on equity for the actual capital investment undertaken vis-à-vis approved capital investment shall be done at the end of the Control Period.”*

5.49 Regulation 6.14 of the Generation Tariff Regulations 2010 specifies that -

*“(b) at the end of the control period –*

*i. the Commission shall review actual capital investment vis-à-vis approved capital investment.*

*ii. depreciation and financing cost, which includes cost of debt including working capital (interest), cost of equity (return) shall be trued up on the basis of actual/audited information and prudence check by the Commission.”*

5.50 The Commission has reviewed the depreciation details submitted by the Petitioner and also checked the Audited accounts of FY 2014-15. The Auditor has specifically highlighted the following in the audited accounts:

*“(h) The **company had neither conducted the physical verification of Fixed Assets** not has it conducted a technical review of the physical damage if any to the fixed assets during the year and as such the company has not identified impairment if any w.r.t its fixed assets.”*

5.51 Since, there is no verification and reconciliation of the Fixed assets, the Commission is not inclined to accept the Fixed Asset schedule and depreciation submitted by the Petitioner along with the Petition.

5.52 The Commission reviewed the methodology adopted for the calculation of depreciation in the audited accounts. The following is mentioned in the audited accounts of FY 2014-15

*a. Depreciation is charged on straight line method as per rates prescribed by Government of India, Department of Power, New Delhi vide notification No. S.O. 93 €, dated 23.01.1992 [ as amended by Notification No. 151 dated 29.03.1994 & L-7/25(5)/2003-CERC dated 26<sup>th</sup> of March 2004], and 2<sup>nd</sup> amendment by Central Electricity Regulatory Commission, New Delhi vide Notification No. 7/145(160)/2008-CERC dated 19<sup>th</sup> January 2009 and same has been **notified by the JSERC vide notification no. 590, JSERC (Terms and Condition of Determination of generation tariff) Regulation, 2010 dated 27<sup>th</sup> Oct 2010, issued under the Electricity (Supply) Act, 2003***

which are applicable to the generating stations.

*b. ...Further assets purchased/ capitalized on or after 01.11.2010 is being depreciated upto 70% at prescribed rate and balance 20% after keeping 10% salvage value is charged in equal instalments for remaining life of the assets as per Notification No. 590, JSERC (Terms and Conditions of Determination of generation tariff) Regulation, 2010 dated 27<sup>th</sup> Oct, 2010”*

5.53 Hence it is clear from above that the depreciation given in the Audited Accounts is as per the JSERC Generation Tariff Regulations 2010.

5.54 As per Regulation 6.8, 6.9 and 6.14, the depreciation shall be true-ed up on the basis of the actual/ audited information and a prudence check by the Commission at the end of the control period which is FY 2015-16. Once the audited accounts of FY 2015-16 are available for true-up, the Commission shall review the depreciation for the entire period of FY 2012-13 to FY 2015-16 and make any necessary adjustments as stipulated in the Regulations. Hence for the current period, the Commission is approving the depreciation of Rs. 53.03 Cr as per Audited Accounts as the same has also been derived from the audited Gross Fixed Assets using the JSERC Generation Tariff Regulations, 2010.

## Interest on Debt

### *Petitioner's submission*

5.55 The Petitioner has submitted the interest & finance charges at Rs. 103.06 Cr for FY 2014-15. The break-up of the same is, as given below -

**Table 13 : Submitted Interest on Loan Expenses for FY 2014-15 (INR Cr)**

Particular	Interest & Finance Charges (Rs Cr.)
Interest on State Government Loan (Jharkhand)	8.68
Interest on State Government Loan (Bihar)	94.38
Bank Charges	0
<b>Total</b>	<b>103.06</b>

### *Commission's analysis*

5.56 Regulation 6.14 of Generation Tariff Regulations 2010 specifies that financing cost, which includes cost of debt including working capital (interest), cost of equity (return) shall be trueed up on the basis of actual/audited information and prudence check by the Commission at the end of the control period i.e. once Audited accounts for FY 2015-16 is available.

- 5.57 Regarding the submission of the Petitioner of Rs. 103.06 Cr, the Commission has observed under Note 4 (Long Term borrowing) in the Audited Accounts that the instalment payment for loans of the Government of Jharkhand and Bihar have been pending since their due date i.e. no payment has been made in this regard. The provision for interest on the above loans is made at simple interest rate of 13%. Also, a provision for penal interest at 2.5% is kept in the accounts.
- 5.58 Since, no instalments have been paid as per the audited accounts, the Commission has not approved the entire interest of Rs. 103.06 Cr as claimed by the Petitioner at the interest rate of 13%. Since the Petitioner currently does not have any loans, and the normative interest on debt will have to be reviewed in entirety at the end of control period, the Commission is following the approach taken in the previous tariff order for the True-up of FY 2012-13 and FY 2013-14. The Commission approves Rs. 49.93 Cr under Interest on debt as per the MYT Tariff order dated May'2012.

## Return on Equity

### *Petitioner's submission*

- 5.59 The Petitioner has submitted RoE charges at Rs. 26.54 Cr. for FY 2014-15:

**Table 14 : Submitted Return on Equity for FY 2014-15**

Return on Equity	Unit	Approved in MYT Tariff Order	Actuals for the Year
Equity (Opening Balance)	Rs Cr	177.84	169.72
Net additions during the Year	Rs Cr	3.74	2.98
Equity (Closing Balance)	Rs Cr	181.58	172.70
Average Equity	Rs Cr	179.71	171.21
Rate of Return on Equity	%	15.50%	15.50%
Return on Equity	Rs Cr	27.86	26.54

### *Commission's analysis*

- 5.60 Regulation 6.14 of Generation Tariff Regulations 2010 specifies that the financing cost, inclusive of the cost of debt which in turn includes working capital (interest), cost of equity (return) shall be trued up on the basis of actual/audited information and a prudence check by the Commission at the end of the control period. Accordingly, the Commission approves Rs. 27.87 Cr. under Return on Equity as per the MYT Tariff Order dated May' 2012.

## Cost of Secondary Fuel Oil

### *Petitioner's submission*

5.61 The Petitioner made the following submissions with respect to the cost of secondary fuel oil for FY 2014 -15:

**Table 15 : Submitted Cost of Secondary Fuel Oil for FY 2014-15**

Particulars	Unit	FY 2014-15	
		MYT Approved	As proposed by TVNL
Secondary Fuel Oil Consumption	ml/kWH	1	1.49
Gross Calorific Value of Oil	Kcal/L	9359	9359
Cost of Oil	Rs/KL	60000	57006
Oil Consumption	KL	3118.3	3546.2
Expenses on secondary fuel	Rs Crs	<b>18.71</b>	<b>20.22</b>

### *Commission's analysis*

5.62 The Petitioner has not used the methodology specified in the Regulation 7.49 of the Generation Tariff Regulations, 2010 for calculating the cost of secondary fuel.

5.63 The Commission has approved the cost of secondary fuel oil in accordance with Regulation 7.49, Regulation 7.50 and Regulation 7.51 of the Generation Tariff Regulations, 2010:

*“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:*

$$= SFC \times LPSFi \times NAPAF \times 24 \times NDY \times IC \times 10$$

*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*

*7.50 Initially, the landed cost incurred by the Generating Company on secondary fuel oil shall be taken based on actuals of the weighted average price of the three preceding months and in the absence of landed costs for the three preceding months, latest procurement price*

for the generating station, before the start of the year.”

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

$$= SFC \times NAPAF \times 24 \times NDY \times IC \times 10 \times (LPSFy - LPSFi)$$

Where,

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

- 5.64 The consumption of Secondary Fuel Oil has been calculated considering the gross generation corresponding to the NAPAF (i.e. 85%) and Specific Normative Fuel Oil Consumption (i.e. 1 ml/kWh). The landed price of the Secondary Fuel Oil has been computed considering the weighted average cost of the Secondary Fuel Oil for the respective year as per the revised data submitted by the Petitioner upon being directed by the Commission to submit month-wise quantity and price of the secondary fuel used.

**Table 16 : Cost of Secondary Fuel as approved by the Commission for FY 2014-15**

Particulars	Unit	Approved now by JSERC
Specific oil consumption	ml/kWH	1
Weighted average landed price of secondary fuel	Rs/kL	61397.45
NAPAF	%	85.00
Number of days in a year		365
Installed capacity	MW	420
Normative Gross generation	MU	3137.32
Oil Consumption	kL	3137.32
Expenses on secondary fuel	Rs/Cr	<b>19.20</b>

## Interest on Working Capital

*Petitioner's submission*

- 5.65 The Petitioner while computing the working capital and Interest thereon as per the Generation Tariff Regulations, 2010 has considered the working capital as the sum of the following:
- Cost of Coal for 1.5 months of generation corresponding to the Normative Annual Plant Availability Factor;
  - Cost of secondary fuel oil for two months of generation corresponding to the Normative Annual Plant Availability Factor;
  - Maintenance spares @ 20% of the operation and maintenance expenses;
  - Operation and Maintenance expenses for 1 month; and
  - Receivables equivalent to two months of capacity charges and energy charges for



the sale of electricity calculated on the Normative Annual Plant Availability Factor.

- 5.66 The rate of interest for calculating the interest on working capital is taken at the prevalent SBI PLR rate, i.e. 14.75%.
- 5.67 Interest on Working Capital, as submitted by the Petitioner for FY 2014-15 is Rs. 30.92 Cr.

*Commission's analysis*

- 5.68 Regulation 6.14 of Generation Tariff Regulations 2010 specifies that the financing cost, which includes the cost of debt, including working capital (interest), cost of equity (return) shall be trued up on the basis of actual/audited information and a prudence check by the Commission at the end of the control period. Accordingly, the Commission has followed the methodology adopted in the previous order, and hereby approves Rs. 29.79 Cr. under Interest on Working Capital as per the MYT Tariff Order dated May' 2012.

## **Non-Tariff Income**

*Petitioner's submission*

- 5.69 The Petitioner has submitted that the non-tariff income for FY 2014-15 as Rs 36.58 Cr. and has requested the Commission to approve the same as per actuals.

*Commission's analysis*

- 5.70 The Commission has scrutinised the non-tariff income of the Petitioner from the submitted audited annual accounts. It is accrued through various income sources including: Sale of BOQ/Tender Paper, rent received, interest on fixed deposits, miscellaneous receipts etc. The major contribution is from interest on fixed deposits.
- 5.71 The Commission approves the Non-Tariff Income of Rs 35.70 Cr as per audited accounts for FY 2014-15.

## **Summary of Fixed Cost Determinants**

- 5.72 Regulation 8.2 of the Generation Tariff Regulations, 2010 states that the annual fixed cost 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.

5.73 The following table details the fixed cost determinants for FY 2014-15, in terms of the Petitioner's submission and the approval granted by the Commission:

**Table 17 : Summary of Fixed Cost components as approved for FY 2014-15 (INR Cr)**

Particulars	FY 2014-15		
	MYT - approved	As proposed by TVNL	Approved now by JSERC
	Rs. Crore	Rs. Crore	Rs. Crore
O&M Expenses	166.50	118.69	102.32
Depreciation	70.92	75.23	53.03
Interest on Loan	49.93	103.06	49.93
Return on Equity	27.86	26.54	27.87
Interest on Working Capital	29.79	30.92	29.79
Cost of Secondary Fuel Oil	18.71	20.22	19.20
<b>Total Fixed Cost</b>	<b>363.72</b>	<b>374.64</b>	<b>282.15</b>
PAF based Incentive/ Disincentive			(16.90)
Annual Fixed Charges with Incentive			<b>265.25</b>
Income Tax on Incentive			-
Fixed Cost with Incentive			<b>265.25</b>
Less: NTI	16.91	36.58	35.70
<b>Total Fixed Cost</b>	<b>346.81</b>	<b>338.06</b>	<b>229.55</b>

### Gap/Surplus for FY 2014-15

5.74 Regulation 6.16 to Regulation 6.18 of the Generation Tariff Regulations 2010 specify the following:

*“Refund of Excess Amount*

*6.16 If the Tariff already recovered is more than the Tariff determined after true up, the Generating Company shall refund to the Beneficiaries the excess amount so recovered along with simple interest at the rate equal to short term prime lending rate of State.*

*6.17 Similarly, in case the Tariff already recovered is less than the Tariff determined after true up, the Generating Company shall recover from the Beneficiaries, the less recovered amount 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/Years subject to adhering to the timelines specified by the Commission for filling of True-up application. In case, it is found that the filling of True-up is delayed due to the reasons attributable to the Generating Company, the under recovery shall not bear any interest expenses.*

*6.18 The amount under-recovered or over-recovered, along with simple interest, 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 after the truing up exercise.”*

- 5.75 The Commission has calculated the gap for FY 2014-15 has accordingly approved the revenue gap/surplus for FY 2014-15 in table below

**Table 18: Determination of Gap/ Surplus for FY 2014-15**

Particulars		Units	FY 2014-15
Total Fixed cost	A	Rs. Cr	229.55
Total Variable cost	B	Rs. Cr	334.09
Annual Revenue Requirement (ARR)	C = A+B	Rs. Cr	563.64
Total Amount Billed by TVNL as per Accounts	D	Rs. Cr	692.24
Gap/ (Surplus) for the year	E = C - D	Rs. Cr	(128.59)

- 5.76 The Petitioner is directed to comply as per the provisions given in Regulation 6.16 to Regulation 6.18 of the Generation Tariff Regulations 2010.

## **A6: PROVISIONAL TRUE UP FOR FY 2015-16**

- 6.1 The Commission in its MYT Tariff Order dated 30th May 2012 approved the ARR for FY 2015-16. The Petitioner has now sought approval from the Commission for true up of variation in certain items of the ARR for FY 2015-16.
- 6.2 The Commission on multiple occasions from April 2017 to October 2019 had directed the Petitioner to submit the Audited accounts for FY 2015-16 and despite repeated reminders, the Petitioner was unable to submit the same due to the non-finalization of the audited accounts. Subsequently, on 14th October, 2019, the Petitioner submitted the provisional accounts for FY 2015-16. Since the Petitioner is unable to submit the audited accounts, the Commission, in the following sections has approved the provisional true-up for FY 2015-16. Also, during the True-up of FY 2012-13 and FY 2013-14 in order dated 30th September 2016 and in True-up of FY 2014-15, the Commission had highlighted that expenses pertaining to depreciation, interest on debt, return on equity etc. would be trued-up at the end of the control period. However, since final audited accounts of FY 2015-16 are not available, the true-up and adjustments for the norms mentioned can't be carried out in the year FY 2015-16. Therefore, the Petitioner is directed to submit a fresh Petition for the final true-up of FY 2015-16 including the final adjustments to be carried out as per Regulation 6.14 of the Generation Tariff Regulations 2010 along with the audited accounts of FY 2015-16.
- 6.3 The Commission has analysed the submission of the Petitioner with respect to the provisional True-up for FY 2015-16 and has undertaken the provisional true up exercise of various components in accordance with the applicable regulations and methodology adopted by the Commission in previous Tariff orders, as the case may be. The component-wise description of the Petitioner's submission and the Commission's analysis thereof is provided hereunder.

## **Operational Performance**

### **Plant Availability Factor (PAF) and Plant Load Factor (PLF)**

#### *Petitioner's submission*

- 6.4 The Petitioner in its Tariff Petition submitted that the PAF for FY 2015-16 as per actual data was 87.36% against the PAF of 85% approved by the Commission in its MYT Order.
- 6.5 The Petitioner also submitted that the actual PLF for the mentioned period has been 71.46% as against 85% approved by the Commission.

- 6.6 The Petitioner requested the Commission to allow the actual PLF/ PAF keeping in mind their continuous effort to improve efficiency.

*Commission's analysis*

- 6.7 As per Regulation 8.4 of the Generation Tariff Regulations, 2010, the normative availability for the Power Plant for FY 2015-16 is 85% as also approved by the Commission in the MYT Tariff Order.
- 6.8 The Commission has verified the actual availability during FY 2015-16 from the SLDC certificates, and accordingly approves a final availability of 87.36% for TVNL.
- 6.9 The Commission also approves the actual PLF of 71.46% for FY 2015-16 based on scrutiny of the information submitted by the Petitioner.

## **Gross Generation**

*Petitioner's submission*

- 6.10 The Petitioner in its ARR & Tariff Petition submitted that the actual gross generation for both the units was 2636.31 MUs based on the PLF of 71.46% for FY 2015-16.

*Commission's analysis*

- 6.11 The Commission approves gross generation of 2636.31 MUs for FY 2015-16 based on the approved PLF of 71.46%.

## **Auxiliary Consumption**

*Petitioner's submission*

- 6.12 The Petitioner submitted the actual auxiliary consumption for both units for FY 2015-16 was 11.68%.
- 6.13 The Petitioner also submitted that it is trying its best to reduce the auxiliary consumption, however due to constraints like ageing, partial loading, quality of coal etc. it is not being able to achieve the same to the desired value.

*Commission's analysis*

- 6.14 Regulation 8.4 of the Generation Tariff Regulations, 2010 specifies norm for the auxiliary consumption for the Petitioner for FY 2015-16 as 9.50%. Further, as per the said regulations, the auxiliary consumption is a “controllable parameter”. Therefore, the Commission has considered an auxiliary consumption at 9.50% for calculation of energy charge rate for the year.
- 6.15 However, for computation of net generation for the year, the Commission has considered the actual Auxiliary Consumption for FY 2015-16 i.e. 11.68% as submitted by the Petitioner.

**Net Generation**

*Petitioner's submission*

- 6.16 The Petitioner submitted the net generation of 2328.28 MU on the basis of a gross generation of 2636.61 MU and 11.68% auxiliary consumption.

*Commission's analysis*

- 6.17 The Commission approves net generation of 2328.39 MUs for FY 2015-16 based on the approved gross generation of 2636.61 MU and actual auxiliary consumption of 11.68% for FY 2015-16.

**Station Heat Rate (SHR)**

*Petitioner's submission*

- 6.18 The Petitioner submitted that the actual SHR for TVNL was 2753 kcal/kWh as against the Commission approved SHR of 2503 kCal/kWh for FY 2015-16.
- 6.19 The Petitioner requested the Commission to approve the actual SHR of 2753 kcal/kWh for FY 2015-16.

*Commission's analysis*

- 6.20 The Commission specified the norms of operation for the two Units of TVNL in the Regulation 8.4 of the ‘Generation Tariff Regulations, 2010’. As already noted by the Commission in its MYT Order dated May 30, 2012, the norms of operation were fixed by the Commission after study of the past performance for each plant in the state and as per

the data made available by the Generation companies including the Petitioner for the two units. Before finalization of the norms, the Commission had also conducted a public hearing in which all the stakeholders, including the Petitioner, participated. The Commission after due deliberation finalized the Regulations.

- 6.21 The Regulations have been notified accordingly, and the norms of operation are applicable and binding on each of the generation plants covered under the Regulations. Accordingly, the Commission does not find any merit in allowing relaxation of the norms fixed for SHR in the Generation Tariff Regulations, 2010. Hence, SHR is allowed as 2503 kCal/kWh.

## **Secondary Fuel Oil Consumption**

### *Petitioner's submission*

- 6.22 The Petitioner has submitted that the actual secondary fuel oil consumption of 1.15 ml/kWh for both the Units as against the normative consumption of 1 ml/kWh for FY 2015-16.

### *Commission's analysis*

- 6.23 Regulation 6.12 and Regulation 6.13 of the Generation Tariff Regulations, 2010 specify:

*“6.12 The Commission shall set targets for each year of the Control Period for the items or parameters that are deemed to be “controllable” and which includes:*

*(a) Gross Station Heat Rate;*

*(b) Normative Annual Plant Availability Factor;*

*(c) Auxiliary Energy Consumption;*

*(d) Secondary Fuel Oil Consumption;*

*(e) Operation and Maintenance Expenses;*

*(f) Financing Cost which includes cost of debt (interest), cost of equity (return);*

*and*

*(g) Depreciation.*

*6.13 Any financial loss on account of underperformance on targets for parameters specified in clause 6.12 (a) to (e) of these Regulations is not recoverable through tariffs. Similarly, any financial gain on account of over-performance with respect to these parameters is to the Generating Company's benefit and shall not be adjusted in tariffs”.*

- 6.24 The actual specific oil consumption of 1.15 ml/kWh is higher than the norm of 1 ml/kWh as specified in Regulation 8.4 of the Generation Tariff Regulations, 2010 and MYT Order for the financial year.
- 6.25 Regulation 6.12 read with Regulation 6.13 Generation Tariff Regulations, 2010 clearly specifies that any financial loss on account of underperformance on targets of Secondary Fuel Oil consumption is not recoverable through tariffs. Accordingly, the Commission approves the normative specific oil consumption of 1 ml/kWh for FY 2015-16 as per the applicable regulations.

### **Gross Calorific Value (GCV) Of Primary and Secondary Fuel**

#### *Petitioner's submission*

- 6.26 The gross calorific value of coal and oil were submitted as 3602 kcal/kg and 9359 kcal/kl respectively for FY 2015-16.

#### *Commission's analysis*

- 6.27 The Commission directed the Petitioner to submit information on its monthly consumption and GCV of coal and secondary fuel oil for the complete year of FY 2015-16 as part of the additional data requirements during the process of initial scrutiny of the Petition.
- 6.28 The Commission has analysed the month wise coal quantity and GCV "as fired" data submitted by the Petitioner and accordingly approves the GCV of coal as 3623.14 kCal/kg for FY 2015-16.
- 6.29 The Petitioner has submitted the month wise quantity of secondary fuel consumed, but has not submitted the actual GCV of the secondary fuel. In its place, it has submitted the GCV value of 9359 kCal/l approved in MYT order. The Commission has also approved the value of 9359 kCal/l.

### **Price of Primary Fuel**

#### *Petitioner's submission*

- 6.30 The Petitioner submitted the landed coal price as Rs 2619/MT for FY 2015-16.



*Commission's analysis*

- 6.31 The Commission had directed the Petitioner to submit month-wise details of coal purchased, coal consumed for the plant and landed rate of coal. The Petitioner has submitted the details as directed.
- 6.32 As per Petitioner's revised submission, for 2068769.995 MT coal purchased in FY 2015-16, the total landed cost submitted is Rs. 2489.18/MT.
- 6.33 In the same submission, the Petitioner has also submitted month-wise coal fired for the plant in FY 2015-16, which is 1995494.61 MT. Using the month-wise submitted landed cost, and considering the coal quantity as fired by the Petitioner, the weighted average landed cost of coal comes out to be Rs. 2491.68/MT. The Commission hereby approves the price of coal at Rs. 2491.68/MT.

**Transit loss**

*Petitioner's submission*

- 6.34 The Petitioner has submitted that a transit loss of 0.2% be considered.

*Commission's analysis*

- 6.35 The Generation Tariff Regulations, 2010 allow a transit loss of 0.2% for pithead generating stations and since the Petitioner is a pit head generating station therefore the Commission in the MYT order had approved the transit loss of 0.2% for FY 2012-13 to FY 2015-16.
- 6.36 For the year FY 2015-16, the Commission approves the transit loss of 0.2%.

**Summary of Plant Parameters & Fuel Cost Determinants**

- 6.37 The summary of plant parameters and fuel cost determinants for the two Units of Tenughat Thermal Power Station as approved by the Commission in the MYT Order for FY 2015-16, as submitted by the Petitioner in its present Tariff Petition and now approved by the Commission for FY 2015-16 is given in the below table:

**Table 19: Approved Plant parameters & Fuel Cost Determinants for FY 2015-16**

Parameters	Formula	Unit	Approved by the Commission in the MYT order	Unit 1 and 2 Submitted by TVNL in the Petition	Now Approved by the Commission
Capacity	A	MW	420	420	420

Parameters	Formula	Unit	Approved by the Commission in the MYT order	Unit 1 and 2 Submitted by TVNL in the Petition	Now Approved by the Commission
Availability	B	%	85%	87.36%	87.36%
PLF	C	%	85%	71.46%	71.46%
Gross Generation	$D = A \times 1000 \times 8760 \times C / 10^6$	MU	3135.88	2636.31	2636.31
Heat Rate	E	kcal/kWh	2503	2753	2503
Specific oil consumption	F	ml/kWh	1.00	1.15	1.00
Calorific value of oil	G	kcal/kl	9359	9359	9359
Normative Auxiliary Consumption	H	%	9.50%		9.50%
Actual Auxiliary Consumption	H1	%	-	11.68%	-
Net Generation	$I = D \times (1 - H)$	MU	2837.97	2328.28	2328.39
Calorific value of coal	J	kcal/kg	4368.44	3602	3623.14
Cost of coal per MT without transit loss	L	Rs/MT	1659.53	2613.76	2491.68
Transit Loss	K	%	0.20%	0.20%	0.20%
Energy Charge Rate (INR/kWh)		Rs/ kWh	<b>1.047</b>	<b>2.244</b>	<b>1.899</b>

## Determination of Fixed Cost

### Operation & Maintenance (O&M) Expenses

*Petitioner's submission*

6.38 The Petitioner submitted O&M Expenses for FY 2015-16 at Rs 156.03 Cr.

6.39 The Petitioner further submitted the details of O&M Expenses with break up into A&G Expenses, R&M Expenses and Employee Expenses.

**Table 20 : Submitted O&M Expenses for FY 2015-16 (INR Cr)**

O&M Expenses	Approved in MYT Tariff Order	Actuals Submitted Now
A&G Expenses	24.17	13.84
R&M Expenses	116.97	79.85
Employee Expenses	38.97	62.34
<b>Total</b>	<b>180.11</b>	<b>156.03</b>

CSR		-
Total O&M Expenses	180.11	156.03

*Commission's analysis*

6.40 Regulation 7.41 of the Generation Tariff Regulations 2010 specifies:

*7.41 Existing Thermal Generating Stations:*

*(a) The O&M expenses for the Transition Period shall be approved by the Commission as per the JSERC (Terms and condition of Determination of Generation Tariff) Regulations, 2004.*

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

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

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

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

6.41 Regulation 6.14 of Generation Tariff Regulations 2010 specifies -

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

*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;"*

6.42 The Petitioner has claimed O&M expenses as per its actual for the year. The Commission has considered the actual R&M expenses as per audited accounts as the Petitioner has not

incurred the R&M expenses on its generation units in line with the approval granted in the MYT Order.

- 6.43 The Commission has reviewed the O&M expenses and terminal liabilities as per the provisional accounts for FY 2015-16. The Commission approves the O&M expenses as per the provisional accounts after giving due consideration to the submissions of the Petitioner, interest of all stakeholders and assessing the actual costs incurred by the Petitioner during the year.
- 6.44 Accordingly, the Commission approves the total O&M expenses of Rs 123.77 Cr for FY 2015-16

**Table 21 : Approved O&M Expenses for FY 2015-16 (INR Cr)**

O&M Expenses	Approved in MYT Tariff Order	Actuals Submitted Now	Approved now True-up FY 2012-13
A&G Expenses	24.17	13.84	16.12
R&M Expenses	116.97	79.85	43.09
Employee Expenses	38.97	62.34	40.62
Terminal Liabilities	-	-	23.94
Total	180.11	156.03	123.77
CSR	-	-	-
<b>Total O&amp;M Expenses</b>	<b>180.11</b>	<b>156.03</b>	<b>123.77</b>

## Depreciation

### *Petitioner's submission*

- 6.45 The Petitioner submitted its depreciation expenses for FY 2015-16 at Rs. 71.46 Cr. The break-up of the total expenditure submitted is detailed in the following table:

**Table 22 : Submitted Depreciation Expenses for FY 2015-16 (INR Cr)**

Depreciation	Approved in MYT Tariff Order	Actuals Submitted Now
Depreciation for Plant	68.53	71.26
Depreciation for Head Office	0.12	0.20
Depreciation for Ranchi office	-	-
Depreciation for additional Assets during the year	2.87	0.00
<b>Total Depreciation</b>	<b>71.52</b>	<b>71.46</b>

*Commission's analysis*

6.46 Regulation 6.8 and Regulation 6.9 of the Generation Tariff Regulations 2010 specifies that:

*“6.8 The Commission shall review the actual capital investment at the end of each year of the Control Period as a part of the Annual Performance Review of the Generating Company. The Generating Company shall submit the actual capital expenditure incurred along with the Annual Performance Review Filing*

*6.9 The Commission shall not revisit the approved Capital Investment Plan during the Control Period and any adjustment to depreciation, interest on working capital and return on equity for the actual capital investment undertaken vis-à-vis approved capital investment shall be done at the end of the Control Period.”*

6.47 Regulation 6.14 of the Generation Tariff Regulations 2010 specifies that -

*“(b) at the end of the control period –*

*i. the Commission shall review actual capital investment vis-à-vis approved capital investment.*

*ii. depreciation and financing cost, which includes cost of debt including working capital (interest), cost of equity (return) shall be trued up on the basis of actual/audited information and prudence check by the Commission.”*

6.48 The Commission in the True-up for FY 2014-15 had taken a decision regarding the approval of depreciation as per the audited accounts as the same has been prepared as per the JSERC Generation Tariff Regulations, 2010. Also, as highlighted in the audit report, TVNL had not conducted any verification of its fixed assets. Such issues create doubt about the values submitted by the Petitioner itself along with the Petition. Since there is no verification and reconciliation of the Fixed assets, the Commission is not inclined to accept the Fixed Asset schedule and depreciation submitted by the Petitioner along with the Petition.

6.49 As per Regulation 6.8, 6.9 and 6.14, the depreciation shall be true-ed up on the basis of actual/ audited information and prudence check by the Commission at the end of the control period which is FY 2015-16. Once the audited accounts of FY 2015-16 are available for true-up, the Commission shall review the depreciation for the entire period of FY 2012-13 to FY 2015-16 and make any necessary adjustments as stipulated in the Regulations. Hence for the current period, due to the reasons highlighted above, the Commission is constrained to approve the depreciation of Rs. 35.26 Cr as per provisional accounts for FY 2015-16 as the same has also been derived from the audited Gross Fixed Assets of FY 2014-15.

## Interest on Debt

### *Petitioner's submission*

6.50 The Petitioner has submitted the interest & finance charges at Rs. 103.13 Cr for FY 2015-16. The break-up of the same is as given below -

**Table 23 : Submitted Interest on Loan Expenses for FY 2015-16**

Particular	Interest & Finance Charges (Rs Cr.)
Interest on State Government Loan (Jharkhand)	8.75
Interest on State Government Loan (Bihar)	94.38
Bank Charges	0.01
<b>Total</b>	<b>103.13</b>

### *Commission's analysis*

- 6.51 Regulation 6.14 of Generation Tariff Regulations 2010 specifies that financing cost, which includes cost of debt including working capital (interest), cost of equity (return) shall be trued up on the basis of actual/ audited information and prudence check by the Commission at the end of the control period i.e. once Audited accounts for FY 2015-16 is available.
- 6.52 Regarding the submission of the Petitioner of Rs. 103.13 Cr, the Commission would like to mention that the instalment payment for loans of Government of Jharkhand and Bihar are pending since its due date i.e. no payment has been made in this regard. The provision for interest on the above loans is made at simple interest rate of 13% and also provision for penal interest at 2.5% is kept in the accounts.
- 6.53 Since, no instalments have been paid, the Commission is adopting the methodology taken in the True-up of FY 2014-15 and is not approving the entire interest of Rs. 103.13 Cr as claimed by the Petitioner at the interest rate of 13%. Since, the Petitioner currently does not have any loans and the normative interest on debt will have to be reviewed in entirety at the end of control period once Audited Accounts of FY 2015-16 are available, the Commission approves Rs. 41.71 Cr under Interest on debt as per the MYT Tariff order dated May'2012.

## Return on Equity

### *Petitioner's submission*

6.54 The Petitioner has submitted RoE charges at Rs. 36.63 Cr. for FY 2015-16:

**Table 24 : Submitted Return on Equity for FY 2015-16**

Return on Equity	Unit	Approved in MYT Tariff Order	Actuals for the Year
Equity (Opening Balance)	Rs Cr	181.58	170.61
Net additions during the Year	Rs Cr	3.06	131.40
Equity (Closing Balance)	Rs Cr	184.64	302.01
Average Equity	Rs Cr	183.11	236.31
Rate of Return on Equity	%	15.50%	15.50%
Return on Equity	Rs Cr	<b>28.38</b>	<b>36.63</b>

*Commission's analysis*

6.55 Regulation 6.14 of the Generation Tariff Regulations, 2010 specifies that the financing cost, which includes cost of debt, in turn including working capital (interest), cost of equity (return) shall be trued up on the basis of actual/audited information and prudence check by the Commission at the end of the control period once the audited accounts of FY 2015-16 are available. Accordingly, the Commission approves Rs. 28.38 Cr. under Return on Equity as per the MYT Tariff Order dated May' 2012.

## Cost of Secondary Fuel Oil

*Petitioner's submission*

6.56 The Petitioner made the following submissions with respect to the cost of secondary fuel oil for FY 2015 -16:

**Table 25 : Submitted Cost of Secondary Fuel Oil for FY 2015-16**

Particulars	Unit	FY 2015-16	
		MYT Approved	As proposed by TVNL
Secondary Fuel Oil Consumption	ml/kWH	1	1.15
Gross Calorific Value of Oil	Kcal/L	9359	9359
Cost of Oil	Rs/KL	60000	48771
Oil Consumption	KL	3135.88	3039
Expenses on secondary fuel	Rs Cr	<b>18.76</b>	<b>14.82</b>

*Commission's analysis*

6.57 The Petitioner has not used the methodology specified in Regulation 7.49 of the Generation Tariff Regulations, 2010 for calculating the cost of secondary fuel.

6.58 The Commission has approved the cost of secondary fuel oil in accordance with Regulation 7.49, Regulation 7.50 and Regulation 7.51 of the Generation Tariff Regulations, 2010:

*“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:*

$$= SFC \times LPSFi \times NAPAF \times 24 \times NDY \times IC \times 10$$

*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*

*7.50 Initially, the landed cost incurred by the Generating Company on secondary fuel oil shall be taken based on actuals of the weighted average price of the three preceding months and in the absence of landed costs for the three preceding months, latest procurement price for the generating station, before the start of the year.”*

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

$$= SFC \times NAPAF \times 24 \times NDY \times IC \times 10 \times (LPSFy - LPSFi)$$

*Where,*

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

6.59 The consumption of Secondary Fuel Oil has been calculated considering the gross generation corresponding to the NAPAF (i.e. 85%) and Specific Normative Fuel Oil Consumption (i.e. 1 ml/kWh). The landed price of Secondary Fuel Oil has been computed considering the weighted average cost of Secondary Fuel Oil for the respective year as per the revised data submitted by the Petitioner upon being directed by the Commission to submit month-wise quantity and price of secondary fuel used.

**Table 26 : Cost of Secondary Fuel as approved by the Commission for FY 2015-16**

Particulars	Unit	Approved now by JSERC
Specific oil consumption	ml/kWH	1
Weighted average landed price of secondary fuel	Rs/kL	42878.11
NAPAF	%	85.00
Number of days in a year		366



Particulars	Unit	Approved now by JSERC
Installed capacity	MW	420
Normative Gross generation	MU	3135.88
Oil Consumption	kL	3135.88
Expenses on secondary fuel	Rs/Cr	13.45

## Interest on Working Capital

### *Petitioner's submission*

6.60 The Petitioner while computing the working capital and Interest thereon as per the Generation Tariff Regulations, 2010 has considered the working capital as the sum of the following:

- (a) Cost of Coal for 1.5 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 the sale of electricity calculated on the Normative Annual Plant Availability Factor.

6.61 The rate of interest for calculating the interest on working capital is taken at the prevalent SBI PLR rate, i.e. 14.75%.

6.62 Interest on Working Capital, as submitted by the Petitioner for FY 2015-16 is Rs. 39.74 Cr.

### *Commission's analysis*

6.63 Regulation 6.14 of the Generation Tariff Regulations, 2010 specifies that the financing cost, which includes cost of debt, in turn including working capital (interest), cost of equity (return) shall be trued up on the basis of actual/audited information and prudence check by the Commission at the end of the control period. Accordingly, the Commission has followed the methodology adopted in the previous order and hereby approves Rs. 29.87 Cr. under Interest on Working Capital as per the MYT Tariff Order dated May' 2012.

## Non-Tariff Income

### *Petitioner's submission*

6.64 The Petitioner has submitted that the non-tariff income for FY 2015-16 as Rs 34.29 Cr. and has requested the Commission to approve the same as per the actuals.

### *Commission's analysis*

6.65 The Commission has scrutinised the non-tariff income of the Petitioner from the submitted provisional accounts. It is accrued through various income sources: Sale of BOQ/Tender Paper, rent received, interest on fixed deposits, miscellaneous receipts etc. The major contribution is from interest on fixed deposits.

6.66 The Commission approves the Non-Tariff Income of Rs 34.49 Cr as per provisional accounts for FY 2015-16.

## Summary of Fixed Cost Determinants

6.67 Regulation 8.2 of the Generation Tariff Regulations, 2010 states that the annual fixed cost 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.

6.68 The following table details of the fixed cost determinants for FY 2015-16, in terms of the Petitioner's submission and the approval granted by the Commission:

**Table 27 : Summary of Fixed Cost components as approved for FY 2015-16**

Particulars	FY 2015-16		
	MYT - approved	As proposed by TVNL	Approved now by JSERC
	Rs. Crore	Rs. Crore	Rs. Crore
O&M Expenses	180.11	156.03	123.77

Particulars	FY 2015-16		
	MYT - approved	As proposed by TVNL	Approved now by JSERC
Depreciation	71.52	71.46	35.26
Interest on Loan	41.71	103.13	41.71
Return on Equity	28.38	36.63	28.38
Interest on Working Capital	29.87	39.74	29.87
Cost of Secondary Fuel Oil	18.76	14.82	13.45
<b>Total Fixed Cost</b>	<b>370.36</b>	<b>421.81</b>	<b>272.43</b>
PAF based Incentive/ Disincentive			<b>7.57</b>
Annual Fixed Charges with Incentive			<b>280.00</b>
Income Tax on Incentive			-
<b>Fixed Cost with Incentive</b>			<b>280.00</b>
Less : NTI	16.91	34.29	34.49
<b>Total Fixed Cost</b>	<b>353.45</b>	<b>387.52</b>	<b>245.51</b>

6.69 The following table details of the fixed cost determinants for FY 2015-16, in terms of the Petitioner's submission and the approval granted by the Commission:

### Provisional ARR for FY 2015-16

6.70 The provisional ARR for FY 2015-16 is given in table below

**Table 28: Provisional ARR for FY 2015-16**

Particulars		Units	FY 2015-16
Total Fixed cost	A	Rs. Cr	245.51
Total Variable cost	B	Rs. Cr	442.10
<b>Annual Revenue Requirement (ARR) - Provisional</b>	<b>C = A+B</b>	<b>Rs. Cr</b>	<b>687.61</b>

6.71 Since the ARR determined for FY 2015-16 is provisional, the Commission is not approving the Gap/ Surplus for the year. The same shall be approved post completion of the final True-up of FY 2015-16.

## **A7: TARIFF DETERMINATION FOR THE CONTROL PERIOD FY 2016-17 TO FY 2020-21**

7.1 The Petitioner submitted the petition for approval of business plan and determination of generation tariff for the Control Period FY 2016-17 to FY 2020-21 on the basis of the projection of operational and financial figures for the year.

7.2 As per the Generation Tariff Regulations, 2015

*“6.4 The values for the Base Year of the Control Period will be determined based on the audited accounts, best estimate for the relevant years and other factors considered relevant by the Commission, and after applying the tests for determining the controllable or uncontrollable nature of various items.”*

7.3 The Petitioner has not submitted the audited accounts of the base year which is FY 2015-16. Also, as per Regulation 6.14 of the Generation Tariff Regulation, 2010, the depreciation and financing cost, which includes cost of debt, in turn including working capital (interest), cost of equity (return) shall also be trued up for FY 2012-13, FY 2013-14 and FY 2014-15 along with True-up of FY 2015-16. In such a scenario, the Commission is proceeding for determination of tariff by considering the approved figures of previous MYT period determined in the MYT order dated May'2012.

7.4 Once the True-up of FY 2015-16 is complete, the approved values of FY 2015-16 will form the base for subsequent True-up of the years in the control period FY 2016-17 to FY 2020-21.

7.5 The Commission has scrutinized the petition filed by TVNL for the determination of the Generation Tariff for the Control Period of FY 2016-17 to FY 2020-21 in accordance with the Generation Tariff Regulations, 2015. The component-wise description of the Petitioner's submission and the Commission's analysis thereon is given below.

### **Operational Performance**

#### **Plant Availability Factor (PAF)**

##### *Petitioner's submission*

7.6 The Petitioner has projected to meet the normative availability of 85% for the FY 2016-17 to FY 2020-21 as per the Generation Tariff Regulations, 2015.

*Commission's analysis*

7.7 The Commission has considered Normative Annual Plant Availability Factor (NAPAF) of 85% as specified in the Generation Tariff Regulation, 2015 for projection of Availability during each year of the Control Period i.e. from FY 2016-17 to FY 2020-21.

**Plant Land Factor (PLF)**

*Petitioner's submission*

7.8 The Petitioner has projected to meet the normative plant load factor of 85% for the FY 2016-17 to FY 2020-21 as per the Generation Tariff Regulations, 2015.

*Commission's analysis*

7.9 The Commission has considered Normative Plant Load Factor (PLF) of 85% as specified in the Generation Tariff Regulation, 2015 for each year of the Control Period i.e. from FY 2016-17 to FY 2020-21.

**Gross Generation**

*Petitioner's submission*

7.10 The Petitioner in its Tariff Petition has submitted that the gross generation for both units will be as follows:

**Table 29: Gross generation submitted by Petitioner for FY 17 to FY21**

	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Gross Generation (MU)	3127	3127	3127	3127	3127

*Commission's analysis*

7.11 The Commission has computed and approved the gross and net generation for each year of the Control Period i.e. from FY 2016-17 to FY 2020-21 considering the approved values of the PLF as shown in the table below:

**Table 30: Gross generation approved by Commission for FY 17 to FY21**

	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Gross Generation (MU)	3127	3127	3127	3136	3127

## Auxiliary Consumption

### *Petitioner's submission*

7.12 The Petitioner submitted the auxiliary consumption for both units for the control period as per the table below

**Table 31: Auxiliary consumption submitted by Petitioner for FY 17 to FY21**

	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
<b>Auxiliary Consumption (%)</b>	9.50%	9.50%	9.50%	9.50%	9.50%

### *Commission's analysis*

7.13 Regulation 8.6 of the Generation Tariff Regulations, 2015 specifies the norm for the auxiliary consumption for the Petitioner for the control period. Further, as per the said regulations the auxiliary consumption is a “controllable parameter”. Therefore, the Commission has considered the auxiliary consumption at 9.50% for calculation of energy charge rate for the year.

**Table 32: Auxiliary consumption approved by Commission for FY 17 to FY21**

	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
<b>Auxiliary Consumption (%)</b>	9.50%	9.50%	9.50%	9.50%	9.50%

## Net Generation

### *Petitioner's submission*

7.14 The Petitioner submitted the net generation of 2830 MU on the basis of gross generation of 3127 MU and 9.50% auxiliary consumption.

**Table 33: Net Generation submitted by Petitioner for FY 17 to FY21**

	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
<b>Net Generation (MUs)</b>	2830	2830	2830	2830	2830

### *Commission's analysis*

7.15 The Commission approves net generation for the years in the control period as given in the table below

**Table 34: Net generation approved by Commission for FY 17 to FY21**

	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Gross Generation (MUs)	3127	3127	3127	3136	3127
Auxiliary Consumption (%)	9.50%	9.50%	9.50%	9.50%	9.50%
Auxiliary Consumption (MU)	297	297	297	298	297
Net Generation (MUs)	2830	2830	2830	2838	2830

## Station Heat Rate (SHR)

### *Petitioner's submission*

- 7.16 The Petitioner submitted that in its endeavour to continuously improve the heat rate of its station, it strives to improve it further. In FY 2015-16, the Petitioner maintained the Station Heat Rate of 2,753.24 Kcal/kWh. However, for the Control Period (FY 2016-17 to FY 2020-21), the Petitioner projected the Station Heat Rate from 3,043 Kcal/kWh to 2,503 Kcal/kWh in accordance with the clause 8.4 of the JSERC Generation Tariff Regulations, 2015. The year wise projected Station Heat Rate is tabulated below as:

**Table 35: Station Heat Rate submitted by Petitioner for FY 17 to FY21**

	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Station Heat Rate (kCal/kWh)	3043	2908	2773	2638	2503

- 7.17 The Petitioner further requested the Hon'ble Commission to approve the Station Heat Rate as per the aforesaid norms and not as per the actual past performance. The Petitioner proposed that any gains owing to improvement in SHR with respect to the norms may be allowed to be retained by TVNL and the same could be utilized by the Petitioner for further improvement in the efficiency.

### *Commission's analysis*

- 7.18 The Commission specified the norms of operation for the two Units of TVNL in Regulation 8.4 of the 'Generation Tariff Regulations, 2015'. The norms of operation were fixed by the Commission after study of the past performance for each plant in the state and as per the data made available by the Generation companies including the Petitioner for the two units. Before finalization of the norms, the Commission had also conducted a public hearing in which all the stakeholders, including the Petitioner, participated. The Commission after due deliberation finalized the Regulations.

- 7.19 The Regulations have been notified accordingly and the norms of operation are applicable and binding on each of the generation plants covered under the Regulations. Accordingly, the Commission has approved the station heat rate for the control period as per the norms given in the Generation Tariff Regulations, 2015.

**Table 36: Station Heat Rate approved by Commission for FY 17 to FY21**

	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Station Heat Rate (kCal/kWh)	3043	2908	2773	2638	2503

## Determination of Energy Charge

### Secondary Fuel Oil Consumption

#### *Petitioner's submission*

- 7.20 In the Generation Tariff Regulations, 2015, the Hon'ble Commission has specified a normative secondary fuel oil consumption of 1 ml/kWh for the entire control period. The petitioner would like to submit that the average specific oil consumption of TVNL for the past years has been in the range of 2.05-1.15 ml/kWh. In FY 2015-16, the Specific Oil Consumption was 1.153 ml/kWh. The Petitioner, in its endeavour to improve the performance aims to achieve specific oil consumption of 1 ml/kWh for the control FY 2016-17 to FY 2020-21 as per the clause 8.4 of the JSERC Generation Tariff Regulations, 2015 and requests the Hon'ble Commission to approve the same.

#### *Commission's analysis*

- 7.21 The Commission has approved the secondary fuel oil consumption as per Generation Tariff Regulations, 2015

**Table 37: Secondary Fuel Oil consumption approved by Commission for FY 17 to FY21**

	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Secondary Fuel Oil Consumption (ml/kWh)	1.00	1.00	1.00	1.00	1.00



## **Gross Calorific Value (GCV) Of Primary and Secondary Fuel**

### *Petitioner's submission*

7.22 The Petitioner has submitted the average gross calorific value of coal as 3615.25 kcal/kg and secondary fuel as 9359 kCal/ litre for each year of the control period.

### *Commission's analysis*

7.23 As per Clause 8.24 of the Generation Tariff Regulation, 2015

*“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.”*

7.24 The Commission directed the Petitioner to submit information on the monthly consumption and GCV of coal and secondary fuel oil for the three months of January to March 2016 as part of the additional data requirements during the process of initial scrutiny of the Petition.

7.25 The Commission has analysed the month wise coal quantity and GCV “as received” data submitted by the Petitioner and accordingly approves the GCV of coal as 3615.24 kCal/kg for the years in the control period

7.26 Similarly, the Commission has also approved the value of 9359 kCal/litre for the GCV of the secondary fuel.

## **Price of Primary Fuel**

### *Petitioner's submission*

7.27 The Petitioner submitted the landed coal price as Rs 2458.11/MT for each year of the control period.

7.28 Clause 7.37 of the JSERC Generation Tariff Regulations, 2015 states the following

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

7.29 Also, as per Clause 8.23 of the JSERC Generation Tariff Regulations, 2015,

*“Any variation in fuel prices on account of change in the Gross Calorific Value (GCV) of coal or gas or liquid fuel shall be adjusted on a monthly basis on the basis of weighted average GCV of coal or gas or liquid fuel in stock, received and burnt and weighted average landed cost incurred by the generating company for procurement of coal, oil, or gas or liquid fuel, as the case may be for a power station.”*

7.30 In view of the aforesaid clauses, the Petitioner submitted that it has not considered any escalation in Rate of Coal during the Control Period as any escalation in the same may be recovered through the Fuel Price Adjustment mechanism for taking into account the escalation in fuel price.

*Commission’s analysis*

7.31 As per Clause 8.21 of the Generation Tariff Regulations, 2015

*“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.”*

7.32 The Commission had directed the Petitioner to submit the month-wise details of coal purchased, coal consumed for the plant and landed rate of coal. The Petitioner has submitted the details as directed.

7.33 As per Petitioner’s revised submission, the total landed cost works out to be Rs. 2458.18/MT and the Commission approves the same for the control period.

7.34 Also, as per Cluase 8.22 Clause 8.23 of the JSERC Generation Tariff Regulations, 2015,

*“Any variation in fuel prices on account of change in the Gross Calorific Value (GCV) of coal or gas or liquid fuel shall be adjusted on a monthly basis on the basis of weighted average GCV of coal or gas or liquid fuel in stock, received and burnt and weighted average landed cost incurred by the generating company for procurement of coal, oil, or gas or liquid fuel, as the case may be for a power station.”*

7.35 This clearly states that there is already a mechanism in the Generation Tariff Regulation, 2015 for taking into account the escalation of fuel price and so the base fuel price is kept constant for the control period.

## Transit loss

### *Petitioner’s submission*

7.36 The Petitioner has submitted a transit loss of 0.2% to be considered.

### *Commission’s analysis*

7.37 The Generation Tariff Regulations, 2015 allow a transit loss of 0.2% for pithead generating stations and since the Petitioner is a pit head generating station, the Commission in the MYT order had approved the transit loss of 0.2% for FY 2016-17 to FY 2020-21.

7.38 The Commission approves the transit loss of 0.2%.

## Energy Charge Rate (ECR)

### *Petitioner’s submission*

7.39 The Petitioner has submitted that the Energy Charge Rate has been computed as per the Clause 8.19 of the JSERC Generation Tariff Regulations, 2015

**Table 38: Energy Charge Rate (ECR) submitted by Petitioner for FY17 to FY21**

	Unit	FY2016-17	FY2017-18	FY2018-19	FY2019-20	FY 2020-21
Capacity	MW	420	420	420	420	420
Availability	%	85%	85%	85%	85%	85%
PLF	%	85%	85%	85%	85%	85%
Gross Generation	MU	3137	3137	3137	3137	3137
Auxiliary consumption	%	9.50%	9.50%	9.50%	9.50%	9.50%
Net Generation	MU	2830	2830	2830	2830	2830

	Unit	FY2016-17	FY2017-18	FY2018-19	FY2019-20	FY 2020-21
Heat Rate	kcal/kWh	3043	2908	2773	2638	2503
Specific oil consumption	ml/kWh	1.00	1.00	1.00	1.00	1.00
Calorific value of oil	kcal/kl	9359	9359	9359	9359	9359
Calorific value of coal	kcal/kg	3615.25	3615.25	3615.25	3615.25	3615.25
Cost of coal per MT without transit loss	Rs/MT	2458.11	2458.11	2458.11	2458.11	2458.11
Transit Loss	%	0.20%	0.20%	0.20%	0.20%	0.20%
Energy Charge Rate (INR/kWh)	Rs/Kwh	<b>2.32</b>	<b>2.22</b>	<b>2.12</b>	<b>2.02</b>	<b>1.92</b>

*Commission's analysis*

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

7.41 The formula for calculation of energy charge and energy charge rate (ECR) payable to a Generating Company is specified in Regulation 8.18 and 8.19 of the Generation Tariff Regulation, 2015 as quoted below:

*“8.18 Total Energy charge payable to the Generating Company for a month shall be:*

$$= (\text{Energy charge rate in Rs. /kWh}) \times \{\text{Scheduled energy (ex-bus) for the month in kWh.}\}$$

*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 =*

$$\{(GHR - SFC \times CVSF) \times LPPF/CVPF + SFC \times LPSFi + LC \times LPL\} \times 100 / (100 - AUX)$$

*Where,*

*AUX - Normative auxiliary energy consumption in percentage*

*CVPF – (a)Weighted Average Gross calorific value of coal as received, in kCal per kg for coal based stations*

(b) *Weighted Average Gross calorific value of primary fuel as received in kCal per kg, per litre or per standard cubic meter, as applicable for lignite, gas and liquid fuel based stations.*

(c) *In case of blending of fuel from different sources, the weighted average Gross calorific value of primary fuel shall be arrived in proportion to blending ratio.*

*CVSF - Calorific value of secondary fuel, in kCal per ml*

*ECR - Energy charge rate, in Rupees per kWh sent out*

*GHR - Gross station heat rate, in kCal per kWh*

*LC = Normative limestone consumption in kg per kWh*

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

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

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

*SFC - Specific fuel oil consumption, in ml per kWh*

7.42 The Commission has calculated the ECR to be charged by the Petitioner as per the formula stated above and considering the approved values of the various fuel parameters. The table below contains the ECR for each year of the Control Period i.e. from FY 2016-17 to FY 2020-21 as approved by the Commission.

**Table 39: Energy Charge Rate (ECR) approved by Commission for FY17 to FY21**

	Unit	FY2016-17	FY2017-18	FY2018-19	FY2019-20	FY 2020-21
Capacity	MW	420	420	420	420	420
Availability	%	85%	85%	85%	85%	85%
PLF	%	85%	85%	85%	85%	85%
Gross Generation	MU	3137.32	3137.32	3137.32	3135.89	3137.32
Auxiliary consumption	%	9.50%	9.50%	9.50%	9.50%	9.50%
Net Generation	MU	2830.22	2830.22	2830.22	2837.98	2830.22
Heat Rate	kCal/kWh	3043	2908	2773	2638	2503

	Unit	FY2016-17	FY2017-18	FY2018-19	FY2019-20	FY 2020-21
Specific oil consumption	ml/kWh	1.00	1.00	1.00	1.00	1.00
Calorific value of oil	kCal/kl	9359	9359	9359	9359	9359
Calorific value of coal	kCal/kg	3615.24	3615.24	3615.24	3615.24	3615.24
Cost of coal per MT without transit loss	Rs/MT	2458.18	2458.18	2458.18	2458.18	2458.18
Transit Loss	%	0.20%	0.20%	0.20%	0.20%	0.20%
Energy Charge Rate (INR/kWh)	Rs/kWh	<b>2.324</b>	<b>2.222</b>	<b>2.120</b>	<b>2.019</b>	<b>1.917</b>

## Determination of Fixed Cost

### Capital investment and additional capitalization

#### *Petitioner's submission*

7.43 The Petitioner has projected capital investment and additional capitalization for each year of the Control Period i.e. from FY 2016-17 to FY 2020-21 in its MYT Business Plan as follows

**Table 40: Capital investment submitted by Petitioner for FY17 to FY21**

	Unit	FY2016-17	FY2017-18	FY2018-19	FY2019-20	FY 2020-21
Capital expenditure	INR Cr	100.42	74.35	128.40	107.13	111.18

7.44 The Petitioner submits that the Capitalization Schedule for financial year of MYT Control Period has been arrived at by converting 90% of Opening CWIP and Capex projected during the said financial year.

**Table 41: Capitalisation and Closing CWIP submitted for FY17 to FY21**

	Unit	FY2016-17	FY2017-18	FY2018-19	FY2019-20	F 2020-21
Total CWIP	INR Cr	155.66	89.92	123.65	108.78	110.94
Capitalisation	INR Cr	140.10	80.92	123.54	108.78	110.94
Closing CWIP	INR Cr	15.57	8.99	13.74	12.09	12.33

*Commission's analysis*

7.45 Regulation 6.6 of the Generation Tariff Regulations, 2015 specifies:

*“a) **Capital Investment Plan:** This shall include details of the investments planned by the Generating Company, along with the corresponding capitalisation schedule and financing plan. This plan shall be commensurate with capacity enhancement and proposed efficiency improvements for various plants of the Company and **shall include cost benefit analysis;**”*

7.46 The Petitioner had submitted the capital investment plan along with the Petition. The Commission had directed the Petitioner to submit specific details on the capital expenditure proposed in the petition. The details should include specific head (land, building, P&M etc.), costs to be incurred, justification etc. duly certified by statutory auditors. The Petitioner was directed to submit detailed DPRs, Cost Benefit Analysis, assumptions considered for cost benefit analysis and impact on tariff with justifications which highlight the need for the investment.

7.47 However, the Petitioner in its reply to the discrepancy did not submit any cost benefit analysis, detailed justifications etc. Also, due to delay on the part of the Petitioner in submitting audited accounts of FY 2014-15, the process of tariff determination got delayed and as of issue of this order, FY 20 is nearing closure. The Commission has decided not to approve any estimated capital expenditure now as submitted by the Petitioner.

7.48 However, the Commission gives liberty to the Petitioner to submit the detailed capital expenditure as incurred along with supporting documents, cost benefit analysis etc. along with the True-up Petition of the respective years supported by audited accounts and detailed justification. The Commission will review the details of the capital expenditure and capitalization in its accounts and after a prudence check, will take a decision for allowing capital expenditure in the control period.

7.49 Due to the reasons given above, the Commission has not approved any capital expenditure.

## **Depreciation**

*Petitioner's submission*

7.50 The Petitioner submitted depreciation expenses as given in the table below. The break-up of the total expenditure submitted is detailed in the following table:

**Table 42: Depreciation submitted by Petitioner for FY17 to FY21**

	Unit	FY2016-17	FY2017-18	FY2018-19	FY2019-20	FY 2020-21
<b>Depreciation</b>	INR Cr	82.78	88.62	94.02	100.16	105.97

*Commission's analysis*

- 7.51 The Commission in the True-up of FY 2014-15 had taken a decision regarding approval of depreciation as per the audited accounts as the same has been prepared as per the JSERC Generation Tariff Regulations, 2010, and also because TVNL had not conducted any verification of fixed assets. Also, as per Regulation 6.8, 6.9 and 6.14 of Generation Tariff Regulations, 2010 the depreciation shall be true-ed up on the basis of actual/ audited information and prudence check by the Commission at the end of the control period which is FY 2015-16. Once audited accounts of FY 2015-16 are available for true-up, the Commission shall review the depreciation for the entire period of FY 2012-13 to FY 2015-16 and make any necessary adjustments as stipulated in the Regulations.
- 7.52 Since the final True-up of FY 2015-16 is pending, the Commission is not inclined to accept the depreciation submitted by the Petitioner in the MYT Petition. The Commission referred to the provisional accounts of FY 2015-16 submitted by the Petitioner and observed that the GFA as per accounts as on 31.03.2016 is Rs 1493.00 Cr. The accumulated depreciation as on 31.03.2016 is Rs.1213.66 Cr which is 81.29% of the GFA.
- 7.53 Considering 10% salvage value, i.e. Rs. 149.30 Cr, the maximum depreciable value is Rs. 1343.70 Cr.
- 7.54 The CoD of Unit I of the plant is September'1996 and for Unit II is September'1997. As on 01.04.2017, Unit I is in the 20<sup>th</sup> year and Unit II in the 19<sup>th</sup> year. Considering life of 25 years, the balance depreciable value is to be spread out over the balance 5 years of the control period which is 1.74% of the GFA of Rs. 1493.00 Cr. The Commission approves the depreciation as given in the table below:

**Table 43: Depreciation approved by Commission for FY17 to FY21**

	Unit	FY2016-17	FY2017-18	FY2018-19	FY2019-20	FY 2020-21
<b>Depreciation</b>	INR Cr	26.01	26.01	26.01	26.01	26.01

- 7.55 The Commission hereby directs the Petitioner to reconcile the fixed assets and depreciation for the pending True-up of the previous MYT period and also for the current years in the MYT period. The True-up Petitions should be filed with reconciled Fixed Assets and Depreciation calculated as per Regulations.



## Operation & Maintenance (O&M) Expenses

*Petitioner's submission*

7.56 The Petitioner submitted O&M Expenses for the control period as below

**Table 44: O&M expenses submitted by Petitioner for FY17 to FY21**

	Unit	FY2016-17	FY2017-18	FY2018-19	FY2019-20	FY 2020-21
Employee Cost	INR Cr	70.11	81.84	85.03	87.10	90.74
A&G Expenses	INR Cr	14.65	15.51	16.42	17.39	18.41
R&M Expenses	INR Cr	86.33	91.41	96.78	102.47	108.49
<b>Total</b>	<b>INR Cr</b>	<b>171.09</b>	<b>188.76</b>	<b>198.23</b>	<b>206.96</b>	<b>217.65</b>

*Commission's analysis*

7.57 Regulation 7.40 of the Generation Tariff Regulations 2015 specifies:

*“Operation and Maintenance (O&M) expenses shall comprise of:*

*(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 prudence 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.”

7.58 The Petitioner has analysed the submissions made by the Petitioner, and after proper prudence check approves the O&M expenses as per the escalation of 6.30% considered for plants in the Generation Tariff Regulations, 2015.

**Table 45: O&M expenses approved by Commission for FY17 to FY21**

	Unit	FY 2015-16	Escalation	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
A&G Expenses	INR Cr	16.12	6.30%	17.13	18.21	19.36	20.58	21.88
R&M Expenses	INR Cr	43.09	6.30%	45.81	48.69	51.76	55.02	58.49
Employee Expenses	INR Cr	40.62	6.30%	43.18	45.90	48.79	51.86	55.13
Terminal Liabilities	INR Cr	23.94	6.30%	25.45	27.05	28.76	30.57	32.49
Water charges	INR Cr			12.00	12.00	12.00	12.00	12.00
<b>Total</b>	<b>INR Cr</b>	<b>123.77</b>		<b>143.56</b>	<b>151.85</b>	<b>160.66</b>	<b>170.03</b>	<b>179.99</b>

7.59 The Commission shall approve any additional expenditure incurred towards pay revision, capital spares etc. during the True-up supported by audited accounts.

## Interest on Debt

### *Petitioner's submission*

7.60 The Petitioner has submitted the interest & finance charges as given in the table below -

**Table 46: Interest on debt submitted by the Petitioner for FY17 to FY21**

	Unit	FY2016-17	FY2017-18	FY2018-19	FY2019-20	FY 2020-21
Interest on existing loans	INR Cr	139.21	135.31	131.26	127.07	122.73
Other Interest and Finance charges	INR Cr	0.01	0.01	0.01	0.01	0.01
Interest on new loan for additional capitalization	INR Cr	5.47	13.93	21.48	29.83	37.35

	Unit	FY2016-17	FY2017-18	FY2018-19	FY2019-20	FY 2020-21
<b>Total</b>	<b>INR Cr</b>	<b>171.09</b>	<b>188.76</b>	<b>198.23</b>	<b>206.96</b>	<b>217.65</b>

7.61 The Interest charges for the on-going loans have been considered as per the actual rate of Interest. For the new loans projected during the Control Period, the Interest Rate has been considered in accordance with clause 7.23 of the JSERC Generation Tariff Regulations, 2015, i.e. SBI Base Rate plus 200 basis points. As on 01<sup>st</sup> April 2016, the SBI Base Rate was 9.30% and accordingly, the Interest Rate on Normative Loan comes out to be 11.30%.

*Commission's analysis*

7.62 Regulation 7.20 of the Generation Tariff Regulations, 2015 specifies the following:

*“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 31<sup>st</sup> 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.*

*7.22 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.*

*Provided further, in case of new generating company commencing its operation after the date of effectiveness of these Regulations, and which doesn't have actual loan portfolio, the rate of interest shall be considered on normative basis and shall be equal to the Base rate of State Bank of India plus 200 basis points as on the date on which the generating unit is declared under commercial operation.*

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.”*

- 7.63 Since the normative loan balance for previous MYT period including True-up of FY 2015-16 is not completed yet, the Commission is not proceeding with the loan portfolio submitted by the Petitioner. Once the true-up of FY 2015-16 is completed and adjustments at end of the control period for depreciation and financing cost is completed, the Commission shall approve the normative loan balance for the years i.e. for True-up of FY 2016-17 to FY 2020-21 based on the closing balance of FY 2015-16.
- 7.64 For the tariff determination of current MYT period, the Commission is taking the closing loan balance of FY 2015-16 from the MYT order dated May’2012 as base.
- 7.65 The Petitioner has considered the actual rate of interest for ongoing loans and 11.30% for new loans taken to fund the capital investment. Since the ongoing rate of interest is 13% and the Commission has not approved any capital expenditure, the Commission is approving a rate of 13% interest which shall be trued-up.

**Table 47: Interest on loan approved by Commission for FY17 to FY21**

	Unit	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Opening balance of normative loans	INR Cr	288.62	262.84	237.05	211.27	185.49
Additions during the year	INR Cr	0.00	0.00	0.00	0.00	0.00
Repayments of normative loans during the year	INR Cr	26.01	26.01	26.01	26.01	26.01
Closing balance of normative loans	INR Cr	262.61	236.60	210.60	184.59	158.58
Average normative loan	INR Cr	275.62	249.61	223.60	197.59	171.59
Rate of Interest	INR Cr	13.00%	13.00%	13.00%	13.00%	13.00%
Interest on normative loans (debt)	INR Cr	<b>35.83</b>	<b>32.45</b>	<b>29.07</b>	<b>25.69</b>	<b>22.31</b>

## Return on Equity

### *Petitioner’s submission*

- 7.66 The Petitioner has submitted its RoE charges as given in the table below:

**Table 48: Return on Equity submitted by Petitioner for FY17 to FY21**

	Unit	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Opening equity balance	INR Cr	302.02	344.04	368.32	405.42	438.05
Net additions during the year	INR Cr	42.03	24.28	37.10	32.63	33.28
Closing equity balance	INR Cr	344.04	368.32	405.42	438.05	471.33
Average equity	INR Cr	323.03	356.18	386.76	421.73	454.69
Rate of return of equity	INR Cr	15.50%	15.50%	15.50%	15.50%	15.50%
Return on equity	INR Cr	<b>50.07</b>	<b>55.21</b>	<b>59.96</b>	<b>65.37</b>	<b>70.48</b>

*Commission's analysis*

7.67 The Commission for the reasons cited in previous sections is taking the closing equity balance of FY 2015-16 approved in MYT order dated May'2012 as the opening equity for the current MYT period. The approved return on equity is given in the following table:

**Table 49: Return on equity approved by the Commission for FY17 to FY21**

	Unit	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Opening equity balance	INR Cr	184.64	184.64	184.64	184.64	184.64
Net additions during the year	INR Cr	0.00	0.00	0.00	0.00	0.00
Closing equity balance	INR Cr	184.64	184.64	184.64	184.64	184.64
Average equity	INR Cr	184.64	184.64	184.64	184.64	184.64
Rate of return of equity	INR Cr	15.50%	15.50%	15.50%	15.50%	15.50%
Return on equity	INR Cr	<b>28.62</b>	<b>28.62</b>	<b>28.62</b>	<b>28.62</b>	<b>28.62</b>

## Interest on Working Capital

*Petitioner's submission*

7.68 Interest on Working Capital, as submitted by the Petitioner is as given in the table below:

**Table 50: Interest on working capital submitted by Petitioner for FY17 to FY21**

	Unit	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Cost of coal for 15 days for Pit head plant	INR Cr	26.56	25.38	24.20	23.02	21.83

	Unit	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Cost of coal for 30 days	INR Cr	53.12	50.76	48.40	46.03	43.67
Cost of secondary fuel oil for 2 months	INR Cr	1.88	1.88	1.88	1.88	1.88
Maintenance of spares (as 20% of O&M Cost)	INR Cr	34.22	37.75	39.65	41.39	43.53
O&M Expenses for 1 months	INR Cr	14.26	15.73	16.52	17.25	18.14
2 months Receivables (capacity & energy charges @ NAPAF)	INR Cr	187.43	188.22	187.24	186.48	185.79
Working Capital requirement	INR Cr	317.47	319.72	317.88	316.04	314.84
Interest rate applicable	%	12.80%	12.80%	12.80%	12.80%	12.80%
Interest on working capital	INR Cr	<b>40.64</b>	<b>40.92</b>	<b>40.69</b>	<b>40.45</b>	<b>40.30</b>

*Commission's analysis*

7.69 The Commission while approving the working capital and interest thereon has relied on the Clause 7.34 of the Generation Tariff Regulations, 2015:

*“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.*

7.70 The rate of interest for calculating the interest on working capital is taken at the prevalent SBI Base rate plus 3.5% i.e. 12.80%.

7.71 The approved interest on working capital is as given below:

**Table 51: Interest on working capital approved by Commission**

	Unit	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Cost of coal for 15 days for Pit head plant	INR Cr	26.56	25.38	24.20	23.02	21.83
Cost of coal for 30 days	INR Cr	53.13	50.76	48.40	46.03	43.67
Cost of secondary fuel oil for 2 months	INR Cr	1.88	1.88	1.88	1.88	1.88
Maintenance of spares (as 20% of O&M Cost)	INR Cr	23.52	24.95	26.47	28.08	29.80
O&M Expenses for 1 months	INR Cr	9.80	10.40	11.03	11.70	12.42
2 months Receivables (capacity & energy charges @ NAPAF)	INR Cr	148.51	144.42	140.41	136.77	132.70
Working Capital requirement	INR Cr	263.40	257.78	252.38	247.48	242.31
Interest rate applicable	%	12.80%	12.80%	12.80%	12.80%	12.80%
Interest on working capital	INR Cr	<b>33.72</b>	<b>33.00</b>	<b>32.31</b>	<b>31.68</b>	<b>31.02</b>

## Non-tariff income

### *Petitioner's submission*

7.72 The Petitioner has submitted Rs. 34.29 Cr as the non-tariff income for each year of the control period.

### *Commission's analysis*

7.73 The Commission has approved the non-tariff income of Rs. 34.29 Cr subject to true-up.

## Summary of Fixed Cost Determinants

### *Petitioner's submission*

7.74 Summary of Fixed costs submitted by the Petitioner is as given below:

**Table 52: Fixed cost submitted by Petitioner for FY17 to FY21**

	Unit	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
O&M Expenses	INR Cr	183.09	220.76	210.23	218.96	229.65
Depreciation	INR Cr	82.78	88.62	94.02	100.16	105.97

Order on True-up for FY15, Provisional True-up FY16 and MYT for FY 2017-21

	Unit	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Interest on Debt	INR Cr	144.68	149.25	152.75	156.91	160.09
Return on Equity	INR Cr	50.07	55.21	59.96	65.37	70.48
Interest on Working Capital	INR Cr	40.64	40.92	40.69	40.45	40.40
Less: Non-Tariff income	INR Cr	(34.29)	(34.29)	(34.29)	(34.29)	(34.29)
<b>Total Fixed cost</b>	<b>INR Cr</b>	<b>466.97</b>	<b>500.47</b>	<b>523.37</b>	<b>547.56</b>	<b>572.19</b>

*Commission's analysis*

7.75 Regulation 8.2 of the Generation Tariff Regulations, 2015 states that the annual fixed cost 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

7.76 The following table details the fixed cost as approved by the Commission:

**Table 53: Fixed cost approved by the Commission for FY17 to FY21**

	Unit	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
O&M Expenses	INR Cr	143.56	151.85	160.66	170.03	179.99
Depreciation	INR Cr	26.01	26.01	26.01	26.01	26.01
Interest on Debt	INR Cr	35.83	32.45	29.07	25.69	22.31
Return on Equity	INR Cr	28.62	28.62	28.62	28.62	28.62
Interest on Working Capital	INR Cr	33.72	33.00	32.31	31.68	31.01
Less: Non-Tariff income	INR Cr	(34.29)	(34.29)	(34.29)	(34.29)	(34.29)
<b>Total Fixed cost</b>	<b>INR Cr</b>	<b>233.45</b>	<b>237.63</b>	<b>242.37</b>	<b>247.73</b>	<b>253.64</b>

7.77 The Petitioner would recover the capacity charges in accordance with Clause 8.10 to Clause 8.15 of the Generation Tariff Regulations, 2015 on the basis of the actual monthly availability.



## A8: STATUS OF EARLIER DIRECTIVES

**Table 54 : Status of earlier directives**

Directive	Compliance to the Directive	Views of the Commission
Minimization of Outages and Strengthening of evacuation arrangement for TTPS	The Petitioner submits that all works of 400 kV S/C Bihar Sharif Transmission Line except one ICT at TTPS site has been completed successfully. Work on the said transmission line at Bihar Sharif site is ongoing and the line will be charges after completion of all works at Bihar Sharif end. The matter has been raised in the ERPC forum also. ERPC has taken initiative with all stakeholders to charge this line at 400 kV level.	The reply of the Petitioner is dated 14 May 2018. The Petitioner is directed to submit updated status to the Commission.  The Commission has noted the submission and directs the Petitioner for follow-up action for completion of upgradation work of above mentioned 400 kV Tenughat Bihar Sharif Transmission line and early commissioning of the 220 kV Tenughat - Govindpur transmission line
Adjustment of Bills & payments/receipt as per Revised Cost of Power Sold to JBVNL	The Petitioner submits that it has recovered/ refunded the combined approved gap/ surplus for FY 2012-13 and FY 2013-14 in 6 equal monthly installments from the beneficiary from October 2016 to March 2017.	The compliance is noted.
Filing of True Up Petition for FY 2014-15 and APR for FY 2015-16	The Petitioner submitted that it has submitted its True-up petition for FY 2014-15 and FY 2015-16 on 28.11.2017.	The Petitioner has delayed the submission of the Petitioner and has finally submitted the audited accounts of FY 2014-15 on Oct' 19. The Petitioner is directed to ensure compliance in timely filing of Petitions.
Data adequacy in next Tariff petition and timelines	The Petitioner submits that it has always strived to provide all the data required by the Hon'ble Commission. TVNL has submitted its petition for True-up of FY 2014-15 and FY 2015-16 after removing the deficiencies highlighted by the Hon'ble Commission in the previous tariff order. However, TVNL was unable to submit audited accounts as the audit was not completed. Subsequently same was submitted for FY 2014-15 on Oct' 19.	The Petitioner is directed to submit the audited accounts of FY 2015-16 along with a fresh Petition for True-up within 3 months from the date of this order.

**A9: ACCORDINGLY, IT IS ORDERED**

**ORDER**

1. The Petition was admitted by the commission on 28th November 2017.
2. The Commission has approved the petitions in the following manner:-

**True-up of FY 2014-15**

- Approval of operational parameters as discussed in para 5.3 to 5.46
- Approval of other financial parameters as discussed in para 5.47 to 5.71

**True-up of FY 2015-16 is provisionally allowed**

- Approval of operational parameters as discussed in para 6.4 to 6.44
- Approval of other financial parameters as discussed in para 6.45 to 6.66
- With a direction to submit petition in terms of para 10.1

**MYT for the period FY 2016-17 to FY 2020-21**

- Approval of operational parameters as given in para 7.6 to 7.59
- Approval of other financial parameters as given in para 7.60 to 7.77

## **A10: FURTHER DIRECTIVES**

### **Submission of Audited accounts and True-up Petition of FY 2015-16**

10.1 The Commission directs the Petitioner to submit the True-up Petition for FY 2015-16 based on the audited accounts along with adjustments to be carried out as per Regulation 6.14 of the Generation Tariff Regulation, 2010 within 3 months from the date of this order. Further the petitioner is also directed to submit petition with requisite supporting data so that processing be done within appropriate time and without undue delay.

### **Reconciliation of Fixed assets**

10.2 TVNL is directed to reconcile the fixed assets register after physical verification and submit detailed asset wise register along with asset wise depreciation schedule before the Commission. Without the reconciled asset and depreciation schedule, the Commission is unable to approve the fixed assets, additions and calculate correctly the depreciation of assets.

### **True-up Petition of FY 2016-17, FY 2017-18 and FY 2018-19**

10.3 The Commission directs the Petitioner to submit the True-up Petition for the year FY 2016-17, FY 2017-18 and FY 2018-19 along with audited accounts before the Commission within three months of the order.

### **Data adequacy in next Tariff petition**

10.4 The Commission directs the Petitioner to note the data deficiencies highlighted in this petition and submit required details and certificates while submitting the next Petition.

### **Evacuation arrangement from TTPS**

10.5 The Commission directs the Petitioner to undertake follow-up action for completion of upgradation work of the 400 kV Tenughat Bihar Sharif Transmission line and early commissioning of the 220 kV Tenughat - Govindpur transmission line.

Date: 28<sup>th</sup> February 2020

Place: Ranchi

Sd/-  
**(P. K. Singh)**  
**MEMBER (Legal)**

Sd/-  
**(R. N. Singh)**  
**MEMBER (Engg.)**

Sd/-  
**(Arbind Prasad)**  
**CHAIRPERSON**

## A11: ANNEXURE-I

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

Sl. No.	Name	Address / Organization if any
1	Om Prakash Singh	EEE/TTPS, Lalpania
2	Shri Ram Singh	EEE/TVNL
3	M. K. Prasad	F.C., TVNL
4	Prabhat Kumar	ESE, TTPS, Lalpania
5	S. K. Choudhary	ESE, TVNL, Ranchi
6	Jayesh Chauhan	Feedback Infra, Lead Consultant
7	Nausheen	Central University of Jharkhand
8	Shambhavi Mishra	Central University of Jharkhand
9	Suvash Prasad	HOD (Civil) TTPS
10	S. K. Singh	DGM, TTPS
11	T. S. Malhotra	A.O, TTPS
12	K. Kumar	EEE
13	K.K. Singh	DDA (TTPS)
14	Sanjoy Yadav	AEE (CHP-II), TTPS
15	J. K. Sinha	EEE (EM), TTPS, Lalpania
16	Kapil Deo Singh	ESE (MTP) TTPS, Lalpania
17	Sukhdeo Mahto	P.O, TTPS, Lalpania