

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 174/TT/2015**

**Coram:**

**Shri A.S. Bakshi, Member  
Dr. M.K. Iyer, Member**

**Date of Hearing : 14.03.2016  
Date of Order : 22.03.2016**

**In the matter of:**

Determination of transmission tariff for (i) Asset I: 01 No. of 1x125 MVAR Bus Reactor and associated bay at 400 kV Indravati Sub-station and (ii) Asset II: 01 No. of 1x125 MVAR Bus Reactor and associated bay at 400 kV Jeypore Sub-station under Transmission System for "Eastern Region Strengthening Scheme-VIII" in Eastern Region for the 2014-19 tariff period under Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 and Regulation 86 of Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999.

**And in the matter of:**

Power Grid Corporation of India Ltd.  
'SAUDAMINI', Plot No-2,  
Sector-29, Gurgaon -122 001 (Haryana).

.....**Petitioner**

**Versus**

1. Bihar State Power (Holding) Company Ltd  
Vidyut Bhawan, Bailey Road  
Patna- 800001
2. West Bengal State Electricity Distribution Company Limited  
Bidyut Bhawan, Bidhan Nagar,  
Salt Lake City, Kolkata-700091
3. Grid Corporation of Orissa Ltd.  
Shahid Nagar,  
Bhubaneshwar- 751007



4. Jharkhand State Electricity Board  
Doranda, Ranchi-834002
5. Damodar Valley Corporation  
DVC Tower, Maniktala  
Civic Centre, VIP Road,  
Kolkata-700054
6. Power Department  
Govt of Sikkim,  
Gangtok-737101

....Respondents

The following were present:-

For Petitioner:      Shri S.S. Raju, PGCIL  
                              Shri M. M. Mondal, PGCIL  
                              Shri Jasbir Singh, PGCIL  
                              Shri Rakesh Prasad, PGCIL  
                              Shri Aryaman Saxena, PGCIL

For Respondent:      None

### **ORDER**

The present petition has been filed by Power Grid Corporation of India Ltd. (“the petitioner”) seeking tariff for 01 No. of 1x125 MVAR Bus Reactor and associated bay at 400 kV Indravati Sub-station (referred as “**Asset I**”) and 01 No. of 1x125 MVAR Bus Reactor and associated bay at 400 kV Jeypore Sub-station (referred as “**Asset II**”) under Transmission System for “Eastern Region Strengthening Scheme-VIII” in Eastern Region under Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 (hereinafter referred to as “the 2014 Tariff Regulations”) for the period starting from date of commercial operation to 31.3.2019.



2. The respondents are distribution licensees or electricity departments or power procurement companies of States, who are procuring transmission service from the petitioner, mainly beneficiaries of Eastern and North Eastern Region.

3. The brief facts of the case are as follows:-

(a) The investment approval for the project was accorded by Board of Directors of the petitioner company vide memorandum no. C/CP/ERSS VIII dated 28.8.2013 at an estimated cost of ₹7348 lakh, which included IDC of ₹361 lakh. The approved apportioned cost for the instant Asset I and Asset II is ₹1023.69 lakh and ₹748.67 lakh respectively. Further, RCE for the project was accorded by Board of Directors of the petitioner company vide memorandum C/CP/RCE-ERSS VIII dated 19.2.2016 at an estimated cost of ₹9568 lakh including IDC of ₹111 lakh. The revised approved apportioned cost for the instant Asset I and Asset II were submitted vide affidavit dated 11.3.2016 and it is ₹1043.34 lakh and ₹1044.82 lakh respectively.

(b) The scope of the instant project is as under:-

**Installation of Bus Reactor**

- (i) 2 x 125 MVAR bus reactor at Muzaffarpur (one 125 MVAR reactor would be installed by replacing the existing 63 MVAR bus reactor at Muzaffarpur, which shall be used as spare).
- (ii) 1x125 MVAR bus reactor at Rourkela.
- (iii) 1x125 MVAR bus reactor at Indravati
- (iv) Replacement of existing 1x63 MVAR bus reactor with 1x125 MVAR bus reactor at Jeypore (63 MVAR reactor thus released shall be used as spare reactor)



### Shifting of Line Reactor

- (i) Shifting of 2x50 MVAR line reactor from Patna end of 400kV Kahalgaon/Barh
- (ii) Patna D/C line to Balia end of 400kV Patna-Balia D/c line.

### Augmentation of Transformation Capacity

- (i) Addition of 1x500 MVA, 400/220kV ICT with associated bays at Subhashgram along with 2 nos. of 220kV equipped line bays.
- (c) The petitioner has revised the tariff forms based on actual COD and claimed the transmission charges vide affidavit dated 18.1.2016 as under:-

#### Asset I

(₹ in lakh)

Particulars	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Depreciation	26.35	51.7	54.49	54.49
Interest on Loan	28.59	53.14	51.79	47.22
Return on Equity	29.36	57.6	60.71	60.71
Interest on Working Capital	4.22	7.3	7.52	7.54
O&M Expenses	41.2	64.37	66.51	68.71
<b>Total</b>	<b>129.72</b>	<b>234.11</b>	<b>241.02</b>	<b>238.67</b>

#### Asset II

(₹ in lakh)

Particulars	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Depreciation	10.63	41.71	44.36	44.36
Interest on Loan	13.29	49.79	49.02	44.79
Return on Equity	11.85	46.48	49.42	49.42
Interest on Working Capital	1.96	6.73	6.96	6.99
O&M Expenses	20.6	64.37	66.51	68.71
<b>Total</b>	<b>58.33</b>	<b>209.08</b>	<b>216.27</b>	<b>214.27</b>



(d) The details submitted by the petitioner in support of its claim for interest on working capital are given hereunder:-

#### Asset I

(₹ in lakh)				
Particulars	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Maintenance Spares	5.19	5.36	5.54	5.73
O & M Expenses	9.35	9.66	9.98	10.31
Receivables	32.69	39.02	40.17	39.78
Total	47.23	54.04	55.69	55.82
Rate of Interest (%)	13.50	13.50	13.50	13.50
<b>Interest</b>	<b>4.22</b>	<b>7.30</b>	<b>7.52</b>	<b>7.54</b>

#### Asset II

(₹ in lakh)				
Particulars	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Maintenance Spares	5.19	5.36	5.54	5.73
O & M Expenses	9.35	9.66	9.98	10.31
Receivables	29.40	34.85	36.05	35.71
Total	43.94	49.87	51.57	51.75
Rate of Interest (%)	13.50	13.50	13.50	13.50
<b>Interest</b>	<b>1.96</b>	<b>6.73</b>	<b>6.96</b>	<b>6.99</b>

4. The AFC for the instant assets was allowed under Regulation 7(7) of the 2014 Tariff Regulations for inclusion in the PoC charges vide order dated 15.9.2015 based on anticipated COD. The petitioner has submitted additional information vide affidavits dated 18.1.2016 and 11.3.2016. The petitioner has submitted the revised tariff forms vide affidavit dated 18.1.2016 along with the Auditor's Certificate dated 14.1.2016 for actual COD and the same has been considered for the purpose of computation of tariff.

5. The petitioner has served the petition to the respondents and notice of this application has been published in the newspapers in accordance with Section 64



of the Electricity Act, 2003 (“the Act”). GRIDCO has filed its reply vide affidavit dated 19.8.2015. Having heard the representatives of the petitioner and perused the material on record, we proceed to dispose of the petition.

### **Commercial Operation Date (“COD”)**

6. The petitioner has claimed the date of the commercial operation of the instant transmission Asset I as 03.08.2015 and Asset II as 02.12.2015. Regulation 4(3) of the 2014 Tariff Regulations provides as follows:-

**“4. Date of Commercial Operation:** The date of commercial operation of a generating station or unit or block thereof or a transmission system or element thereof shall be determined as under:

xxx

(3) Date of commercial operation in relation to a transmission system shall mean the date declared by the transmission licensee from 0000 hour of which an element of the transmission system is in regular service after successful trial operation for transmitting electricity and communication signal from sending end to receiving end:

xxx  
xxx”

7. The petitioner, vide affidavit dated 18.1.2016, has submitted the letters issued by Regional Inspectorial Organisation, CEA, Kolkata dated 28.7.2015 and 30.11.2015 in support of the claim of commercial operation of Asset I and Asset II respectively. The petitioner has submitted the RLDC certificates dated 1.1.2016 and 11.1.2016 for Asset I and Asset II respectively in accordance with Regulation 5(2) of the 2014 Tariff Regulations indicating completion of successful trial operation. Accordingly, the commercial operation date of the transmission asset has been considered as 3.8.2015 for Asset I and 2.12.2015 for Asset II.

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The tariff is worked out from 3.8.2015 to 31.3.2019 for Asset I and from 2.12.2015 to 31.3.2019 for Asset II.

### **Capital Cost**

8. The petitioner initially claimed capital cost of ₹817.32 lakh for Asset I and ₹700.20 lakh for Asset II as on COD in the petition. Later, vide affidavit dated 18.1.2016 has submitted the revised tariff forms. In the revised tariff forms and Auditor`s Certificates, the petitioner has claimed the following costs:-

(₹ in lakh)

	Approved apportioned cost as per FR	Approved apportioned cost as per RCE	Capital cost as on COD	Additional capital expenditure		Estimated completion cost as on 31.3.2019
				2015-16	2016-17	
Asset I	1023.69	1043.34	591.31	340.64	100.00	1031.95
Asset II	748.67	1044.82	478.41	261.66	100.00	840.07

9. Regulation 9 (1) and (2) and 10 (1) of the 2014 Tariff Regulations specify as follows:-

**“9. Capital Cost:** (1) The Capital cost as determined by the Commission after prudence check in accordance with this regulation shall form the basis of determination of tariff for existing and new projects.

(2) The Capital Cost of a new project shall include the following:

- a) the expenditure incurred or projected to be incurred up to the date of commercial operation of the project;
- b) Interest during construction and financing charges, on the loans (i) being equal to 70% of the funds deployed, in the event of the actual equity in excess of 30% of the funds deployed, by treating the excess equity as normative loan, or (ii) being equal to the actual amount of loan in the event of the actual equity less than 30% of the funds deployed;
- c) Increase in cost in contract packages as approved by the Commission;
- d) Interest during construction and incidental expenditure during construction as computed in accordance with Regulation 11 of these regulations;



- e) capitalised Initial spares subject to the ceiling rates specified in Regulation 13 of these regulations;
- f) expenditure on account of additional capitalization and de-capitalisation determined in accordance with Regulation 14 of these regulations;
- g) adjustment of revenue due to sale of infirm power in excess of fuel cost prior to the COD as specified under Regulation 18 of these regulations; and
- h) adjustment of any revenue earned by the transmission licensee by using the assets before COD.”

**“10. Prudence Check of Capital Expenditure:** The following principles shall be adopted for prudence check of capital cost of the existing or new projects:

(1) In case of the thermal generating station and the transmission system, prudence check of capital cost may be carried out taking into consideration the benchmark norms specified/to be specified by the Commission from time to time: Provided that in cases where benchmark norms have not been specified, prudence check may include scrutiny of the capital expenditure, financing plan, interest during construction, incidental expenditure during construction for its reasonableness, use of efficient technology, cost over-run and time over-run, competitive bidding for procurement and such other matters as may be considered appropriate by the Commission for determination of tariff.”

10. The capital cost claimed by the petitioner is considered for the purpose of tariff computation subject to prudence check as discussed in subsequent paragraph.

### **IDC and IEDC**

11. The petitioner vide Auditor`s Certificate dated 14.1.2016 has submitted IDC and IEDC upto COD on accrual basis is ₹8.12 lakh and ₹16.67 lakh for Asset I and ₹18.98 lakh and ₹8.40 lakh for Asset II respectively. The petitioner has further submitted the IDC discharged as below:-

### **Asset I**

In Para 3.7, Page 4 of affidavit dated 18.1.2016 the petitioner has submitted that out of total IDC of ₹8.12 lakh , no IDC was discharged upto COD and balance





₹2.51 lakh and ₹5.61 lakh has been discharged during 2015-16 and 2016-17 respectively.

### **Asset II**

Out of total IDC of ₹18.92 lakh, ₹18.82 lakh has been discharged upto COD and balance ₹0.09 lakh and ₹0.08 lakh has been discharged during 2015-16 and 2016-17 respectively.

12. For determination of tariff for the 2014-19 tariff period, we have considered the capital cost as on COD of Asset I and Asset II after adjusting the IDC and IEDC discharged on cash basis.

### **Time Over-run**

13. As per the investment approval, the commissioning schedule of the project is 20 months from the date of investment approval. The investment approval was accorded on 27.8.2013 and hence the schedule date of commercial operation was 27.4.2015. The date of the commercial operation of the Asset I and Asset II were 3.8.2015 and 2.12.2015 respectively. Hence there is time over-run of 4 months and 8 months in case of Asset I and Asset II respectively. GRIDCO has submitted that the time over-run in case of the instant assets is attributable to the petitioner and the time over-run should not be condoned.

14. As regards Asset I, the petitioner has submitted that the delay in commissioning is due to the slow progress of work as the work was to be done in charged condition of the Sub-station. The petitioner has submitted that the work required shutdowns/isolations and listed out instances of shutdowns and nature



of work carried out during the period. The petitioner has also submitted that on occasions, there was time gap between shutdown sought and its corresponding approval.

15. As regards Asset II, the petitioner has submitted that the delay in commissioning is due to revision in the scope of work for the asset. The original scope of work was approved in the first 2012 Standing Committee of ERPC on 8.2.2012. In this meeting, the replacement of existing 63 MVAR bus reactor at 400 kV Jeypore Sub-station with new 1x125 MVAR bus reactor on the same foundation was discussed and agreed. The petitioner has submitted that in view of high voltage problem at Jeypore Sub-station, later on in the Standing Committee meeting on Power System Planning held at NRPC, New Delhi on 2.5.2014, it was agreed that the 125 MVAR bus reactor shall be installed as separate bus reactor (in parallel to existing 63 MVAR bus reactor). The petitioner has further submitted that due to revision in scope of work the engineering drawings, designs and layout got revised and attributed to delay.

16. We have considered the submissions of the petitioner with regard to the time over-run in case of Asset I. The petitioner has submitted that the work was to be carried out in the existing charged sub-station and it takes more time. In order dated 6.1.2015 in Petition No. 206/TT/2012 in a similar situation, the Commission observed that the petitioner was aware that the work was to be carried out in existing charged sub-station and taking into consideration other factors disallowed the time over-run of 6 months. In the instant case, the



petitioner was aware that the work was to be carried in an existing charged sub-station and accordingly taken this aspect into consideration at the time of planning and followed prudent utility practice without compromising the safety for carrying out works. The petitioner has not demonstrated that it was not envisaged during the time of investment approval or at the time of planning. We are of the view that the petitioner could have avoided the time over-run if sufficient care was taken at the time of planning. We are not inclined to condone the time over-run of 4 months in case of Asset I. Accordingly, IDC and IEDC for four months in case of Asset I are disallowed.

17. As regards Asset II, the documents submitted by the petitioner depict that there was a revision in scope of work which was not foreseen during the time of Investment Approval. The revision in scope of work was approved on 2.5.2014 i.e. nine months later than the Investment Approval which is not attributable to the petitioner. Further, it is observed from Auditor's Certificate dated 14.1.2016 submitted by the petitioner that only a marginal amount of ₹0.04 lakh and ₹0.05 lakh pertaining to IDC and IEDC respectively has been incurred upto 31.3.2015 and the petitioner has not infused any funds due to change of scope in Asset II. As there is no financial liability due to time over-run on the beneficiaries, the time over-run of 8 months in the commissioning of Asset II is condoned.

<b>IDC &amp; IEDC Discharged (Asset-I)</b>	<b>IDC</b>	<b>IEDC</b>
Upto SCOD (26-4-2015))	0.00	1.32
SCOD to COD ( 26-4-2015 to 3-8-2015)	8.12	15.35
Total Claimed	8.12	16.67
<b>IDC &amp; IEDC Disallowed( 26-4-2015 to 3-8-2015)</b>	<b>8.12</b>	<b>15.35</b>



18. The petitioner vide affidavit 18.1.2016 has submitted that in case of Asset 1, out of total IDC of ₹8.12 lakh, no IDC discharged upto COD and balance ₹2.51 lakh and ₹5.61 lakh has been discharged during 2015-16 and 2016-17 respectively. As total IDC is disallowed, the IDC discharged during 2015-16 and 2016-17 is also deducted as shown below:-

(₹ in lakh)

	Approved apportioned cost as per FR	Approved apportioned cost as per RCE	Capital cost as on COD
<b>Asset I</b>	1023.69	1043.34	567.84*
<b>Asset II</b>	748.67	1044.82	478.24** (478.41-0.17)

\*after deducting IDC of ₹8.12 lakh and IEDC of ₹15.35 lakh

\*\*after deducting IDC of ₹0.17 lakh

19. GRIDCO has submitted that the petitioner should clarify whether it has included initial spares in the sub-station equipment. The petitioner has not claimed any initial spares for the instant transmission asset and accordingly it has not allowed any initial spares.

### **Additional Capital Expenditure**

20. The petitioner has proposed the following additional capitalization towards balance and retention payment under Regulation 14(1) (i) of 2014 Tariff Regulations. The petitioner has claimed additional capitalization of ₹340.64 lakh and ₹100.00 lakh for Asset I and ₹261.66 lakh and ₹100.08 lakh for Asset II for the years 2015-16 and 2016-17 respectively.



21. In response to a query, the petitioner has submitted vide affidavit dated 18.1.2016, that in case of Asset 1, out of total IDC of ₹8.12 lakh, nothing was discharged upto COD and ₹2.51 lakh and ₹5.61 lakh has been discharged during 2015-16 and 2016-17 respectively. As total IDC is disallowed, the IDC discharged during 2015-17 and 2016-17 is also deducted.

22. It is observed that total estimated completion cost of ₹1023.83 lakh including the additional capitalization of ₹340.64 lakh and ₹100.00 lakh for Asset I is within the approved apportioned cost of ₹1043.34 lakh. Similarly, total estimated completion cost of ₹840.07 lakh including the additional capitalization of ₹261.75 lakh and ₹100.08 lakh for Asset II is within the approved apportioned cost of ₹1044.82 lakh. Accordingly, additional capitalization for both Asset I and Asset II is allowed under Regulation 14(1)(i) of 2014 Tariff Regulations as below:-

(₹ in lakh)

	Approved Apportioned Cost as per FR	Approved Apportioned Cost as per RCE	Capital cost as on COD	Additional Capital Expenditure		Estimated Completion Cost as on 31.3.2019
				2015-16	2016-17	
Asset I	1023.69	1043.34	567.84*	340.64	100.00	1008.48
Asset II	748.67	1044.82	478.24** (478.41-0.17)	261.75*** (261.66+0.09)	100.08*** (100+0.08)	840.07

\*after deducting IDC of ₹8.12 lakh and IEDC of ₹15.35 lakh

\*\*after deducting IDC of ₹0.17 lakh

\*\*\*addition of IDC of ₹0.09 lakh and ₹0.08 lakh discharged on 2015-16 and 2016-17 respectively

### **Debt: Equity Ratio**

23. Regulation 19 (1) of the 2014 Tariff Regulations specifies as under:-



**“19. Debt-Equity Ratio:** (1) For a project declared under commercial operation on or after 1.4.2014, the debt-equity ratio would be considered as 70:30 as on COD. If the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan:\*

Provided that:

- i. where equity actually deployed is less than 30% of the capital cost, actual equity shall be considered for determination of tariff:
- ii. the equity invested in foreign currency shall be designated in Indian rupees on the date of each investment:
- iii. any grant obtained for the execution of the project shall not be considered as a part of capital structure for the purpose of debt : equity ratio.”

24. The petitioner has considered debt: equity ratio as 70:30 as on COD for both Asset I and Asset II. We have considered debt: equity ratio of 70:30 as on COD and for additional capitalization during 2015-16 and 2016-17 for both Asset I and Asset II. The details of the debt: equity as on the date of COD for both Asset I and Asset II considered for the purpose of tariff computation for the 2014-19 tariff period are as follows:-

#### Asset I

(₹ in lakh)

	As on COD		Additional capitalization during 2014-19		As on 31.3.2019	
	Amount	(%)	Amount	(%)	Amount	(%)
Debt	397.50	70.00	308.45	70.00	705.95	70.00
Equity	170.34	30.00	132.19	30.00	302.53	30.00
<b>Total</b>	<b>567.84</b>	<b>100.00</b>	<b>440.64</b>	<b>100.00</b>	1008.48	<b>100.00</b>

#### Asset II

(₹ in lakh)

	As on COD		Additional capitalization during 2014-19		As on 31.3.2019	
	Amount	(%)	Amount	(%)	Amount	(%)
Debt	334.77	70.00	253.28	70.00	588.05	70.00



Equity	143.47	30.00	108.55	30.00	252.02	30.00
<b>Total</b>	<b>478.24</b>	<b>100.00</b>	361.83	<b>100.00</b>	840.07	<b>100.00</b>

**Interest on Loan (“IOL”)**

25. Clause (5) & (6) of Regulation 26 of the 2014 Tariff Regulations provides as under:-

“(5) The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio after providing appropriate accounting adjustment for interest capitalized:

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 or the transmission system, as the case may be, does not have actual loan, then the weighted average rate of interest of the generating company or the transmission licensee as a whole shall be considered.

(6) The interest on loan shall be calculated on the normative average loan of the year by applying the weighted average rate of interest.”

26. We have considered the weighted average rate of IOL on the basis of rate prevailing as on 1.4.2014. Further, the petitioner has prayed to allow it to bill and adjust impact on interest on loan due to change in interest rate on account of floating rate of interest applicable during 2014-19 period, if any from the respondents. The IOL has been worked out in accordance with Regulation 26 of the 2014 Tariff Regulations. The petitioner’s prayer to bill and adjust the impact on interest on loan due to change in interest rate on account of floating rate of interest applicable during 2014-19 period from the respondents will be considered at the time of truing up. The details of weighted average rate of interest are placed at **Annexure-I** and the IOL has been worked out as follows:-



## Asset I

(₹ in lakh)

Particulars	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Gross loan opening	397.50	635.95	705.95	705.95
Cumulative Repayment upto previous year	0.00	25.77	76.38	129.63
Net Loan-Opening	397.50	610.18	629.57	576.32
Additions during the year	238.45	70.00	0.00	0.00
Repayment during the year	25.77	50.61	53.25	53.25
Net Loan-Closing	610.18	629.57	576.32	523.07
Average Loan	503.84	619.87	602.94	549.70
Rate of Interest (%)	8.3921%	8.3921%	8.3921%	8.3921%
<b>Interest</b>	<b>27.96</b>	<b>52.02</b>	<b>50.60</b>	<b>46.13</b>

## Asset II

(₹ in lakh)

Particulars	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Gross loan opening	334.77	517.99	588.05	588.05
Cumulative Repayment upto previous year	0.00	10.63	52.35	96.70
Net Loan-Opening	334.77	507.36	535.70	491.35
Additions during the year	183.23	70.06	0.00	0.00
Repayment during the year	10.63	41.71	44.36	44.36
Net Loan-Closing	507.36	535.70	491.35	446.99
Average Loan	421.06	521.53	513.52	469.17
Rate of Interest (%)	9.5469%	9.5469%	9.5469%	9.5493%
<b>Interest</b>	<b>13.29</b>	<b>49.79</b>	<b>49.03</b>	<b>44.80</b>

### Return on Equity (“ROE”)

27. Clause (1) & (2) of Regulation 24 and Clause (2) of Regulation 25(2) of the 2014 Tariff Regulations specify as under:-

**“24. Return on Equity:** (1) Return on equity shall be computed in rupee terms, on the equity base determined in accordance with regulation 19.

(2) Return on equity shall be computed at the base rate of 15.50% for thermal generating stations, transmission system including communication system and run of the river hydro generating station, and at the base rate of 16.50% for the





storage type hydro generating stations including pumped storage hydro generating stations and run of river generating station with pondage:

xxx

xxx”

**“25. Tax on Return on Equity:**

(2) Rate of return on equity shall be rounded off to three decimal places and shall be computed as per the formula given below:

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

Where “t” is the effective tax rate in accordance with Clause (1) of this regulation and shall be calculated at the beginning of every financial year based on the estimated profit and tax to be paid estimated in line with the provisions of the relevant Finance Act applicable for that financial year to the company on pro-rata basis by excluding the income of non-generation or non-transmission business, as the case may be, and the corresponding tax thereon. In case of generating company or transmission licensee paying Minimum Alternate Tax (MAT), “t” shall be considered as MAT rate including surcharge and cess.”

28. The petitioner has claimed ROE at the rate of 20.961% after grossing up the ROE of 15.5% with MAT rate as per the above said Regulation. The petitioner has further submitted that the grossed up ROE is subject to truing up based on the actual tax paid along with any additional tax or interest, duly adjusted for any refund of tax including the interest received from IT authorities, pertaining to the tariff period 2014-19 on actual gross income of any financial year. Any under-recovery or over-recovery of grossed up ROE after truing up shall be recovered or refunded to the beneficiaries on year to year basis.

29. The petitioner has further submitted that adjustment due to any additional tax demand including interest duly adjusted for any refund of the tax including



interest received from IT authorities shall be recoverable/adjustable after completion of income tax assessment of the financial year.

30. We have considered the submissions made by the petitioner. Regulation 24 read with Regulation 25 of the 2014 Tariff Regulations provides for grossing up of return on equity with the effective tax rate for the purpose of return on equity. It further provides that in case the generating company or transmission licensee is paying Minimum Alternative Tax (MAT), the MAT rate including surcharge and cess will be considered for the grossing up of return on equity. The petitioner has submitted that MAT rate is applicable to the petitioner's company. Accordingly, the MAT rate applicable during 2013-14 has been considered for the purpose of return on equity, which shall be trued up with actual tax rate in accordance with Regulation 25 (3) of the 2014 Tariff Regulations. The ROE allowed for the instant transmission assets is given below:-

#### Asset I

(₹ in lakh)				
Particulars	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Opening Equity	170.34	272.53	302.53	302.53
Additional Capitalization	102.19	30.00	0.00	0.00
Closing Equity	272.53	302.53	302.53	302.53
Average Equity	221.44	287.53	302.53	302.53
Return on Equity (Base Rate) (%)	15.50%	15.50%	15.50%	15.50%
Tax rate for the year (%)	20.961%	20.961%	20.961%	20.961%
Rate of Return on Equity (Pre Tax) (%)	19.610%	19.610%	19.610%	19.610%
<b>Return on Equity (Pre Tax)</b>	<b>28.71</b>	<b>56.39</b>	<b>59.33</b>	<b>59.33</b>



## Asset II

(₹ in lakh)

Particulars	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Opening Equity	143.47	222.00	252.02	252.02
Additional Capitalization	78.53	30.02	0.00	0.00
Closing Equity	222.00	252.02	252.02	252.02
Average Equity	182.73	237.01	252.02	252.02
Return on Equity (Base Rate) (%)	15.500%	15.500%	15.500%	15.500%
Tax rate for the year (%)	20.961%	20.961%	20.961%	20.961%
Rate of Return on Equity (Pre Tax) (%)	19.610%	19.610%	19.610%	19.610%
<b>Return on Equity (Pre Tax)</b>	<b>11.85</b>	<b>46.48</b>	<b>49.42</b>	<b>49.42</b>

### Depreciation

31. Clause (2), (5) and (6) of Regulation 27 of the 2014 Tariff Regulations provide as follows:-

#### **"27. Depreciation:**

(2) The value base for the purpose of depreciation shall be the capital cost of the asset admitted by the Commission. In case of multiple units of a generating station or multiple elements of transmission system, weighted average life for the generating station of the transmission system shall be applied. Depreciation shall be chargeable from the first year of commercial operation. In case of commercial operation of the asset for part of the year, depreciation shall be charged on pro rata basis”

“(5) Depreciation shall be calculated annually based on Straight Line Method and at rates specified in **Appendix-II** to these regulations for the assets of the generating station and transmission system:

Provided that the remaining depreciable value as on 31st March of the year closing after a period of 12 years from the effective date of commercial operation of the station shall be spread over the balance useful life of the assets.

(6) In case of the existing projects, the balance depreciable value as on 1.4.2014 shall be worked out by deducting the cumulative depreciation as admitted by the Commission upto 31.3.2014 from the gross depreciable value of the assets.”



32. Clause (67) of Regulation 3 of the 2014 Tariff Regulations defines useful life as follows:-

“(67) ‘Useful life’ in relation to a unit of a generating station and transmission system from the COD shall mean the following, namely:

- (a) Coal/Lignite based thermal generating station 25 years
- (b) Gas/Liquid fuel based thermal generating station 25 years
- (c) AC and DC sub-station 25 years
- (d) Gas Insulated Substation (GIS) 25 years
- (d) Hydro generating station including pumped Storage hydro generating stations 35 years
- (e) Transmission line (including HVAC & HVDC) 35 years
- (f) Communication system 15 years”

33. The petitioner has claimed depreciation considering the following:-

**Asset I**

Capital expenditure of ₹583.19 lakh as on 3.8.2015 with additional capitalization of ₹343.15 lakh and ₹105.61 lakh for the 2014-19 tariff period.

**Asset II**

Capital expenditure of ₹478.41 lakh as on 2.12.2015 with additional capitalization of ₹261.66 lakh and ₹100.00 lakh for the 2014-19 tariff period.

34. As regards Asset I, we have computed depreciation considering capital expenditure of ₹567.84 lakh and additional capitalization of ₹340.64 lakh and ₹100.00 lakh for 2015-16 and 2016-17 respectively. As regards Asset II, Capital expenditure of ₹478.24 lakh and additional capitalization of ₹261.75 lakh and ₹100.08 lakh for 2015-16 and 2016-17 respectively



35. The weighted average useful life of the asset has been considered as 25 years in accordance with the above regulation. The details of the depreciation allowed are given hereunder:-

### Asset I

Particulars	(₹ in lakh)			
	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Opening Gross block	567.84	908.48	1008.48	1008.48
Additional Capitalization	340.64	100.00	0.00	0.00
Closing Gross block	908.48	1008.48	1008.48	1008.48
Average Gross block	738.16	958.48	1008.48	1008.48
Rate of Depreciation (%)	5.28%	5.28%	5.28%	5.28%
Depreciable Value	664.34	1015.92	952.63	907.63
Elapsed Life of the assets at beginning of the year	25	24	23	22
Weighted Balance Useful life of the assets	-	1	2	3
Remaining Depreciable Value	664.34	836.86	831.25	778.01
Depreciation during the year	25.77	50.61	53.25	53.25
Depreciation upto previous year	0.00	25.77	76.38	129.63
Cumulative depreciation	25.77	76.38	129.63	182.87

### Asset II

Particulars	(₹ in lakh)			
	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Opening Gross block	478.24	739.99	840.07	840.07
Additional Capitalization	261.75	100.08	0.00	0.00
Closing Gross block	739.99	840.07	840.07	840.07
Average Gross block	609.12	790.03	840.07	840.07
Rate of Depreciation (%)	5.28%	5.28%	5.28%	5.28%
Depreciable Value	548.20	828.81	801.10	756.06



Particulars	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Elapsed Life of the assets at beginning of the year	1.00	2.00	3.00	4.00
Weighted Balance Useful life of the assets	25.00	24.00	23.00	22.00
Remaining Depreciable Value	117.79	269.98	273.30	228.94
Depreciation during the year	10.63	41.71	44.36	44.36
Depreciation upto previous year	0.00	10.63	52.35	96.70
Cumulative depreciation	10.63	52.35	96.70	141.06

### **Operation & Maintenance Expenses (“O&M Expenses”)**

36. The instant petition covers one 400 kV bay for Asset I and one 400 kV bay for Asset II. The petitioner has claimed O&M Expenses as specified in sub-clause (a) of clause (4) of Regulation 29 of the 2014 Tariff Regulations. GRIDCO has submitted that increase in employee cost, if any, due to wage revision must be taken care by improvement in their productivity levels by the petitioner so that the beneficiaries are not unduly burdened over and above the 2014 tariff Regulations. Regulation 29(4)(a) of the 2014 Tariff Regulations specifies the following norms for O&M Expenses for a 400 kV bay:-

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
<b>Norm (₹ lakh/bay)</b>					
400 kV	60.30	62.30	64.37	66.51	68.71

37. The petitioner has submitted that norms for O&M Expenses for the tariff period 2014-19 have been arrived on the basis of normalized actual O&M Expenses during the period 2008-13. The petitioner has further submitted that



the wage revision of the employees of the petitioner is due during the 2014-19 tariff period and actual impact of wage hike, which will be effective at a future date, has not been factored in fixation of the normative O&M rate specified for the tariff period 2014-19. The petitioner has prayed to be allowed to approach the Commission for suitable revision in the norms of O&M Expenses for claiming the impact of such increase.

38. The details of O&M Expenses allowed are given hereunder:-

(₹ in lakh)				
Asset	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Asset I: One 400 kV bay	41.19	64.37	66.51	68.71
Asset II: One 400 kV bay	20.60	64.37	66.51	68.71

39. The O&M Expenses have been worked out as per the norms of O&M Expenses specified in the 2014 Tariff Regulations. As regards impact of wage revision, any application filed by the petitioner in this regard will be dealt with in accordance with the appropriate provisions of the 2014 Tariff Regulations.

#### **Interest on Working Capital (“IWC”)**

40. As per 2014 Tariff Regulations the components of the working capital and the interest thereon are discussed hereinafter:-

##### **(i) Receivables**

As per Regulation 28(1) (c) (i) of the 2014 Tariff Regulations, receivables will be equivalent to two months average billing calculated on target



availability level. The petitioner has claimed the receivables on the basis of 2 months transmission charges claimed in the petition. In the tariff being allowed, receivables have been worked out on the basis of 2 months transmission charges.

**(ii) Maintenance Spares**

Regulation 28 (1) (c) (ii) of the 2014 Tariff Regulations provides for maintenance spares @ 15% per annum of the O&M Expenses from 1.4.2014. The petitioner has claimed maintenance spares for the instant asset and value of maintenance spares has accordingly been worked out as 15% of O&M Expenses.

**(iii) O & M Expenses**

Regulation 28 (1) (c) (iii) of the 2014 Tariff Regulations provides for operation and maintenance expenses for one month to be included in the working capital. The petitioner has claimed O & M Expenses for the instant asset and value of O & M Expenses has accordingly been worked out by considering 1 month O&M Expenses.

**(iv) Rate of interest on working capital**

Rate of interest on working capital shall be on normative basis and shall be considered as the bank rate as on 1.4.2014 or as on 1st April of the year during the tariff period 2014-15 to 2018-19 in which the transmission system including communication system or element thereof, as the case





may be, is declared under commercial operation, whichever is later. Further, the Bank Rate' means the base rate of interest as specified by the State Bank of India from time to time or any replacement thereof for the time being in effect plus 350 basis points. The rate of interest on working capital considered is 13.50% (SBI Base Rate of 10% plus 350 basis points).

41. The interest on working capital allowed is shown in the tables below:-

**Asset I**

(₹ in lakh)				
Particulars	2015-16 (pro-rata)	2016-17	2017-18	2018-19
O & M expenses	5.19	5.36	5.54	5.72
Maintenance Spares	9.35	9.66	9.98	10.31
Receivables	32.22	38.43	39.52	39.14
<b>Total</b>	<b>46.75</b>	<b>53.45</b>	<b>55.04</b>	<b>55.17</b>
Rate of Interest (%)	13.50%	13.50%	13.50%	13.50%
<b>Interest</b>	<b>4.17</b>	<b>7.22</b>	<b>7.43</b>	<b>7.45</b>

**Asset II**

(₹ in lakh)				
Particulars	2015-16 (pro-rata)	2016-17	2017-18	2018-19
O & M expenses	5.19	5.36	5.54	5.72
Maintenance Spares	9.35	9.66	9.98	10.31
Receivables	29.40	34.85	36.05	35.71
<b>Total</b>	<b>43.94</b>	<b>49.86</b>	<b>51.56</b>	<b>51.74</b>
Rate of Interest (%)	13.500%	13.500%	13.500%	13.500%
<b>Interest</b>	<b>1.96</b>	<b>6.73</b>	<b>6.96</b>	<b>6.99</b>

**Annual Transmission Charges**



42. The detailed computation of the various components of the annual fixed charges for the transmission assets for the tariff period 2014-19 is summarised below:-

### Asset I

(₹ in lakh)

Particulars	2015-16 (pro-rata)	2016-17	2017-18	2018-19
<b>Depreciation</b>				
Opening Gross Block	567.84	908.48	1008.48	1008.48
Additional Capitalisation	340.64	100.00	0.00	0.00
Closing Gross Block	908.48	1008.48	1008.48	1008.48
Average Gross Block	738.16	958.48	1008.48	1008.48
Freehold Land (Av. Cost)	0.00	0.00	0.00	0.00
Rate of Depreciation (%)	5.28%	5.28%	5.28%	5.28%
Depreciable Value	664.34	1015.92	952.63	907.63
Balance useful life of the asset	25.00	24.00	23.00	22.00
Elapsed life	0.00	1.00	2.00	3.00
Remaining Depreciable Value	664.34	836.86	831.25	778.01
Depreciation during the year	25.77	50.61	53.25	53.25
Depreciation upto previous year	0.00	25.77	76.38	129.63
Cumulative depreciation	25.77	76.38	129.63	182.87
<b>Interest on Loan</b>				
Gross Normative Loan	397.50	635.95	705.95	705.95
Cumulative Repayment upto Previous Year	0.00	25.77	76.38	129.63
Net Loan-Opening	397.50	610.18	629.57	576.32
Additions	238.45	70.00	0.00	0.00
Repayment during the year	25.77	50.61	53.25	53.25
Net Loan-Closing	610.18	629.57	576.32	523.07
Average Loan	503.84	619.87	602.94	549.70
Weighted Average Rate of Interest on Loan (%)	8.3921%	8.3921%	8.3921%	8.3921%
Interest on Loan	27.96	52.02	50.60	46.13



Particulars	2015-16 (pro-rata)	2016-17	2017-18	2018-19
<b>Return on Equity</b>				
Opening Equity	170.34	272.53	302.53	302.53
Additions	102.19	30.00	0.00	0.00
Closing Equity	272.53	302.53	302.53	302.53
Average Equity	221.44	287.53	302.53	302.53
Return on Equity (Base Rate) (%)	15.500%	15.500%	15.500%	15.500%
MAT rate for the respective year (%)	20.961%	20.961%	20.961%	20.961%
Rate of Return on Equity (%)	19.610%	19.610%	19.610%	19.610%
Return on Equity	28.71	56.39	59.33	59.33
<b>Interest on Working Capital</b>				
O & M expenses	5.19	5.36	5.54	5.72
Maintenance Spares	9.35	9.66	9.98	10.31
Receivables	32.22	38.43	39.52	39.14
Total	46.75	53.45	55.04	55.17
Rate of Interest (%)	13.50%	13.50%	13.50%	13.50%
Interest on Working Capital	4.17	7.22	7.43	7.45
<b>Annual Transmission Charges</b>				
Depreciation	25.77	50.61	53.25	53.25
Interest on Loan	27.96	52.02	50.60	46.13
Return on Equity	28.71	56.39	59.33	59.33
Interest on Working Capital	4.17	7.22	7.43	7.45
O & M Expenses	41.19	64.37	66.51	68.71
<b>Total</b>	<b>127.81</b>	<b>230.60</b>	<b>237.12</b>	<b>234.87</b>

## Asset II

(₹ in lakh)

Particulars	2015-16 (pro-rata)	2016-17	2017-18	2018-19
<b>Depreciation</b>				
Opening Gross Block	478.24	739.99	840.07	840.07
Additional Capitalisation	261.75	100.08	0.00	0.00
Closing Gross Block	739.99	840.07	840.07	840.07
Average Gross Block	609.12	790.03	840.07	840.07
Freehold Land (Av. Cost)	0.00	0.00	0.00	0.00
Rate of Depreciation (%)	5.28%	5.28%	5.28%	5.28%
Depreciable Value	548.20	828.81	801.10	756.06



Particulars	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Balance useful life of the asset	25.00	24.00	23.00	22.00
Elapsed life	1.00	2.00	3.00	4.00
Remaining Depreciable Value	117.79	269.98	273.30	228.95
Depreciation during the year	10.63	41.71	44.36	44.36
Depreciation upto previous year	0.00	10.63	52.35	96.70
Cumulative depreciation (incl. of AAD)	10.63	52.35	96.70	141.06
<b>Interest on Loan</b>				
Gross Normative Loan	334.77	517.99	588.05	588.05
Cumulative Repayment upto Previous Year	0.00	10.63	52.35	96.70
Net Loan-Opening	334.77	507.36	535.70	491.35
Additions	183.23	70.06	0.00	0.00
Repayment during the year	10.63	41.71	44.36	44.36
Net Loan-Closing	507.36	535.70	491.35	446.99
Average Loan	421.06	521.53	513.53	469.17
Weighted Average Rate of Interest on Loan (%)	9.5469%	9.5469%	9.5469%	9.5493%
Interest on Loan	13.29	49.79	49.03	44.80
<b>Return on Equity</b>				
Opening Equity	143.47	222.00	252.02	252.02
Additions	78.53	30.02	0.00	0.00
Closing Equity	222.00	252.02	252.02	252.02
Average Equity	182.73	237.01	252.02	252.02
Return on Equity (Base Rate)(%)	15.500%	15.500%	15.500%	15.500%
MAT rate for the respective year (%)	20.961%	20.961%	20.961%	20.961%
Rate of Return on Equity (%)	19.610%	19.610%	19.610%	19.610%
Return on Equity	11.85	46.48	49.42	49.42
<b>Interest on Working Capital</b>				
O & M expenses	5.19	5.36	5.54	5.72
Maintenance Spares	9.35	9.66	9.98	10.31
Receivables	29.40	34.85	36.05	35.71
Total	43.94	49.86	51.56	51.74
Rate of Interest (%)	13.50%	13.50%	13.50%	13.50%
Interest on Working Capital	1.96	6.73	6.96	6.99



Particulars	2015-16 (pro-rata)	2016-17	2017-18	2018-19
<b>Annual Transmission Charges</b>				
Depreciation	10.63	41.71	44.36	44.36
Interest on Loan	13.29	49.79	49.03	44.80
Return on Equity	11.85	46.48	49.42	49.42
Interest on Working Capital	1.96	6.73	6.96	6.99
O & M Expenses	20.60	64.37	66.51	68.71
<b>Total</b>	<b>58.33</b>	<b>209.08</b>	<b>216.27</b>	<b>214.28</b>

### **Filing Fee and Publication Expenses**

43. The petitioner has sought reimbursement of fee paid by it for filing the petition and publication expenses, in terms of Regulation 52 of the 2014 Tariff Regulations. GRIDCO has submitted that filing fee and publication expenses can be allowed at the discretion of the Commission as per Regulation 52(1) of the 2014 Tariff Regulations. GRIDCO has further submitted that was disallowed in order dated 11.9.2008 in Petition No. 129 of 2005 and the petitioner's claim in this petition is liable to be rejected. The petitioner shall be entitled for reimbursement of the filing fees and publication expenses in connection with the present petition, directly from the beneficiaries on pro-rata basis in accordance with clause (1) of Regulation 52 of the 2014 Tariff Regulations.

### **Licence Fee and RLDC Fees and Charges**



44. The petitioner has requested to allow the petitioner to bill and recover License fee and RLDC fees and charges, separately from the respondents. The petitioner shall be entitled for reimbursement of licence fee and RLDC fees and charges in accordance with Clause (2) (b) and (2)(a), respectively, of Regulation 52 of the 2014 Tariff Regulations.

### **Service Tax**

45. The petitioner has sought to recover Service Tax on Transmission Charges separately from the respondents, if at any time service tax on transmission is withdrawn from negative list in future. We are of the view that the petitioner's prayer of Service Tax is premature.

### **Sharing of Transmission Charges**

46. The billing, collection and disbursement of the transmission charges approved shall be governed by the provisions of Central Electricity Regulatory Commission (Sharing of Inter-State Transmission Charges and Losses) Regulations, 2010, as amended from time to time, as provided in Regulation 43 of the 2014 Tariff Regulations.

47. This order disposes of Petition No. 174/TT/2015.

Sd/-  
**(Dr. M. K. Iyer)**  
Member

Sd/-  
**(A.S. Bakshi)**  
Member



**ANNEXURE-I****DETAILS OF LOAN BASED ON ACTUAL LOAN PORTFOLIO 2014-19****Asset I**

Particulars	Interest Rate (%)	Loan deployed as on COD	Additions during the tariff period	Total
Bond XLVII – DOCO Loan	8.93	10.00	0.00	10.00
BOND XLVIII - DOCO Loan	8.20	42.00	0.00	42.00
Proposed Loan 2015-16 (8.40%) - DOCO Loan 1	8.40	356.24	0.00	356.24
<b>Total</b>		<b>408.24</b>	<b>0.00</b>	<b>408.24</b>

**Asset II**

Particulars	Interest Rate (%)	Loan deployed as on COD	Additions during the tariff period	Total
Bond XLVII – DOCO Loan	8.93	2.00	0.00	2.00
Proposed Domestic Loan 15-16 - 9.55% -Loan 1	9.55	332.77	0.00	332.77
<b>Total</b>		<b>334.77</b>	<b>0.00</b>	<b>334.77</b>

**CALCULATION OF WEIGHTED AVERAGE RATE OF INTEREST ON LOAN FOR TARIFF PERIOD 2014-19****Asset I**

Particulars	(₹ in lakh)			
	2015-16	2016-17	2017-18	2018-19
Gross Opening Loan	408.24	408.24	408.24	408.24
Cumulative Repayment of loan upto previous year	0.00	0.00	0.00	0.00
Net Loan Opening	408.24	408.24	408.24	408.24
Additions during the year	0.00	0.00	0.00	0.00



<b>Particulars</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>	<b>2018-19</b>
Repayment during the year	0.00	0.00	0.00	0.00
Net Loan Closing	408.24	408.24	408.24	408.24
Average Loan	408.24	408.24	408.24	408.24
Rate of Interest	8.3921%	8.3921%	8.3921%	8.3921%
Interest	<b>34.26</b>	<b>34.26</b>	<b>34.26</b>	<b>34.26</b>

## Asset II

(₹ in lakh)

<b>Particulars</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>	<b>2018-19</b>
Gross Opening Loan	334.77	334.77	334.77	334.77
Cumulative Repayment of loan upto previous year	0.00	0.00	0.00	0.00
Net Loan Opening	334.77	334.77	334.77	334.77
Additions during the year	0.00	0.00	0.00	0.00
Repayment during the year	0.00	0.00	0.00	0.17
Net Loan Closing	334.77	334.77	334.77	334.60
Average Loan	334.77	334.77	334.77	334.69
Rate of Interest	9.5469%	9.5469%	9.5469%	9.5493%
Interest	<b>31.96</b>	<b>31.96</b>	<b>31.96</b>	<b>31.96</b>

