

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

PETITION NO. 29/TT/2016

Coram:

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

**Date of Hearing: 13.06.2016
Date of Order : 29.06.2016**

In the matter of:

Determination of transmission tariff for Asset-I: 1 No. of 1x125 MVAR Bus Reactor and associated bay at 400 kV Maithon Sub-station, Asset-II: Replacement of 1 No. of 1x315 MVA, 400/220 kV ICT with 1x500 MVA, 400/220 kV ICT (1st) at 400 kV Maithon Sub-station and Asset-III: Replacement of 1 No. of 1x315 MVA, 400/220 kV ICT with 1x500 MVA, 400/220 kV ICT (2nd) at 400 kV Maithon Sub-station under Transmission System for "Eastern Region System Strengthening Scheme-IX" in Eastern Region for 2014-19 tariff block under Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 for 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-122001 (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 Rakesh Prasad, PGCIL
Shri Jasbir Singh, PGCIL
Shri M.M. Mondal, PGCIL

For Respondents: R.B.Sharma, Advocate, BSPHCL

ORDER

The petition has been preferred by Power Grid Corporation of India Limited ("the petitioner") for determination of tariff under Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 (hereinafter referred to as "the 2014 Tariff Regulations") for the period from COD to 31.3.2019 in respect of Asset-I: 1 No. of 1x125 MVAR Bus Reactor and associated bay at 400 kV Maithon Sub-station, Asset-II: Replacement of 1 No. of 1x315 MVA, 400/220 kV ICT with 1x500 MVA, 400/220 kV ICT (1st) at 400 kV Maithon Sub-station and Asset-III: Replacement of 1 No. of 1x315 MVA, 400/220 kV ICT with 1x500 MVA, 400/220 kV ICT (2nd) at 400 kV Maithon Sub-station under Transmission System for "Eastern Region System Strengthening Scheme-IX" in Eastern Region (hereinafter referred to as "the transmission assets").

2. The augmentation/replacement of transformer at Maithon by 2X500 MVA transformers was discussed and agreed in 73rd OCC meeting of ER and was also agreed in ERPC meeting. In 24th ERPC meeting held on 26th & 27th April 2013 it was agreed that the existing 2X315 MVA transformers would be used as regional spare, The scope of work covered under "Eastern Region System Strengthening Scheme-IX" is as follows:-

(i) Addition/Replacement of Bus Reactors at 400 kV Sub-stations.

- Installation of 1X125 MVAR Bus Reactor at Gazuwaka 400 kV (East) bus.
- Installation of 2X125 MVAR Bus Reactor at Rengali.
- Installation of 1X125 MVAR Bus Reactor at Maithon.
- Installation of 1X125 MVAR Bus Reactor in parallel with existing 50 MVAR (3X16.67) Bus Reactor at Biharsharif, using existing Reactor bay.
- Installation of 1X125 MVAR Bus Reactor in parallel with existing 1X50 MVAR (3x16.67 MVAR 1 ph unit) Bus Reactor at Jamshedpur and replacement of existing 1x50 MVAR Bus reactor with 1 x125 MVAR Bus reactor.
- Replacement of existing 1X50 MVAR Bus Reactor with 1X125 MVAR Bus Reactor at Rourkela.
- Installation of 2X125 MVAR Bus Reactor at Durgapur (Parulia). Out of 2X125 MVAR Bus Reactor, 1X125 MVAR Bus Reactor would be in parallel with existing 1X50 MVAR Bus Reactor, using existing Reactor bay

(ii) Augmentation of Transformation Capacity at Maithon, Muzzaffarpur and Ara Sub-stations of POWERGRID.

- Addition of 1 X500 MVA, 400/220 kV ICT along with associated bays Muzaffarpur 400/220 kV Substation
- Addition of 1X160 MVA, 220/132 kV ICT along with associated bays at Ara 220/132 kV Substation.
- Replacement of 2X315 MVA, 400/220 kV ICTs with 2X500 MVA, 400/220 kV ICTs at Maithon.
- 2X315, 400/220 kV ICTs, thus released from Maithon, would be utilized as Regional Spare.

(iii) Spare 500 MVA Single Phase Unit of 765/1400 kV ICT for Eastern Region



- Procurement of one 500 MVA, Single Phase unit of 765/400 kV ICT for Eastern Region to be stationed at Gaya sub-station

(iv)Converting 2X80 MVAR Line Reactors at Gorakhpur.

- Converting 2X80 MVAR Line Reactors at Gorakhpur end of Barh-II — Gorakhpur 400 kV Quad D/C line to 2X80 MVAR (Switchable) Line Reactors.

3. The Investment Approval (IA) and expenditure sanction to the transmission project was accorded by Board of Directors of the petitioner company, vide Memorandum No. C/CP/ERSS-IX TPS dated 26.2.2014 with an estimated cost of ₹19658 lakh including IDC of ₹1065 lakh based on December, 2013 price level.

4. The Annual Fixed Charges for the instant asset was allowed under Regulation 7(7) of the 2014 Tariff Regulations for inclusion in the PoC charges vide order dated 5.4.2016.

5. The petitioner has served the petition on the respondents and notice of this application has been published in the newspaper in accordance with Section 64 of the Electricity Act, 2003 (“the Act”). No comments/objections have been received from the public in response to the notice in newspaper. No reply has been filed by the respondents. The hearing in this matter was held on 13.6.2016. The petitioner was directed to submit additional information in respect of the instant transmission assets. The petitioner has filed the additional information vide affidavit dated 10.6.2016, 16.6.2016 and 17.6.2016.

6. Having heard the representatives of the petitioner and respondents, and perused the material on record, we proceed to determine the tariff in accordance with the Tariff Regulations, 2014.

7. The transmission charges claimed by the petitioner based on the actual date of commercial operation are as follows:-

(₹ in lakh)

	Asset-I			Asset-II		
Particulars	2016-17 (pro-rata)	2017-18	2018-19	2016-17 (pro-rata)	2017-18	2018-19
Depreciation	20.49	51.43	56.71	36.79	85.24	90.52
Interest on Loan	21.61	51.88	53.18	38.69	85.77	84.31
Return on Equity	22.94	57.58	63.49	41.19	95.44	101.35
Interest on Working Capital	3.68	6.99	7.38	2.54	5.81	6.02
O & M Expenses	43.26	66.51	68.71	0.00	0.00	0.00
Total	111.98	234.39	249.47	119.21	272.26	282.20

(₹ in lakh)

Asset-III			
Particulars	2016-17 (pro-rata)	2017-18	2018-19
Depreciation	21.25	65.36	70.64
Interest on Loan	22.47	66.06	66.22
Return on Equity	23.79	73.17	79.08
Interest on Working Capital	1.47	4.46	4.71
O & M Expenses	0.00	0.00	0.00
Total	68.98	209.05	220.65

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

(₹ in lakh)

	Asset-I			Asset-II		
Particulars	2016-17 (pro-rata)	2017-18	2018-19	2016-17 (pro-rata)	2017-18	2018-19
O&M Expenses	5.36	5.54	5.73	0.00	0.00	0.00
Maintenance Spares	9.66	9.98	10.31	0.00	0.00	0.00
Receivables	27.77	39.07	41.58	26.40	45.38	47.03
Total working capital	42.79	54.59	57.62	26.40	45.38	47.03
Rate of Interest	12.80	12.80	12.80	12.80	12.80	12.80
Interest on working capital	3.68	6.99	7.38	3.38	5.81	6.02

(₹ in lakh)

Asset-III			
Particulars	2016-17 (pro-rata)	2017-18	2018-19
O&M Expenses	0.00	0.00	0.00
Maintenance Spares	0.00	0.00	0.00
Receivables	22.87	34.84	36.78
Total working capital	22.87	34.84	36.78
Rate of Interest	12.80	12.80	12.80
Interest on working capital	1.47	4.46	4.71

Date of Commercial Operation (COD)

9. Clause (3) of Regulation 4 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”

10. The petitioner, vide affidavit dated 10.6.2016, 16.6.2016 and 17.6.2016 has submitted the revised schedule of anticipated COD for all assets. Accordingly, anticipated COD of Asset-I is 30.7.2016, anticipated COD of Asset-II is 30.6.2016 and anticipated COD of Asset-III is 30.9.2016 and the same has been considered for tariff calculations. The petitioner has not submitted RLDC trial run operation certificate of any asset since the assets are not yet commissioned. The petitioner is directed to provide RLDC trial run certificate in case of all assets at the time of true up. The tariff for the instant assets is worked out from the anticipated COD to 31.3.2019 based on the information available. The tariff allowed for the assets herein



shall be applicable only from the actual date of commercial operation. The petitioner is directed to inform the Commission on affidavit as soon as the assets are commissioned. Further, the tariff allowed for the instant assets will lapse if the assets are not commissioned by 30.9.2016 for any reason.

Capital Cost

11. 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.”

12. The details of apportioned approved cost, actual expenditure incurred as on date of commercial operation and the estimated additional capital expenditure projected to be incurred for the period from COD to 31.3.2019, as per the Auditor Certificate dated 10.6.2016 for the transmission asset is summarized below:-

(₹ in lakh)

Asset	Apportioned approved cost as per	Capital cost on COD	Estimated additional capital expenditure			Total estimated cost
			2016-17	2017-18	2018-19	
Asset-I	1182.33	280.87	593.10	200.00	0.00	1073.97
Asset-II	1983.74	336.90	1177.53	200.00	0.00	1714.43
Asset-III	1603.87	463.31	674.48	200.00	0.00	1337.79

13. The admissible capital cost of the transmission asset as on COD is worked out in the subsequent paragraphs taking into consideration the initial spares and IEDC and IDC amount.

Cost over-run

14. As per the original Investment approval, the cost of the project was ₹19658 lakh. The estimated completion cost of Asset-I, II and III is within the limit of the apportioned approved cost. Accordingly there is no cost over-run in any of the given assets.

Time Over-run

15. As per the Investment Approval , the transmission asset was scheduled to be commissioned within 24 months of the investment approval i.e. by 26.2.2016, against which the transmission Asset-I, Asset-II and Asset-III are anticipated to be commissioned on 30.7.2016, 30.6.2016 and 30.9.2016 respectively, Accordingly

there is anticipated time over-run of 155, 125 and 217 days in case of Asset-I, Asset-II and Asset-III respectively.

16. The petitioner, vide affidavit dated 17.6.2016, has submitted the reason for time over-run and has stated that time over-run is mainly due to ROW issues on account of agitation caused by local people in demand of compensation and the detailed reason for time over-run will be submitted at the time of true-up. The transmission charges for Asset-I, Asset-II and Asset-III has been claimed based on anticipated COD. We are not going into the details of time over-run for the assets as the assets have not been commissioned yet. The merits of time-overrun and the details of reasons shall be considered when the actual COD of the asset is achieved. Thus, the time over-run for all the assets is disallowed and corresponding IDC, IEDC disallowed at this stage on account of time over-run of 155, 125 and 217 days in Asset-I, Asset-II and Asset-III respectively is as given hereunder:-

(₹ lakh)		
Asset	Time over-run (Days)	IDC and IEDC disallowed
Asset-I	155	2.23
Asset-II	125	1.86
Asset-III	217	3.13

Initial Spares

17. The petitioner has claimed initial spares of ₹41.22 lakh, ₹35.57 lakh and ₹21.75 lakh for Asset-I, Asset-II and Asset-III respectively pertaining to brown field sub-station corresponding to the capital cost of ₹1061.23 lakh, ₹1071.73 lakh and ₹1324.00 lakh for Asset-I, Asset-II and Asset-III respectively (excluding IDC, IEDC, land cost and cost of civil works) up to the cut-off date of 31.3.2019.

18. We have computed the allowable initial spares based on the norms in accordance with Regulations 13 of the Tariff Regulations. The initial spares claimed by the petitioner are well within the normative limits in accordance with clause 13 of the Tariff Regulations for brown field substation. Hence initial spares claimed by the petitioner are allowed at this stage.

19. Based on the above, capital costs considered as on COD, after capitalization of IDC, IEDC initial spares and cost over-run for the purpose of the determination of transmission tariff are as below:-

(₹ in lakh)

Asset	Asset-I	Asset-II	Asset-III
Cost as on COD	280.87	336.90	463.31
IDC and IEDC disallowed	2.23	1.86	3.13
Initial Spares Disallowed	0.00	0.00	0.00
Cost Considered as on COD	278.64	335.04	460.18

Additional Capital Expenditure

20. Clause (1) of Regulation 14 of the 2014 Tariff Regulations provides as under:-

“(1) The capital expenditure in respect of the new project or an existing project incurred or projected to be incurred, on the following counts within the original scope of work, after the date of commercial operation and up to the cut-off date may be admitted by the Commission, subject to prudence check:

- (i) Undischarged liabilities recognized to be payable at a future date;
- (ii) Works deferred for execution;
- (iii) Procurement of initial capital spares within the original scope of work, in accordance with the provisions of Regulation;
- (iv) Liabilities to meet award of arbitration or for compliance of the order or decree of a court of law; and
- (v) Change in law or compliance of any existing law.”

21. Clause 13 of Regulation 3 of the 2014 Tariff Regulations defines cut-off date as follows:-

“Cut-off Date” means 31st March of the year closing after two years of the year of commercial operation of whole or part of the project, and in case the whole or part of

the project is declared under commercial operation in the last quarter of a year, the cut - off date shall be 31st March of the year closing after three years of the year of commercial operation:

Provided that the cut-off date may be extended by the Commission if it is proved on the basis of documentary evidence that the capitalisation could not be made within the cut-off date for reasons beyond the control of the project developer ”

22. The petitioner has claimed an estimated additional capital expenditure of ₹793.10 lakh, ₹1377.53 lakh and ₹874.48 lakh during 2016-18 for Asset-I, Asset-II and Asset-III respectively, on account of balance and retention payments.

23. The additional capital expenditure claimed by the petitioner is on account of balance and retention payments and the total estimated completion cost is within the apportioned approved cost. The same is allowed under Regulation 14(1) of 2014 Tariff Regulations, subject to true up on actual basis. Thus, the additional capital expenditure allowed for the 2014-19 tariff period is as follows:-

(₹ in lakh)

Asset	Apportioned Approved Cost as per	Capital cost approved on COD	Additional capital expenditure approved			Estimated capital cost as on 31.3.2019
			2016-17	2017-18	2018-19	
Asset-I	1182.33	278.64	593.10	200.00	0.00	1071.74
Asset-II	1983.74	335.04	1177.53	200.00	0.00	1712.57
Asset-III	1603.87	460.18	674.48	200.00	0.00	1334.66

Debt: Equity

24. Clause (1) of Regulation 19 of the 2014 Tariff Regulations provides 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:

- where equity actually deployed is less than 30% of the capital cost, actual equity shall be considered for determination of tariff:
- 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.”

The petitioner has considered the debt: equity ratio of 70:30, which is in line with the 2014 Tariff Regulations, hence the same is considered for the purpose of calculation of tariff.

25. Accordingly, the details of the debt:equity as on COD, 31.3.2019 and additional capital expenditure considered for the purpose of tariff for 2014-19 tariff period is as follows:-

(₹ in lakh)

Asset-I						
Funding	As on COD	(%)	Additional capital expenditure during 2014-19	(%)	As on 31.3.2019	(%)
Debt	195.05	70.00	555.17	70.00	750.22	70.00
Equity	83.59	30.00	237.93	30.00	321.52	30.00
Total	278.64	100.00	793.10	100.00	1071.74	100.00

(₹ in lakh)

Asset-II						
Funding	As on COD	(%)	Additional capital expenditure during 2014-19	(%)	As on 31.3.2019	(%)
Debt	234.53	70.00	964.27	70.00	1198.80	70.00
Equity	100.51	30.00	413.26	30.00	513.77	30.00
Total	335.04	100.00	1377.53	100.00	1712.57	100.00

(₹ in lakh)

Asset-III						
Funding	As on COD	(%)	Additional capital expenditure during 2014-19	(%)	As on 31.3.2019	(%)
Debt	322.13	70.00	612.14	70.00	934.26	70.00
Equity	138.05	30.00	262.34	30.00	400.40	30.00
Total	460.18	100.00	874.48	100.00	1334.66	100.00

Return on Equity ("ROE")

26. Clause (1) and (2) of Regulations 24 and Clause (2) of Regulation 25 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...."

"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."

27. 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.

28. 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.

29. 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 asset is given below:-

(₹ in lakh)

Asset-I			
Return on Equity	2016-17 (pro-rata)	2017-18	2018-19
Opening Equity	83.59	261.52	321.52
Additions	177.93	60.00	0.00
Closing Equity	261.52	321.52	321.52
Average Equity	172.56	291.52	321.52
Return on Equity (Base Rate) (%)	15.500%	15.500%	15.500%
MAT Rate for respective year (%)	21.342%	21.342%	21.342%
Rate of Return on Equity (%)	19.705%	19.705%	19.705%
Return on Equity	22.82	57.45	63.36

(₹ in lakh)

Asset-II			
Return on Equity	2016-17 (pro-rata)	2017-18	2018-19
Opening Equity	100.51	453.77	513.77
Additions	353.26	60.00	0.00
Closing Equity	453.77	513.77	513.77
Average Equity	277.14	483.77	513.77
Return on Equity (Base Rate) (%)	15.500%	15.500%	15.500%
MAT Rate for respective year (%)	21.342%	21.342%	21.342%
Rate of Return on Equity (%)	19.705%	19.705%	19.705%
Return on Equity	41.15	95.33	101.24

(₹ in lakh)

Asset-III			
Return on Equity	2016-17 (pro-rata)	2017-18	2018-19
Opening Equity	138.05	340.40	400.40
Additions	202.34	60.00	0.00
Closing Equity	340.40	400.40	400.40
Average Equity	239.23	370.40	400.40
Return on Equity (Base Rate) (%)	15.500%	15.500%	15.500%
MAT Rate for respective year (%)	21.342%	21.342%	21.342%
Rate of Return on Equity (%)	19.705%	19.705%	19.705%
Return on Equity	23.63	72.99	78.90

Interest on Loan ("IoL")

30. Clause 5 and 6 of Regulation 26 of 2014 Tariff Regulations provides that:-

"(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."

31. 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 petitioner has also prayed that they will approach the Commission for suitable revision in the norms of O&M Expenses for claiming the impact of such increase. 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:-

(₹ in lakh)

Asset-I			
Interest on Loan	2016-17 (pro-rata)	2017-18	2018-19
Gross Normative Loan	195.05	610.22	750.22
Cumulative Repayment upto Previous Year	0.00	20.39	71.69
Net Loan-Opening	195.05	589.83	678.52
Additions	415.17	140.00	0.00
Repayment during the year	20.39	51.31	56.59
Net Loan-Closing	589.83	678.52	621.94
Average Loan	392.44	634.18	650.23
Weighted Average Rate of Interest on Loan (%)	8.1619%	8.1619%	8.1619%
Interest on Loan	21.50	51.76	53.07

(₹ in lakh)

Asset-II			
Interest on Loan	2016-17 (pro-rata)	2017-18	2018-19
Gross Normative Loan	234.53	1058.80	1198.80
Cumulative Repayment upto Previous Year	0.00	36.75	121.89
Net Loan-Opening	234.53	1022.05	1076.91
Additions	824.27	140.00	0.00
Repayment during the year	36.75	85.14	90.42
Net Loan-Closing	1022.05	1076.91	986.48
Average Loan	628.29	1049.48	1031.70
Weighted Average Rate of Interest on Loan (%)	8.1630%	8.1630%	8.1630%
Interest on Loan	38.64	85.67	84.22

(₹ in lakh)

Asset-III			
Interest on Loan	2016-17 (pro-rata)	2017-18	2018-19
Gross Normative Loan	322.13	794.26	934.26
Cumulative Repayment upto Previous Year	0.00	21.11	86.30
Net Loan-Opening	322.13	773.15	847.96
Additions	472.14	140.00	0.00
Repayment during the year	21.11	65.19	70.47
Net Loan-Closing	773.15	847.96	777.49
Average Loan	547.64	810.56	812.73
Weighted Average Rate of Interest on Loan (%)	8.1300%	8.1300%	8.1300%
Interest on Loan	22.32	65.90	66.07

Depreciation

32. Clause (2), (5) and (6) of Regulation 27 of 2014 Tariff Regulations provide that:-

"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."

33. 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"

34. The depreciation has been worked out considering the admitted capital cost as on COD and the additional capital expenditure admitted during 2014-19 period. The



weighted average useful life of the asset has been considered as 25 years in accordance with the above regulation. The detailed calculations for depreciation for the transmission asset are worked out and allowed as follows:-

(₹ in lakh)

Asset-I			
Depreciation	2016-17 (pro-rata)	2017-18	2018-19
Opening Gross Block	278.64	871.74	1071.74
Additional Capitalisation	593.10	200.00	0.00
Closing Gross Block	871.74	1071.74	1071.74
Average Gross Block	575.19	971.74	1071.74
Rate of Depreciation (%)	5.28%	5.28%	5.28%
Depreciable Value	517.67	1141.46	1054.56
Balance useful life of the asset	25.00	24.00	23.00
Elapsed life	0.00	1.00	2.00
Remaining Depreciable Value	517.67	854.18	892.87
Depreciation during the year	20.39	51.31	56.59
Depreciation upto previous year	0.00	20.39	71.69
Cumulative depreciation (incl. of AAD)	20.39	71.69	128.28

(₹ in lakh)

Asset-II			
Depreciation	2016-17 (pro-rata)	2017-18	2018-19
Opening Gross Block	335.04	1512.57	1712.57
Additional Capitalisation	1177.53	200.00	0.00
Closing Gross Block	1512.57	1712.57	1712.57
Average Gross Block	923.81	1612.57	1712.57
Rate of Depreciation	5.28%	5.28%	5.28%
Depreciable Value	831.43	1981.20	1631.32
Balance Useful life of the asset	25.00	24.00	23.00
Elapsed Life	0.00	1.00	2.00
Remaining Depreciable Value	831.43	1414.57	1419.42
Depreciation	36.75	85.14	90.42
Cumulative depreciation (incl. of AAD)	0.00	36.75	121.89
	36.75	121.89	212.32

(₹ in lakh)

Asset-III			
Depreciation	2016-17 (pro-rata)	2017-18	2018-19
Opening Gross Block	460.18	1134.66	1334.66
Additional Capitalisation	674.48	200.00	0.00
Closing Gross Block	1134.66	1334.66	1334.66
Average Gross Block	797.42	1234.66	1334.66
Rate of Depreciation (%)	5.28%	5.28%	5.28%
Depreciable Value	717.68	1414.71	1291.19
Balance useful life of the asset	25.00	24.00	23.00
Elapsed life	0.00	1.00	2.00
Remaining Depreciable Value	717.68	1090.08	1114.89
Depreciation during the year	21.11	65.19	70.47
Depreciation upto previous year	0.00	21.11	86.30
Cumulative depreciation (incl. of AAD)	21.11	86.30	156.77

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

35. The instant petition covers a total of 1 nos. 400 kV bays for Asset-I. In Asset-II and Asset-III no O&M charges have been claimed by the petitioner. The petitioner vide affidavit dated 16.6.2016 has further submitted that the both the assets are replacement of 1X315 MVA ICT with 1X500MVA ICT at Maithon Sub-station. The maximum loading on the existing 2X315MVA, 400/220kV Maithon Sub-station has gone upto 300MW on each transformer during last one year and the outage of one ICT may cause the outage of another ICT due to excessive loading. The replacement/augmentation of transformer was agreed on 73rd OCC meeting of ER and was also agreed in ERPC meeting. After the replacement, existing 2X315 MVA transformers would be used as regional spares and hence decapitalization is not applicable for both of the ICTs. Since both of the ICTs(2X315 MVA) has already been covered in petition no. 535/TT/2014 and the O&M expenses for both was claimed in 535/TT/2014, no O&M expenses are claimed for the ICTs in instant

petition. In view of petitioner submission no O&M expenses are approved for Asset-II & Asset-III.

36. Regulation 29(4)(a) of the 2014 Tariff Regulations specifies the following norms for O&M Expenses:-

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Norm (₹ lakh/bay)	01	01	01	01	01
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 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.

39. The petitioner has claimed O&M Expenses as specified in sub-clause (a) of clause (3) of Regulation 29 of the 2014 Tariff Regulations. The details of O&M Expenses allowed are given hereunder:-

(₹ in lakh)

Asset	Year		
	2016-17 (pro-rata)	2017-18	2018-19
Asset-I(1 No. of 400kV bay)	43.21	66.51	68.71
Asset-II	0.00	0.00	0.00
Asset-III	0.00	0.00	0.00

Interest on Working Capital

40. Clause 1 (c) of Regulation 28 and Clause 5 of Regulation 3 of the 2014 Tariff

Regulations specifies as follows:

“28. Interest on Working Capital

- (c).(i) Receivables equivalent to two months of fixed cost;
(ii) Maintenance spares @ 15% of operation and maintenance expenses specified in regulation 29; and
(iii) Operation and maintenance expenses for one month”

“(5) ‘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;”

41. The petitioner has considered the rate of interest on working capital to be 12.80%.

42. The components of the working capital and interest thereon have been worked as follows:-

(₹ in lakh)

Asset-I			
Interest on Working Capital	2016-17 (pro-rata)	2017-18	2018-19
O & M expenses	5.36	5.54	5.72
Maintenance Spares	9.66	9.98	10.31
Receivables	27.71	39.00	41.52
Total	42.72	54.52	57.55
Rate of Interest (%)	12.80%	12.80%	12.80%
Interest on Working Capital	3.67	6.98	7.37

(₹ in lakh)

Asset-II			
Interest on Working Capital	2016-17 (pro-rata)	2017-18	2018-19
O & M expenses	0.00	0.00	0.00
Maintenance Spares	0.00	0.00	0.00
Receivables	26.34	45.32	46.98
Total	26.34	45.32	46.98
Rate of Interest (%)	12.80%	12.80%	12.80%
Interest on Working Capital	2.54	5.80	6.01

(₹ in lakh)

Asset-III			
Interest on Working Capital	2016-17 (pro-rata)	2017-18	2018-19
O & M expenses	0.00	0.00	0.00
Maintenance Spares	0.00	0.00	0.00
Receivables	22.78	34.75	36.69
Total	22.78	34.75	36.69
Rate of Interest (%)	12.80%	12.80%	12.80%
Interest on Working Capital	1.46	4.45	4.70

ANNUAL FIXED CHARGES FOR THE 2014-19 TARIFF PERIOD

43. The transmission charges allowed for the instant transmission assets for the 2014-19 tariff period are summarised below:-

(₹ in lakh)

Asset-I			
Particulars	2016-17 (pro-rata)	2017-18	2018-19
Depreciation			
Opening Gross Block	278.64	871.74	1071.74
Additional Capitalisation	593.10	200.00	0.00
Closing Gross Block	871.74	1071.74	1071.74
Average Gross Block	575.19	971.74	1071.74
Rate of Depreciation	5.28%	5.28%	5.28%
Depreciable Value	517.67	1141.46	1054.56
Balance Useful life of the asset	25.00	24.00	23.00
Elapsed Life	0.00	1.00	2.00
Remaining Depreciable Value	517.67	854.18	892.87
Depreciation	20.39	51.31	56.59
Cumulative depreciation (incl. of AAD)	20.39	71.69	128.28



Asset-I			
Particulars	2016-17 (pro-rata)	2017-18	2018-19
Interest on Loan			
Gross Normative Loan	195.05	610.22	750.22
Cumulative Repayment upto Previous Year	0.00	20.39	71.69
Net Loan-Opening	195.05	589.83	678.52
Additions	415.17	140.00	0.00
Repayment during the year	20.39	51.31	56.59
Net Loan-Closing	589.83	678.52	621.94
Average Loan	392.44	634.18	650.23
Weighted Average Rate of Interest on Loan	8.1619%	8.1619%	8.1619%
Interest	21.50	51.76	53.07
Return on Equity			
Opening Equity	83.59	261.52	321.52
Additions	177.93	60.00	0.00
Closing Equity	261.52	321.52	321.52
Average Equity	172.56	291.52	321.52
Return on Equity (Base Rate)	15.500%	15.500%	15.500%
MAT rate for the respective year	21.342%	21.342%	21.342%
Rate of Return on Equity	19.705%	19.705%	19.705%
Return on Equity	22.82	57.45	63.36
Interest on Working Capital			
O & M expenses	5.36	5.54	5.72
Maintenance Spares	9.66	9.98	10.31
Receivables	27.71	39.00	41.52
Total	42.72	54.52	57.55
Rate of Interest (%)	12.80%	12.80%	12.80%
Interest on working capital	3.67	6.98	7.37
Annual Transmission Charges			
Depreciation	20.39	51.31	56.59
Interest on Loan	21.50	51.76	53.07
Return on Equity	22.82	57.45	63.36
Interest on Working Capital	3.67	6.98	7.37
O & M Expenses	43.21	66.51	68.71
Total	111.59	234.00	249.09

(₹ in lakh)

Asset-II			
Particulars	2016-17 (pro-rata)	2017-18	2018-19
Depreciation			
Opening Gross Block	335.04	1512.57	1712.57
Additional Capitalisation	1177.53	200.00	0.00
Closing Gross Block	1512.57	1712.57	1712.57
Average Gross Block	923.81	1612.57	1712.57
Rate of Depreciation (%)	5.28%	5.28%	5.28%
Depreciable Value	831.43	1981.20	1631.32
Balance useful life of the asset	25.00	24.00	23.00
Elapsed life	0.00	1.00	2.00
Remaining Depreciable Value	831.43	1414.57	1419.42
Depreciation during the year	36.75	85.14	90.42
Cumulative depreciation (incl. of AAD)	36.75	121.89	212.32
Interest on Loan			
Gross Normative Loan	234.53	1058.80	1198.80
Cumulative Repayment upto Previous Year	0.00	36.75	121.89
Net Loan-Opening	234.53	1022.05	1076.91
Additions	824.27	140.00	0.00
Repayment during the year	36.75	85.14	90.42
Net Loan-Closing	1022.05	1076.91	986.48
Average Loan	628.29	1049.48	1031.70
Weighted Average Rate of Interest on Loan (%)	8.1630%	8.1630%	8.1630%
Interest on Loan	38.64	85.67	84.22
Return on Equity			
Opening Equity	100.51	453.77	513.77
Additions	353.26	60.00	0.00
Closing Equity	453.77	513.77	513.77
Average Equity	277.14	483.77	513.77
Return on Equity (Base Rate)	15.500%	15.500%	15.500%
MAT rate for the respective year	21.342%	21.342%	21.342%
Rate of Return on Equity	19.705%	19.705%	19.705%
Return on Equity	41.15	95.33	101.24
Interest on Working Capital			
O & M expenses	0.00	0.00	0.00
Maintenance Spares	0.00	0.00	0.00
Receivables	26.34	45.32	46.98
Total	26.34	45.32	46.98



Asset-II			
Rate of Interest	12.80%	12.80%	12.80%
Interest on Working Capital	2.54	5.80	6.01
Annual Transmission Charges			
Depreciation	36.75	85.14	90.42
Interest on Loan	38.64	85.67	84.22
Return on Equity	41.15	95.33	101.24
Interest on Working Capital	2.54	5.80	6.01
O & M Expenses	0.00	0.00	0.00
Total	119.08	271.94	281.90

(₹ in lakh)

Asset-III			
Particulars	2016-17 (pro-rata)	2017-18	2018-19
Depreciation			
Opening Gross Block	460.18	1134.66	1334.66
Additional Capitalisation	674.48	200.00	0.00
Closing Gross Block	1134.66	1334.66	1334.66
Average Gross Block	797.42	1234.66	1334.66
Rate of Depreciation (%)	5.28%	5.28%	5.28%
Depreciable Value	717.68	1414.71	1291.19
Balance useful life of the asset	25.00	24.00	23.00
Elapsed life	0.00	1.00	2.00
Remaining Depreciable Value	717.68	1090.08	1114.89
Depreciation during the year	21.11	65.19	70.47
Cumulative depreciation (incl. of AAD)	21.11	86.30	156.77
Interest on Loan			
Gross Normative Loan	322.13	794.26	934.26
Cumulative Repayment upto Previous Year	0.00	21.11	86.30
Net Loan-Opening	322.13	773.15	847.96
Additions	472.14	140.00	0.00
Repayment during the year	21.11	65.19	70.47
Net Loan-Closing	773.15	847.96	777.49
Average Loan	547.64	810.56	812.73
Weighted Average Rate of Interest on Loan (%)	8.1300%	8.1300%	8.1300%
Interest on Loan	22.32	65.90	66.07
Return on Equity			
Opening Equity	138.05	340.40	400.40



Asset-III			
Particulars	2016-17 (pro-rata)	2017-18	2018-19
Additions	202.34	60.00	0.00
Closing Equity	340.40	400.40	400.40
Average Equity	239.23	370.40	400.40
Return on Equity (Base Rate)	15.500%	15.500%	15.500%
MAT rate for the respective year	21.342%	21.342%	21.342%
Rate of Return on Equity	19.705%	19.705%	19.705%
Return on Equity	23.63	72.99	78.90
Interest on Working Capital			
O & M expenses	0.00	0.00	0.00
Maintenance Spares	0.00	0.00	0.00
Receivables	22.78	34.75	36.69
Total	22.78	34.75	36.69
Rate of Interest	12.80%	12.80%	12.80%
Interest on Working Capital	1.46	4.45	4.70
Annual Transmission Charges			
Depreciation	21.11	65.19	70.47
Interest on Loan	22.32	65.90	66.07
Return on Equity	23.63	72.99	78.90
Interest on Working Capital	1.46	4.45	4.70
O & M Expenses	0.00	0.00	0.00
Total	68.53	208.53	220.14

Filing Fee and the Publication Expenses

44. The petitioner has sought reimbursement of fee paid by it for filing the petition and publication expenses. 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 Regulation 52 (1) of the 2014 Tariff Regulations.

Licence Fee & RLDC Fees and Charges

45. The petitioner shall be entitled for reimbursement of licence fee in accordance with Regulation 52 (2) (b) of the 2014 Tariff Regulations for 2014-19 tariff period. The

petitioner shall also be entitled for recovery of RLDC fee & charges in accordance with Regulations 52 (2) (a) of the 2014 Tariff Regulations for 2014-19 tariff period.

Service Tax

46. The petitioner has prayed for reimbursement of service tax if it is subjected to such tax in future. We are of the view that the petitioner's prayer is premature.

Foreign Exchange Rate Variation

47. The petitioner has sought recovery of FERV on foreign loans deployed under clause 50 of 2014 Tariff Regulations. The petitioner is entitled to recover the FERV directly from the beneficiaries or the long term transmission customers / DICs, as the case may be, in accordance with Regulation 51(1) of the 2014 Tariff Regulations.

Sharing of Transmission Charges

48. 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.

49. This order disposes of Petition No. 29/TT/2016.

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

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



DETAILS OF LOAN BASED ON ACTUAL LOAN PORTFOLIO FOR 2014-19

(₹ in lakh)

Asset-I

Particulars	Interest Rate (%)	Loan deployed as on COD	Additions during the tariff period	Total
				(Rs in lakh)
Bond XLVIII-Doco Loan-	8.20	22.00	0.00	22.00
BOND LI-Doco Loan 1-	8.40	17.52	0.00	17.52
PROPOSED LOAN 2016-17 INTT 8.13%- Doco Loan 2-	8.13	157.09	0.00	157.09
Total		196.61	0.00	196.61

Asset-II

Particulars	Interest Rate (%)	Loan deployed as on COD	Additions during the tariff period	Total
				(Rs in lakh)
Bond XLVIII-Doco Loan -	8.20	14.00	0.00	14.00
BOND LI-Doco Loan 1-	8.40	25.23	0.00	25.23
PROPOSED LOAN 2016-17 INTT 8.13%- Doco Loan 2-	8.13	196.60	0.00	196.60
Total		235.83	0.00	235.83

Asset-III

Particulars	Interest Rate (%)	Loan deployed as on COD	Additions during the tariff period	Total
				(Rs in lakh)
PROPOSED LOAN 2016-17 INTT 8.13%- Doco Loan-	8.13	324.32	0.00	324.32
Total		324.32	0.00	324.32

WEIGHTED AVERAGE RATE OF INTEREST ON LOAN DURING 2014-19 TARIFF PERIOD

(₹ in lakh)

Asset-I			
	2016-17	2017-18	2018-19
Gross Opening Loan	196.61	196.61	196.61
Cumulative Repayments of Loans upto Previous Year	0.00	0.00	0.00
Net Loans Opening	196.61	196.61	196.61
Add: Draw(s) during the Year	0.00	0.00	0.00
Less: Repayments of Loan during the year	0.00	0.00	0.00
Net Closing Loan	196.61	196.61	196.61
Average Net Loan	196.61	196.61	196.61
Rate of Interest on Loan (%)	8.1619%	8.1619%	8.1619%
Interest on Loan	16.05	16.05	16.05

(₹ in lakh)

Asset-II			
	2016-17	2017-18	2018-19
Gross Opening Loan	235.83	235.83	235.83
Cumulative Repayments of Loans upto Previous Year	0.00	0.00	0.00
Net Loans Opening	235.83	235.83	235.83
Add: Draw(s) during the Year	0.00	0.00	0.00
Less: Repayments of Loan during the year	0.00	0.00	0.00
Net Closing Loan	235.83	235.83	235.83
Average Net Loan	235.83	235.83	235.83
Rate of Interest on Loan (%)	8.1630%	8.1630%	8.1630%
Interest on Loan	19.25	19.25	19.25

(₹ in lakh)

Asset-III			
	2016-17	2017-18	2018-19
Gross Opening Loan	324.32	324.32	324.32
Cumulative Repayments of Loans upto Previous Year	0.00	0.00	0.00
Net Loans Opening	324.32	324.32	324.32
Add: Draw(s) during the Year	0.00	0.00	0.00
Less: Repayments of Loan during the year	0.00	0.00	0.00
Net Closing Loan	324.32	324.32	324.32

Asset-III			
	2016-17	2017-18	2018-19
Average Net Loan	324.32	324.32	324.32
Rate of Interest on Loan (%)	8.1300%	8.1300%	8.1300%
Interest on Loan	26.37	26.37	26.37