

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 185/TT/2014**

**Coram:**

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

**Date of Hearing : 06.04.2016  
Date of Order : 29.04.2016**

**In the matter of:**

Determination of transmission tariff for **Asset 1:** Aurangabad (MSETCL)-Aurangabad (PG) 400 kV D/C (Quad) Line (Ckt#1) and shifting of 400 kV D/C Akola-Aurangabad (MSETCL) line to Aurangabad (PG) along with associated bays at both ends. **Asset 2:** Aurangabad (MSETCL) - Aurangabad (PG) 400 kV D/C Akola- Aurangabad (MSETCL) line to Aurangabad (PG) along with associated bays at both ends. **Asset-3:** 240 MVAR Switchable Line reactor for 765 kV Seoni- Wardha Ckt#1 at Seoni Sub-station, **Asset-4:** 240 MVAR Switchable Line reactor for 765 kV Seoni- Wardha ckt#2 at Seoni- Wardha Ckt#2 at Seoni Sub-station. **Asset-5:** 400 kV D/C Vapi-Kala transmission line WR1 portion from AP 38- AP 44-AP45A/0 (Part of 400 kV D/C Navsari- Boisar transmission line), **Asset-6:** 80 MVAR Line reactor for 400 kV D/C Wardha-Aurangabad transmission line Ckt#1 to be charged as bus reactor 1 at 400/220 kV Wardha Sub-station, **Asset-7:** 80 MVAR Line reactor for 400 kV D/C Wardha-Aurangabad transmission line Ckt#2 to be charged as bus reactor 1 at 400/220 kV Wardha Sub-station under transmission system associated with Mundra Ultra Mega Power Project (UMPP) in Western 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. Madhya Pradesh Power Management Company Ltd.  
Shakti Bhawan, Rampur, Jabalpur-482008



2. Maharashtra State Electricity Distribution Co. Ltd.  
Prakashgad, 4<sup>th</sup> Floor, Andheri (East), Mumbai-400052
3. Gujarat Urja Vikas Nigam Ltd.  
Sardar Patel Vidyut Bhawan,  
Race Course Road  
Vadodara- 390007
4. Electricity Department  
Government of Goa,  
Vidyut Bhawan, Panaji- 403001
5. Electricity Department  
Administration of Daman & Diu,  
Daman- 396210
6. Electricity Department  
Administration of Dadar Nagar Haveli,  
U.T., Silvassa- 396230
7. Chhattisgarh State Electricity Board  
P.O Sunder Nagar, Dangania, Raipur  
Chhatisgaarh-492013
8. Madhya Pradesh Audyogik Kendra Vikas Nigam (Indore) Ltd.  
3/54, Press Complex, Agra-Bombay road  
Indore-452008

.....**Respondents**

The following were present:-

For Petitioner:        Shri A. M. Pavgi, PGCIL  
                              Shri Mohd. Mohsin  
                              Shri Piyush Awasthi, PGCIL  
                              Shri Amit Yadav, PGCIL  
                              Shri M.M. Mondal, PGCIL  
                              Shri S. K. Ventatesan, PGCIL  
                              Shri Rakesh Prasad, PGCIL  
                              Shri S.S. Raju, PGCIL  
                              Shri S. C. Taneja, PGCIL  
                              Shri Pankaj Sharma, PGCIL

For Respondent:        None



## ORDER

The present petition has been filed by Power Grid Corporation of India Ltd. (“the petitioner”) for determination of tariff for **Asset 1:** Aurangabad (MSETCL)- Aurangabad (PG) 400 kV D/C (Quad) Line (Ckt#1) and shifting of 400 kV D/C Akola-Aurangabad (MSETCL) line to Aurangabad (PG) along with associated bays at both ends, **Asset 2:** Aurangabad (MSETCL) - Aurangabad (PG) 400 kV D/C Akola- Aurangabad (MSETCL) line to Aurangabad (PG) along with associated bays at both ends, **Asset-3:** 240 MVAR Switchable Line reactor for 765 kV Seoni- Wardha Ckt#1 at Seoni Sub-station, **Asset-4:** 240 MVAR Switchable Line reactor for 765 kV Seoni- Wardha ckt#2 at Seoni- Wardha Ckt#2 at Seoni Sub-station. **Asset-5:** 400 kV D/C Vapi-Kala transmission line WR1 portion from AP 38- AP 44-AP45A/0 (Part of 400 kV D/C Navsari- Boisar transmission line) **Asset-6:** 80 MVAR Line reactor for 400 kV D/C Wardha-Aurangabad transmission line Ckt#1 to be charged as bus reactor 1 at 400/220 kV Wardha Sub-station, **Asset-7:** 80 MVAR Line reactor for 400 kV D/C Wardha-Aurangabad transmission line Ckt#2 to be charged as bus reactor 1 at 400/220 kV Wardha Sub-station under transmission system associated with Mundra Ultra Mega Power Project (UMPP) in Western Region for 2014-19 tariff period (hereinafter referred as “transmission asset”) 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.



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 Western 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/Mundra dated 15.10.2008 at an estimated cost of ₹482412 lakh, which included IDC of ₹44686 lakh. Subsequently, the Revised Cost Estimate (RCE) for “Transmission System associated with Mundra Ultra Mega Power Project” was accorded by Board of Directors of the petitioner company dated 11.3.2016 at an estimated cost of ₹507194 lakh, which included IDC of ₹43189 lakh. The revised overall commissioning schedule of the project is March 2017.

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

**Part(A): Transmission System of Mundra (4000 MW) UMPP  
Transmission Line:**

- a. Mundra- Limbdi (GETCO) 400 kV D/C (Triple Snowbird) line.
- b. Mundra-Bhachau- Ranchodpura (GETCO) 400 kV D/C (Triple Snowbird) line
- c. Mundra- Jetpur (GETCO) 400 kV D/C(Triple Snowbird) line.

**Part(B): Regional System Strengthening in WR for Mundra UMPP  
Transmission Line:**

- a. Gandhar (NTPC)- Navsari 400 kV D/C line.
- b. Navsari- Boisar 400 kV D/C line
- c. LILO of both circuits of Kawas- Navsari 220 kV D/C line at Navsari.



- d. Wardha- Aurangabad 400 kV D/C (Quad) line along with 40% Fixed Series Compensation with provision to upgrade the line at 1200 kV at a later date.
- e. Aurangabad(PG)- Aurangabad-I (MSETCL) 400 kV D/C (Quad) line along with shifting of Akola-I- Aurangabad-I (MSETCL) line to Aurangabad (PG) including multi- circuit towers.

**Sub-Station:**

- a. Establishment of new 400/220 kV, 2x315 MVA sub-station at Bhachau.
- b. Establishment of new 400/220 kV, 2x315 MVA GIS sub-station at Navsari.
- c. Bay extension at 400 kV Boisar sub-station.
- d. Establishment of 765/400 kV, 3x1500 MVA sub-station at Wardha.
- e. 765 kV line bays for operation of Seoni- Wardha 2xS/C lines at 765 kV level.
- f. Establishment of 400/220 kV, 2x315 MVA, sub-station at Aurangabad.

(c) The petition was initially filed on 16.7.2014, for the following assets

- a. **Asset 1** : Aurangabad (MSETCL)-Aurangabad (PG) 400 kV D/C (Quad) Line (Ckt#1) and shifting of 400 kV D/C Akola-Aurangabad (MSETCL) line to Aurangabad (PG) along with associated bays at both ends
- b. **Asset 2**: Aurangabad (MSETCL) - Aurangabad (PG) 400 kV D/C Akola-Aurangabad (MSETCL) line to Aurangabad (PG) along with associated bays at both ends
- c. **Asset-3**: 240 MVAR Switchable Line reactor for 765 kV Seoni- Wardha Ckt#1 at Seoni Sub-station
- d. **Asset-4**: 240 MVAR Switchable Line reactor for 765 kV Seoni- Wardha ckt#2 at Seoni- Wardha Ckt#2 at Seoni Sub-station.
- e. **Asset-5**: 400 kV D/C Vapi-Kala transmission line WR1 portion from AP 38- AP 44-AP45A/0 (Part of 400 kV D/C Navsari- Boisar transmission line)
- f. **Asset-6**: 80 MVAR Line reactor for 400 kV D/C Wardha-Aurangabad transmission line Ckt#1 to be charged as bus reactor 1 at 400/220 kV Wardha Sub-station
- g. **Asset-7**: 80 MVAR Line reactor for 400 kV D/C Wardha- Aurangabad transmission line Ckt#2 to be charged as bus reactor 1 at 400/220 kV Wardha Sub-station.



(d) The tariff for Asset-6 and Asset-7 was claimed based on anticipated COD.

The Commission vide ROP dated 11.4.2016 directed the petitioner to file a separate petition as soon as Assets 6 and 7 are commissioned and to exclude the AFC granted for Assets 6 and 7, vide order dated 24.9.2014, from the PoC computation.

(e) It is further observed that, the tariff for Asset-3 and Asset-4 is already granted by the Commission vide order dated 1.12.2014, in Petition No. 72/TT/2012, as part of Asset-1(Anticipated COD: 1.3.2012) and Asset-3 (Anticipated COD: 1.4.2012) of the said order. The petitioner was also directed vide letter dated 15.7.2015 to submit the reason for claiming tariff for Asset-3 and Asset-4 when the same has already been claimed vide order dated 1.12.2014. The petitioner has however not submitted any reason for the same.

(f) In the absence of any clarification on part of the petitioner, we are of the view that the tariff for Asset-3 and Asset-4 cannot be allowed again, since it shall not be in accordance with the 2014 Tariff Regulations. The petitioner is directed to claim transmission tariff separately for Asset-3 and Asset-4 in accordance with the Law.

(g) Hence, the tariff in the instant order is worked out for Asset- 1, Asset-2 and Asset-5.

(h) The petitioner has claimed the transmission charges as under:-

**(₹ in lakh)**

Asset-1	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
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Asset-1	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Depreciation	166.56	189.16	191.29	191.29	191.29
Interest on Loan	34.81	36.92	34.34	31.26	28.18
Return on Equity	188.17	214.66	217.21	217.21	217.21
Interest on Working Capital	15.18	17.13	17.41	17.58	17.76
O&M Expenses	112.51	126.43	130.63	134.97	139.44
<b>Total</b>	<b>517.23</b>	<b>584.30</b>	<b>590.88</b>	<b>592.31</b>	<b>593.88</b>

(₹ in lakh)

Asset-2	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Depreciation	185.27	212.25	214.45	214.45	214.45
Interest on Loan	38.46	41.05	38.10	34.65	31.20
Return on Equity	207.94	238.77	241.32	241.32	241.32
Interest on Working Capital	20.89	23.60	24.05	24.39	24.74
O&M Expenses	198.27	222.13	229.51	237.14	244.98
<b>Total</b>	<b>650.83</b>	<b>737.80</b>	<b>747.43</b>	<b>751.95</b>	<b>756.69</b>

(₹ in lakh)

Asset-5	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	109.54	118.81	118.81	118.81	118.81
Interest on Loan	121.37	122.13	111.75	101.39	91.08
Return on Equity	122.05	132.38	132.38	132.38	132.38
Interest on Working Capital	8.75	9.24	9.03	8.81	8.60
O&M Expenses	11.42	11.80	12.19	12.60	13.01
<b>Total</b>	<b>373.13</b>	<b>394.36</b>	<b>384.16</b>	<b>373.99</b>	<b>363.88</b>

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

(₹ in lakh)

Asset-1	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	18.36	18.96	19.59	20.25	20.92
O & M Expenses	10.20	10.54	10.89	11.25	11.62
Receivables	93.76	97.38	98.48	98.72	98.98



Asset-1	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Total	122.32	126.88	128.96	130.22	131.52
Rate of Interest (%)	13.50	13.50	13.50	13.50	13.50
Interest	16.51	17.13	17.41	17.58	17.75
<b>Pro-rata Interest</b>	<b>15.18</b>	<b>17.13</b>	<b>17.41</b>	<b>17.58</b>	<b>17.75</b>

(₹ in lakh)

Asset-2	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	32.25	33.32	34.43	35.57	36.75
O & M Expenses	17.92	18.51	19.13	19.76	20.42
Receivables	117.62	122.97	124.57	125.33	126.12
Total	167.79	174.80	178.13	180.66	183.29
Rate of Interest (%)	13.50	13.50	13.50	13.50	13.50
Interest	22.65	23.60	24.05	24.39	24.74
<b>Pro-rata Interest</b>	<b>20.89</b>	<b>23.60</b>	<b>24.05</b>	<b>24.39</b>	<b>24.74</b>

(₹ in lakh)

Asset-5	2014-15	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	1.71	1.77	1.83	1.89	1.95
O & M Expenses	0.95	0.98	1.02	1.05	1.08
Receivables	62.19	65.73	64.03	62.33	60.65
Total	64.85	68.48	66.88	65.27	63.68
Rate of Interest (%)	13.50	13.50	13.50	13.50	13.50
<b>Interest</b>	<b>8.75</b>	<b>9.24</b>	<b>9.03</b>	<b>8.81</b>	<b>8.60</b>

4. The annual transmission 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 24.9.2014.

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"). No comments have been received from the public in response to the notices published by the petitioner under Section 64 of





the Act. The hearing in this matter was held on 6.4.2016. None of the respondents have filed their reply. The petitioner vide ROP (Record of Proceedings) dated 11.4.2016 and vide letter dated 15.7.2015 was directed to submit certain information. In response the petitioner has submitted the revised scope of work and RCE for the project vide affidavit dated 11.4.2016. 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 as 30.4.2015, 29.4.2015 and 1.4.2014 for Asset-1, Asset-2 and Asset-5 respectively. 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 has submitted the Notification for COD for the said assets. However the RLDC Certificate for the assets is not yet submitted. The petitioner is directed to submit the RLDC certificate in accordance with Regulation 5(2) of the 2014 Tariff Regulations indicating completion of successful trial operation and CEA Energisation certificates at the time of truing up for the 2014-19 tariff period.

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8. The petitioner has submitted the SLD for the assets. The tariff is worked out from COD to 31.3.2019.

### **Capital Cost**

9. The details of apportioned approved cost, capital cost as on date of commercial operation and estimated additional capital expenditure incurred or projected to be incurred for the instant assets as per Auditor's Certificate dated 28.6.2014 for the assets are as under:-

(₹ in lakh)

Asset Name	Approved apportioned cost as per FR	Approved apportioned cost as per RCE	Capital cost as on COD	Additional capitalization			Total estimated completion cost
				2014-15	2015-16	Total	
Asset-1	936.94	3894.04	3351.91	253.7	86.51	340.21	3692.12
Asset-2	1213.45	4374.81	3650.08	365.09	86.89	451.98	4102.06
Asset-5	2279.14	2274.66	1899.14	351.11	0.00	351.11	2250.25
<b>Total</b>	<b>4429.53</b>	<b>10543.51</b>	<b>8901.13</b>	<b>969.90</b>	<b>173.40</b>	<b>1143.30</b>	<b>10044.43</b>

10. 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.”

11. The petitioner, vide ROP dated 11.4.2016, was directed to submit the details of FERV gain/loss upto scheduled COD and from scheduled COD to actual COD for the assets. The petitioner has not submitted any replies regarding the same. We have considered the capital cost as certified in the Auditor Certificate, however, the petitioner is directed to submit these details at the time of truing up.

### **Time over-run**

12. As per the investment approval dated 15.10.2008, the scheme was scheduled to be commissioned within 49 months from the date of investment approval i.e. by 14.10.2012. However, the actual commissioning of the subject assets was 30.4.2014 for Asset-1, 29.4.2014 for Asset-2 and 1.4.2014 for Asset-



5. The petitioner has submitted that there is a delay of 564 days (18 months 16 days) for Asset-1, delay of 563 days (18 months 15 days) for Asset-2 and delay of 535 days (17 months 19 days) for Asset-5. The petitioner has submitted the following reasons for delay for Asset-1, Asset-2 and Asset-5 as follows:-

### **Asset- 1&2**

13. **Delay due to change in scope of work-** The scope of the project was modified after award of multi-circuit portions introduced in transmission line as per approval of SCM on power system in WR. Due to change in scope of the project, the new contract was awarded which delayed the commissioning of transmission lines as detailed below:

- Aurangabad (MSETCL)-Aurangabad (PG) 400 kV D/C line was agreed as Regional system strengthening scheme in western region under Mundra UMPP transmission system.
- The Akola-Aurangabad 400 kV D/C lines was approved under supplementary transmission system associated with Sipat Stage-II project. However due to non-availability of space at Aurangabad (MSETCL) the termination of Akola- Aurangabad (MSETCL) 400 kV D/C line was modified as termination at Aurangabad (PG) instead of Aurangabad (MSETCL). The issue was discussed in 31<sup>st</sup> Meeting of Standing Committee on Power system planning in Western Region held on 27<sup>th</sup> December 2010 and it was decided to implement the interconnection as:

a) Aurangabad (PG)- Aurangabad (MSETCL) 400 kV (Quad) D/C line

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b) Akola- Aurangabad (MSETCL) 400 kV D/C transmission line would be diverted to Aurangabad (PG)- Aurangabad (MSETCL) 400 kV (Quad) D/C line.

- The scope of 400 kV D/C (Quad) Aurangabad (PG)- Aurangabad (MSETCL) has been deleted in the earlier contract and subsequently the line was clubbed with 400 kV D/C (twin) Akola (MSETCL)- Aurangabad (PG) line on multi-circuit towers due to constraint of bays at Aurangabad (MSETCL). The new package was awarded on March 2012, i.e. delay of almost 1.5 years.

14. The petitioner has submitted following documents in support of the claim of time over run:

Sl No	Particulars	Documents Provided
1	Change in scope of works	Minutes of 31st SCM Meeting held on 27.12.2010
		Minutes of 28th SCM Meeting held on 6.12.2008
2	ROW issues	Copy of civil suit filed by M/s Salasar Housing in Civil Court Aurangabad, May 2013
		Order dated 3.9.2013, issued allowing petitioner to carry out the work
		Writ Petition dated 11.9.2013 filed by local people opposing order dated 3.9.2013

15. **ROW issues:** The ROW issues faced during the construction of the line are as follows:

- Around 14 nos of tower locations faced stiff resistance from villagers. Issues were taken up with District Administration for removing obstructions for completion of the line.



- 1 court case filed by M/s Salasar Housing in the Civil court Aurangabad in May 2013.
- Severe drought conditions in Aurangabad from January 2013 to May 2013, resulted in stoppage of constructional activities.

**Asset-5:**

16. **Forest Clearance-** There was severe ROW problems in 400 kV D/C Navsari- Boisar transmission line due to forest involvement of 12.399 km (57.035 Ha). Due to severe ROW problems forest proposal for 400 kV D/C Vapi-Navi Mumbai transmission line under WRSS V was divided into three parts as Vapi-Kala, Kala-Kudus and Kudus- Navi Mumbai.

17. For Asset-5 the details submitted for time over-run include:

Asset	Particulars	Documents Provided
Asset- 5	ROW issue	36th SCM on Power system dated 26.9.2013

We have considered the submissions of the petitioner. There has been delay of 564 days (18 months 16 days) for Asset-1, delay of 563 days (18 months 15 days) for Asset-2 and delay of 535 days (17 months 19 days) for Asset-5 in the commissioning of the assets. The reasons for time over-run for Asset-1 and 2 is due to change in scope of the project and Asset-5 delay is due to ROW problem in 400 kV D/C Navsari- Boisar transmission line due to forest involvement, which is beyond the control of the petitioner.

18. We are of the view that the entire delay in the commissioning of Asset-1&2 was mainly due to change in scope of work as evidenced from the minutes of



meeting. The delay in the commissioning of the assets is due to the reasons beyond the control of the petitioner and hence time over-run is condoned. The Hon'ble Appellate Tribunal for Electricity in its judgement dated 27.4.2011 in Appeal No.72/2010 has held that the additional cost due to time over-run due to factors beyond the control of project developer shall be capitalised. Accordingly, we condone the delay of 564 days (18 months 16 days) for Asset-1, delay of 563 days (18 months 15 days) for Asset-2 and delay of 535 days (17 months 19 days) for Asset-5.

### **Cost Over-run**

19. There was cost over-run in case of Asset-1 and Asset-2 when compared to the approved apportioned FR cost. The estimated completion cost of Asset 5 is within the approved cost. The reason for cost variation for Asset-1 and Asset-2 is as under:

#### **Asset-1&2**

- **Transmission lines material:** The petitioner submitted that the multi circuit towers for quad and twin portion of line is considered with twin portion of line which was not envisaged originally. The FR quantities have been apportioned based on actual executed quantities for multi circuit towers with twin and quad conductors. There is increase in length of line from 30 km in FR to 54 km as per actual. The consideration of multi circuit towers and increase in length resulted in the increase in completion cost.



- Due to non-availability of bays at Aurangabad (MSETCL), it has been decided to divert the existing 400 kV D/C Aurangabad (MSETCL) to Aurangabad (PG) at Aurangabad (PG). The same has been agreed in the 31<sup>st</sup> SCM. The long rod insulators used were not considered in FR, where only disc insulators are considered.
- **Foundation for structures-** There is variation in foundation structures as per actual execution and site conditions.

20. However, as per the revised apportioned cost, submitted vide affidavit dated 11.4.2016, the estimated completion cost of the assets is within the revised apportioned cost.

**Treatment of Initial spares:**

21. Regulation 13(d) of the 2014 Tariff Regulations provides that initial spares shall be capitalised as a percentage of plant and machinery cost upto cut-off date, subject to following ceiling norms:-

- “(a) Coal-based/lignite-fired thermal generating stations - 4.0%
- (b) Gas Turbine/Combined Cycle thermal generating stations - 4.0%
- (c) Hydro generating stations including pumped storage hydro generating station. - 4.0%
- (d) Transmission system
  - (i) Transmission line - 1.00%
  - (ii) Transmission Sub-station (Green Field) - 4.00%
  - (iii) Transmission Sub-station (Brown Field) - 6.00%
  - (iv) Series Compensation devices and HVDC Station - 4.00%
  - (v) Gas Insulated Sub-station (GIS) - 5.00%
  - (vi) Communication system - 3.5%”

22. The petitioner has not claimed any initial spares for the said assets.





23. It is however observed that the petitioner has mentioned initial spares of ₹15.44 lakh for sub-station for Asset-1 in Form-13 of the petition dated 16.7.2014. The petitioner was directed vide letter dated 15.7.2015 to provide the clarification for the same. However, the petitioner has not submitted any replies regarding the same. We have considered the submissions of the petitioner. For Asset-1, no initial spares is considered in accordance with Auditor's Certificate dated 28.6.2014. For Asset-2 and Asset-5 no initial spares are claimed by the petitioner.

24. The petitioner is however directed to submit the clarification regarding initial spares mentioned for Asset-1, as stated above and also submit whether entire amount pertaining to initial spares have been discharged up to COD. If not, year-wise details of the payment made corresponding to initial spares.

### **IDC & IEDC**

25. The petitioner was directed vide letter dated 15.7.2015 and vide ROP dated 11.4.2016 to submit the following:

- Whether entire amount of IEDC has been paid prior to COD? Month-wise details of IEDC paid on cash basis (i.e. from zero date to COD);
- Asset-wise details of actual IDC and IEDC on cash basis upto scheduled COD and from scheduled COD to anticipated/actual COD for the asset.
- Period-wise and loan-wise computation of interest during construction on cash basis with links for the assets from the date of infusion of debt fund up to anticipated/actual COD. Whether entire amount pertaining to IDC has been paid prior to COD?



26. The petitioner has however not submitted any details regarding the same and is directed to submit the same at the time of truing up.

27. We have considered the submissions of the petitioner and accordingly the capital cost considered as on COD based on Auditor's Certificate for computation of tariff as shown below:-

(₹ in lakh)			
Asset Name	Approved apporportioned cost as per RCE	Capital cost as on COD claimed	Capital cost as on COD approved
Asset-1	3894.04	3351.91	3351.91
Asset-2	4374.81	3650.08	3650.08
Asset-5	2274.66	1899.14	1899.14
<b>Total</b>	<b>10543.51</b>	<b>8901.13</b>	<b>8901.13</b>

#### **Additional Capital Expenditure**

28. The petitioner has proposed additional capitalization of ₹253.70 lakh, ₹365.09 lakh and ₹351.11 lakh for 2014-15 and ₹86.51 lakh, ₹86.89 lakh and ₹0.00 lakh for 2015-16 for Asset-1, Asset-2 and Asset-5 respectively towards balance and retention payment under Regulation 14(1)(i) of 2014 Tariff Regulations.

29. The petitioner was directed vide letter dated 15.7.2015 to submit the details of un-discharged liability as on COD corresponding to the elements and year-wise discharge of liabilities by payment & by reversal, duly certified by the Auditors' for other assets. The petitioner has not submitted any replies regarding the same. The petitioner is directed to submit the details at the time of truing up of the assets.



30. We have considered the submissions of the petitioner. It is observed that total estimated completion cost including additional capitalization for 2014-15, and 2015-16 is within the approved apportioned cost for the assets.

31. Clause 13 of Regulation 3 of the 2014 Tariff Regulations defines “cut-off” 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.”

32. The cut-off date for the assets works out to be 31.3.2017. The additional capitalization claimed by the petitioner is within the cut-off date. The additional capitalization for 2014-15 and 2015-16 is allowed under Regulation 14(1)(i) of 2014 Tariff Regulations for both Asset-I and Asset-II. The details of additional capitalization allowed is as follows:-

**(₹ in lakh)**

Asset Name	Approved apportioned cost as per RCE	Capital cost as on COD	Additional capitalization		Total Additional Capitalization	Total estimated completion cost
			2014-15	2015-16		
Asset-1	3894.04	3351.91	253.70	86.51	340.21	3692.12
Asset-2	4374.81	3650.08	365.09	86.89	451.98	4102.06
Asset-5	2274.66	1899.14	351.11	0.00	351.11	2250.25
<b>Total</b>	<b>10543.51</b>	<b>8901.13</b>	<b>969.9</b>	<b>173.40</b>	<b>1143.3</b>	<b>10044.43</b>

### **Debt:Equity Ratio**

33. 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.”

34. The petitioner has considered debt:equity ratio as 70:30 as on COD as well as for additional capitalisation. We have considered debt:equity ratio of 70:30 as on COD and for additional capitalization during the 2014-19 period. The details of the debt:equity as on the date of COD and 31.3.2019 considered for the purpose of tariff computation for the 2014-19 tariff period is as follows:-

(₹ in lakh)

Particulars	As on COD		Additional capitalization during 2014-19		As on 31.3.2019	
	Amount	(%)	Amount	(%)	Amount	(%)
<b>Asset-1</b>						
Debt	2346.34	70.00	238.15	70.00	2584.48	70.00
Equity	1005.57	30.00	102.06	30.00	1107.64	30.00
<b>Total</b>	<b>3351.91</b>	<b>100.00</b>	<b>340.21</b>	<b>100.00</b>	<b>3692.12</b>	<b>100.00</b>
<b>Asset-2</b>						
Debt	2555.06	70.00	316.39	70.00	2871.45	70.00
Equity	1095.02	30.00	135.59	30.00	1230.61	30.00
<b>Total</b>	<b>3650.08</b>	<b>100.00</b>	<b>451.98</b>	<b>100.00</b>	<b>4102.06</b>	<b>100.00</b>
<b>Asset-5</b>						
Debt	1329.40	70.00	245.78	70.00	1575.18	70.00
Equity	569.74	30.00	105.33	30.00	675.08	30.00
<b>Total</b>	<b>1899.14</b>	<b>100.00</b>	<b>351.11</b>	<b>100.00</b>	<b>2250.25</b>	<b>100.00</b>

### Interest on Loan (“IOL”)

35. 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.”

36. The petitioner was directed vide letter dated 15.7.2015 to submit the supporting documents for date of drawl, interest rate applicable from time to time in case of floating rate of interest, exchange rates applicable on the date of payment of interest and installment of loan, treatment of exchange variation due to change in exchange rate at the time of drawl and payment of interest/loan, interest payment date, repayment schedule and details of default in interest payment on loan. The petitioner has submitted documents regarding interest rate applicable from time to time in case of floating rate of interest, exchange rates applicable on the date of payment of interest and installment of loan. The petitioner is directed to submit the remaining documents at the time of truing up of the assets.

37. 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** and the IOL for Asset-I and Asset-II has been worked out as follows:-

(₹ in lakh)

Asset-1	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Gross loan opening	2346.34	2523.93	2584.48	2584.48	2584.48
Cumulative Repayment upto previous year	0.00	166.77	355.93	547.21	738.50
Net Loan-Opening	2346.34	2357.16	2228.55	2037.27	1845.99
Additions during the year	177.59	60.56	0.00	0.00	0.00
Repayment during the year	166.77	189.16	191.28	191.28	191.28
Net Loan-Closing	2357.16	2228.55	2037.27	1845.99	1654.70
Average Loan	2351.75	2292.86	2132.91	1941.63	1750.34
Rate of Interest (%)	1.6100	1.6100	1.6100	1.6100	1.6100
<b>Interest</b>	<b>34.85</b>	<b>36.92</b>	<b>34.34</b>	<b>31.26</b>	<b>28.18</b>

(₹ in lakh)

Asset-2	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Gross loan opening	2555.06	2810.62	2871.45	2871.45	2871.45
Cumulative Repayment upto previous year	0.00	185.48	397.73	612.17	826.60
Net Loan-Opening	2555.06	2625.14	2473.72	2259.28	2044.84
Additions during the year	255.56	60.82	0.00	0.00	0.00
Repayment during the year	185.48	212.25	214.44	214.44	214.44
Net Loan-Closing	2625.14	2473.72	2259.28	2044.84	1830.40
Average Loan	2590.10	2549.43	2366.50	2152.06	1937.62
Rate of Interest (%)	1.6100	1.6100	1.6100	1.6100	1.6100
<b>Interest</b>	<b>38.50</b>	<b>41.05</b>	<b>38.10</b>	<b>34.65</b>	<b>31.20</b>



(₹ in lakh)

Asset-5	2014-15	2015-16	2016-17	2017-18	2018-19
Gross loan opening	1329.40	1575.18	1575.18	1575.18	1575.18
Cumulative Repayment upto previous year	0.00	109.55	228.36	347.18	465.99
Net Loan-Opening	1329.40	1465.63	1346.81	1228.00	1109.18
Additions during the year	245.78	0.00	0.00	0.00	0.00
Repayment during the year	109.55	118.82	118.82	118.82	118.82
Net Loan-Closing	1465.63	1346.81	1228.00	1109.18	990.37
Average Loan	1397.51	1406.22	1287.41	1168.59	1049.77
Rate of Interest (%)	8.6847	8.6847	8.6799	8.6763	8.6759
<b>Interest</b>	<b>121.37</b>	<b>122.13</b>	<b>111.75</b>	<b>101.39</b>	<b>91.08</b>

### **Return on Equity("ROE")**

38. Clause (1) & (2) of Regulation 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 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:"

**"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."

39. The petitioner has computed ROE at the rate of 19.610% after grossing up the ROE with MAT rate as per the above Regulation for the assets after considering the MAT Rate of 20.961%. 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.

40. 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.

41. 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. We have considered the MAT rate applicable during 2013-





14 has 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 is given below:-

**(₹ in lakh)**

Asset-1	2014-15 (Pro-rata)	2015-16	2016-17	2017-18	2018-19
Opening Equity	1005.57	1081.68	1107.64	1107.64	1107.64
Additions	76.11	25.95	0.00	0.00	0.00
Closing Equity	1081.68	1107.64	1107.64	1107.64	1107.64
Average Equity	1043.63	1094.66	1107.64	1107.64	1107.64
Return on Equity (Base Rate) (%)	15.50	15.50	15.50	15.50	15.50
MAT Rate for the year (%)	20.961	20.961	20.961	20.961	20.961
Rate of Return on Equity (Pre Tax) (%)	19.610	19.610	19.610	19.610	19.610
Return on Equity (Pre Tax)	<b>188.40</b>	<b>214.66</b>	<b>217.21</b>	<b>217.21</b>	<b>217.21</b>

**(₹ in lakh)**

Asset-2	2014-15 (Pro-rata)	2015-16	2016-17	2017-18	2018-19
Opening Equity	1095.02	1204.55	1230.61	1230.61	1230.61
Additions	109.53	26.07	0.00	0.00	0.00
Closing Equity	1204.55	1230.61	1230.61	1230.61	1230.61
Average Equity	1149.78	1217.58	1230.61	1230.61	1230.61
Return on Equity (Base Rate) (%)	15.50	15.50	15.50	15.50	15.50
MAT Rate for the year (%)	20.961	20.961	20.961	20.961	20.961
Rate of Return on Equity (Pre Tax) (%)	19.610	19.610	19.610	19.610	19.610
Return on Equity (Pre Tax)	<b>208.18</b>	<b>238.77</b>	<b>241.32</b>	<b>241.32</b>	<b>241.32</b>

**(₹ in lakh)**

Asset-5	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Equity	569.74	675.08	675.08	675.08	675.08
Additions	105.33	0.00	0.00	0.00	0.00



Asset-5	2014-15	2015-16	2016-17	2017-18	2018-19
Closing Equity	675.08	675.08	675.08	675.08	675.08
Average Equity	622.41	675.08	675.08	675.08	675.08
Return on Equity (Base Rate) (%)	15.50	15.50	15.50	15.50	15.50
MAT Rate for the year (%)	20.961	20.961	20.961	20.961	20.961
Rate of Return on Equity (Pre Tax) (%)	19.610	19.610	19.610	19.610	19.610
Return on Equity (Pre Tax)	<b>122.05</b>	<b>132.38</b>	<b>132.38</b>	<b>132.38</b>	<b>132.38</b>

### **Depreciation**

42. 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."

43. 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 pumpedStorage hydro generating stations 35 years
- (e) Transmission line (including HVAC & HVDC) 35 years
- (f) Communication system 15 years”

44. The petitioner has claimed depreciation considering capital expenditure of ₹3351.91 lakh, ₹3650.08 lakh and ₹1899.14 lakh for Asset-1, Asset-2 and Asset-5 respectively with additional capitalization of ₹253.70 lakh, ₹365.09 lakh and ₹351.11 lakh for 2014-15 and ₹86.51 lakh, ₹86.89 lakh and ₹0.00 lakh for 2015-16 for Asset-1, Asset-2 and Asset-5 respectively.

45. We have considered the submissions of the petitioner and have computed depreciation considering capital expenditure approved in this order as on COD and additional capitalization for 2014-15 and 2015-16. The weighted average useful life of the asset has been considered as 34 years for Asset-1 and Asset-2 and 35 years for Asset-5 in accordance with the above regulation. The details of the depreciation allowed are given hereunder:-

(₹ in lakh)					
Asset-1	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Opening Gross block	3351.91	3605.61	3692.12	3692.12	3692.12
Additional Capitalization	253.70	86.51	0.00	0.00	0.00
Closing Gross block	3605.61	3692.12	3692.12	3692.12	3692.12
Average Gross block	3478.76	3648.87	3692.12	3692.12	3692.12
Rate of Depreciation (%)	5.208	5.184	5.181	5.181	5.181
Depreciable Value	3130.88	3283.98	3322.91	3322.91	3322.91
Elapsed Life of the assets	0	1	2	3	4



Asset-1	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
at beginning of the year					
Weighted Balance Useful life of the assets	34	33	32	31	30
Remaining Depreciable Value	3130.88	3117.21	2966.98	2775.69	2584.41
<b>Depreciation</b>	<b>166.77</b>	<b>189.16</b>	<b>191.28</b>	<b>191.28</b>	<b>191.28</b>

(₹ in lakh)

Asset-2	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Opening Gross block	3650.08	4015.17	4102.06	4102.06	4102.06
Additional Capitalization	365.09	86.89	0.00	0.00	0.00
Closing Gross block	4015.17	4102.06	4102.06	4102.06	4102.06
Average Gross block	3832.63	4058.62	4102.06	4102.06	4102.06
Rate of Depreciation (%)	5.242	5.230	5.228	5.228	5.228
Depreciable Value	3449.36	3652.75	3691.85	3691.85	3691.85
Elapsed Life of the assets at beginning of the year	0	1	2	3	4
Weighted Balance Useful life of the assets	34	33	32	31	30
Remaining Depreciable Value	3449.36	3467.27	3294.13	3079.69	2865.25
<b>Depreciation</b>	<b>185.48</b>	<b>212.25</b>	<b>214.44</b>	<b>214.44</b>	<b>214.44</b>

(₹ in lakh)

Asset-5	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Gross block	1899.14	2250.25	2250.25	2250.25	2250.25
Additional Capitalization	351.11	0.00	0.00	0.00	0.00
Closing Gross block	2250.25	2250.25	2250.25	2250.25	2250.25
Average Gross block	2074.70	2250.25	2250.25	2250.25	2250.25
Rate of Depreciation (%)	5.280	5.280	5.280	5.280	5.280
Depreciable Value	1867.23	2025.23	2025.23	2025.23	2025.23
Elapsed Life of the assets at beginning of the year	0	1	2	3	4
Weighted Balance Useful life of the assets	35	34	33	32	31
Remaining Depreciable Value	1867.23	1915.68	1796.86	1678.05	1559.23



Asset-5	2014-15	2015-16	2016-17	2017-18	2018-19
<b>Depreciation</b>	<b>109.55</b>	<b>118.82</b>	<b>118.82</b>	<b>118.82</b>	<b>118.82</b>

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

46. The petitioner has computed normative O&M Expenses as per Regulation 29(4)(a) of the 2014 Tariff Regulations. Accordingly, the petitioner’s entitlement to O&M expenses for Asset-1, Asset-2 and Asset-5 have been worked out as given hereunder:-

Particulars	<b>Asset-1</b>	2014-15	2015-16	2016-17	2017-18	2018-19
Norms as per Regulation	Single Circuit (Bundled Conductor) (in ₹lakh/km)	0.606	0.627	0.647	0.669	0.691
	400 kV Bays (in ₹ lakh/bay)	60.30	62.30	64.37	66.51	68.71
Actual	Single Circuit (Bundled Conductor) (kms)	2.916	2.916	2.916	2.916	2.916
	400 kV Bays (Nos)	2	2	2	2	2
<b>Total O&amp;M Expenses (in lakh)</b>		<b>112.64</b>	<b>126.43</b>	<b>130.63</b>	<b>134.97</b>	<b>139.43</b>

Particulars	<b>Asset-2</b>	2014-15	2015-16	2016-17	2017-18	2018-19
Norms as per Regulation	Single Circuit (Bundled Conductor) (in ₹lakh/km)	0.606	0.627	0.647	0.669	0.691
	Double Circuit (Bundled Conductor) (in ₹lakh/km)	1.062	1.097	1.133	1.171	1.210
	400 kV Bays (in ₹ lakh/bay)	60.3	62.3	64.37	66.51	68.71
Actual	Single Circuit (Bundled Conductor) (in lakh/km)	2.916	2.916	2.916	2.916	2.916
	Double Circuit (Bundled Conductor) (in lakh/km)	49.716	49.716	49.716	49.716	49.716
	220 kV Bays (in lakh/bay)	2	2	2	2	2
<b>Total O&amp;M Expenses (₹ in lakh)</b>		<b>161.73</b>	<b>180.97</b>	<b>186.95</b>	<b>193.19</b>	<b>199.59</b>



Particulars	<b>Asset- 5</b>	2014-15	2015-16	2016-17	2017-18	2018-19
Norms as per Regulation	Double Circuit (Double Conductor) (in ₹lakh/km)	0.707	0.731	0.755	0.78	0.806
	Double Circuit (Bundled Conductor) (in ₹lakh/km)	1.062	1.097	1.133	1.171	1.210
Actual	Double Circuit (Double Conductor) (kms)	10.4	10.4	10.4	10.4	10.4
	Double Circuit (Bundled Conductor) (kms)	2.182	2.182	2.182	2.182	2.182
<b>Total O&amp;M Expenses (₹ in lakh)</b>		<b>9.67</b>	<b>10.00</b>	<b>10.32</b>	<b>10.67</b>	<b>11.02</b>

47. 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.

48. It is observed that, while computing O&M expenses for Asset-2 and Asset-5, the petitioner has considered norms for multi circuit bundled conductor instead of double circuit bundled conductor. The petitioner was directed vide ROP dated 11.4.2016 to submit the computation of O&M for Asset-5. The petitioner has however not submitted any replies regarding the same.



49. The O&M Expenses have been worked out as per the norms of O&M Expenses as per Form-2 of the petition and as per 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.

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

(₹ in lakh)

Particulars	2014-15 (Pro-rata)	2015-16	2016-17	2017-18	2018-19
Asset-1	112.64	126.43	130.63	134.97	139.43
Asset-2	161.73	180.97	186.95	193.19	199.59
Asset-5*	9.67	10.00	10.32	10.67	11.02
<b>Total</b>	<b>284.04</b>	<b>317.39</b>	<b>327.91</b>	<b>338.83</b>	<b>350.05</b>

(Note:- \* for entire year)

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

51. 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).





52. The interest on working capital allowed is shown in the table below:-

(₹ in lakh)					
Asset-1	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	16.90	18.96	19.59	20.25	20.92
O & M expenses	9.39	10.54	10.89	11.25	11.62
Receivables	86.31	97.38	98.48	98.72	98.98
<b>Total</b>	<b>112.59</b>	<b>126.88</b>	<b>128.96</b>	<b>130.21</b>	<b>131.51</b>
Rate of Interest (%)	13.50	13.50	13.50	13.50	13.50
<b>Interest</b>	<b>15.20</b>	<b>17.13</b>	<b>17.41</b>	<b>17.58</b>	<b>17.75</b>

(₹ in lakh)					
Asset-2	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	24.26	27.15	28.04	28.98	29.94
O & M expenses	13.48	15.08	15.58	16.10	16.63
Receivables	102.13	115.72	117.09	117.59	118.13
<b>Total</b>	<b>139.86</b>	<b>157.95</b>	<b>160.71</b>	<b>162.67</b>	<b>164.70</b>
Rate of Interest (%)	13.50	13.50	13.50	13.50	13.50
<b>Interest</b>	<b>18.88</b>	<b>21.32</b>	<b>21.70</b>	<b>21.96</b>	<b>22.23</b>

(₹ in lakh)					
Asset-5	2014-15	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	1.45	1.50	1.55	1.60	1.65
O & M expenses	0.81	0.83	0.86	0.89	0.92
Receivables	61.88	65.41	63.70	61.99	60.30
<b>Total</b>	<b>64.14</b>	<b>67.74</b>	<b>66.11</b>	<b>64.48</b>	<b>62.87</b>
Rate of Interest (%)	13.50	13.50	13.50	13.50	13.50
<b>Interest</b>	<b>8.66</b>	<b>9.15</b>	<b>8.92</b>	<b>8.71</b>	<b>8.49</b>

### Annual Transmission Charges

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

(₹ in lakh)					
Asset-1	2014-15 (Pro-rata)	2015-16	2016-17	2017-18	2018-19
<b>Gross Block</b>					
Opening Gross Block	3351.91	3605.61	3692.12	3692.12	3692.12
Additional Capitalization	253.70	86.51	0.00	0.00	0.00
<b>Closing Gross Block</b>	<b>3605.61</b>	<b>3692.12</b>	<b>3692.12</b>	<b>3692.12</b>	<b>3692.12</b>



Asset-1	2014-15 (Pro-rata)	2015-16	2016-17	2017-18	2018-19
Average Gross Block	3478.76	3648.87	3692.12	3692.12	3692.12
Rate of Depreciation	5.208	5.184	5.181	5.181	5.181
Depreciable Value	3130.88	3283.98	3322.91	3322.91	3322.91
Elapsed Life of the assets at beginning of the year	0	1	2	3	4
Weighted Balance Useful life of the assets	34	33	32	31	30
Remaining Depreciable Value	3130.88	3117.21	2966.98	2775.69	2584.41
Depreciation	166.77	189.16	191.28	191.28	191.28
<b>Interest on Loan</b>					
Gross Normative Loan	2346.34	2523.93	2584.48	2584.48	2584.48
Cumulative Repayment upto Previous Year	0.00	166.77	355.93	547.21	738.50
Net Loan-Opening	2346.34	2357.16	2228.55	2037.27	1845.99
Additions	177.59	60.56	0.00	0.00	0.00
Repayment during the year	166.77	189.16	191.28	191.28	191.28
Net Loan-Closing	2357.16	2228.55	2037.27	1845.99	1654.70
Average Loan	2351.75	2292.86	2132.91	1941.63	1750.34
Weighted Average Rate of Interest on Loan (%)	1.6100	1.6100	1.6100	1.6100	1.6100
Interest	34.85	36.92	34.34	31.26	28.18
<b>Return on Equity</b>					
Opening Equity	1005.57	1081.68	1107.64	1107.64	1107.64
Additions	76.11	25.95	0.00	0.00	0.00
Closing Equity	1081.68	1107.64	1107.64	1107.64	1107.64
Average Equity	1043.63	1094.66	1107.64	1107.64	1107.64
Return on Equity (Base Rate) (%)	15.50	15.50	15.50	15.50	15.50
MAT Rate for the year 2013-14 (%)	20.961	20.961	20.961	20.961	20.961
Rate of Return on Equity (Pre Tax) (%)	19.610	19.610	19.610	19.610	19.610
Return on Equity (Pre Tax)	188.40	214.66	217.21	217.21	217.21



Asset-1	2014-15 (Pro-rata)	2015-16	2016-17	2017-18	2018-19
<b>Interest on Working Capital</b>					
Maintenance Spares	16.90	18.96	19.59	20.25	20.92
O & M expenses	9.39	10.54	10.89	11.25	11.62
Receivables	86.31	97.38	98.48	98.72	98.98
<b>Total</b>	<b>112.59</b>	<b>126.88</b>	<b>128.96</b>	<b>130.21</b>	<b>131.51</b>
Interest	15.20	17.13	17.41	17.58	17.75
<b>Annual Transmission Charges</b>					
Depreciation	166.77	189.16	191.28	191.28	191.28
Interest on Loan	34.85	36.92	34.34	31.26	28.18
Return on Equity	188.40	214.66	217.21	217.21	217.21
Interest on Working Capital	15.20	17.13	17.41	17.58	17.75
O & M Expenses	112.64	126.43	130.63	134.97	139.43
<b>Total</b>	<b>517.86</b>	<b>584.30</b>	<b>590.87</b>	<b>592.30</b>	<b>593.86</b>

(₹ in lakh)

Asset-2	2014-15 (Pro-rata)	2015-16	2016-17	2017-18	2018-19
<b>Gross Block</b>					
Opening Gross Block	3650.08	4015.17	4102.06	4102.06	4102.06
Additional Capitalisation	365.09	86.89	0.00	0.00	0.00
Closing Gross Block	4015.17	4102.06	4102.06	4102.06	4102.06
Average Gross Block	3832.63	4058.62	4102.06	4102.06	4102.06
Rate of Depreciation	5.242	5.230	5.228	5.228	5.228
Depreciable Value	3449.36	3652.75	3691.85	3691.85	3691.85
Elapsed Life of the assets at beginning of the year	0	1	2	3	4
Weighted Balance Useful life of the assets	34	33	32	31	30
Remaining Depreciable Value	3449.36	3467.27	3294.13	3079.69	2865.25
Depreciation	185.48	212.25	214.44	214.44	214.44
<b>Interest on Loan</b>					
Gross Normative Loan	2555.06	2810.62	2871.45	2871.45	2871.45
Cumulative Repayment upto Previous Year	0.00	185.48	397.73	612.17	826.60



Asset-2	2014-15 (Pro-rata)	2015-16	2016-17	2017-18	2018-19
Net Loan-Opening	2555.06	2625.14	2473.72	2259.28	2044.84
Additions	255.56	60.82	0.00	0.00	0.00
Repayment during the year	185.48	212.25	214.44	214.44	214.44
Net Loan-Closing	2625.14	2473.72	2259.28	2044.84	1830.40
Average Loan	2590.10	2549.43	2366.50	2152.06	1937.62
Weighted Average Rate of Interest on Loan (%)	1.6100	1.6100	1.6100	1.6100	1.6100
Interest	38.50	41.05	38.10	34.65	31.20
<b>Return on Equity</b>					
Opening Equity	1095.02	1204.55	1230.61	1230.61	1230.61
Additions	109.53	26.07	0.00	0.00	0.00
Closing Equity	1204.55	1230.61	1230.61	1230.61	1230.61
Average Equity	1149.78	1217.58	1230.61	1230.61	1230.61
Return on Equity (Base Rate) (%)	15.50	15.50	15.50	15.50	15.50
MAT Rate for the year 2013-14 (%)	20.961	20.961	20.961	20.961	20.961
Rate of Return on Equity (Pre Tax) (%)	19.610	19.610	19.610	19.610	19.610
Return on Equity (Pre Tax)	208.18	238.77	241.32	241.32	241.32
<b>Interest on Working Capital</b>					
Maintenance Spares	24.26	27.15	28.04	28.98	29.94
O & M expenses	13.48	15.08	15.58	16.10	16.63
Receivables	102.13	115.72	117.09	117.59	118.13
Total	139.86	157.95	160.71	162.67	164.70
Interest	18.88	21.32	21.70	21.96	22.23
<b>Annual Transmission Charges</b>					
Depreciation	185.48	212.25	214.44	214.44	214.44
Interest on Loan	38.50	41.05	38.10	34.65	31.20
Return on Equity	208.18	238.77	241.32	241.32	241.32
Interest on Working Capital	18.88	21.32	21.70	21.96	22.23
O & M Expenses	161.73	180.97	186.95	193.19	199.59
<b>Total</b>	<b>612.77</b>	<b>694.35</b>	<b>702.51</b>	<b>705.56</b>	<b>708.78</b>



(₹ in lakh)

Asset- 5	2014-15	2015-16	2016-17	2017-18	2018-19
<b>Gross Block</b>					
Opening Gross Block	1899.14	2250.25	2250.25	2250.25	2250.25
Additional Capitalisation	351.11	0.00	0.00	0.00	0.00
Closing Gross Block	2250.25	2250.25	2250.25	2250.25	2250.25
Average Gross Block	2074.70	2250.25	2250.25	2250.25	2250.25
Rate of Depreciation	5.280	5.280	5.280	5.280	5.280
Depreciable Value	1867.23	2025.23	2025.23	2025.23	2025.23
Elapsed Life of the assets at beginning of the year	0	1	2	3	4
Weighted Balance Useful life of the assets	35	34	33	32	31
Remaining Depreciable Value	1867.23	1915.68	1796.86	1678.05	1559.23
Depreciation	109.55	118.82	118.82	118.82	118.82
<b>Interest on Loan</b>					
Gross Normative Loan	1329.40	1575.18	1575.18	1575.18	1575.18
Cumulative Repayment upto Previous Year	0.00	109.55	228.36	347.18	465.99
Net Loan-Opening	1329.40	1465.63	1346.81	1228.00	1109.18
Additions	245.78	0.00	0.00	0.00	0.00
Repayment during the year	109.55	118.82	118.82	118.82	118.82
Net Loan-Closing	1465.63	1346.81	1228.00	1109.18	990.37
Average Loan	1397.51	1406.22	1287.41	1168.59	1049.77
Weighted Average Rate of Interest on Loan (%)	8.6847	8.6847	8.6799	8.6763	8.6759
Interest	121.37	122.13	111.75	101.39	91.08
<b>Return on Equity</b>					
Opening Equity	569.74	675.08	675.08	675.08	675.08
Additions	105.33	0.00	0.00	0.00	0.00
Closing Equity	675.08	675.08	675.08	675.08	675.08
Average Equity	622.41	675.08	675.08	675.08	675.08
Return on Equity (Base Rate) (%)	15.50	15.50	15.50	15.50	15.50
MAT Rate for the year 2013-14 (%)	20.961	20.961	20.961	20.961	20.961



Asset- 5	2014-15	2015-16	2016-17	2017-18	2018-19
Rate of Return on Equity (Pre Tax) (%)	19.610	19.610	19.610	19.610	19.610
Return on Equity (Pre Tax)	122.05	132.38	132.38	132.38	132.38
<b>Interest on Working Capital</b>					
Maintenance Spares	1.45	1.50	1.55	1.60	1.65
O & M expenses	0.81	0.83	0.86	0.89	0.92
Receivables	61.88	65.41	63.70	61.99	60.30
Total	64.14	67.74	66.11	64.48	62.87
Interest	8.66	9.15	8.92	8.71	8.49
<b>Annual Transmission Charges</b>					
Depreciation	109.55	118.82	118.82	118.82	118.82
Interest on Loan	121.37	122.13	111.75	101.39	91.08
Return on Equity	122.05	132.38	132.38	132.38	132.38
Interest on Working Capital	8.66	9.15	8.92	8.71	8.49
O & M Expenses	9.67	10.00	10.32	10.67	11.02
<b>Total</b>	<b>371.30</b>	<b>392.47</b>	<b>382.19</b>	<b>371.96</b>	<b>361.78</b>

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

54. 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. 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**

55. 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**

56. 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**

57. 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.

58. This order disposes of Petition No. 185/TT/2014.

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

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



## ANNEXURE-I

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

(₹ in lakh)

Asset-1	Interest Rate (%)	Loan deployed as on COD	Additions during the tariff period	Total
IBRD V-Loan 1-60.86	1.61	2346.34	0.00	2346.34

(₹ in lakh)

Asset-2	Interest Rate (%)	Loan deployed as on 1.4.2014	Additions during the tariff period	Total
IBRD V-Loan1-61.16	1.61	2555.06	0.00	2555.06

(₹ in lakh)

Asset- 5	Interest Rate (%)	Loan deployed as on 1.4.2014	Additions during the tariff period	Total
BOND XL-Loan 1-	9.30	177.00	0.00	177.00
BOND XLI-Loan 2-	8.85	238.00	0.00	238.00
BOND-XLII-Loan 3-	8.80	195.00	0.00	195.00
BOND-XLIII- Loan 4-	7.93	236.00	0.00	236.00
BOND-XLIV-Loan 5-	8.70	483.40	0.00	483.40
<b>Total</b>		<b>1329.40</b>	<b>0.00</b>	<b>1329.40</b>





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

(₹ in lakh)

<b>Asset-1</b>	2014-15	2015-16	2016-17	2017-18	2018-19
Gross Opening Loan	2346.34	2346.34	2346.34	2346.34	2346.34
Cumulative Repayments of Loans upto Previous Year	0.00	42.47	128.11	214.69	302.21
Net Loans Opening	2346.34	2303.87	2218.23	2131.65	2044.13
Add: Drawl(s) during the year	0.00	0.00	0.00	0.00	0.00
Less: Repayment(s) of Loan during the year	42.47	85.64	86.58	87.52	87.99
Net Closing Loan	2303.87	2218.23	2131.65	2044.13	1956.14
Average Net Loan	2325.11	2261.05	2174.94	2087.89	2000.14
Rate of Interest on Loan (%)	1.6100	1.6100	1.6100	1.6100	1.6100
Interest on Loan	37.43	36.40	35.02	33.62	32.20

(₹ in lakh)

<b>Asset-2</b>	2014-15	2015-16	2016-17	2017-18	2018-19
Gross Opening Loan	2555.06	2555.06	2555.06	2555.06	2555.06
Cumulative Repayments of Loans upto Previous Year	0.00	46.25	139.51	233.79	329.10
Net Loans Opening	2555.06	2508.81	2415.55	2321.27	2225.96
Add: Drawl(s) during the year	0.00	0.00	0.00	0.00	0.00
Less: Repayment(s) of Loan during the year	46.25	93.26	94.28	95.31	95.81
Net Closing Loan	2508.81	2415.55	2321.27	2225.96	2130.15
Average Net Loan	2531.94	2462.18	2368.41	2273.62	2178.06
Rate of Interest on Loan (%)	1.6100	1.6100	1.6100	1.6100	1.6100
Interest on Loan	40.76	39.64	38.13	36.61	35.07

(₹ in lakh)

<b>Asset- 5</b>	2014-15	2015-16	2016-17	2017-18	2018-19
Gross Opening Loan	1329.40	1329.40	1329.40	1329.40	1329.40
Cumulative Repayments of Loans upto Previous Year	0.00	0.00	0.00	34.58	88.83
Net Loans Opening	1329.40	1329.40	1329.40	1294.82	1240.57
Add: Drawl(s) during the year	0.00	0.00	0.00	0.00	0.00



<b>Asset- 5</b>	2014-15	2015-16	2016-17	2017-18	2018-19
Less: Repayment(s) of Loan during the year	0.00	0.00	34.58	54.25	215.38
Net Closing Loan	1329.40	1329.40	1294.82	1240.57	1025.19
Average Net Loan	1329.40	1329.40	1312.12	1267.71	1132.90
Rate of Interest on Loan (%)	8.6847	8.6847	8.6799	8.6763	8.6759
Interest on Loan	115.45	115.45	113.89	109.99	98.29

