

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 218/TT/2016**

**Coram:**

**Shri Gireesh B. Pradhan, Chairperson  
Shri A.K. Singhal, Member  
Shri A.S. Bakshi, Member  
Dr. M. K. Iyer, Member**

**Date of Order : 18.09.2017**

**In the matter of:**

Approval of transmission tariff for Raipur Pooling Station-Wardha 765 kV D/C second line with bay extension and equipment at 765 kV Raipur Pooling Station and Wardha Sub-station under System Strengthening in Raipur-Wardha Corridor for IPP Projects in Chhattisgarh (IPP-F) under Regulation 86 of Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999 and Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014.

**And in the matter of:**

Power Grid Corporation of India Limited  
"Saudamini", Plot No. 2, Sector 29  
Gurgaon -122001

**....Petitioner**

**Vs.**

1. Madhya Pradesh Power Management Company Ltd.  
Shakti Bhawan, Rampur  
Jabalpur – 482 008
2. Maharashtra State Electricity Distribution Co. Ltd.  
Hongkong Bank building, 3rd floor  
M.G. Road, Fort, Mumbai-400001.
3. Gujarat Urja Vikas Nigam Ltd.  
Sardar Patel Vidyut Bhawan,  
Racecourse Road  
Vadodara – 390 007
4. Electricity department  
Governemnt of Goa  
Vidyut Bhawan, Panaji,  
Near Mandvi Hotel, Goa – 403 001



5. Electricity Department  
Administration of Daman & Diu  
Daman – 396 210
6. Electricity Department  
Administration of Dadra Nagar Haveli  
U.T., Silvassa – 396 230
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-452 008

.....Respondents

**For Petitioner** : Shri S.S. Raju, PGCIL  
Shri S.K. Venkatesan, PGCIL  
Shri Rakesh Prasad, PGCIL  
Shri Neeraj Verma, PGCIL

**For Respondents** : None

### **ORDER**

The present petition has been filed by Power Grid Corporation of India Limited (“the Petitioner”) for approval of transmission charges for Raipur Pooling Station-Wardha 765 kV D/C second line with bay extension and equipment at 765 kV Raipur Pooling Station and Wardha Sub-station (hereinafter referred to as “transmission assets” under System Strengthening in Raipur-Wardha Corridor for IPP Projects in Chhattisgarh (IPP-F) (hereinafter referred to as "Transmission System") for 2014-19 tariff period, under Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 (hereinafter referred to as "the 2014 Tariff Regulations").

2. The Petitioner was entrusted with the implementation of System strengthening in Raipur-Wardha Corridor for IPP Projects in Chhattisgarh (IPP-F). The transmission



system for evacuation of power from IPP Projects in Chhattisgarh (IPP-F) was agreed in the 30<sup>th</sup> Standing Committee meeting on Power System Planning in Western Region held on 8.7.2010 after discussion with the generation developers and constituents of Western Region.

3. The Investment Approval (IA) and expenditure sanction for the transmission system was accorded by the Board of Directors of the Petitioner vide Memorandum No C/CP/Chhattisgarh-IPP dated 24.1.2012, at an estimated cost of ₹142285 lakh including IDC of ₹8756 lakh, at 3rd Quarter, 2011 price level. The Revised Cost Estimate (RCE) for the transmission system was accorded by the Board of Directors of the Petitioner vide Memorandum No C/CP/RCE/RP-Wardha dated 11.3.2016 at RCE of ₹187513 lakh including an IDC of ₹20562 lakh (based on August, 2015 price level). As per the RCE, the overall completion schedule of the project is also revised to June, 2016. The transmission system was scheduled to be commissioned within 36 months from the date of IA. Therefore, the scheduled date of commissioning of the transmission system was 24.1.2015. However, the assets were put under commercial operation w.e.f. 31.3.2017 involving a time over-run of 26 months and 7 days.

4. We have considered the cost given in the RCE dated 11.3.2016 for the purpose of computation of tariff. The timeline of 36 months given in the IA dated 24.1.2012 is considered.

5. The assets covered in the instant transmission system are as follows:-



### Transmission Line

(i) Raipur Pooling Station-Wardha 765 kV second D/C line;

### Sub-station

(i) Bay extensions at 765 kV Raipur Pooling Station and Wardha Sub-station

### Reactive Compensation

Line Reactor	From Bus (Raipur PS end)	To Bus (Wardha end)
Raipur Pooling Station-Wardha 765 kV second D/C line	2x240 MVAR (Switchable)	2x330 MVAR

6. The Petitioner initially claimed tariff on the basis of anticipated COD of 1.4.2017. The Petitioner vide affidavit dated 13.7.2017 has submitted the actual COD of the transmission system was 31.3.2017 and also submitted the revised tariff forms.

7. The details of the transmission charges claimed by the Petitioner are as under:-

(₹ in lakh)

Particulars	2016-17 (pro-rata)	2017-18	2018-19
Depreciation	24.24	9345.87	9726.64
Interest on Loan	27.73	10289.70	9903.82
Return on Equity	27.04	10438.14	10874.12
Interest on working capital	1.86	706.67	717.76
O & M Expenses	2.54	977.02	1009.50
<b>Total</b>	<b>83.41</b>	<b>31757.40</b>	<b>32231.84</b>

8. The details submitted by the Petitioner in support of its claim for interest on working capital are as under:-

(₹ in lakh)

Particulars	2016-17 (pro-rata)	2017-18	2018-19
Maintenance Spares	141.73	146.55	151.43
O & M Expenses	78.47	81.42	84.13
Receivables	5171.29	5292.90	5371.97
<b>Total</b>	<b>5391.49</b>	<b>5520.87</b>	<b>5607.53</b>
Rate of Interest	13.50%	13.50%	13.50%
<b>Interest</b>	<b>1.99</b>	<b>745.32</b>	<b>757.02</b>



9. No comments or suggestions have been received from the general public in response to the notices published by the Petitioner under Section 64 of the Electricity Act, 2003. Madhya Pradesh Power Management Company Limited (MPPMCL), Respondent no.1, has filed its reply vide affidavit dated 1.12.2016. MPPCL has raised the issue of additional capital expenditure, cost over-run and time over-run. The petitioner has filed the rejoinder to the reply of MPPMCL, vide affidavit dated 16.12.2017. The issues raised by MPPMCL and the clarification given by the petitioner are dealt in the respective paragraphs of this order.

10. Having heard the representatives of the parties and perused the material available on record, we proceed to dispose of the petition.

11. Annual Fixed Cost for the instant assets was allowed under Regulation 7(7) of the 2014 Tariff Regulations for inclusion in the computation of PoC charges vide order dated 30.12.2016.

12. The Petitioner has claimed the COD of the instant assets as 1.3.2017. In support of the claim, the Petitioner has submitted the trial operation certificate issued by RLDC and the certificate issued by CEA under Regulation 43 of CEA (Measures relating to safety and Electric Supply) Regulations, 2010. Taking into consideration the submissions made by the Petitioner and the certificate issued by CEA and the RLDC, the COD of the instant assets is approved as 31.3.2017. Accordingly, the tariff has been worked out from COD, i.e. 31.3.2017 to 31.3.2019 in accordance with the 2014 Tariff Regulations as discussed in subsequent paragraphs.

### **Capital cost**

13. Clause (1) and (2) of Regulation 9 of the 2014 Tariff Regulations provides as follows:-



“(1) The Capital cost as determined by the Commission after prudence check in accordance with this regulation shall from 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) Capitalized Initial spares subject to the ceiling rates specified in Regulation 13 of these regulations;
- (f) Expenditure on account of additional capitalization and de-capitalization 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.”

14. The Petitioner has submitted the RCE and the revised approved apportioned cost of the assets. The details of the approved apportioned cost, revised apportioned cost as per RCE and capital cost claimed as on actual COD and estimated additional capital expenditure incurred or projected to be incurred as per Auditor’s Certificates dated 6.7.2017 are summarized below:-

Apportioned approved cost as per Investment Approval	Revised apportioned cost as per RCE	Capital cost claimed on actual COD as per Auditor Certificate	Additional Capital expenditure		Total estimated completion cost
			2017-18	2018-19	
142285.00	187513.00	175304.35	8529.51	2011.82	185845.68

### **Cost Over-run**

15. The estimated completion cost of the instant assets is more than the initial approved apportioned cost. However, the estimated completion cost of the instant assets is within the reapportioned capital cost. As regards the price variation between



Estimated Cost (FR) cost and award cost, the Petitioner has submitted that the contracts for various packages under this project were awarded to the lowest evaluated and responsive bidder, on the basis of Open Competitive Bidding. Thus, the award prices represent the lowest prices available at the time of bidding of various packages under price discovery mechanism on which there is no control. The price variation from award to final execution is mainly on the basis of price variation based on indices as per the provision of respective contracts.

16. MPPMCL has submitted that the Petitioner is giving contradictory statements regarding the cost over-run. On one hand, the Petitioner has submitted on affidavit that there is no cost over-run, while on the other hand has submitted a detailed justification for the cost over-run. MPPMCL has submitted that the escalation of cost was due to poor procurement management of the Petitioner and attributable to the Petitioner and hence the cost variation may be disallowed. The Petitioner, vide rejoinder dated 16.2.2017, submitted that the cost variations with respect to FR cost are mainly due to variation in quantities of approved items, crop, tree and forest compensation and Price Variations.

17. There is a cost variation with reference to original approved cost. The capital cost of the asset comprises the cost of 765 kV D/C transmission line of 357.27 km, four 765 kV bays at Raipur Sub-station and two 765 kV bays at Wardha Sub-station. The Petitioner has submitted the cost of sub-station and transmission part separately (as per Auditor Certificate). Based on this information, per unit capital cost of sub-station and transmission line is worked out as under:-



(₹ in lakh)

Element	Capital Cost	Per Unit
Sub-station (6 bays)	17377.00	28.96 Cr per bay
Transmission lines (357.27 km)	168468.68	4.71 Cr per km
Total	185845.70	

(IDC is allocated in proportion to the capital cost. The capital cost in Form 5 original petition is different from the capital cost of Auditor Certificate.)

18. The Petitioner, in its original estimate, had envisaged the capital cost of the transmission lines as ₹1213.05 Cr (including IDC and IEDC on proportionate basis) i.e. ₹3.40 Cr per km., whereas the estimated completion cost is ₹4.71 Cr per km, which is much higher than the estimated cost. The Petitioner has attributed the cost variation to the higher prices discovered in the Open Competitive Bidding. MPPMCL has attributed the higher prices due to the poor procurement policy of the Petitioner.

19. We have considered the submissions of the petitioner and the objection raised by MPPMCL regarding cost variation of the instant assets. The variation in cost of the instant transmission line is on higher side. The Commission in number of cases, while allowing the cost variation earlier had observed that the cost estimates prepared by the Petitioner are not realistic and directed the Petitioner to adopt better methods to arrive at realistic cost estimates. The reasons given by the Petitioner for cost variation in case of the instant assets are general in nature and we are not satisfied with them. We are not inclined to allow the variation in cost of the instant transmission line at this stage. The Petitioner is directed to submit the basis of arriving at the cost estimates along with the background computation and the efforts made to achieve the cost efficiencies while estimating the capital cost of the 765 kV D/C Raipur Pooling Station-Wardha 765 kV second line. The Commission also likes to know the reasons recorded by the Board of the Directors while accepting the RCE. This will be reviewed at the time of true up.



20. The population of the 765 kV D/C transmission lines is less in the network. Therefore, we do not have any reference data for the purpose of comparison. In absence of the required reference data, we have considered the indicative cost submitted by the Central Transmission Utility (CTU) for the purpose of Point of Connection (PoC) during the computation of PoC tariff in second quarter of 2017-18. The CTU has submitted the indicative cost as ₹3.90 Cr/km (including IDC and IEDC on proportionate basis) for the 765 kV D/C transmission line. At present, the capital cost of the transmission lines is restricted to ₹3.90 Cr/km on provisional basis taking into consideration the indicative cost submitted by CTU for the purpose of computation of PoC charges. As stated above, the capital cost of the instant transmission line would be reviewed at the time of truing up on receipt of the information as sought above. The capital cost considered now for computation of tariff is as under:-

(₹ in lakh)		
Element	Capital Cost	Per Unit
Sub-station (6 bays)	17377.00	28.96 Cr per bay
Transmission lines (357.27 km)	139335.30	3.90 Cr per km
Total	156712.30	

### **Initial Spares**

21. Regulation 13 of the 2014 Tariff Regulations specifies ceiling norms for capitalization of initial spares in respect of transmission system as under:-

“13. Initial Spares Initial spares shall be capitalised as a percentage of the 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%.”

Provided that: (i) where the benchmark norms for initial spares have been published as part of the benchmark norms for capital cost by the Commission, such norms shall apply to the exclusion of the norms specified above:

(ii) where the generating station has any transmission equipment forming part of the generation project, the ceiling norm for initial spares for such equipments shall be as per the ceiling norms specified for transmission system under these regulations:

(iii) once the transmission project is commissioned, the cost of initial spares shall be restricted on the basis of plant and machinery cost corresponding to the transmission project at the time of truing up:

(iv) for the purpose of computing the cost of initial spares, plant and machinery cost shall be considered as project cost as on cut-off date excluding IDC, IEDC, Land Cost and cost of civil works. The transmission licensee shall submit the break up of head wise IDC & IEDC in its tariff application.”

22. The Petitioner has claimed initial spares amounting to ₹1455.14 lakh pertaining to transmission line corresponding to capital cost of ₹143426.06 lakh (excluding IDC, IEDC, land cost and cost of civil works) and ₹643.67 lakh pertaining to sub-station corresponding to capital cost of ₹12853.54 lakh (excluding IDC, IEDC, land cost and cost of civil works) as on the cut-off date. Initial spares claimed by the Petitioner in respect of transmission line are higher than the ceiling limit specified in the 2014 Tariff Regulations. In case of the sub-station, the initial spares claimed are within the ceiling limit specified in the 2014 Tariff Regulations. The initial spares claimed and allowed for the instant assets are as shown below:-

(₹ in lakh)					
Particulars	Plant and Machinery cost (excl. IDC, IEDC, land cost and cost of civil works)	Initial spares claimed	Ceiling limit as per Regulation 13	Allowable initial spares	Excess initial spares claimed
Transmission line	143426.06	1,455.14	1.00%	1434.05	21.09
Sub-station	12853.54	643.67	6.00%	779.35	-

23. The Petitioner vide affidavit dated 13.07.2017 has submitted the discharge details of initial spares which is shown below:-



Asset		YEAR WISE SPARES LIABILITY DISCHARGE UPTO CUT OFF DATE				
		Up o SCOD	Up to COD	2017-18	2018-19	Total
1	TL	0.00	0	1236.87	218.27	1455.14
	SS	385.68	204.50	42.47	11.06	643.67

24. The Petitioner has further stated that undischarged liability as on COD for initial spares are adjusted in estimated additional capitalization of the respective year. Thus, spares pertaining to sub-station are within the ceiling limits specified in the 2014 Tariff Regulations. In case of transmission line, no amount is discharged as on COD. Since, the capital cost has been restricted, as discussed as above, we have not allowed any claim of initial spare as add cap for 2017-18 and 2018-19. Thus, no adjustment has been carried out for initial spares for computing final tariff and the same shall be reviewed at the time of truing-up.

#### **Time over-run**

25. As per the Investment Approval dated 24.1.2012, the instant transmission assets were scheduled to be commissioned within 36 months from the date of Investment Approval. Accordingly, the scheduled COD works out to 24.1.2015, but the assets were put under commercial operation on 31.3.2017. The Petitioner, vide affidavit dated 13.7.2017, has submitted that as per the RCE, the instant assets were scheduled to be put under commercial operation in June, 2016. As stated earlier, the timeline given in the Investment Approval dated 24.1.2012 is considered by us. Thus, there is a time over-run of 26 months and 7 days.

26. The Petitioner has submitted the reasons for time over-run in case of the instant asset vide affidavits dated 25.10.2016 and 13.7.2017 and attributed the time over-run to delay in forest clearance and RoW issues. The justification given by the Petitioner is discussed in following paras.



27. The petitioner has submitted that since the survey of the transmission line was under the scope of contractor, the Petitioner, immediately after Investment Approval, took steps for placement of Letter of Award (LOA). Usually, after LOA, the surveyor appointed by contractor, purchases the Topo-sheets published by office of Survey of India of relevant area and marks the Bee-line and proposes three alternate routes of the line for optimizing the line length, avoiding Wild Life Sanctuaries, Forest areas, Railway crossings, Highways and Bridges to the extent possible on the MAP. Then the surveyor does the preliminary/walkover survey in all the three alternatives and proposes the best route out of three which involves minimum hindrances. After approval of the line route, the surveyor carries out the detailed survey, which is challenging and normally takes 2.5 to 3 months. In the instant case, after the finalization of route, survey was carried out to assess the forest area involved. Thereafter, forest authorities were approached for permission to enter forest area vide letter dated 30.5.2012 for carrying out detail survey, which were pre-requisite for preparation and submission of forest proposal.

#### **Delay due to Forest approval**

28. Forest area of 295.48 ha in the State of Maharashtra under five divisions namely Gondia (20.96 ha), Brahmapuri (9.17 ha), Nagpur (3.87 ha), Nagpur FDCM (7.75 ha) and Wadsa (253.73 ha) were involved. The proposal for forest clearance was submitted to respective District Conservator of Forest in month of August, 2012. As per Ministry of Environment and Forest (MoEF) Notification dated 3.2.2004 forest approval takes about 10 months involving the area of more than 40 hectares. The process for forest approval has been summarized in Environmental and Social Policy and procedures manual of POWERGRID, extracts of which are submitted in the petition. In the instant case final approval was received in the month of March, 2016



from Revenue and Forest Department, Government of Maharashtra which took about 43 months against the specified time limit of 10 months by the Government of India. The chronology of events in case of forest approval, submitted by the Petitioner is tabulated below:-

Sr. No	Reference and date	Details
	24.1.2012	Investment approval with completion schedule 36 months
Forest approval		
1	9.3.2012	Placement of LOA
2	March 2012 to May 2012	After LOA, the surveyor appointed by contractor, purchases Topo-sheets published by office of Survey of India of relevant area and mark the Bee-line and propose three alternate routes of the line for optimizing the line length and avoiding Wild life Sanctuaries, Forest areas, Railway crossings, Highways and Bridges to the extent possible on the MAP. Then the surveyor does the preliminary/walkover survey in all the three alternatives and proposes a best route out of three which involves minimum hindrances. After approval of the line route, the surveyor does the detailed survey. This process is very challenging one and normally takes 2.5 to 3 months. In the instant case also, after the finalization of route, survey was carried out to have assessment of forest area involved. Thereafter, forest authorities were approached for permission to enter forest area vide letter dated 30.5.2012 for carrying out detail survey, which were pre-requisite for preparation and submission of forest Proposal to have assessment of Forest area.
2	30.5.2012	Letter from Project Authority, POWERGRID to DCF Wadsa Division, Gadchiroli seeking permission to enter in forest for carrying out the detail survey work.
3	20.7.2012	District Collector, Gondia, Gadchiroli (M.S) were informed regarding construction of Raipur Pooling Station-Wardha 765 kV D/C second line.
4	30.7.2012	District Collector, Chandrapur, were informed regarding construction of Raipur Pooling Station-Wardha 765 kV D/C second line.
5	22.8.2012	The forest proposal submitted to DCF Chandrapur vide letter dated 22.8.2012, DCF Nagpur vide letter dated 22.08.2012, DCF Gondia vide letter dated 28.8.2012, DCF Gadchiroli vide letter dated 31.8.2012.
6	17.9.2012	Letter from DCF, Gondia regarding submission of forest proposal for construction of 765 kV D/C Raipur Pooling Station-Wardha TL- 02
7	29.11.2012	Letter received from DCF Wadsa regarding joint inspection of forest area.
8	6.3.2013	Letter sent to Forest Conservator (Wildlife) Gondia regarding issuing of NOC for wildlife area.
9	4.4.2013	Certificate towards minimum demand of forest land has been issued by Collector Gondia.
10	24.6.2013	Some queries regarding tree cutting have been asked by Joint Secretary, Mantralaya, Mumbai from Nodal officer, Nagpur on 24.6.2013 and same are compiled / forwarded on 28.6.2013.
11	22.7.2013	Letter sent to Divisional Manager, FDCM, Nagpur regarding issuance of NOC
12	30.7.2013	Letter from Divisional Manager, FDCM, Nagpur to RFO,



Sr. No	Reference and date	Details
		Umred regarding joint inspection of forest area
13	3.8.2013	Joint inspection of forest area carried out by DCF, Wadsa
14	6.9.2013	The FRA certificate issued by Collector, Gondia
15	23.12.2013	DCF inspection carried out on 23.12.2013. Proposal forwarded to DCF, Wadsa/Combining officer on 3.1.2014 by DCF, Brahmapuri.
16	24.12.2013	Site inspection carried out by DCF, Brahmapuri
17	7.1.2014	Letter from DCF Gondia to DCF Wadsa for nomination of DCF Wadsa as Nodal officer.
18	5.2.2014	NOC issued by DCF Wardha dated 5.2.2014
19	4.4.2014	Letter from Dy CEO (G.P.), Gadchiroli to BDO, Desaiganj on dated 4.4.2014 for NOC from Gram Panchayat.
20	June 2014	After inspection and tree enumeration by Forest Officials, Government of Maharashtra, the proposal was forwarded to Nodal Officer, Nagpur in June, 2014
21	September 2014	After forwarding of proposal to PCCF and Secretary (Forests), Government of Maharashtra by Nodal Officer, approval of Hon'ble Minister of Forests, Government of Maharashtra was received in September, 2014 and the proposal was forwarded to MoEF, New Delhi.
22	12.11.2014	Site inspection of underground coal mining and transmission line of Power Grid by CCF, Bhopal
23	22.12.2014	FAC held at MoEF, New Delhi.
24	11.6.2015	Stage-I approval was issued from State Government forwarded the compliance report to MoEF, New Delhi for issue of final forest clearance.
25	22.6.2015	A request for issuance of corrigendum to Stage-I approval was forwarded to MoEF, New Delhi on June 22, 2015 for maintenance of minimum clearance between the conductor and the trees which is 9.0m for 765 kV lines
26	21.6.2015	The payment towards Compensatory Afforestation, NPV and medicinal plantation was deposited on July 21, 2015
27	2.9.2015	Corrigendum to Stage-I approval was issued and State Government forwarded the compliance report to MoEF, New Delhi for issue of final forest clearance
28	7.12.2015	Stage II forest approval issued on December 7, 2015 of final forest clearance.
29	27.1.2016	Nodal officer, Nagpur recommended the diversion proposal to Secretary( Forest) Mantralaya for approval
30	17.3.2016	The final order FLD-36A14/C.R-199/F-from Revenue and Forest Department. Government of Maharashtra Diversion of Forest land for Construction of Raipur Pooling Station – Wardha 765 kV D/C second line.

29. MPPMCL has submitted that it is the responsibility of the Petitioner to get the forest approval within specified time frame and in case of any hurdles, the Petitioner, being executive agency is supposed to contact/pursue concerned authorities of forest department of the State/MoEF for timely clearance of forest approval. Further, Petitioner has attached a chronological detail of various correspondences of the state



forest department and the MoEF for forest clearances to justify that the time delay of 33 months is not attributable to the Petitioner. However, not even a single correspondence supporting efforts made by the Petitioner to get an early clearance has been attached with the petition and it shows that Petitioner has not persuaded the matter for forest clearance and hence the delay is attributable to the Petitioner and all the claims including IDC and IEDC may be disallowed.

30. In response, the Petitioner has submitted that the contention of MPPMCL that the petitioner has not pursued the matter with forest authorities is not correct as the Petitioner has pursued the matter for getting the approval and many times followed up the case with forest officials and correspondences made with forest authorities have already been submitted. The proposal for forest clearance was submitted to respective District Conservator of Forest in month of August, 2012 and as per MoEF notification dated 3.2.2004 forest approval takes about 10 months involving the area of more than 40 hectares and in the instant case final approval was received in the month of March, 2016 from Revenue and Forest Department, Government of Maharashtra which took about 43 months against the specified time limit of 10 months by the Government of India.

**Delay due to ROW issues:**

31. The petitioner has submitted that after obtaining the final order from Revenue and Forest Department, Government of Maharashtra, Petitioner took up the transmission line work on war footing with mobilization of the contractor men and material and tried to squeeze the work schedule. The tree cutting and foundation work in forest area was started but the construction was not allowed in Lavari village and nearby locations by the villagers. 19 locations in 6.5 km stretch of the line were affected. The meeting with Collector, Gadchiroli was held on September, 2016 in the



presence of DCF Wadsa, POWERGRID officials, SDM Kurkheda. The progress of the project was apprised to Collector, including the schedule of completion of line by December 2016 viz-a-viz delay. Further after payment of balance amount as decided by Collector as compensation in March, 2017, issue was resolved and line was charged on 31.3.2017. The detail chronology of ROW issues are tabulated below:-

<b>ROW issues raised after getting forest approval</b>		
1	22.2.2016	Letter from Gram Sabha Lavari to Collector and District Magistrate Gadchiroli demanding not to allow tree cutting.
2	13.6.2016	Meeting with Gram Sabha Lavari
3	19.8.2016	Letter from Gram Sabha Lavari to DCF Wadsa on dated 19.8.2016 had submitted their demand for payment of tree compensation, land compensation etc.
4	24.8.2016	DCF Wadsa have replied to Lavari Gram Sabha stating that demands cannot be met under the prevalent rules
5	9.9.2016	Meeting with Collector Gadchiroli was conducted on 9.9.2016 in the presence of DCF Wadsa, POWERGRID officials, SDM Kurkheda. The progress of the project was apprised to him, including the monitoring of the project delayed and schedule of completion of line by December, 2016.
6	15.9.2016	Letter from ED, POWERGRID (WR-I) to Add. Principal Chief conservator of Forest and Nodal Officer, Nagpur issuing direction for respective authorities for resolving the issue (not allowing tree cutting and demanding extra compensation) created by the villagers of Lawari and Bijapur in Gadochirolli District.
7	26.10.2016	Letter from Office of Deputy Conservator of Forest, Wadsa to President/ Secretary, Gram Sabha, Lawaria for organising a meeting at Collector office, Gadchiroli along with officers of 765 kV Raipur-Wardha Transmission Line#2 regarding resistance for tree cutting by the villagers.
8	28.10.2016	MOM under Scheduled Tribes and other Traditional Forest Dwellers Act, 2006- District level committee Meeting regarding compensation and clearing the objection of villager in tree cutting.
9	28.11.2016	Letter from office of Collector, Gadchiroli to Manager, Power Grid Corporation of India Ltd regarding depositing of amount in the Gram Sabha A/C No 964210110009091 instead of Gramkosh Bank A/C 9642210110008710.
10	29.11.2016	Letter from Gramsabha Lawari, Distt. Gadchiroli to Manager, Power Grid Corporation of India Ltd, Durg for payment of ₹1,11,26,000/- in three instalments as per instruction issued as decided by Collector as compensation and clearing issue for tree cutting.



<b>ROW issues raised after getting forest approval</b>		
11	25.3.2017	Letter from Gramsabha Lawari, Distt. Gadchiroli to Manager, PGCIL, Durg for payment of balance amount as decided by Collector as compensation and clearing issue for tree cutting.

32. MPPMCL has submitted that the Petitioner has got final forest clearance on 16.3.2016, after a delay of 33 months and further delay of 6 months was due to ROW issues. The Petitioner has enclosed newspaper documents (dated 20.9.2015, 19.9.2015) in support of its claim but the newspaper cuttings clearly show that the period of delay in ROW issues is prior to getting final forest approval in the month of March, 2016 and hence the delay on account of ROW issues in September, 2015 is included in the delay period of forest clearance and since the delay on account of forest clearance of 33 months has already been claimed by the Petitioner, the claim due to RoW is liable to be rejected.

33. In response, the Petitioner has submitted that the contention of the Respondent that there is no delay due to ROW, is not correct and it may be rejected as the execution of transmission line has been delayed due to forest approval and ROW issues. The forest approval was granted in March, 2016 and after obtaining the final order dated 17.3.2016 from Revenue and Forest Department, Government of Maharashtra, diversion of forest land, the tree cutting and foundation work in forest area was started. The work was not allowed in Lavari village and nearby locations by the villagers. The delay on account of forest approval and RoW issues are beyond the control of the Petitioner and therefore the time over-run may be condoned.

34. We have considered the submissions of the Petitioner and MPPMCL. The Petitioner has submitted the detailed chronology of events along with supporting documents for forest clearances and RoW issues along with PERT and CPM Chart. The scheduled date of completion of the instant assets was 24.1.2015. However, the



assets were put under commercial operation on 31.3.2017, after time over-run of 26 months 7 days. The Petitioner has attributed the time over-run to delay in forest clearance and RoW issues. The Petitioner has submitted that immediately after Investment Approval, LOA was issued on 9.3.2012 and thereafter the preliminary survey and the detailed survey was carried out, which were pre-requisite for preparation and submission of forest proposal to carry out survey in the forest area. The survey of the line was completed in July, 2012. During 30.5.2012 to 30.7.2012, the Petitioner was in correspondence with the concerned forest divisions seeking approval for construction. The Petitioner approached the Brahmपुरi and Nagpur forest divisions on 22.8.2012, Gondia forest division on 28.8.2012 and Wadasa forest division on 31.8.2012 for forest approval after detailed survey and pre-requisite preparation. Between 17.9.2012 to 22.12.2014, the Petitioner has coordinated with respective forest divisions regarding forest clearance and has also submitted the correspondence made with them. The Petitioner received the Stage-I approval on 11.6.2015 (i.e. almost after 33 months and 20 days of IA) and Stage-II on 7.12.2015 (i.e. almost after 39 months and 15 days of IA) and final order from Revenue and Forest Department, Government of Maharashtra Diversion of forest land for construction of the instant transmission line on 17.3.2016 i.e. after 54 months and 23 days. As per MoEF notification dated 3.2.2004, the State Governments are required to process the applications and forward the same to the MoEF alongwith their recommendations in 210 days. Further, MoEF has to process cases to obtain sanction of central government and issue of in-principle approval/rejection in 90 days. Thus, as per MoEF Notification dated 3.2.2004, the time specified for forest approval is 300 days (210+90 days) or 10 months. In the instant case, it took 54 months and 23 days for obtaining the final clearance of forest department, which is much higher than the specified 10 months. It is observed that the Petitioner has pursued its proposal with



various authorities diligently. Therefore, we are of the view that the delay on account forest approval is beyond the control of the Petitioner and shall not be attributable to the Petitioner.

35. As regards RoW issues, the Petitioner has submitted that it faced RoW issues from 22.2.2016 to 25.3.2017 in 19 locations of 6.5 km stretch in Lavari village and nearby locations. It is observed that the villagers of Lavari raised objections to cutting of trees in their letter dated 22.2.2016 to the DM, Gadchiroli and later raised demand for compensation in August, 2016. The villagers were informed by the District Conservator of Forest on 24.8.2016 that their demand for compensation cannot be met. Finally, the matter was settled with the intervention of DM, Gadchiroli and the forest officials with the payment of compensation of ₹1.11 cr. on 25.3.2017 and the line was subsequently charged on 31.3.2017. It took more than 9 months for the Petitioner to resolve the issues. We are of the view that delay due to RoW issue was beyond the control of the Petitioner and accordingly, the time over-run of 9 months due to ROW problems at Lavari village is also condoned.

36. Though there was delay of more than 54 months and 9 months in obtaining the forest clearance and due to RoW issues respectively, the Petitioner has mobilized the contractor, men and materials and squeezed the work schedule and reduced the total time over-run to 26 months and 7 days. As stated earlier, this time over-run cannot be attributed to the petitioner. Accordingly, the time over-run in case of the instant assets is condoned and the IDC and IEDC are allowed to be capitalised.

#### **Interest During Construction (IDC)**

37. The petitioner has claimed IDC of ₹26659.92 lakh. The allowable IDC has been worked out considering the information submitted by the Petitioner. The loan details



submitted in Form-9C for 2014-19 period and date of drawl submitted in IDC statement has been considered for the purpose of calculating IDC for the instant assets. The IDC determined on cash basis as on COD amounting to ₹24,077.21 has been allowed provisionally and the claim of undischarged IDC after COD is not being considered at present and both will be reviewed at the time of truing-up.

### Treatment of IEDC

38. The petitioner has claimed IEDC of ₹974.55 lakh. The IEDC limit indicated in the 'Abstract Cost Estimate', which is 5% of the "Hard Cost" is considered. The IEDC amount claimed is within the percentage on "Hard Cost" as submitted in the Abstract Cost Estimate. Accordingly, the same is allowed.

39. The details of element wise IDC and IEDC claimed and allowed as on COD for the instant assets is as follows:-

(₹ in lakh)								
Particulars	Expenditure up to COD as per Auditor Certificate dated 6.7.2017	IDC claimed	IEDC claimed	Hard Cost claimed	IDC calculated on Cash Basis allowed provisionally	IEDC allowed provisionally	Total Capital cost as on COD after adjusting IDC and IEDC on cash basis	Total capital cost considered as on COD for tariff calculation
	(A)	(B)	(C)	(D)=(A)-(B)-(C)	(E)	(F)	(G)=(D)+(E)+(F)	
Land (Freehold Land)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Land (Leasehold)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building, Civil Work, Colony	1028.55	156.42	5.72	866.41	141.27	5.72	1013.40	1013.40
Transmission Line	160282.06	24375.36	891.04	135015.66	22013.97	891.04	157920.67	139335.30
Sub-Station	13354.56	2030.93	74.24	11249.39	1834.18	74.24	13157.81	13157.81
PLCC	639.18	97.21	3.55	538.42	87.79	3.55	629.76	629.76
<b>Total</b>	<b>175304.35</b>	<b>26659.92</b>	<b>974.55</b>	<b>147669.88</b>	<b>24077.21</b>	<b>974.55</b>	<b>172721.64</b>	<b>154136.27</b>



40. The capital cost allowed as on COD is ₹154136.27 lakh for the asset.

**Additional capital expenditure**

41. 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 13.
- iv. Liabilities to meet award of arbitration or for compliance of the order or decree of a court; and
- v. Change in Law or compliance of any existing law.”

Provided that the details of works asset wise/work wise included in the original scope of work along with estimates of expenditure, liabilities recognized to be payable at a future date and the works deferred for execution shall be submitted along with the application for determination of tariff.

42. Clause (13) of Regulation 3 of the 2014 Tariff Regulations defines “cut-off” date as under:-

“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 the 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 capitalization could not be made within the cut-off date for reasons beyond the control of the project developer;”

43. The cut-off date in the case of instant transmission asset is 31.3.2020.

44. The Petitioner has claimed the following additional capital expenditure vide CA certificate dated 6.7.2017:-

**(₹ in lakh)**

<b>2017-18</b>	<b>2018-19</b>
8529.51	2011.82



45. The MPPMCL vide affidavit dated 1.12.2016 has submitted that the Petitioner has claimed the cost towards additional capitalization for the period 2016-17, 2017-18 and 2018-19 under 4 different sub-heads, i.e. Building, Transmission Line, Sub-station and PLCC. The Petitioner has claimed additional capitalization under the same heads for all the years but the Petitioner in the instant petition has not provided any details, proper reasoning and justification and therefore same may be disallowed.

46. In response, the Petitioner has submitted that the detailed break-up of add-cap amount as a part of the total cost has already been specified in Form-5. Further, the amount claimed as add-cap pertains to balance and retention payments w.r.t sub-station civil works like control room building works, foundation works, roads drains etc, and erection works which are to be paid only after commissioning of the asset as per the contractual agreement.

47. The add cap claimed by the Petitioner as per the Auditor certificate dated 6.7.2017 has been allowed excluding add cap claimed for transmission line. Moreover, claim of discharge of IDC over and above the above claim is also not allowed, which will be reviewed at the time of true up. Accordingly, the add cap allowed is tabulated below:-

(₹ in lakh)		
2017-18	2018-19	Total estimated add cap
1982.57	372.78	2355.35

48. Based on the above, the capital cost as on COD and the additional capital expenditure considered for tariff computation of the instant assets are summarised below:-

(₹ in lakh)			
Capital cost allowed as on COD	Projected Additional capitalization		Capital cost as 31.3.2019
	2017-18	2018-19	
154136.27	1982.57	372.78	156491.62



### **Capital cost as on 31.3.2019**

49. Based on the above, capital cost as on 31.3.2019 has been considered as per details as under:-

Particulars	As on COD	Add cap		(₹ in lakh)
		2017-18	2018-19	As on 31.3.2019
Freehold Land	0.00	0.00	0.00	0.00
Leasehold Land	0.00	0.00	0.00	0.00
Building & Civil Works	1013.40	983.47	114.58	2111.45
Transmission Line	139335.30	0.00	0.00	139335.30
Sub-Station Equipments	13157.81	953.11	248.34	14359.26
PLCC	629.76	45.99	9.86	685.61
<b>Total</b>	<b>154136.27</b>	<b>1982.57</b>	<b>372.78</b>	<b>156491.62</b>

### **Debt-Equity Ratio**

50. Clause 1 and 5 of Regulation 19 of the 2014 Tariff Regulations specifies as follows:-

“(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.

Explanation.-The premium, if any, raised by the generating company or the transmission licensee, as the case may be, while issuing share capital and investment of internal resources created out of its free reserve, for the funding of the project, shall be reckoned as paid up capital for the purpose of computing return on equity, only if such premium amount and internal resources are actually utilised for meeting the capital expenditure of the generating station or the transmission system.”

“(5) Any expenditure incurred or projected to be incurred on or after 1.4.2014 as may be admitted by the Commission as additional capital expenditure for determination of tariff, and renovation and modernisation expenditure for life extension shall be serviced in the manner specified in clause (1) of this regulation.”



51. The Petitioner has claimed debt: Equity ratio of 70:30 as on the date of commercial operation. Debt: Equity ratio of 70:30 is considered as provided in Regulation 19 of the 2014 Tariff Regulations. The details of debt:equity ratio in respect of the instant assets as on the date of commercial operation and as on 31.3.2019 are as under:-

(₹ in lakh)

Particulars	Capital cost as on tariff COD		Capital cost as on 31.3.2019	
	Amount	%	Amount	%
Debt	107895.39	70.00	109544.14	70.00
Equity	46240.88	30.00	46947.49	30.00
Total	154136.27	100.00	156491.62	100.00

### **Return on Equity (RoE)**

52. Clause (1) and (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:

Provided that:

(i) in case of projects commissioned on or after 1st April, 2014, an additional return of 0.50 % shall be allowed, if such projects are completed within the timeline specified in Appendix-I:

(ii) the additional return of 0.5% shall not be admissible if the project is not completed within the timeline specified above for reasons whatsoever:

(iii) additional RoE of 0.50% may be allowed if any element of the transmission project is completed within the specified timeline and it is certified by the Regional Power Committee/National Power Committee that commissioning of the particular element will benefit the system operation in the regional/national grid:

(iv) the rate of return of a new project shall be reduced by 1% for such period as may be decided by the Commission, if the generating station or transmission system is found to be declared under commercial operation without commissioning of any of the



Restricted Governor Mode Operation (RGMO)/ Free Governor Mode Operation (FGMO), data telemetry, communication system up to load dispatch centre or protection system:

(v) as and when any of the above requirements are found lacking in a generating station based on the report submitted by the respective RLDC, RoE shall be reduced by 1% for the period for which the deficiency continues:

(vi) additional RoE shall not be admissible for transmission line having length of less than 50 kilometers.

“25. Tax on Return on Equity:

(1) The base rate of return on equity as allowed by the Commission under Regulation 24 shall be grossed up with the effective tax rate of the respective financial year. For this purpose, the effective tax rate shall be considered on the basis of actual tax paid in the respect of the financial year in line with the provisions of the relevant Finance Acts by the concerned generating company or the transmission licensee, as the case may be. The actual tax income on other income stream (i.e., income of non generation or non transmission business, as the case may be) shall not be considered for the calculation of “effective tax rate”.

(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.”

53. The petitioner has submitted that RoE has been calculated at the rate of 20.243% after grossing up the RoE with MAT rate of 20.961%, as per the above Regulations. The petitioner has further submitted that as per Regulation 25(3) of the 2014 Tariff Regulations, 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. 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.

54. 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 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. 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. Accordingly, the RoE allowed is as follows:-

Particulars	(₹ in lakh)		
	2016-17 (pro-rata)	2017-18	2018-19
Opening Equity	46240.88	46240.88	46835.65
Addition due to Additional Capitalisation	0.00	594.77	111.83
Closing Equity	46240.88	46835.65	46947.49
Average Equity	46240.88	46538.27	46891.57
Return on Equity (Base Rate)	15.50%	15.50%	15.50%
Tax rate for the year 2013-14 (MAT)	20.961%	20.961%	20.961%
Rate of Return on Equity (Pre-tax)	19.610%	19.610%	19.610%
Return on Equity (Pre-tax)	24.84	9126.15	9195.44

### **Interest on loan (IoL)**

55. Regulation 26 of the 2014 Tariff Regulations are provides as under:-

“(1) The loans arrived at in the manner indicated in regulation 19 shall be considered as gross normative loan for calculation of interest on loan

(2) The normative loan outstanding as on 1.4.2014 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to 31.3.2014 from the gross normative loan.

(3) The repayment for each of the year of the tariff period 2014-19 shall be deemed to be equal to the depreciation allowed for the corresponding year/period. In case of decapitalization of assets, the repayment shall be adjusted by taking into account



cumulative repayment on a pro rata basis and the adjustment should not exceed cumulative depreciation recovered upto the date of decapitalisation of such asset.

(4) Notwithstanding any moratorium period availed by the generating company or the transmission licensee, as the case may be, the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the depreciation allowed for the year or part of the year.

(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.”

56. The interest on loan has been worked out considering the following points:

(i) Gross amount of loan, repayment of instalments and rate of interest and weighted average rate of interest on actual average loan have been considered as per the petition;

(ii) The repayment for the tariff 2014-19 period has been considered to be equal to the depreciation allowed for that period; and

(iii) Weighted average rate of interest on actual average loan worked out as per (i) above is applied on the notional average loan during the year to arrive at the interest on loan.

57. Detailed calculation of the weighted average rate of interest has been given in Annexure to this order.

58. Based on above, details of Interest on Loan calculated are as follows:-



Particulars	(₹ in lakh)		
	2016-17 (pro-rata)	2017-18	2018-19
Gross Normative Loan	107895.39	107895.39	109283.19
Cumulative Repayment upto Previous Year	0.00	22.26	8190.65
Net Loan-Opening	107895.39	107873.13	101092.54
Addition due to Additional Capitalisation	0.00	1387.80	260.95
Repayment during the year	22.26	8168.39	8220.21
Net Loan-Closing	107873.13	101092.54	93133.27
Average Loan	107884.26	104482.83	97112.91
Weighted Average Rate of Interest on Loan	8.6445%	8.6357%	8.6260%
Interest	<b>25.55</b>	<b>9022.83</b>	<b>8376.95</b>

59. The IOL is allowed considering all the loans submitted in Form-9C. The Petitioner is directed to reconcile the total Gross Loan for the calculation of weighted average Rate of Interest and for the calculation of IDC, which would be reviewed at the time of truing-up.

### **Depreciation**

60. Regulation 27 of the 2014 Tariff Regulations with regard to depreciation specifies as below:-

"27. Depreciation:

(1) Depreciation shall be computed from the date of commercial operation of a generating station or unit thereof or a transmission system including communication system or element thereof. In case of the tariff of all the units of a generating station or all elements of a transmission system including communication system for which a single tariff needs to be determined, the depreciation shall be computed from the effective date of commercial operation of the generating station or the transmission system taking into consideration the depreciation of individual units or elements thereof.

Provided that effective date of commercial operation shall be worked out by considering the actual date of commercial operation and installed capacity of all the units of the generating station or capital cost of all elements of the transmission system, for which single tariff needs to be determined.

(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.



(3) The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the capital cost of the asset:

Provided that in case of hydro generating station, the salvage value shall be as provided in the agreement signed by the developers with the State Government for development of the Plant:

Provided further that the capital cost of the assets of the hydro generating station for the purpose of computation of depreciated value shall correspond to the percentage of sale of electricity under long-term power purchase agreement at regulated tariff:

Provided also that any depreciation disallowed on account of lower availability of the generating station or generating unit or transmission system as the case may be, shall not be allowed to be recovered at a later stage during the useful life and the extended life.

4) Land other than the land held under lease and the land for reservoir in case of hydro generating station shall not be a depreciable asset and its cost shall be excluded from the capital cost while computing depreciable value of the asset.

(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.”

61. The Petitioner has claimed actual depreciation as a component of annual fixed charges. Depreciation has been allowed in accordance with Regulation 27 of the 2014 Tariff Regulations. The instant assets were put under commercial operation during 2016-17. Accordingly, it will complete 12 years after 2018-19. As such, depreciation has been calculated annually based on Straight Line Method at the rates specified in Appendix-II to the 2014 Tariff Regulations.

62. Details of the depreciation allowed are as under:-



(₹ in lakh)

Particulars	2016-17 (pro-rata)	2017-18	2018-19
Opening Gross Block	154136.27	154136.27	156118.84
Additional Capital expenditure	0.00	1982.57	372.78
Closing Gross Block	154136.27	156118.84	156491.62
Average Gross Block	154136.27	155127.56	156305.23
Rate of Depreciation	5.2715%	5.2656%	5.2591%
Depreciable Value	138722.64	139614.80	140674.71
Remaining Depreciable Value	138722.64	139592.54	132484.06
Depreciation	22.26	8168.39	8220.21

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

63. Regulation 29 (4) (a) of the 2014 Tariff Regulations specifies the norms for O&M Expenses for the transmission system based on the type of sub-station and the transmission line. Norms specified in respect of the elements covered in the instant petition are as under:-

Element	2014-15	2015-16	2016-17	2017-18	2018-19
765 kV bay (₹ lakh/km)	84.42	87.22	90.12	93.11	96.20
Double Circuit (Bundled Conductor with four or more sub-conductors) (₹ lakh/km)	1.062	1.097	1.133	1.171	1.210

64. The O&M Expenses claimed by the Petitioner for the instant assets are as under:-

(₹ in lakh)

Particulars	2016-17 (pro-rata)	2017-18	2018-19
O&M Expenses	2.54	977.02	1009.50

65. Accordingly, the Petitioner's entitlement of O&M Expenses has been worked out and the allowable O&M Expenses for the instant assets are as follows:-

(₹ in lakh)

Element	2016-17 (pro-rata)	2017-18	2018-19
Transmission Lines			
Raipur PS-Wardha 765KV D/C second line			
357.27 km 765 kV D/C T/L	404.787	418.363	432.297
Total (A)	404.787	418.363	432.297
Sub-stations			



Element	2016-17 (pro-rata)	2017-18	2018-19
Raipur Pooling sub-station			
4 Nos. 765 kV bays	360.48	372.44	384.80
Total (B)	360.48	372.44	384.80
Wardha Sub-station			
2 Nos. 765 kV bays	180.24	186.22	192.40
Total (C)	180.24	186.22	192.40
Sub-total (D)=(A)+(B)+(C)	945.507*	977.023	1009.50
Total (after pro-rata)	2.5904	977.02	1009.50
Allowed	2.59**	977.02	1009.50

66. The Petitioner has submitted that O&M Expenses for the tariff period 2014-19 had been arrived at on the basis of normalized actual O&M Expenses during the period 2008-09 to 2012-13. The Petitioner has further submitted that the wage revision of the employees is due i.e. 1.1.2017 and actual impact of wage hike effective from a future date has not been factored in fixation of the normative O&M rates specified for the tariff period 2014-19. The Petitioner has submitted that it would approach the Commission for suitable revision in norms for O&M Expenses for claiming the impact of wage hike during 2014-19, if any.

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

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

68. Clause 1(c) of Regulation 28 and Clause 5 of Regulation 3 of the 2014 Tariff Regulations specify as follows:-

**“28. Interest on Working Capital**

(1) The working capital shall cover:

(c) Hydro generating station including pumped storage hydro electric generating station and transmission system including communication system:



- (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”

(3) 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 generating station or a unit thereof or the transmission system including communication system or element thereof, as the case may be, is declared under commercial operation, whichever is later.

“(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;”

69. The Petitioner is entitled to claim interest on working capital as per the 2014 Tariff Regulations. The components of the working capital and the Petitioner’s entitlement to interest thereon are discussed hereunder:-

**(i) Receivables**

Receivables as a component of working capital will be equivalent to two months fixed cost. The Petitioner has claimed the receivables on the basis of 2 months’ annual transmission charges. In the tariff being allowed, receivables have been worked out on the basis of 2 months’ transmission charges.

**(ii) Maintenance spares**

Regulation 28 of the 2014 Tariff Regulations provides for maintenance spares @ 15% per annum of the O&M expenses. The value of maintenance spares has accordingly been worked out.

**(iii) O & M expenses**

Operation and maintenance expenses have been considered for one month as a component of working capital. The Petitioner has claimed O&M expenses for 1 month of the respective year as claimed in the petition. This has been considered in the working capital.



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

As per Proviso 3 of regulation 28 of the 2014 Tariff Regulations, SBI Base rate 9.30% as on 1.4.2016 plus 350 Bps i.e. 12.80% has been considered for the asset, as the rate of interest on working capital.

70. The interest on working capital as determined is shown in the table given below:-

Particulars	(₹ in lakh)		
	2016-17 (pro-rata)	2017-18	2018-19
Maintenance Spares	141.80	146.55	151.43
O & M expenses	78.78	81.42	84.13
Receivables	4682.02	4653.20	4569.53
Total	4902.60	4881.17	4805.08
Interest	1.72	624.79	615.05

**Transmission charges**

71. The transmission charges being allowed for the instant assets are summarized hereunder:-

Particulars	(₹ in lakh)		
	2016-17 (pro-rata)	2017-18	2018-19
Depreciation	22.26	8168.39	8220.21
Interest on Loan	25.55	9022.83	8376.95
Return on equity	24.84	9126.15	9195.44
Interest on Working Capital	1.72	624.79	615.05
O & M Expenses	2.59	977.02	1009.50
Total	76.96	27919.18	27417.15

**Filing Fee and Publication Expenses**

72. 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**

73. 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.

### **Sharing of Transmission Charges**

74. 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.

75. This order disposes of Petition No. 218/TT/2016.

sd/-  
**(M.K. Iyer)**  
Member

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

sd/-  
**(A.K. Singhal)**  
Member

sd/-  
**(Gireesh B. Pradhan)**  
Chairperson



**CALCULATION OF WEIGHTED AVERAGE RATE OF INTEREST ON LOAN**

(₹ in lakh)

	<b>Details of Loan</b>	<b>2016-17</b>	<b>2017-18</b>	<b>2018-19</b>
<b>1</b>	<b>Bond XXXIX</b>			
	Gross loan opening	5479.37	5479.37	5479.37
	Cumulative Repayment upto COD/previous year	0.00	0.00	0.00
	Net Loan-Opening	5479.37	5479.37	5479.37
	Additions during the year	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00
	Net Loan-Closing	5479.37	5479.37	5479.37
	Average Loan	5479.37	5479.37	5479.37
	Rate of Interest	9.40%	9.40%	9.40%
	Interest	515.06	515.06	515.06
	Rep Schedule	29.3.2027 Bullet Payment		
<b>2</b>	<b>Bond XL</b>			
	Gross loan opening	2011.00	2011.00	2011.00
	Cumulative Repayment upto COD/previous year	167.58	167.58	335.17
	Net Loan-Opening	1843.42	1843.42	1675.83
	Additions during the year	0.00	0.00	0.00
	Repayment during the year	0.00	167.58	167.58
	Net Loan-Closing	1843.42	1675.83	1508.25
	Average Loan	1843.42	1759.63	1592.04
	Rate of Interest	9.30%	9.30%	9.30%
	Interest	171.44	163.65	148.06
	Rep Schedule	12 annual installments from 28.6.2016		
<b>3</b>	<b>Bond LIII</b>			
	Gross loan opening	11129.00	11129.00	11129.00
	Cumulative Repayment upto COD/previous year	0.00	0.00	0.00
	Net Loan-Opening	11129.00	11129.00	11129.00
	Additions during the year	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00
	Net Loan-Closing	11129.00	11129.00	11129.00
	Average Loan	11129.00	11129.00	11129.00
	Rate of Interest	8.13%	8.13%	8.13%
	Interest	904.79	904.79	904.79
	Rep Schedule	NA		
<b>4</b>	<b>Bond LIV</b>			
	Gross loan opening	14409.57	14409.57	15117.00



	Cumulative Repayment upto COD/previous year	0.00	0.00	0.00
	Net Loan-Opening	14409.57	14409.57	15117.00
	Additions during the year	0.00	707.43	0.00
	Repayment during the year	0.00	0.00	0.00
	Net Loan-Closing	14409.57	15117.00	15117.00
	Average Loan	14409.57	14763.29	15117.00
	Rate of Interest	7.97%	7.97%	7.97%
	Interest	1148.44	1176.63	1204.82
	Rep Schedule	NA		
<b>5</b>	<b>SBI Loan 2014-15</b>			
	Gross loan opening	40205.39	<b>40205.39</b>	<b>40205.39</b>
	Cumulative Repayment upto COD/previous year	0.00	<b>0.00</b>	<b>0.00</b>
	Net Loan-Opening	40205.39	40205.39	40205.39
	Additions during the year	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00
	Net Loan-Closing	40205.39	40205.39	40205.39
	Average Loan	40205.39	40205.39	40205.39
	Rate of Interest	8.90%	8.90%	8.90%
	Interest	3578.28	3578.28	3578.28
	Rep Schedule	NA		
<b>6</b>	<b>Bond XLI</b>			
	Gross loan opening	2345.00	<b>2345.00</b>	<b>2345.00</b>
	Cumulative Repayment upto COD/previous year	195.42	<b>195.42</b>	<b>390.83</b>
	Net Loan-Opening	2149.58	2149.58	1954.17
	Additions during the year	0.00	0.00	0.00
	Repayment during the year	0.00	195.42	195.42
	Net Loan-Closing	2149.58	1954.17	1758.75
	Average Loan	2149.58	2051.88	1856.46
	Rate of Interest	8.85%	8.85%	8.85%
	Interest	190.24	181.59	164.30
	Rep Schedule	12 annual installments from 19.10.2016		
<b>7</b>	<b>Bond XLII</b>			
	Gross loan opening	6530.00	<b>6530.00</b>	<b>6530.00</b>
	Cumulative Repayment upto COD/previous year	0.00	<b>0.00</b>	<b>0.00</b>
	Net Loan-Opening	6530.00	6530.00	6530.00
	Additions during the year	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00
	Net Loan-Closing	6530.00	6530.00	6530.00
	Average Loan	6530.00	6530.00	6530.00
	Rate of Interest	8.80%	8.80%	8.80%



	Interest	574.64	574.64	574.64
	Rep Schedule	13.3.2023 Bullet Payment		
<b>8</b>	<b>Bond XLIII</b>			
	Gross loan opening	2965.00	<b>2965.00</b>	<b>2965.00</b>
	Cumulative Repayment upto COD/previous year	0.00	<b>0.00</b>	<b>247.08</b>
	Net Loan-Opening	2965.00	2965.00	2717.92
	Additions during the year	0.00	0.00	0.00
	Repayment during the year	0.00	247.08	247.08
	Net Loan-Closing	2965.00	2717.92	2470.83
	Average Loan	2965.00	2841.46	2594.38
	Rate of Interest	7.93%	7.93%	7.93%
	Interest	235.12	225.33	205.73
	Rep Schedule	12 annual installments from 20.5.2017		
<b>9</b>	<b>Bond XLIV</b>			
	Gross loan opening	11580.00	<b>11580.00</b>	<b>11580.00</b>
	Cumulative Repayment upto COD/previous year	0.00	<b>0.00</b>	<b>0.00</b>
	Net Loan-Opening	11580.00	11580.00	11580.00
	Additions during the year	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	3860.00
	Net Loan-Closing	11580.00	11580.00	7720.00
	Average Loan	11580.00	11580.00	9650.00
	Rate of Interest	8.70%	8.70%	8.70%
	Interest	1007.46	1007.46	839.55
	Rep Schedule	3 equal annual installments 15.7.2018, 15.7.2023, 15.7.2028		
<b>10</b>	<b>Bond XLVI</b>			
	Gross loan opening	3028.00	<b>3028.00</b>	<b>3028.00</b>
	Cumulative Repayment upto COD/previous year	0.00	<b>0.00</b>	<b>0.00</b>
	Net Loan-Opening	3028.00	3028.00	3028.00
	Additions during the year	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00
	Net Loan-Closing	3028.00	3028.00	3028.00
	Average Loan	3028.00	3028.00	3028.00
	Rate of Interest	9.30%	9.30%	9.30%
	Interest	281.60	281.60	281.60
	Rep Schedule	3 equal installments on 4.9.2019, 4.9.2024 and 4.9.2029		
<b>11</b>	<b>Bond XLIX</b>			
	Gross loan opening	489.00	489.00	489.00
	Cumulative Repayment upto COD/previous year	0.00	0.00	0.00
	Net Loan-Opening	489.00	489.00	489.00
	Additions during the year	0.00	0.00	0.00



	Repayment during the year	0.00	0.00	0.00
	Net Loan-Closing	489.00	489.00	489.00
	Average Loan	489.00	489.00	489.00
	Rate of Interest	8.15%	8.15%	8.15%
	Interest	39.85	39.85	39.85
	Rep Schedule	Redeemable at par in 3 equal installments on 9.3.2020, 9.3.2025 and 9.3.2030		
<b>12</b>	<b>Bond LI</b>			
	Gross loan opening	6317.00	<b>6317.00</b>	<b>6317.00</b>
	Cumulative Repayment upto COD/previous year	0.00	<b>0.00</b>	<b>0.00</b>
	Net Loan-Opening	6317.00	6317.00	6317.00
	Additions during the year	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00
	Net Loan-Closing	6317.00	6317.00	6317.00
	Average Loan	6317.00	6317.00	6317.00
	Rate of Interest	8.40%	8.40%	8.40%
	Interest	530.63	530.63	530.63
	Rep Schedule	12 annual installments from 14.9.2019		
<b>13</b>	<b>Bond XLVIII</b>			
	Gross loan opening	387.31	<b>387.31</b>	<b>387.31</b>
	Cumulative Repayment upto COD/previous year	0.00	<b>0.00</b>	<b>0.00</b>
	Net Loan-Opening	387.31	387.31	387.31
	Additions during the year	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00
	Net Loan-Closing	387.31	387.31	387.31
	Average Loan	387.31	387.31	387.31
	Rate of Interest	8.20%	8.20%	8.20%
	Interest	31.76	31.76	31.76
	Rep Schedule	4 equal installments on 23.1.2020, 23.1.2022, 23.1.2025 and 23.1.2030		
<b>14</b>	<b>Bond LVIII</b>			
	Gross loan opening	0.00	<b>17.18</b>	<b>1827.97</b>
	Cumulative Repayment upto COD/previous year	0.00	<b>0.00</b>	<b>0.00</b>
	Net Loan-Opening	0.00	17.18	1827.97
	Additions during the year	17.18	1810.79	0.00
	Repayment during the year	0.00	0.00	0.00
	Net Loan-Closing	17.18	1827.97	1827.97
	Average Loan	8.59	922.58	1827.97
	Rate of Interest	7.89%	7.89%	7.89%
	Interest	0.68	72.79	144.23
	Rep Schedule	12 annual installments from 14.9.2019		



15	<b>SBI Loan 2014-15</b>			
	Gross loan opening	0.00	<b>0.00</b>	<b>239.00</b>
	Cumulative Repayment upto COD/previous year	0.00	<b>0.00</b>	<b>0.00</b>
	Net Loan-Opening	0.00	0.00	239.00
	Additions during the year	0.00	239.00	0.00
	Repayment during the year	0.00	0.00	0.00
	Net Loan-Closing	0.00	239.00	239.00
	Average Loan	0.00	119.50	239.00
	Rate of Interest	8.90%	8.90%	8.90%
	Interest	0.00	10.64	21.27
	Rep Schedule	NA		
16	<b>Bond XLVII</b>			
	Gross loan opening	576.83	<b>576.83</b>	<b>576.83</b>
	Cumulative Repayment upto COD/previous year	0.00	<b>0.00</b>	<b>0.00</b>
	Net Loan-Opening	576.83	576.83	576.83
	Additions during the year	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	48.07
	Net Loan-Closing	576.83	576.83	528.76
	Average Loan	576.83	576.83	552.80
	Rate of Interest	8.93%	8.93%	8.93%
	Interest	51.51	51.51	49.36
	Rep Schedule	12 annual installments from 21.10.2018		
17	<b>Bond L</b>			
	Gross loan opening	7247.00	7247.00	7247.00
	Cumulative Repayment upto COD/previous year	0.00	0.00	0.00
	Net Loan-Opening	7247.00	7247.00	7247.00
	Additions during the year	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00
	Net Loan-Closing	7247.00	7247.00	7247.00
	Average Loan	7247.00	7247.00	7247.00
	Rate of Interest	8.40%	8.40%	8.40%
	Interest	608.75	608.75	608.75
	Rep Schedule	12 annual installments from 27.5.2019		
18	<b>Bond LII</b>			
	Gross loan opening	5000.00	<b>5000.00</b>	<b>5000.00</b>
	Cumulative Repayment upto COD/previous year	0.00	<b>0.00</b>	<b>0.00</b>
	Net Loan-Opening	5000.00	5000.00	5000.00
	Additions during the year	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00



	Net Loan-Closing	5000.00	5000.00	5000.00
	Average Loan	5000.00	5000.00	5000.00
	Rate of Interest	8.93%	8.93%	8.93%
	Interest	446.50	446.50	446.50
	Rep Schedule	NA		
19	<b>Bond LVII</b>			
	Gross loan opening	0.00	<b>0.00</b>	<b>239.00</b>
	Cumulative Repayment upto COD/previous year	0.00	<b>0.00</b>	<b>0.00</b>
	Net Loan-Opening	0.00	0.00	239.00
	Additions during the year	0.00	239.00	0.00
	Repayment during the year	0.00	0.00	0.00
	Net Loan-Closing	0.00	239.00	239.00
	Average Loan	0.00	119.50	239.00
	Rate of Interest	7.20%	7.20%	7.20%
	Interest	0.00	8.60	17.21
	Rep Schedule	NA		
	<b>Total Loan</b>			
	Gross loan opening	119699.47	119716.65	122712.87
	Cumulative Repayment upto COD/previous year	363.00	363.00	973.08
	Net Loan-Opening	119336.47	119353.65	121739.79
	Additions during the year	17.18	2996.22	0.00
	Repayment during the year	0.00	610.08	4518.15
	Net Loan-Closing	119353.65	121739.79	117221.63
	Average Loan	119345.06	120546.72	119480.71
	Rate of Interest	8.6445%	8.6357%	8.6260%
	<b>Interest</b>	10316.75	10410.06	10306.40

