

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 27/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 : 7.11.2016

In the matter of:

Determination of transmission tariff for **Asset I:** Ranchi-WR Pooling Station (Sipat) 765 kV S/C line and **Asset II:** 765 kV 3x80 MVAR Bus Reactor I along with associated bays at Ranchi 765 kV S/S under Common Scheme for 765 kV Pooling Stations and Network for NR, Import by NR from ER and from NER/SR/WR via ER and common scheme for network for WR and Import by WR from ER and from NER/SR/WR via ER in Eastern Region for 2014-19 tariff period 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,
"Saudamani", Plot No.2,
Sector-29, Gurgaon -122 001

.....**Petitioner**

Vs

1. Rajasthan Rajya Vidyut Prasaran Nigam Limited
Vidyut Bhawan, Vidyut Marg, Jaipur - 302005
2. Ajmer Vidyut Vitran Nigam Limited
400 kV GSS Building (Ground Floor),
Ajmer Road, Heerapura, Jaipur
3. Jaipur Vidyut Vitran Nigam Limited
400 kV GSS Building (Ground Floor),
Ajmer Road, Heerapura, Jaipur



4. Jodhpur Vidyut Vitran Nigam Limited
400 kV GSS Building (Ground Floor),
Ajmer Road, Heerapura, Jaipur
5. Himachal Pradesh State Electricity Board
Vidyut Bhawan, Kumar House Complex Building II
Shimla-171004
6. Punjab State Electricity Board
The Mall, Patiala-147001
7. Haryana Power Purchase Centre
Shakti Bhawan, Sector-6
Panchkula (Haryana) 134 109
8. Power Development Deptt.
Government of Jammu & Kashmir
Mini Secretariat, Jammu
9. Uttar Pradesh Power Corporation Limited
(Formerly Uttar Pradesh State Electricity Board)
Shakti Bhawan, 14, Ashok Marg,
Lucknow - 226 001
10. Delhi Transco Ltd.
Shakti Sadan, Kotla Road,
New Delhi-110002
11. BSES Yamuna Power Ltd.
2nd Floor, A-Block, Shakti Kiran Building,
Opp. Karkarduma Court,
Karkarduma, Delhi-110092.
12. BSES Rajdhani Power Ltd.
BSES Bhawan, Nehru Place,
New Delhi
13. North Delhi Power Ltd.
Power Trading and Load Dispatch Group
Cennet Building, Adjacent to 66/11 kV Pitampura-3
Grid Building, Near PP Jewellers
Pitampura, New Delhi-110 034.
14. Chandigarh Administration
Sector -9, Chandigarh



15. Uttarakhand Power Corporation Ltd.
Urja Bhawan, Kanwali Road,
Dehradun.
16. North Central Railway,
Allahabad.
17. New Delhi Municipal Council
Palika Kendra, Sansad Marg,
New Delhi-110002.
18. Bihar State Power (Holding) Company Ltd.
(Formerly Bihar State Electricity Board-BSEB)
Vidyut Bhawan, Bailey Road,
Patna-800001.
19. West Bengal State Electricity Distribution Company Ltd.
Bidyut Bhawan, Bidhan Nagar,
Block DJ, Sector-II, Salt lake City
Kolkata-700091.
20. Grid Corporation of Orissa Ltd.
Shahid Nagar, Bhubaneswar-751007.
21. Damodar Valley Corporation
DVC Tower, Maniktala
Civic Centre, VIP Road,
Kolkata-700054.
22. Power Department
Govt. of Sikkim, Gangtok-737101.
23. Jharkhand State Electricity Board,
In Front of Main Secretariat
Doranda, Ranchi-834002

....Respondents

For Petitioner : Shri S.S. Raju, PGCIL
Shri Rakesh Prasad, PGCIL
Shri Jasbir Singh, PGCIL
Shri Anshul Garg, PGCIL

For Respondents : None



ORDER

The present petition is filed by Power Grid Corporation of India Limited (PGCIL) for determination of the transmission tariff for Asset I: Ranchi-WR Pooling Station (Sipat) 765 kV S/C line and Asset II: 765 kV 3x80 MVAR Bus Reactor I along with associated bays at Ranchi 765 kV S/S under Common Scheme for 765 kV Pooling Stations and Network for NR, Import by NR from ER and from NER/SR/WR via ER and common scheme for network for WR and Import by WR from ER and from NER/SR/WR via ER in Eastern Region, under Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 (hereinafter referred to as "the 2014 Tariff Regulations") for the period from the date of commercial operation to 31.3.2019.

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

- a) The investment approval (IA) for the project was accorded by the Board of Directors of the petitioner company vide its Memorandum No. C/CP/DVC and Maithon RB project dated 29.8.2008, with an estimated cost of ₹707533 lakh including IDC of ₹71360 lakh, based on price level of 1st quarter of 2008. The Revised Cost Estimates (RCE) for the project was approved vide Board meeting held on 9.3.2016 at an estimated cost of ₹657054 lakh including IDC of ₹67714 lakh based on price level of December 2015. As per Investment Approval, the transmission assets were scheduled to be commissioned within 48 months from the date of IA i.e. by 29/8/2012.
- b) The Scope of Work covered under the project is as follows :-



Transmission Lines

1. Maithon-Gaya 400 kV Quad D/C Line along with multi-circuit portion in Common forest stretch.
2. Gaya-Sasaram 765 kV S/C Line.
3. Gaya-Balia 765 kV S/C Line.
4. Balia-Lucknow 765 kV S/C Line.
5. Ranchi-WR Pooling Station 765 kV S/C Line.
6. Lucknow 765/400 kV new Sub-station-Lucknow 400/220 kV existing substation 400 kV Quad D/C Line.
7. Ranchi 765/400 kV new Sub-station-Ranchi 400/220 kV existing substation 400 kV Quad 2x D/C Line.
8. LILO of Both circuits of Allahabad-Mainpuri 400 kV D/C Line at Fatehpur 765/400 kV Sub-station of POWERGRID.
9. LILO of Barh-Balia 400 kV Quad D/C Line at Patna.

Sub-stations

1. Augmentation of Maithon 400/220 kV sub-station
 - a) 2 Nos. of 400 kV line bays (for determining Maithon-Gaya D/C line)
 - b) 2 Nos. of 400 kV line bays (for determining Mejia- Maithon D/C line)
2. New 765/400 kV Sub-station at Gaya
 - a) 3x1500 MVA, 765/400 kv Transformer alongwith associated bays
 - b) 2 Nos. of 765 kV line bays (for Gaya-Sasaram and Gaya-Balia 765 kV lines)



- c) 4 Nos. of 400 kV line bays (for Maithon-Gaya line and Kodarma-Gaya line)
3. New 765/400 kV Sub-station at Sasaram
- a) 2x1500 MVA, 765/400 kV Transformer alongwith associated bays
- b) 2 Nos. of 765 kV line bays (for Gaya-Sasaram 765 kV S/C and Sasaram-Fatehpur 765 kV S/C)
- c) 2 Nos. of 400 kV bays (for Biharshariff-Sasaram 400 kV quad D/C line)
4. Augmentation of Biharshariff 400/220 kV Sub-station
- a) 2 Nos. of 400kV bays (for Biharshariff-Sasaram 400 kV quad D/C line)
5. New 765/400 kV Sub-station at Fatehpur
- a) 2x1500MVA,765/400 kV Transformer alongwith associated bays
- b) 2 Nos. of 765 kV line bays (for Sasaram-Fatehpur and Fatehpur-Agra 765 kV lines)
- c) 4 Nos. of 400 kV line bays(for LILO of Allahabad-Mainpuri 400 kV D/C line)
6. Augmentation of 400 kV Agra Sub-station to 765 kV
- a) 2x1500MVA,765/400 kV Transformer alongwith associated bays
- b) 1 Nos. of 765 kV line bays(for Fatehpur-Agra 765 kV line)
7. Augmentation of 400 kV Balia Sub-station to 765 kV
- a) 2x1500MVA,765/400 kV Transformer alongwith associated bays
- b) 2 Nos. of 765 kV line bays(for Gaya-Balia and Balia-Lucknow 765 kV lines)



8. New 765/400 kV Sub-station at Lucknow
 - a) 2 x1500MVA,765/400 kV Transformer along with associated bays
 - b) 1 Nos. of 765 kV line bays(for Balia-Lucknow 765 kV lines)
 - c) 2 Nos. of 400kV bays(for Lucknow 765/400 kV new sub-station – Lucknow 400/220 kV existing Sub-station 400kV quad D/C line)
 9. Augmentation of existing Lucknow 400/220 kV Sub-station
 - a) 2 Nos. of 400kV bays (for Lucknow 765/400 kV new sub-station – Lucknow 400/220 kV existing Sub-station 400 kV quad D/C line)
 10. New 2x1500 MVA,765/400 kV Sub-station at Ranchi
 - a) 1 Nos. of 765 kV line bays(for Ranchi-WR Pooling 765kV S/C line)
 - b) 4 Nos. of 400 kV line bays(for Ranchi 400 kV new Sub-station - Ranchi 400/220kV existing Sub-station 400 kV quad 2xD/C line)
 11. Augmentation of Ranchi 400/220 kV Sub-Station
 - a) 6 Nos. of 400kV bays(4 Nos. for Ranchi 765/400 kV new sub-station- Ranchi 400/220 kV existing Sub-station 400 kV quad 2xD/C line and 2 Nos. for Raghunathpur TPS-Ranchi line)
 12. 765/400 kV WR Pooling Sub-station
 - a) 1 Nos. of 765 kV line bays (for Ranchi –WR Pooling 765 kV S/C line)
 13. Augmentation of Patna 400/220 kV Sub-station
 - a) 4 Nos. of 400 kV line bays(for LILO of Barh- Balia 400 kV Quad line)
- c) Tariff for the instant assets was initially claimed in Petition No. 46/TT/2014 based upon anticipated COD as per 2009 Tariff Regulations. As the instant assets were commissioned in 2014-19 tariff block, the Commission while



approving the PoC charges for the instant assets in Petition No. 46/TT/2014 vide order dated 23.06.2014, directed the petitioner to file a fresh petition as per 2014 Tariff Regulations.

d) The details of the instant assets are as follows :-

Name of the Assets	SCOD	COD
Asset-I : Ranchi – WR Pooling Station (Sipat) 765 kV S/C line	1.9.2012	1.4.2014
Asset II : 765 KV 3x80 MVAR Bus Reactor I along with associated bays at Ranchi 765 kV Sub-station		2.6.2014

3. During hearing on 22.3.2016, the petitioner was directed to submit whether the 40% series compensation for the line reactor at Ranchi Sub-station was provided as per RPC approvals. In response, the petitioner, vide affidavit dated 5.7.2016 has submitted that initially the scheme was approved in the 22nd meeting of the Standing Committee on Power System Planning of Northern Region on 12.3.2007 as Ranchi-Sipat/Korba (Pooling) 765 kV 2XS/C (or 1200 kV 2X S/C operated at 765 kV) with compensation at Ranchi end. Later, the scheme was ratified in the Standing Committee on Power System Planning of Eastern Region on 5.5.2007 and the scheme was approved as Ranchi-Sipat/Korba (Pooling) 765 KV 2XS/C with 40% series compensation at Ranchi end. However, eventually, the final scope of the scheme was approved without the 40% compensation at Ranchi Sub-station, and hence this compensation has not been provided at Ranchi Sub-station. The petitioner further submitted that COD of Asset-II be considered as 2.6.2014 instead of 1.6.2014 as submitted earlier in the original petition. The petitioner further submitted the revised Auditor's Certificates for expenditure incurred / projected to be



incurred along with revised tariff forms in respect of Asset-II and other information regarding expenditure incurred against Asset I and Asset II.

4. The details of apportioned approved cost, expenditure incurred / projected to be incurred as on COD and details of additional capitalization incurred / projected to be incurred for the period from COD to 31.03.2019 for the assets as claimed by the petitioner are as follows :-

(₹ in lakh)							
Assets	Apportioned approved cost	Revised apportioned approved cost	Expenditure up to COD	2014-15	2015-16	2016-17	Total estimated completion cost up to 31.03.2017
Asset-I	79015.04	83935.02	76935.14	2934.86	2699.66	1365.28	83934.94
Asset-II	5749.82	4194.69	2076.33	1315.97	75.88	429.99	3898.17

5. This order is issued after considering the petitioner's affidavits dated 5.7.2016 and 23.8.2016.

Date of Commercial operation (COD)

6. 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: (i) where the transmission line or substation is dedicated for evacuation of power from a particular generating station, the generating company and transmission licensee shall endeavour to commission the generating station and the transmission system simultaneously as far as practicable and shall ensure the same through appropriate Implementation Agreement in accordance with Regulation 12(2) of these Regulations : (ii) in case a transmission system or an element thereof is prevented



from regular service for reasons not attributable to the transmission licensee or its supplier or its contractors but is on account of the delay in commissioning of the concerned generating station or in commissioning of the upstream or downstream transmission system, the transmission licensee shall approach the Commission through an appropriate application for approval of the date of commercial operation of such transmission system or an element thereof.”

7. The petitioner has claimed the date of commercial operation of the Assets I and Asset II as 1.4.2014 and 2.6.2014 respectively. In this regard, the petitioner vide letter dated 1.6.2014 and 31.3.2014 has submitted the self-declaration certificate and Energisation certificate respectively of Asset II. Further, the petitioner has also submitted the approval of CEA Certificate under Regulation 43 of CEA (measures Related to Safety & Electricity Supply) for Asset-II vide letter dated 5.6.2014, however the certificate in respect of Asset-I has not been submitted. The petitioner is directed to submit the said Energisation Certificate along with approval of CEA Certificate for Asset-I at the time of true up. Similarly, in support of the claim of the COD, the petitioner vide affidavit dated 5.7.2016 has submitted RLDC Certificate for Asset-II while the same has not been submitted for Asset-I. In this regard, the petitioner is directed to submit the RLDC Certificate with regard to Asset I at the time of true up.

8. The petitioner, vide affidavit dated 5.7.2016, has submitted that the IDC of ₹1685.71 lakh, which was included in the capital cost as on COD of Asset-I, as per Auditor's Certificate dated 16.10.2015, was discharged during 2014-15 and this amount is not included in the additional capital expenditure indicated in the 2014-15 in the Auditor's Certificate. Further, the petitioner has submitted that the amount claimed as IDC, in case of Asset-II and IEDC for both the assets have been



discharged up to COD. Accordingly, the expenditure incurred as on COD and additional capitalization incurred / projected to be incurred for the period from COD to 31.3.2019 for the assets covered in the petition, considered for the purpose of tariff, are detailed below:-

(₹ in lakh)

Asset	Apportioned approved cost	Revised apportioned approved cost as per RCE	Expenditure up to Claimed COD	2014-15	2015-16	2016-17	Total Estimated Completion Cost up to 31.03.2017
Asset-I	79015.04	83935.02	75249.42	4620.58	2699.66	1365.28	83934.94
Asset-II	5749.82	4194.69	2076.33	1315.97	75.88	429.99	3898.17

9. The transmission charges claimed by the petitioner are as under:-

(₹ in lakh)

Asset-I					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	4079.14	4271.24	4377.91	4413.71	4413.71
Interest on Loan	4505.08	4357.14	4090.94	3742.26	3364.84
Return on equity	4562.84	4778.16	4897.73	4937.89	4937.89
Interest on Working Capital	324.71	331.44	331.26	325.77	317.89
O & M Expenses	399.94	413.55	426.97	441.34	455.91
Total	13871.71	14151.53	14124.81	13860.97	13490.24

(₹ in lakh)

Asset-II					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	106.99	164.50	177.30	188.20	188.20
Interest on Loan	138.94	195.44	195.72	192.51	175.72
Return on equity	133.60	201.80	216.68	229.33	229.33
Interest on Working Capital	12.61	17.75	18.55	19.19	18.97
O & M Expenses	70.12	87.22	90.12	93.11	96.20
Total	462.26	666.71	698.38	722.34	708.42

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



(₹ in lakh)

Asset-I					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	59.99	62.03	64.05	66.20	68.39
O & M expenses	33.33	34.46	35.58	36.78	37.99
Receivables	2311.95	2358.59	2354.14	2310.16	2248.37
Total	2405.27	2455.08	2453.77	2413.14	2354.75
Rate of Interest	13.50%	13.50%	13.50%	13.50%	13.50%
Interest	324.71	331.44	331.26	325.77	317.89
Asset-II					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	12.66	13.08	13.52	13.97	14.43
O & M expenses	7.04	7.27	7.51	7.76	8.02
Receivables	92.76	111.12	116.40	120.39	118.07
Total	112.46	131.47	137.43	142.12	140.52
Rate of Interest	13.50%	13.50%	13.50%	13.50%	13.50%
Interest	15.18	17.75	18.55	19.19	18.97

11. 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.

12. Having heard the representatives of the petitioner present at the hearing and perused the material on record, we proceed to dispose of the petition.

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 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."

14. The capital cost has been considered as follows:-

(₹ in lakh)

Assets	COD	Capital Cost considered for the purpose of tariff before adjustment of IEDC/IDC & Initial Spares, if any, as on COD	Applicable Period of Tariff
Asset-I	1.4.2014	75249.42	1.4.2014 to 31.3.2019
Asset-II	2.6.2014	2076.33	2.6.2014 to 31.3.2019

Cost over-run

15. The petitioner's claim for the capital cost incurred upto COD and projected capital cost to be incurred during 2014-15, 2015-16 and 2016-17 is indicated at para 4. As indicated in para 4 and para 8, the total completion cost as on 31.3.2019



exceeds the apportioned cost as per FR, however, the same is within the total Revised Apportioned Cost and hence, there is no cost over-run.

Time over-run

16. As per IA, the commissioning schedule of the project is 48 months from the date of IA i.e. 29.8.2008 and accordingly, the schedule date of commercial operation comes as 28.8.2012. Against this, Asset I and Asset II were commissioned on 1.4.2014 and 2.6.2014 respectively. Thus, there is time over-run of more than 19 months and 21 months in respect of Asset I and Asset II respectively. The petitioner has submitted that the time over-run is mainly due to delay in getting forest approvals, delay in obtaining the sub-station land at Ranchi and law and order problems. The detailed reasons submitted by the petitioner for the time over-run are as follows:-

(a) Asset I

Forest Clearance

The petitioner has submitted that the initial application for forest approval was submitted by the petitioner in July, 2007. As per the standard procedure, the forest clearance normally takes about 300 days and accordingly, forest clearance should have been available by April, 2008. However, the final clearance/approval from CCF (Land Management), Raipur towards diversion of forest land was received in November, 2013. Hence, there was a delay of more than 5 years in obtaining forest clearance. Further, the petitioner has submitted that the tree cutting order was received on 3.2.2014 and the actual



work could only be started after 3.2.2014 and the line of Asset-I was finally commissioned on 1.4.2014. The petitioner has submitted documentary evidence in support of reasons for delay on account of forest clearance and chronology of activities as follows:-

Forest Area 302.307 Ha (7.245 KM)

Sr. No	Particulars	Date of Submission/Compliance
1	Forest Case application and submission of formal proposal	4.7.2007
2	Submission of Proposal to DFO (Divisional Forest Officer), Champa	15.3.2008
3	Submission of proposal to DFO, Korba	24.3.2008
4	Submission of Proposal to DFO, Jashpur	29.3.2008
5	Submission of Original Proposal to DFO, Dharamjaigarh	2.4.2008
6	Re-Submission of proposal to DFO, Dharamjaigarh (After revision due to diversion in DB coal block).	20.1.2009
7	Forwarding of proposal to CF, Bilaspur by DFO, Korba (After combining proposal of all 4 divisions)	9.3.2009
8	Forwarding of proposal to CCF, Raipur from CF Bilaspur	25.5.2009
9	1st:query asked by CCF, Raipur a) Deposit of 2% of project cost as "corporate social responsibility". b) Regarding existence of elephant corridor/national park etc. within 10 km radius c) Preparation of Medicinal plantation scheme	9.6.2009
10	Reply of queries forwarded by DFO, Korba to CCF, Raipur	29.8.2009
11	2nd query regarding irrigated/un-irrigated proposals towards compensatory afforestation forwarded from CCF to DDF Korba (Combining Officer)	4.11.2009
12	Combining officer forwarded the same query to concerned DFOs	13.11.2009
13	Reply for the above with revised CA scheme forwarded to CCF, Raipur	8.2.2010
14	3rd query regarding FDA, revision of CA scheme, 0.8 density from CCF Raipur to the combining officer, DFO Korba	22.3.2010
15	Reply of the above queries forwarded to CCF by CF, Bilaspur	23.10.2010
16	CCF, queried regarding latitude, longitude of CA area, what are the present species in that area, species to be planted in that area, certificate by DFO regarding non-availability of irrigated land and regarding FDA in the proposed area	3.11.2010
17	Reply of the above queries forwarded to CCF Raipur from DFO, Korba	21.12.2010
18	Proposal forwarded to central government by CCF, Raipur	6.1.2011
19	Proposal forwarded to MOEF, New Delhi	5.3.2011
20	1st Site visit of representative of RMOEF, Bhopal	4.5.2011
21	1st FAC	26.8.2011



22	2nd FAC	27.1.2012
23	3rd FAC	15.5.2012
24	2nd Site visit of representative of MOEF, New Delhi	29.6.2012
25	4th FAC	11.10.2012
26	5th FAC	24.11.2012
27	6th FAC	22.12.2012
28	Stage-I forest approval received from MOEF, New Delhi	28.1.2013
29	Stage-I forest approval received from CCF, Raipur	1.3.2013
30	Demand note for NPV & CA obtained from DFO, Korba	25.3.2013
31	Demand note for medicinal plantation obtained from DFO, Korba	9.4.2013
32	Compliance towards Stage-I approval along with cost towards NPV and CA submitted to DFO Korba	13.4.2013
33	Compliance towards Stage-I approval forwarded by DFO Korba to CF Bilaspur	29.4.2013
34	Compliance towards Stage-I approval forwarded by CCF Raipur to MOEF, New Delhi	2.7.2013
35	Stage-II forest approval received from MOEF, New Delhi	1.8.2013
36	Compliance towards Stage-I approval forwarded by CF Bilaspur to CCF Raipur	4.8.2013
37	Stage-II forest approval received from CCF, Raipur	8.8.2013
38	Tree cutting proposal forwarded by DFO, Korba to CF Bilaspur	7.9.2013
39	Tree cutting proposal forwarded by CF to CCF (Production), Raipur	24.9.2013
40	Tree cutting permission obtained from CCF (Production), Raipur	1.10.2013
41	Compliance towards Stage-II approval forwarded by DFO Korba to CF Bilaspur	9.10.2013
42	Compliance towards Stage-II approval forwarded by CF Bilaspur to CCF Raipur	18.10.2013
43	Final approval received from CCF (Land Management)/Raipur towards diversion of forest land	6.11.2013
44	Tree cutting Order Received	3.2.2014

(b) Asset I and II

a) Delay in obtaining possession of Sub-station land at Ranchi

After depositing payment for land to revenue authority of Government of Jharkhand, it took almost 36 months for obtaining physical possession of the land. Further, inadvertently, a small piece of land in the middle of the sub-station land was not included by State Government Authorities. While the rest of the land was handed over on 29.4.2011, this small piece of land was handed over only on 12.12.2012. It took almost 36 months to acquire physical possession of land after depositing the



payment to the State Government authorities i.e. after about 19 months of getting possession of initial piece of land. Brief chronology of events related to land acquisition is mentioned below:-

Events	Date
80% Cost of land deposited by POWERGRID	26.3.2008
Section IV notification	23.8.2008
Section VI notification	18.11.2008
Section VII issued by appropriate authority	16.12.2008
Section VIII issued by appropriate authority	29.3.2009
Section IX issued	24.9.2009
Section XI issued	12.7.2010
Physical possession of land	29.4.2011
Physical possession of left out land	12.12.2012

b) Delay due to law & order problem at Ranchi Sub-station site

Though the possession of the land was given to the petitioner, law and order problem due to Naxal threats hindered execution of infrastructural works at site. The location of the sub-station land was isolated and inadequate deployment of police force at site further delayed execution of works. As the area is infested by Maoist groups, there were several disturbances such as bandh, de-mobilisation and re-mobilisation of construction gangs, etc. While the delay attributable to this factor cannot be quantified, the same caused an adverse impact on the progress of work. The petitioner has mentioned that the naxal attacks started on 15.1.2011 and immediate correspondences was done by the petitioner and the police was deployed on 14.9.2012. The petitioner has also furnished documentary evidence in support of the disturbance and the action taken by it to counter the same. These factors jeopardized various ongoing works. The major events are chronologically listed as under:-



Date	Remark
15.1.2011	FIR lodged after violent havoc caused by Maoist at petitioner's construction site.
15.1.2011	Petitioner's management apprised of incidents by Maoists disrupting the construction works in and around Ranchi Sub-station.
17.1.2011	Internal report of petitioner highlighting the miscreants attacks on site workers.
17.1.2011	Letter from contractor to petitioner, mentioning the incidents involving Maoists where labours were beaten up, pistol shots fired and the construction equipment looted during execution of petitioner's project in Koderma, near Ranchi (Jharkhand)
18.1.2011	Petitioner's letter to Secretary (Power), Jharkhand Govt. for assistance of local administration to peacefully complete projects in Ranchi district.
17.4.2012	Letter from contractor to petitioner, mentioning the incident involving Maoists where labours were beaten up, pistol shots fired and the construction equipment looted during execution of petitioner's project in Koderma, near Ranchi (Jharkhand)
14.7.2012	Petitioner's letter to DIG, Police, Ranchi, requesting the police deployment for protection of labour gangs working for petitioner in Ranchi district.
23.8.2012	Letter of SP, Ranchi for deployment of police for protection of labour gangs working for petitioner in Ranchi district.
6.9.2012	Office order from DM, Ranchi directing the police deployment for protection of labour gangs working for petitioner
11.9.2012	
14.9.2012	Letter of Deputy to IG, Police, Ranchi confirming the police deployment of police for protection of labour gangs working for petitioner in Ranchi district.

17. The Hon'ble Appellate Tribunal for Electricity in its judgment dated 27.4.2011 in Appeal No.72/2010 has laid down the principle to be followed to determine the liability for time over-run in three scenarios as under :-

- (a) Due to factors entirely attributable to the project developer;
- (b) Due to the factors beyond the control of project developer; and
- (c) Not covered under (a) and (b).

In the first scenario, the additional cost due to time over-run would be entirely borne by the project developer. In the second scenario, the additional cost due to time over-run shall be capitalized, however, the benefit of LD and the insurance proceeds,



if any, to be reduced from the capital cost. In the last scenario, the additional cost due to time over-run including LD and the insurance proceeds should be shared between the project developer and the beneficiaries.

18. We have considered the submissions made by the petitioner regarding time over-run. There was time over-run in commissioning in case of Asset I on account of forest clearance. It is observed that the petitioner has submitted the initial proposal was submitted on 4.7.2007 and as per the standard procedure the petitioner should have obtained the clearance in 300 days, i.e. by April, 2008. However, the petitioner got the Stage-I clearance on 1.3.2013 and Stage-II clearance on 4.8.2013. It took about 59 months 6 days (1801 days) to get Stage-II clearance. It is also observed that the petitioner has submitted the original proposal to DFO, Dharamjaygarh on 2.4.2008 and the proposal was resubmitted on 20.1.2009 i.e. after delay of nearly nine months. However, the petitioner has not justified the delay in submission of revised proposal from 2.4.2008 to 20.1.2009 i.e. for 9 months and 18 days (293 days) and therefore the said delay being attributable to the petitioner and accordingly the same is not condoned. Accordingly, out of total delay of 1801 days, delay of 593 days (293 days + 300 days) is not condonable. The remaining period 1208 (1801-300-293) days i.e. around 40 months is covered by scenario (b) of the aforementioned APTEL judgment and hence the same is condoned. Accordingly, the cost due to time over-run is allowed to be capitalized.

19. As regards, delay due to land acquisition for Asset I and Asset II on account of Naxalite and Maoist attacks, on perusal of the documents submitted by the



petitioner, it is observed that possession of major part of land was acquired on 29.4.2011. It appears that a small piece of land in the middle of the sub-station land was not included by State Government authorities. While the rest of the land was handed over on 29.4.2011, this small piece of land was handed over only on 12.12.2012. Thus, it took almost 36 months to acquire physical possession of land after depositing the payment in respect thereof to the State Government authorities while remaining parcel of land ad-measuring 1.92 acres was handed over after further delay of nearly 19 months. It is further observed from the submissions of the petitioner that the area is infested by Maoist groups, there were several disturbances such as bandh, demobilisation and remobilisation of construction gangs, etc. The petitioner has also furnished documentary evidence in support of the disturbance and the action taken by it to counter the same. We are of the view that the delay in getting possession of sub-station land and law & order problem is beyond the control of the petitioner and the instant case falls under the second scenario enunciated by Hon'ble Appellate Tribunal for Electricity and therefore, delay on this count is also condoned. Accordingly, following time over-run in commissioning of assets, not attributable to the petitioner, is condoned :-

Assets	Scheduled COD	COD	Delay
Asset-I	28.08.2012	01.04.2014	582
Asset-II		02.06.2014	644

Interest During Construction (IDC)

20. The petitioner, vide affidavit dated 5.7.2016, has claimed IDC of ₹14113.03 lakh and ₹175.99 lakh for Asset-I and Asset-II respectively. Further, the petitioner



has submitted that there is no default in the interest payment of any loan. Against this, IDC amount discharged upto COD of ₹12410.68 lakh and ₹175.99 lakh for Asset-I and Asset-II respectively are allowed. The excess IDC of ₹16.64 lakh in respect of Asset-I, claimed to be discharged on COD is being added to the 2014-15 along with the discharge of accrual IDC of ₹1685.72 lakh as submitted by the petitioner vide affidavit dated 5.7.2016. The IDC allowed would be reviewed at the time of truing-up after prudence check. Further, the amount of IDC for delayed period in respect of both the assets has been allowed.

Incidental Expenditure During Construction (IEDC)

21. Petitioner has claimed ₹2622.26 lakh and ₹73.58 lakh in respect of Asset-I and Asset-II respectively, as IEDC vide Auditor's Certificates dated 16.10.2015 and 17.4.2016. Further, the petitioner has submitted that the IEDC claimed has been discharged up to COD for both the assets. IEDC amount discharged upto COD have been worked out as ₹2622.26 lakh and ₹73.58 lakh for Asset-I and Asset-II respectively, which are allowed. The IEDC allowed would be reviewed at the time of truing-up after prudence check.

Treatment of initial spares

22. 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:

(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.”

23. The petitioner has claimed initial spares amounting to ₹446.22 lakh in respect of Asset-I, corresponding to transmission line and ₹177.36 lakh and ₹130.62 lakh in respect of Asset-I and Asset-II respectively, corresponding to sub-station. Initial spares, claimed by the petitioner in respect of Asset-I and Asset-II are within the ceiling as prescribed by the commission.

24. The detail of the capital cost as on COD allowable for the purpose of transmission tariff in the present petition, after adjustments on account of IEDC and IDC and Initial Spares is as under :-



(₹ in lakh)

Sl. No.	Particulars	Asset-I	Asset-II
(i)	Capital Cost claimed as on COD	75249.42	2076.33
(ii)	(-) IDC Disallowed	16.64	0.00
(iii)	(-) IEDC disallowed	0.00	0.00
(iv)	(-) Excess Initial Spares disallowed	0.00	0.00
(v)	Total Capital Cost allowable as on COD	75232.78	2076.33

Additional Capital Expenditure

25. The petitioner vide affidavit dated 5.7.2016 (Revised) has claimed the additional capital expenditure incurred/projected to be incurred during 2014-15, 2015-16 and 2016-17 for the assets covered in the instant petition detailed as under:-

(₹ in lakh)

Asset	Proposed Additional Capitalization			Total Add cap
	2014-15	2015-16	2016-17	
Asset I:	2934.86	2699.66	1365.28	6999.80
Asset II:	1315.97	75.88	429.99	1821.84
Total	4250.83	2775.54	1795.27	8821.64

26. 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 recognised 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.



27. 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”.

28. Accordingly, the cut-off date for the instant assets is 31.3.2017.

29. The petitioner has proposed additional capitalization towards balance and retention payment. The additional capitalisation claimed by the petitioner is within the cut-off date. The total estimated completion costs of the instant assets including the additional capitalizations are within the approved revised apportioned costs. Accordingly, additional capital expenditure claimed by the petitioner for 2014-19 is in nature of Balance & Retention payment and covered as per Regulation 14(i) of 2014 Tariff Regulations and the same is allowed.

30. The petitioner has claimed the following Additional Capital Expenditure for the period from COD to 31.03.2019:-

(₹ in lakh)

Assets	2014-15	2015-16	2016-17	Total
Asset-I	4620.58	2699.66	1365.28	8685.52
Asset-II	1315.97	75.88	429.99	1821.84

31. The excess IDC of ₹16.64 lakh in respect of Asset-I claimed to be discharged on COD is being added to the 2014-15. Hence, the additional capital expenditure allowed are as under :-



(₹ in lakh)

Assets	2014-15	2015-16	2016-17	Total
Asset-I	4637.22	2699.66	1365.28	8702.16
Asset-II	1315.97	75.88	429.99	1821.84

32. The additional capital expenditure claimed during 2014-19 are for balance and retention payment and are within cut-off date and the same is allowed.

Debt- equity ratio

33. 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”



34. The petitioner has considered Debt: Equity ratio as 70:30 as on COD and debt:equity ratio as 70:30 for additional capitalization during 2016-17, 2017-18 and 2018-19. Accordingly, we have considered the same for the purpose of tariff computation for the 2014-19 tariff period as under :-

(₹ in lakh)

Asset-I	As on COD		As on 31.03.2019	
	Amount	%	Amount	%
Debt	52662.94	70.00	58754.45	70.00
Equity	22569.84	30.00	25180.49	30.00
Total	75232.78	100.00	83934.94	100.00
Asset-II	As on COD		As on 31.03.2019	
	Amount	%	Amount	%
Debt	1453.43	70.00	2728.72	70.00
Equity	622.90	30.00	1,169.45	30.00
Total	2076.33	100.00	3,898.17	100.00

Return on equity (ROE)

35. 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:

$$\text{Rate of pre-tax return on equity} = \text{Base rate} / (1-t)$$

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.”

36. RoE has been worked out for all the assets as per Regulation 24 of 2014 Tariff Regulations. The MAT rate used for the whole period 2014-19 in our calculation, was based on the MAT rate of 2013-14, which would be updated at the time of truing-up.



37. The details of RoE calculated are as follows:-

(₹ in lakh)

Asset-I					
Particular	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Equity	22569.84	23961.00	24770.90	25180.49	25180.49
Addition due to Additional Capitalization	1391.17	809.90	409.58	0.00	0.00
Closing Equity	23961.00	24770.90	25180.49	25180.49	25180.49
Average Equity	23265.42	24365.95	24975.69	25180.49	25180.49
Return on Equity (Base Rate)	15.50%	15.50%	15.50%	15.50%	15.50%
Tax rate for the year 2013-14 (MAT)	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)	4562.35	4778.16	4897.73	4937.89	4937.89

Asset-II					
Particular	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Equity	622.90	1017.69	1040.46	1169.45	1169.45
Addition due to Additional Capitalization	394.79	22.76	129.00	0.00	0.00
Closing Equity	1017.69	1040.46	1169.45	1169.45	1169.45
Average Equity	820.30	1029.07	1104.95	1169.45	1169.45
Return on Equity (Base Rate)	15.50%	15.50%	15.50%	15.50%	15.50%
Tax rate for the year 2013-14(MAT)	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)	133.54	201.80	216.68	229.33	229.33

Interest on loan (IoL)

38. Regulation 26 of the 2014 Tariff Regulations 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 decapitalisation 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.”

39. The interest on loan has been worked out as detailed below :-

- i. Gross amount of loan, repayment of installments, 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 period 2014-19 has been considered to be equal to the depreciation allowed for that period.
- 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.

40. Detailed calculations in support of the weighted average rates of interest have been given in Annexure I & II to this order.

41. Based on the above, interest on loan has been calculated as under:-



(₹ in lakh)

Asset-I					
Particular	2014-15	2015-16	2016-17	2017-18	2018-19
Gross Normative Loan	52662.94	55909.00	57798.76	58754.45	58754.45
Cumulative Repayment up to Previous Year	0.00	4078.70	8349.94	12727.84	17141.55
Net Loan-Opening	52662.94	51830.30	49448.82	46026.61	41612.91
Addition due to Additional Capitalization	3246.05	1889.76	955.70	0.00	0.00
Repayment during the year	4078.70	4271.24	4377.90	4413.70	4413.70
Net Loan-Closing	51830.30	49448.82	46026.61	41612.91	37199.21
Average Loan	52246.62	50639.56	47737.71	43819.76	39406.06
Weighted Avg. Rate of Interest on Loan	8.6218%	8.6043%	8.5697%	8.5402%	8.5390%
Interest	4504.57	4357.20	4090.96	3742.30	3364.87

(₹ in lakh)

Asset-II					
Particular	2014-15	2015-16	2016-17	2017-18	2018-19
Gross Normative Loan	1453.43	2374.61	2427.73	2728.72	2728.72
Cumulative Repayment up to Previous Year	0.00	106.94	271.44	448.76	636.96
Net Loan-Opening	1453.43	2267.67	2156.28	2279.96	2091.76
Addition due to Additional Capitalization	921.18	53.12	300.99	0.00	0.00
Repayment during the year	106.94	164.50	177.32	188.20	188.20
Net Loan-Closing	2267.67	2156.28	2279.96	2091.76	1903.55
Average Loan	1860.55	2211.98	2218.12	2185.86	1997.65
Weighted Avg. Rate of Interest on Loan	8.9912%	8.8359%	8.8240%	8.8070%	8.7963%
Interest	138.87	195.45	195.73	192.51	175.72

Depreciation

42. Regulation 27 of the 2014 Tariff Regulations provide as follows:-

"27. Depreciation:

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

(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. In the instant petition, Asset I and Asset II were put on COD as on 1.4.2014 and 2.6.2014 respectively and accordingly will complete 12 years beyond 2018-19 and thus depreciation has been calculated annually based on Straight Line Method and at rates specified in Appendix-II of the 2014 Tariff Regulations.

44. Accordingly, depreciation has been worked out on the basis of capital expenditure as on COD and additional capitalization incurred / projected to be incurred thereafter, wherein depreciation for the first year has been calculated on pro rata basis for the year / part of year.

45. Based on the above, the depreciation has been considered as follows:-



(₹ in lakh)

Asset-I					
Particular	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Gross block	75232.78	79870.00	82569.66	83934.94	83934.94
Addition during 2014-19 due to Projected Additional Capitalisation	4637.22	2699.66	1365.28	0.00	0.00
Closing Gross Block	79870.00	82569.66	83934.94	83934.94	83934.94
Average Gross Block	77551.39	81219.83	83252.30	83934.94	83934.94
Rate of Depreciation	5.2594%	5.2589%	5.2586%	5.2585%	5.2585%
Depreciable Value	69531.72	72821.27	74650.05	75264.43	75264.43
Remaining Depreciable Value	69531.72	68742.57	66300.11	62536.58	58122.88
Depreciation	4078.70	4271.24	4377.90	4413.70	4413.70

(₹ in lakh)

Asset-II					
Particular	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Gross block	2076.33	3392.30	3468.18	3898.17	3898.17
Addition during 2014-19 due to Projected Additional Capitalisation	1315.97	75.88	429.99	0.00	0.00
Closing Gross Block	3392.30	3468.18	3898.17	3898.17	3898.17
Average Gross Block	2734.32	3430.24	3683.18	3898.17	3898.17
Rate of Depreciation	4.7114%	4.7956%	4.8142%	4.8280%	4.8280%
Depreciable Value	2201.02	2813.06	3040.70	3234.20	3234.20
Remaining Depreciable Value	2201.02	2706.12	2769.26	2785.44	2597.23
Depreciation	106.94	164.50	177.32	188.20	188.20

Operation & Maintenance Expenses (O&M Expenses)

46. The O&M Expenses claimed by the petitioner in the instant petition are as under:-

(₹ in lakh)

Particulars	Asset	2014-15	2015-16	2016-17	2017-18	2018-19
O&M Expenses	Asset-1	399.94	413.55	426.97	441.34	455.91
	Asset-2	70.35	87.22	90.12	93.11	96.20

47. Regulation 29(4)(a) of Tariff Regulation 2014 specifies the following norms of O&M Expenses for 765 kV transmission system:-



Norms for Sub-stations (in ₹ lakh per bay)	2014-15	2015-16	2016-17	2017-18	2018-19
765 kV	84.42	87.22	90.12	93.11	96.20
Norms for AC and HVDC lines (in ₹ lakh per km)					
Single Circuit (Bundled Conductor with four sub-conductors)	0.606	0.627	0.647	0.669	0.691

48. The O&M Expenses claimed by the petitioner for instant assets have been restricted in accordance with the norms specified in 2014 Tariff Regulations. The petitioner's claim for O&M Expenses in case of Asset I and Asset II for the years 2015-16 and 2014-15 respectively is marginally higher and it is restricted to the specified norms as per the 2014 Tariff Regulations. The claims of the O&M Expenses allowed for the instant assets is as follows : -

(₹ in lakh)

Element	2014-15	2015-16	2016-17	2017-18	2018-19
Asset-I					
1 Nos. 765 kV Bays	84.42	87.22	90.12	93.11	96.20
381.35 km 765 kV S/C Transmission line	0.606*381.35 =231.09	0.627*381.35 =239.10	0.647*381.35 =246.73	0.669*381.35 =255.12	0.691*381.35 =263.51
1 Nos. 765 KV X 380 MVAR Switchable Line reactor	84.42	87.22	90.12	93.11	96.20
Total	399.93	413.54	426.97	441.34	455.91
Asset-II					
1 Nos. 765 KV Bays Bus-reactor	302/365*84.4 2=69.84	87.22	90.12	93.11	96.20
Total	69.84	87.22	90.12	93.11	96.20



49. 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. We have considered the submissions of the petitioner. 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. O&M Expenses are allowed for the instant transmission assets as per prevailing norms.

Interest on working capital

50. 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

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

“(5) ‘Bank Rate’ means the base rate of interest as specified by the State Bank of India from time to time or any replacement thereof for the time being in effect plus 350 basis points;”



51. 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

As per Regulation 28(1)(c) 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' 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 (1) (c) (ii) 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

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 instant assets and O&M Expenses have accordingly been worked out by considering 1 month O&M Expenses.



(iv) Rate of interest on working capital

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 as determined is shown in the table given below:-

(₹ in lakh)

Asset-I					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	59.99	62.03	64.05	66.20	68.39
O & M expenses	33.33	34.46	35.58	36.78	37.99
Receivables	2311.71	2358.60	2354.14	2310.17	2248.38
Total	2,405.02	2,455.09	2,453.76	2,413.15	2,354.76
Interest (13.50%)	324.68	331.44	331.26	325.77	317.89

(₹ in lakh)

Asset-II					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	12.62	13.08	13.52	13.97	14.43
O & M expenses	7.01	7.27	7.51	7.76	8.02
Receivables	92.71	111.12	116.40	120.39	118.07
Total	112.34	131.47	137.43	142.12	140.52
Interest (13.50%)	12.59	17.75	18.55	19.19	18.97

Annual Transmission charges

53. The transmission charges allowed for the transmission asset are as follows:-

(₹ in lakh)

Asset-I					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	4078.70	4271.24	4377.90	4413.70	4413.70
Interest on Loan	4504.57	4357.20	4090.96	3742.30	3364.87
Return on equity	4562.35	4778.16	4897.73	4937.89	4937.89
Interest on Working Capital	324.68	331.44	331.26	325.77	317.89
O & M Expenses	399.93	413.54	426.97	441.34	455.91
Total	13870.23	14151.58	14124.82	13861.01	13490.26



Asset-II					
Particular	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	106.94	164.50	177.32	188.20	188.20
Interest on Loan	138.87	195.45	195.73	192.51	175.72
Return on Equity	133.54	201.80	216.68	229.33	229.33
Interest on Working Capital	12.59	17.75	18.55	19.19	18.97
O & M Expenses	69.84	87.22	90.12	93.11	96.20
Total	461.78	666.72	698.40	722.34	708.42

Filing fee and the 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. We are of the view that 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 made a prayer to be allowed to bill and recover the service tax on transmission charges separately from the respondents, if at any time service tax on transmission is withdrawn from negative list at any time in future. The



petitioner has further prayed that if any taxes and duties including cess etc. are imposed by any statutory/Government/municipal authorities, it shall be allowed to be recovered from the beneficiaries. The transmission charges is exclusive of service tax and the same shall be borne and additionally paid by the respondents to the petitioner, if at any time service tax on transmission is withdrawn from negative list in future. We consider petitioner's prayer pre-mature and accordingly this prayer is rejected.

Goods & Services Tax (GST)

57. We consider petitioner's prayer for reimbursement of tax on account of the proposed implementation GST as pre-mature and accordingly this prayer is rejected.

Sharing of Transmission Charges

58. 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.

59. This order disposes of Petition No. 27/TT/2016.

sd/-
(Dr. 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
ASSET - I**

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
1 Bond XXIX					
Gross loan opening	286.00	286.00	286.00	286.00	286.00
Cumulative Repayment upto DOCO/previous year	47.67	71.50	95.34	119.17	143.00
Net Loan-Opening	238.33	214.50	190.66	166.83	143.00
Additions during the year	0.00	0.00	0.00	0.00	0.00
Repayment during the year	23.83	23.83	23.83	23.83	23.83
Net Loan-Closing	214.50	190.66	166.83	143.00	119.16
Average Loan	226.41	202.58	178.75	154.91	131.08
Rate of Interest	9.20%	9.20%	9.20%	9.20%	9.20%
Interest	20.83	18.64	16.44	14.25	12.06
Rep Schedule	12 annual installments from 12.03.2013				
2 Bond XXX					
Gross loan opening	3615.00	3615.00	3615.00	3615.00	3615.00
Cumulative Repayment upto DOCO/previous year	301.25	602.50	903.75	1205.00	1506.25
Net Loan-Opening	3313.75	3012.50	2711.25	2410.00	2108.75
Additions during the year	0.00	0.00	0.00	0.00	0.00
Repayment during the year	301.25	301.25	301.25	301.25	301.25
Net Loan-Closing	3012.50	2711.25	2410.00	2108.75	1807.50
Average Loan	3163.13	2861.88	2560.63	2259.38	1958.13
Rate of Interest	8.80%	8.80%	8.80%	8.80%	8.80%
Interest	278.36	251.85	225.34	198.83	172.32
Rep Schedule	12 annual installments from 29.09.2013				
3 Bond XXXI					
Gross loan opening	8180.00	8180.00	8180.00	8180.00	8180.00
Cumulative Repayment upto DOCO/previous year	681.67	1363.34	2045.00	2726.67	3408.34
Net Loan-Opening	7498.33	6816.66	6135.00	5453.33	4771.66
Additions during the year	0.00	0.00	0.00	0.00	0.00
Repayment during the year	681.67	681.67	681.67	681.67	681.67
Net Loan-Closing	6816.66	6135.00	5453.33	4771.66	4090.00
Average Loan	7157.50	6475.83	5794.16	5112.50	4430.83
Rate of Interest	8.90%	8.90%	8.90%	8.90%	8.90%
Interest	637.02	576.35	515.68	455.01	394.34
Rep Schedule	12 annual installments from 25.02.2014				
4 Bond XXXIII					
Gross loan opening	7570.00	7570.00	7570.00	7570.00	7570.00
Cumulative Repayment upto DOCO/previous year	0.00	630.83	1261.67	1892.50	2523.33
Net Loan-Opening	7570.00	6939.17	6308.33	5677.50	5046.67



	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	630.83	630.83	630.83	630.83	630.83
	Net Loan-Closing	6939.17	6308.33	5677.50	5046.67	4415.83
	Average Loan	7254.58	6623.75	5992.92	5362.08	4731.25
	Rate of Interest	8.64%	8.64%	8.64%	8.64%	8.64%
	Interest	626.80	572.29	517.79	463.28	408.78
	Rep Schedule	12 annual installments from 08.07.2014				
5	Bond XXXII					
	Gross loan opening	105.00	105.00	105.00	105.00	105.00
	Cumulative Repayment upto DOCO/previous year	8.75	17.50	26.25	35.00	43.75
	Net Loan-Opening	96.25	87.50	78.75	70.00	61.25
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	8.75	8.75	8.75	8.75	8.75
	Net Loan-Closing	87.50	78.75	70.00	61.25	52.50
	Average Loan	91.88	83.13	74.38	65.63	56.88
	Rate of Interest	8.84%	8.84%	8.84%	8.84%	8.84%
	Interest	8.12	7.35	6.57	5.80	5.03
	Rep Schedule	12 annual installments from 29.03.2014				
6	Bond XXXIV					
	Gross loan opening	8265.00	8265.00	8265.00	8265.00	8265.00
	Cumulative Repayment upto DOCO/previous year	0.00	688.75	1377.50	2066.25	2755.00
	Net Loan-Opening	8265.00	7576.25	6887.50	6198.75	5510.00
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	688.75	688.75	688.75	688.75	688.75
	Net Loan-Closing	7576.25	6887.50	6198.75	5510.00	4821.25
	Average Loan	7920.63	7231.88	6543.13	5854.38	5165.63
	Rate of Interest	8.84%	8.84%	8.84%	8.84%	8.84%
	Interest	700.18	639.30	578.41	517.53	456.64
	Rep Schedule	12 annual installments from 21.10.2014				
7	Bond XXXV					
	Gross loan opening	3846.47	3846.47	3846.47	3846.47	3846.47
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	320.54	641.08	961.62
	Net Loan-Opening	3846.47	3846.47	3525.93	3205.39	2884.85
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	320.54	320.54	320.54	320.54
	Net Loan-Closing	3846.47	3525.93	3205.39	2884.85	2564.31
	Average Loan	3846.47	3686.20	3365.66	3045.12	2724.58
	Rate of Interest	9.64%	9.64%	9.64%	9.64%	9.64%
	Interest	370.80	355.35	324.45	293.55	262.65
	Rep Schedule	12 annual installments from 31.05.2015				
8	Bond XXXVI					
	Gross loan opening	4940.00	4940.00	4940.00	4940.00	4940.00
	Cumulative Repayment upto	0.00	0.00	0.00	329.33	658.67



	DOCO/previous year					
	Net Loan-Opening	4940.00	4940.00	4940.00	4610.67	4281.33
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	329.33	329.33	329.33
	Net Loan-Closing	4940.00	4940.00	4610.67	4281.33	3952.00
	Average Loan	4940.00	4940.00	4775.33	4446.00	4116.67
	Rate of Interest	9.35%	9.35%	9.35%	9.35%	9.35%
	Interest	461.89	461.89	446.49	415.70	384.91
	Rep Schedule	15 annual installments from 29.08.2016				
9	Bond XXXVII					
	Gross loan opening	322.00	322.00	322.00	322.00	322.00
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	26.83	53.67	80.50
	Net Loan-Opening	322.00	322.00	295.17	268.33	241.50
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	26.83	26.83	26.83	26.83
	Net Loan-Closing	322.00	295.17	268.33	241.50	214.67
	Average Loan	322.00	308.58	281.75	254.92	228.08
	Rate of Interest	9.25%	9.25%	9.25%	9.25%	9.25%
	Interest	29.79	28.54	26.06	23.58	21.10
	Rep Schedule	12 annual installments from 26.12.2015				
10	Bond XXXVIII					
	Gross loan opening	3.00	3.00	3.00	3.00	3.00
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.00	0.00
	Net Loan-Opening	3.00	3.00	3.00	3.00	3.00
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00	0.00	0.00
	Net Loan-Closing	3.00	3.00	3.00	3.00	3.00
	Average Loan	3.00	3.00	3.00	3.00	3.00
	Rate of Interest	9.25%	9.25%	9.25%	9.25%	9.25%
	Interest	0.28	0.28	0.28	0.28	0.28
	Rep Schedule	Bullet Payment as on 09.03.2027				
11	Bond XXXIX					
	Gross loan opening	19.00	19.00	19.00	19.00	19.00
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.00	0.00
	Net Loan-Opening	19.00	19.00	19.00	19.00	19.00
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00	0.00	0.00
	Net Loan-Closing	19.00	19.00	19.00	19.00	19.00
	Average Loan	19.00	19.00	19.00	19.00	19.00
	Rate of Interest	9.40%	9.40%	9.40%	9.40%	9.40%
	Interest	1.79	1.79	1.79	1.79	1.79
	Rep Schedule	Bullet Payment as on 29.03.2027				
12	SBI (21.03.2012)					



	Gross loan opening	9000.00	9000.00	9000.00	9000.00	9000.00
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	818.18	1636.36
	Net Loan-Opening	9000.00	9000.00	9000.00	8181.82	7363.64
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	818.18	818.18	818.18
	Net Loan-Closing	9000.00	9000.00	8181.82	7363.64	6545.45
	Average Loan	9000.00	9000.00	8590.91	7772.73	6954.55
	Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%
	Interest	922.50	922.50	880.57	796.70	712.84
	Rep Schedule	22 semi annual installments from 31.08.2016				
13	Bond XL					
	Gross loan opening	1400.00	1400.00	1400.00	1400.00	1400.00
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	116.67	233.33
	Net Loan-Opening	1400.00	1400.00	1400.00	1283.33	1166.67
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	116.67	116.67	116.67
	Net Loan-Closing	1400.00	1400.00	1283.33	1166.67	1050.00
	Average Loan	1400.00	1400.00	1341.67	1225.00	1108.33
	Rate of Interest	9.30%	9.30%	9.30%	9.30%	9.30%
	Interest	130.20	130.20	124.78	113.93	103.08
	Rep Schedule	12 annual installments from 28.06.2016				
14	Bond XLI					
	Gross loan opening	0.00	1180.00	1180.00	1180.00	1180.00
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	98.33	196.67
	Net Loan-Opening	0.00	1180.00	1180.00	1081.67	983.33
	Additions during the year	1180.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	98.33	98.33	98.33
	Net Loan-Closing	1180.00	1180.00	1081.67	983.33	885.00
	Average Loan	590.00	1180.00	1130.83	1032.50	934.17
	Rate of Interest	8.85%	8.85%	8.85%	8.85%	8.85%
	Interest	52.22	104.43	100.08	91.38	82.67
	Rep Schedule	12 annual installments from 19.10.2016				
15	Bond XLI					
	Gross loan opening	0.25	0.25	0.25	0.25	0.25
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.02	0.04
	Net Loan-Opening	0.25	0.25	0.25	0.23	0.21
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.02	0.02	0.02
	Net Loan-Closing	0.25	0.25	0.23	0.21	0.19
	Average Loan	0.25	0.25	0.24	0.22	0.20
	Rate of Interest	8.85%	8.85%	8.85%	8.85%	8.85%
	Interest	0.02	0.02	0.02	0.02	0.02
	Rep Schedule	12 annual installments from 19.10.2016				



16	IFC (IFC - A) (31419-00)					
	Gross loan opening	5122.86	5122.86	5122.86	5122.86	5122.86
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.00	512.29
	Net Loan-Opening	5122.86	5122.86	5122.86	5122.86	4610.57
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00	512.29	512.29
	Net Loan-Closing	5122.86	5122.86	5122.86	4610.57	4098.29
	Average Loan	5122.86	5122.86	5122.86	4866.72	4354.43
	Rate of Interest	3.23%	3.23%	3.23%	3.23%	3.23%
	Interest	165.62	165.62	165.62	157.34	140.78
	Rep Schedule	20 semi annually installments from 15.09.2017				
17	Bond XLVIII					
	Gross loan opening	0.00	2054.40	2054.40	2054.40	2054.40
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.00	0.00
	Net Loan-Opening	0.00	2054.40	2054.40	2054.40	2054.40
	Additions during the year	2054.40	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00	0.00	0.00
	Net Loan-Closing	2054.40	2054.40	2054.40	2054.40	2054.40
	Average Loan	1027.20	2054.40	2054.40	2054.40	2054.40
	Rate of Interest	8.20%	8.20%	8.20%	8.20%	8.20%
	Interest	84.23	168.46	168.46	168.46	168.46
	Rep Schedule	4 equal instalment on 23.01.2020, 23.01.2022, 23.01.2025 and 23.01.2030				
	Total Loan					
	Gross loan opening	52674.58	55908.98	55908.98	55908.98	55908.98
	Cumulative Repayment upto DOCO/previous year	1039.34	3374.42	6056.88	10101.87	14659.15
	Net Loan-Opening	51635.24	52534.56	49852.10	45807.11	41249.83
	Additions during the year	3234.40	0.00	0.00	0.00	0.00
	Repayment during the year	2335.08	2682.46	4044.99	4557.28	4557.28
	Net Loan-Closing	52534.56	49852.10	45807.11	41249.83	36692.55
	Average Loan	52084.90	51193.33	47829.60	43528.47	38971.19
	Rate of Interest	8.6218%	8.6043%	8.5697%	8.5402%	8.5390%
	Interest	4490.63	4404.85	4098.83	3717.42	3327.73



**CALCULATION OF WEIGHTED AVERAGE RATE OF INTEREST ON LOAN
ASSET - II**

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
1 Bond XXIX					
Gross loan opening	6.00	6.00	6.00	6.00	6.00
Cumulative Repayment upto DOCO/previous year	1.00	1.50	2.00	2.50	3.00
Net Loan-Opening	5.00	4.50	4.00	3.50	3.00
Additions during the year	0.00	0.00	0.00	0.00	0.00
Repayment during the year	0.50	0.50	0.50	0.50	0.50
Net Loan-Closing	4.50	4.00	3.50	3.00	2.50
Average Loan	4.75	4.25	3.75	3.25	2.75
Rate of Interest	9.20%	9.20%	9.20%	9.20%	9.20%
Interest	0.44	0.39	0.35	0.30	0.25
Rep Schedule	12 annual installments from 12.03.2013				
2 Bond XXX					
Gross loan opening	10.00	10.00	10.00	10.00	10.00
Cumulative Repayment upto DOCO/previous year	0.83	1.66	2.50	3.33	4.16
Net Loan-Opening	9.17	8.34	7.50	6.67	5.84
Additions during the year	0.00	0.00	0.00	0.00	0.00
Repayment during the year	0.83	0.83	0.83	0.83	0.83
Net Loan-Closing	8.34	7.50	6.67	5.84	5.00
Average Loan	8.75	7.92	7.09	6.25	5.42
Rate of Interest	8.80%	8.80%	8.80%	8.80%	8.80%
Interest	0.77	0.70	0.62	0.55	0.48
Rep Schedule	12 annual installments from 29.09.2013				
3 Bond XXXI					
Gross loan opening	10.00	10.00	10.00	10.00	10.00
Cumulative Repayment upto DOCO/previous year	0.83	1.66	2.50	3.33	4.16
Net Loan-Opening	9.17	8.34	7.50	6.67	5.84
Additions during the year	0.00	0.00	0.00	0.00	0.00
Repayment during the year	0.83	0.83	0.83	0.83	0.83
Net Loan-Closing	8.34	7.50	6.67	5.84	5.00
Average Loan	8.75	7.92	7.09	6.25	5.42
Rate of Interest	8.90%	8.90%	8.90%	8.90%	8.90%
Interest	0.78	0.70	0.63	0.56	0.48
Rep Schedule	12 annual installments from 25.02.2014				
4 Bond XXXIII					
Gross loan opening	10.00	10.00	10.00	10.00	10.00
Cumulative Repayment upto DOCO/previous year	0.00	0.83	1.67	2.50	3.33



	Net Loan-Opening	10.00	9.17	8.33	7.50	6.67
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.83	0.83	0.83	0.83	0.83
	Net Loan-Closing	9.17	8.33	7.50	6.67	5.83
	Average Loan	9.58	8.75	7.92	7.08	6.25
	Rate of Interest	8.64%	8.64%	8.64%	8.64%	8.64%
	Interest	0.83	0.76	0.68	0.61	0.54
	Rep Schedule	12 annual installments from 08.07.2014				
5	Bond XXXII					
	Gross loan opening	2.00	2.00	2.00	2.00	2.00
	Cumulative Repayment upto DOCO/previous year	0.17	0.34	0.50	0.67	0.84
	Net Loan-Opening	1.83	1.66	1.50	1.33	1.16
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.17	0.17	0.17	0.17	0.17
	Net Loan-Closing	1.66	1.50	1.33	1.16	1.00
	Average Loan	1.75	1.58	1.41	1.25	1.08
	Rate of Interest	8.84%	8.84%	8.84%	8.84%	8.84%
	Interest	0.15	0.14	0.12	0.11	0.10
	Rep Schedule	12 annual installments from 29.03.2014				
6	Bond XXXIV					
	Gross loan opening	50.00	50.00	50.00	50.00	50.00
	Cumulative Repayment upto DOCO/previous year	0.00	4.17	8.33	12.50	16.67
	Net Loan-Opening	50.00	45.83	41.67	37.50	33.33
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	4.17	4.17	4.17	4.17	4.17
	Net Loan-Closing	45.83	41.67	37.50	33.33	29.17
	Average Loan	47.92	43.75	39.58	35.42	31.25
	Rate of Interest	8.84%	8.84%	8.84%	8.84%	8.84%
	Interest	4.24	3.87	3.50	3.13	2.76
	Rep Schedule	12 annual installments from 21.10.2014				
7	Bond XXXV					
	Gross loan opening	15.00	15.00	15.00	15.00	15.00
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	1.25	2.50	3.75
	Net Loan-Opening	15.00	15.00	13.75	12.50	11.25
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	1.25	1.25	1.25	1.25
	Net Loan-Closing	15.00	13.75	12.50	11.25	10.00
	Average Loan	15.00	14.38	13.13	11.88	10.63
	Rate of Interest	9.64%	9.64%	9.64%	9.64%	9.64%
	Interest	1.45	1.39	1.27	1.14	1.02
	Rep Schedule	12 annual installments from 31.05.2015				
8	Bond XXXVI					



	Gross loan opening	150.00	150.00	150.00	150.00	150.00
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	10.00	20.00
	Net Loan-Opening	150.00	150.00	150.00	140.00	130.00
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	10.00	10.00	10.00
	Net Loan-Closing	150.00	150.00	140.00	130.00	120.00
	Average Loan	150.00	150.00	145.00	135.00	125.00
	Rate of Interest	9.35%	9.35%	9.35%	9.35%	9.35%
	Interest	14.03	14.03	13.56	12.62	11.69
	Rep Schedule	15 annual installments from 29.08.2016				
9	Bond XXXVII					
	Gross loan opening	7.00	7.00	7.00	7.00	7.00
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.58	1.17	1.75
	Net Loan-Opening	7.00	7.00	6.42	5.83	5.25
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.58	0.58	0.58	0.58
	Net Loan-Closing	7.00	6.42	5.83	5.25	4.67
	Average Loan	7.00	6.71	6.13	5.54	4.96
	Rate of Interest	9.25%	9.25%	9.25%	9.25%	9.25%
	Interest	0.65	0.62	0.57	0.51	0.46
	Rep Schedule	12 annual installments from 26.12.2015				
10	SBI (21.03.2012)					
	Gross loan opening	349.00	349.00	349.00	349.00	349.00
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	31.73	63.45
	Net Loan-Opening	349.00	349.00	349.00	317.27	285.55
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	31.73	31.73	31.73
	Net Loan-Closing	349.00	349.00	317.27	285.55	253.82
	Average Loan	349.00	349.00	333.14	301.41	269.68
	Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%
	Interest	35.77	35.77	34.15	30.89	27.64
	Rep Schedule	22 semi annual installments from 31.08.2016				
11	Bond XL					
	Gross loan opening	50.00	50.00	50.00	50.00	50.00
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	4.17	8.33
	Net Loan-Opening	50.00	50.00	50.00	45.83	41.67
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	4.17	4.17	4.17
	Net Loan-Closing	50.00	50.00	45.83	41.67	37.50
	Average Loan	50.00	50.00	47.92	43.75	39.58
	Rate of Interest	9.30%	9.30%	9.30%	9.30%	9.30%
	Interest	4.65	4.65	4.46	4.07	3.68



	Rep Schedule	12 annual installments from 28.06.2016				
12	Bond XLI					
	Gross loan opening	375.00	375.00	375.00	375.00	375.00
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	31.25	62.50
	Net Loan-Opening	375.00	375.00	375.00	343.75	312.50
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	31.25	31.25	31.25
	Net Loan-Closing	375.00	375.00	343.75	312.50	281.25
	Average Loan	375.00	375.00	359.38	328.13	296.88
	Rate of Interest	8.85%	8.85%	8.85%	8.85%	8.85%
	Interest	33.19	33.19	31.80	29.04	26.27
	Rep Schedule	12 annual installments from 19.10.2016				
13	IFC (IFC - A) (31419-00)					
	Gross loan opening	42.43	42.43	42.43	42.43	42.43
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.00	4.24
	Net Loan-Opening	42.43	42.43	42.43	42.43	38.19
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00	4.24	4.24
	Net Loan-Closing	42.43	42.43	42.43	38.19	33.94
	Average Loan	42.43	42.43	42.43	40.31	36.07
	Rate of Interest	3.23%	3.23%	3.23%	3.23%	3.23%
	Interest	1.37	1.37	1.37	1.30	1.17
	Rep Schedule	20 semi annually installments from 15.09.2017				
14	Bond XLIII					
	Gross loan opening	137.00	137.00	137.00	137.00	137.00
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.00	11.42
	Net Loan-Opening	137.00	137.00	137.00	137.00	125.58
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00	11.42	11.42
	Net Loan-Closing	137.00	137.00	137.00	125.58	114.17
	Average Loan	137.00	137.00	137.00	131.29	119.88
	Rate of Interest	7.93%	7.93%	7.93%	7.93%	7.93%
	Interest	10.86	10.86	10.86	10.41	9.51
	Rep Schedule	12 annual installments from 19.10.2016				
15	SBI (2014-15)					
	Gross loan opening	240.00	240.00	240.00	240.00	240.00
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.00	0.00
	Net Loan-Opening	240.00	240.00	240.00	240.00	240.00
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00	0.00	0.00
	Net Loan-Closing	240.00	240.00	240.00	240.00	240.00



	Average Loan	240.00	240.00	240.00	240.00	240.00
	Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%
	Interest	24.60	24.60	24.60	24.60	24.60
	Rep Schedule	20 semi annual installments from 15.06.2019				
16	Bond XLVIII					
	Gross loan opening	0.00	811.18	811.18	811.18	811.18
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.00	0.00
	Net Loan-Opening	0.00	811.18	811.18	811.18	811.18
	Additions during the year	811.18	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00	0.00	0.00
	Net Loan-Closing	811.18	811.18	811.18	811.18	811.18
	Average Loan	405.59	811.18	811.18	811.18	811.18
	Rate of Interest	8.20%	8.20%	8.20%	8.20%	8.20%
	Interest	33.26	66.52	66.52	66.52	66.52
	Rep Schedule	4 equal instalment on 23.01.2020, 23.01.2022, 23.01.2025 and 23.01.2030				
17	Bond XLIX					
	Gross loan opening	0.00	110.00	110.00	110.00	110.00
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.00	0.00
	Net Loan-Opening	0.00	110.00	110.00	110.00	110.00
	Additions during the year	110.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00	0.00	0.00
	Net Loan-Closing	110.00	110.00	110.00	110.00	110.00
	Average Loan	55.00	110.00	110.00	110.00	110.00
	Rate of Interest	8.15%	8.15%	8.15%	8.15%	8.15%
	Interest	4.48	8.97	8.97	8.97	8.97
	Rep Schedule	3 equal instalment on 09.03.2020, 09.03.2025 and 09.03.2030				
	Total Loan					
	Gross loan opening	1453.43	2374.61	2374.61	2374.61	2374.61
	Cumulative Repayment upto DOCO/previous year	2.83	10.16	19.33	105.64	207.61
	Net Loan-Opening	1450.60	2364.45	2355.28	2268.97	2167.00
	Additions during the year	921.18	0.00	0.00	0.00	0.00
	Repayment during the year	7.33	9.17	86.31	101.97	101.97
	Net Loan-Closing	2364.45	2355.28	2268.97	2167.00	2065.03
	Average Loan	1907.52	2359.86	2312.12	2217.98	2116.01
	Rate of Interest	8.9912%	8.8359%	8.8240%	8.8070%	8.7963%
	Interest	171.51	208.51	204.02	195.34	186.13

