

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 540/TT/2014**

**Coram:**

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

**Date of Hearing : 20.10.2015**

**Date of Order : 27.06.2016**

**In the matter of:**

Determination of transmission tariff from anticipated COD to 31.3.2019 for 9.292 km of Fibre Optic Communication system (Central Sector) and 392.393 km of Fibre Optic Communication system (State Sector) (COD 1.4.2014) in lieu of existing Unified Load Despatch and Communication (ULDC) Microwave links in North Eastern Region under Regulation 86 of Central Electricity Regulatory Commission (Conduct of Business) Regulation 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 -122 001

**.....Petitioner**

**Vs**

1. North-Eastern Electric Power Corporation Limited, (NEEPCO Limited),  
15, NBCC Tower, Bhikaji Cama Place,  
New Delhi
2. National Hydro Power Corporation (NHPC) Limited,  
NHPC Office Complex,  
Lodhi Road, New Delhi
3. ONGC Tripura Power Company Limited (OTPC),  
6 th Floor, A-Wing, IFCI Tower,  
61, Nehru Place, New Delhi-110 019



4. North East Transmission Company Limited (NETCL),  
1 st Floor, Ambience Corporate Tower  
Ambience Mall, Ambience Island
5. NTPC Limited,  
NTPC Bhawan, Scope Complex,  
Institutional Area, Lodhi Road,
6. Government of Arunachal Pradesh,  
Itanagar-791 111, Arunachal Pradesh
7. Assam Power Distribution Company Limited, APDCL  
ASEB, Bijuli Bhavan,  
Paltan Bazar, Guwahati-781 001
8. Manipur State Electricity Distribution Company Limited,  
(Formerly Electricity Department, Government of Manipur),  
Keishampat, Imphal-795 001,
9. Meghalaya Electricity Corporation Limited, MeECL,  
Lumjingshai, Short Round Road,  
Shillong-793 001, Meghalaya
10. Power and Electricity Department,  
Government of Mizoram, Khatla,  
Aizawl-796 001, Mizoram,
11. Department of Power,  
Government of Nagaland,  
Kohima-797 001, Nagaland
12. Tripura State Electricity Corporation Limited,  
Vidyut Bhawan, North Banamalipur,  
Agartala, Tripura (W)-799 001

..... Respondent

**For petitioner** : Shri S.S Raju, PGCIL  
Shri Rakesh Prasad, PGCIL

**For respondents** : None



## ORDER

The petition has been filed by Power Grid Corporation of India Limited for determination of transmission tariff from anticipated COD to 31.3.2019 for 9.292 km of Fibre Optic Communication system (Central Sector) and 392.393 km of Fibre Optic Communication system (State Sector) (COD1.4.2014) in lieu of existing Unified Load Despatch and Communication (ULDC) Microwave links in North Eastern Region (PGCIL) under Regulation 86 of Central Electricity Regulatory Commission (Conduct of Business) Regulation 1999 and Central Electricity Regulatory Commission(Terms and Conditions of Tariff) Regulations, 2014 (hereinafter referred as "2014 Tariff Regulations").

2. The investment approval for the transmission project was accorded by the Board of Directors of the petitioner company vide letter dated 8.2.2011 at an estimated cost of ₹3413 lakh including IDC of ₹ 200 lakh based on 3<sup>rd</sup> Quarter, 2010 price level. As per the investment approval, the transmission asset was scheduled to be commissioned within 30 months, i.e. by 16.8.2013.

3. The above project was approved in the 7<sup>th</sup> NERPC meeting dated 23<sup>rd</sup> and 24<sup>th</sup> February, 2009 and 8<sup>th</sup> NERPC meeting dated 11<sup>th</sup> and 12<sup>th</sup> January, 2010. During the 8<sup>th</sup> TCC and 8<sup>th</sup> NERPC held on 11<sup>th</sup> and 12<sup>th</sup> January, 2010 RPC recommended 377 KMs fibre optic network in Central sector and 759 KM in AEGCL. However, the petitioner has submitted 401 KM under Central Sector. The petitioner is directed to clarify the length at the time of truing up.

4. The broad scope of works is given below:-



(i) Installation of OPGW Fibre Optic cable on the existing EHV transmission line of PGCIL and constituents, the estimated length of such cable is approx. 1160 km.

(ii) The terminal equipment for communication based upon synchronous digital hierarchy (SDH) technology shall be installed in the substations of constituents and the petitioner. The project would also involve installation of primary multiplexers at the new wide band nodes. To monitor the network, Network Management System (NMS) would also be required.

(iii) The constituent wise breakup of the scope of work is as follows:-

<b>Srl. No.</b>	<b>Utility</b>	<b>OPGW Cable (in km)</b>	<b>SDH (Nos.)</b>	<b>DCPS (nos.)</b>
1	Central Sector	401	13	13
2	AEGCL	759	11	11
	<b>Total</b>	<b>1160</b>	<b>24</b>	<b>24</b>

5. The instant petition covers following assets :-

<b>Srl. No</b>	<b>Name of Asset</b>
1	<b>Asset 1:</b> 9.292 km of Fibre Optic Communication system (Central Sector)
2	<b>Asset 2:</b> 392.393 Km of Fibre Optic Communication system (State Sector)

6. AFC was approved vide order dated 15.4.2015, subject to adjustment as per Regulation 7(7) (ii), (iii) and (iv) of the 2014 Tariff Regulations.

7. This order has been issued after considering the petitioner's affidavits dated 28.4.2015, 15.10.2015 and 23.11.2015.



8. The petitioner has claimed transmission charges for the instant assets as given hereunder:-

(₹ in lakh)

<b>Asset-1</b>					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	1.44	1.85	2.26	2.26	2.26
Interest on Loan	1.32	1.57	1.78	1.59	1.39
Return on equity	1.34	1.72	2.10	2.10	2.10
Interest on Working Capital	0.19	0.22	0.24	0.24	0.24
O & M Expenses	1.70	1.76	1.82	1.88	1.94
<b>Total</b>	<b>5.99</b>	<b>7.12</b>	<b>8.20</b>	<b>8.07</b>	<b>7.93</b>

  

<b>Asset-2</b>					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	51.62	61.00	70.38	70.38	70.38
Interest on Loan	46.92	51.00	54.19	48.06	42.02
Return on equity	47.97	56.69	65.41	65.41	65.41
Interest on Working Capital	3.37	3.88	4.37	4.23	4.09
O & M Expenses	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>149.88</b>	<b>172.57</b>	<b>194.35</b>	<b>188.08</b>	<b>181.90</b>

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

(₹ in lakh)

<b>Asset-1</b>					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	0.26	0.26	0.27	0.28	0.29
O & M expenses	0.14	0.15	0.15	0.16	0.16
Receivables	0.01	1.19	1.37	1.35	1.32
<b>Total</b>	<b>0.41</b>	<b>1.60</b>	<b>1.79</b>	<b>1.79</b>	<b>1.77</b>
Interest	0.06	0.22	0.24	0.24	0.24
Rate of Interest	13.50%	13.50%	13.50%	13.50%	13.50%

  

<b>Asset-2</b>					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	0.00	0.00	0.00	0.00	0.00
O & M expenses	0.00	0.00	0.00	0.00	0.00
Receivables	24.98	28.76	32.39	31.35	30.32
<b>Total</b>	<b>24.98</b>	<b>28.76</b>	<b>32.39</b>	<b>31.35</b>	<b>30.32</b>
Interest	3.37	3.88	4.37	4.23	4.09
Rate of Interest	13.50%	13.50%	13.50%	13.50%	13.50%



10. 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. Reply has been filed by Assam Electricity Grid Corporation Limited (AEGCL), Respondent No. 1, vide affidavits dated and 24.7.2015 and 17.12.2015. The petitioner has filed the rejoinder to the reply of AEGCL vide affidavit dated 23.11.2015. The respondent has raised the issue regarding date of commercial operation. The objection raised by the AEGCL in its reply and their clarification given by the petitioner are addressed in the relevant paragraphs of this order.

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

**Date of commercial operation**

12. In the instant petition the petitioner has claimed the COD of the instant transmission assets as 1.2.2014 and 1.4.2014 respectively.

13. Assam Electricity Grid Corporation Ltd. (AEGCL) has submitted that the petitioner has claimed 392.393 km of fibre optics has replaced the existing ULDC microwave links, however the same was not intimated to AEGCL. AEGCL has contended that OPGW has been laid but the final multiplexer units have not yet been connected to the OPGW because of which the data is not reported to the data centre/SLDC. AEGCL has requested to instruct the petitioner to complete the entire project so that all the data from the RTU (microwave locations) connected to this network should be integrated to the SCADA system. AEGCL has further submitted that COD should be considered from the actual completion date of entire project.



AEGCL has also submitted that telemetry till SLDC for the Grid Sub-station namely Mariani, Lakwa, Namrup, Gohpur are not reporting via OPGW network (Microwave Replacement Project). However, these grid sub-stations were previously connected via microwave.

14. In response, the petitioner in its rejoinder has clarified that COD letter for the links under MW vacation project in NER was issued and circulated to all concerned vide letter dated 31.3.2014. The petitioner submitted that the links have been handed over to AEGCL SLDC for use of SLDC SCADA telemetry after end to end data link testing. End to end testing and SAT has been certified in 19th and 20th UCC forum conducted by NERLDC and verified by AEGCL representatives. Link completion of CS link (NEHU-Khliehriat) for redundancy have been certified by NERLDC in minutes of 19th UCC meeting.

15. The petitioner was directed to submit status of terminating equipment and whether data transfer on this link has started and necessary certificate from RLDC certifying that the asset is in use. In response, the petitioner vide affidavit dated 23.11.2015 has submitted that the terminal equipment (SDH & PDH) has been installed with power supply provided from existing station's DCPs. DCPs (Battery bank and Charger) under the scope of project is successfully installed. The petitioner has further submitted that the links have been handed over to AEGCL SLDC for use of SLDC SCADA telemetry after end to end data link testing.

16. The petitioner was further directed vide RoP dated 20.10.2015 to clarify the date of COD as it was stated in the petition that COD of the asset was 1.2.2014, however tariff was claimed from 1.4.2014. In response, the petitioner vide affidavit



dated 23.11.2015 has submitted that Asset-1 was put under commercial operation with effect from 1.2.2014, as the capital amount being very small, the tariff is being claimed with effect from 1.4.2014.

17. We have considered the submissions of the petitioner and respondent and documents available on record. The petitioner has submitted the self-declaration certificate dated 21.2.2014 and 31.3.2014 regarding commercial operation date. The petitioner was directed to submit RLDC certificate regarding COD of the assets as provided in Regulation 5(2) of 2014 Tariff Regulations, however the petitioner has not submitted the same. The commercial operation dates of the Asset 1 and Asset 2 have been provisionally considered as 1.2.2014 and 1.4.2014 respectively. However, the tariff is allowed with effect from 1.4.2014. The petitioner is directed to submit the RLDC certificate at the time of truing up.

### **Capital cost**

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

"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 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."

19. The petitioner vide affidavit dated 28.11.2014 has submitted the apportioned approved cost for both of the assets. Subsequently, the petitioner vide affidavit dated 23.11.2015 has submitted CA Certificate dated 24.4.2015 which shows the capital cost claimed by the petitioner as on actual COD and estimated additional capitalization projected to be incurred for both the assets (i.e. central portion and state portion). The summary of capital cost claimed by the petitioner is given below:-

(₹ in lakh)

Name of the assets	Apportioned approved cost	Cost incurred as on COD	Estimated additional capital expenditure			Total estimated completion cost
			2014-15	2015-16	2016-17	
Asset-1	27.35	22.73	--	13.04	--	35.77
Asset-2	1154.68	815.42	--	296.45	--	1111.87

20. The petitioner has submitted two Auditor Certificates for Asset 1. First certificate is for 8.269 km with a mentioning of COD as 1.2.2014 and the second certificate is for 1.023 km with a mentioning of COD as 1.4.2014. The total length of Asset 1 is 9.292 kms as per Auditor's certificates. The capital cost of Asset 1 claimed by the petitioner as shown in the table above has been arrived by adding the capital cost from these two Auditor Certificates. The petitioner is directed to clarify the reason for mentioning of two CODs for Asset 1 at the time of true up.



21. According to Auditor Certificates for both Asset 1 and Asset II, the expenditure up to 31.3.2015 has been verified from the books of accounts of the project. The projected expenditure is on the basis of details furnished by the Management.

Srl. No.	Sector	Scheduled COD	Actual COD	Delay
1	Central Sector (9.292 km)- <b>Asset 1</b>	1.9.2013	1.2.2014	5 months
2	State Sector-AEGCL (392.393 km)- <b>Asset 2</b>	1.9.2013	1.4.2014	7 months

### **Cost-variation**

22. The total estimated completion cost of Asset-I is `35.77 lakh and Asset II is ₹1111.87 lakh against the apportioned approved cost of ₹27.35 lakh and ₹1154.68 lakh respectively. Hence, there is cost over-run in case of Asset-I and there is cost variation in case of Asset-II.

23. The petitioner was directed to submit detailed reasons for the cost over-run in case of Asset-I vide RoP dated 20.10.2015. In response, the petitioner vide affidavit dated 23.11.2015 has submitted that the major variation in cost is due to addition of NEHU-RSCC (SLDC-NERLDC) link. The NEHU-RSCC (SLDC-NERLDC) link was not in original scope of MW vacation project. Later, said link was included in MW vacation project as per request of RLDC/NLDC to achieve grid security under urgency with recordings in UCC forums. The addition of NEHU-RSCC (SLDC-NERLDC) link increased the cost by ₹8.42 lakh. The cost over-run is because of the cost incurred towards equipment to achieve grid security. Accordingly, cost over-run is allowed.



### **Time over-run**

24. As per investment approval, the project was scheduled to be commissioned within 30 months from the date of Board of Director's approval i.e. 15.2.2011. The scheduled commissioning works out to be 14.8.2013. The Asset 1 and Asset 2 were commissioned on 1.2.2014 and 1.4.2014 respectively. Thus, there is time over-run of 5 and 7 months in case of Asset 1 and Asset 2 respectively. However, tariff for Asset 1 is considered from 1.4.2014. The petitioner has submitted the following reasons for time over-run.

### **Asset 1**

- a) **Statutory Clearance:** Since the work also involved activities on MeECL lines, a proposal for getting clearance of the subject line was submitted to MeECL on 20.12.2011. The work for providing protection link to NERLDC Shilling through OPGW/ADSS Fibre Cable on 132 kV NEHU-Khilehriat-I and 33 kV NEHU-POWERGRID line of MeECL could not be commenced on time due to late receipt of clearance from MeECL. The clearance of the line was accorded by MeECL on 25.7.2012 i.e. after 17 months of Investment Approval. However, during execution, work was expedited and over all delay could be contained to 7 months.
  
- b) **Restriction on entry of labourers in Meghalaya:** Very limited local labourers were available in the Meghalaya area for working on the project sites. Further, various groups in the state of Meghalaya are demanding for Inner Line Permit (ILP) for outsiders entering the state since last few years. Demonstrations, strikes and bandhs were being called on regular basis because of which most of the outside labourer were not willing to work in the area leading to shortage of labour.



## **Asset-2**

As regards Asset 2, the petitioner has submitted that the work was delayed due to natural factors like landslides, severe flood conditions etc. during 2012 and 2013, due to which many people died in Assam. In addition to above, several strikes, bandhs, insurgency and border issues related to Assam-Arunachal Pradesh and Assam-Nagaland along with few ROW issues caused delays in timely completion of work.

25. The Commission in its order dated 8.12.2011 in Petition No. 68/2010 has clearly specified that the timeline for replacement of the digital microwave by optic fibre should be strictly complied with. The relevant extracts from the order is reproduced below:-

"21. We have considered the submission of the petitioner and the respondents. We are of the view that replacement of microwave links with fibre optic links should be implemented as agreed by the beneficiaries to ensure safe and reliable operation of the power system. Moreover, the petitioner has submitted that surrender of the microwave frequencies would save substantial cost and the fibre optic system would be beneficial in the long run as the fibre optic communication network is required for implementation of new technologies like Wide Area Measurement System (WAMS), Special Protection Schemes (SPS) etc. in view of fast development and complexity of the power system in the country. As regards the regulatory approval, we are of the view that since the project has been agreed to be implemented by the constituents of each of the regions, regulatory approval is not considered necessary. The petitioner is granted liberty to approach the Commission for determination of tariff for the fibre optic network being installed in lieu of microwave links for each of the region separately. As regards the submission of UPPTCL, it is clarified that if the state portion is not being implemented by it separately as proposed earlier, the same shall be implemented by the petitioner and UPPTCL would be required to share the tariff in proportion to the assets being utilised by it. It is however made clear that the timeline for replacement of the digital microwave by optical fibre should be strictly complied with."

26. We have considered the submissions of the petitioner and documents available on record. The petitioner has submitted newspaper clippings in support of time over-run without any date of publication of news paper. Any such proof without



date cannot be considered as authenticated proof. As regards delay in approval by MeECL for clearance, the petitioner has submitted that permission was accorded by MeECL after 17 months of Investment Approval. In this regard, it is observed that the petitioner applied to MeECL for clearance only in December, 2011 and the petitioner got approval in July, 2012 i.e. after 7 months. The petitioner has not submitted any communication after December, 2011 to show that it has pursued the matter with MeECL. Hence, delay due to late approval cannot be condoned. As regards ILP, the petitioner has not indicated period of delay due to ILP. Hence delay due to ILP also cannot be condoned. Accordingly, the time over-run in case of Asset 1 is not condoned.

27. As regards Asset 2, delay due to natural factors like landslides, severe flood conditions etc., the petitioner has submitted various paper clippings as proof. Accordingly, we are inclined to condone the delay of 7 months in case of Asset 2 as it was beyond the control of the petitioner.

### **Treatment of IDC and IEDC**

#### **Treatment of IDC**

28. The petitioner vide Auditor Certificate dated 24.4.2015 in affidavit dated 23.11.2015, has claimed Interest during Construction (IDC) amounting ₹1.03 lakh and ₹30.04 lakh for Asset-1 and Asset-2 respectively.

#### **Asset 1**

29. As regards Asset 1, the petitioner has submitted a statement showing IDC discharged up to COD. According to this statement, the IDC amount i.e. ₹0.80 lakh has been discharged up to COD and accrued IDC i.e. ₹0.23 lakh is discharged



during 2014-15. Further, the petitioner has submitted that accrued IDC is not included in additional capital expenditure of respective years. The petitioner has also segregated the claimed IDC as follows:-

(₹ in lakh)		
IDC From the date of infusion of debt fund up to SCOD (i.e. 1.5.2013)	IDC from SCOD up to Actual COD (i.e. 1.4.2014)	Total IDC Claimed up to Actual COD
1	2	3=(1+2)
0.52	0.51	1.03

30. The petitioner is entitled for IDC only up to scheduled COD (i.e. ₹ 0.52 lakh) as the entire delay of 5 months is not condoned. The petitioner has mentioned that, IDC discharged up to actual COD is ₹0.80 lakh. Therefore, the entitled IDC of ₹0.52 lakh has been considered as fully discharged as on actual COD. The IDC of ₹0.51 lakh pertaining to the period from scheduled COD to actual COD has been disallowed from the capital cost as on COD.

31. As regards the Asset 2, the petitioner has claimed IDC of ₹30.04 lakh on accrual basis. The petitioner vide affidavit dated 23.11.2015 has further submitted that, out of ₹30.04 lakh, the amount of IDC discharged up to COD is ₹20.50 lakh and balance IDC of ₹9.54 lakh has been discharged during 2014-15. IDC amounting to ₹20.50 lakh have been worked out and allowed as on COD on cash basis. The undischarged IDC of ₹9.54 lakh has been reduced from the capital cost as on COD. The balance IDC discharged after COD (i.e. in 2014-15 and 2015-16) shall be allowed as additional capital expenditure of concerned year at the time of true up subject to the submission of details related to the payment of actual IDC on cash basis and submission of loan wise IDC discharged after COD.



### **Treatment of IEDC**

32. The petitioner vide CA Certificate dated 24.4.2015 has claimed Incidental Expenditure during Construction (IEDC) of ₹3.46 lakh and ₹102.08 lakh for Asset 1 and Asset 2 respectively.

33. The petitioner has segregated the IEDC claimed as follows:-

**(₹ in lakh)**

Asset	IEDC up to SCOD (i.e. 1.5.2013)	IEDC from SCOD up to actual COD (i.e. 1.4.2014)	Total IEDC Claimed up to actual COD
	1	2	3=(1+2)
Asset 1	2.22	1.24	3.46
Asset 2	57.42	44.66	102.08

34. As regards Asset 1, the percentage on hard cost as indicated in the abstract cost estimate has been considered as the allowable limit to the IEDC. In the instant petition, 10.75% of the hard cost (i.e. ₹1.96 lakh) is the maximum limit for allowing IEDC. Thus, IEDC claimed exceeds 10.75% of the hard cost, as on COD. Accordingly, excess IEDC of ₹1.50 lakh (i.e. ₹3.46 - ₹1.96) has been disallowed from the capital cost as on COD.

35. In case of Asset 2, the percentage on hard cost as indicated in the abstract cost estimate has been considered as the allowable limit to the IEDC. In the instant petition, 10.75% of the hard cost (i.e. ₹73.45 lakh) is the maximum limit for allowing IEDC. Hence, claimed IEDC exceeds 10.75% of the hard cost, as on COD. Accordingly, excess IEDC of ₹28.63 lakh (i.e. ₹102.08 - ₹73.45) has been disallowed from the capital cost as on COD.

### **Treatment of initial spares**

36. 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.

37. The petitioner has claimed initial spares as under:-

(₹ in lakh)

Asset	Transmission Line		
	Cost (excl. IDC, IEDC, land & civil works) #	Initial spares	Initial spares as % of capital cost
Asset-I (9.292 km)	16.18	0.32	1.98%
Asset-II (392.393 km)	979.75	19.57	2.00%

# Total cost (Plant and Machinery cost excluding IDC, IEDC, land cost and cost of civil works for the purpose of Initial spares).





38. Initial spares claimed by the petitioner is less than 3.5 % norm specified in 2014 Tariff Regulations. Accordingly, the initial spares claimed by the petitioner is allowed.

**Capital cost as on COD**

39. Detail of the capital cost considered as on COD after making the necessary adjustment in respect capital expenditure of IDC and IEDC are given below:-

Asset	Capital cost as on COD claimed by Petitioner	IDC disallowed/deducted as on COD.	IEDC disallowed on COD.	Capital Cost as on COD considered for tariff calculation
1	2	3	4	5 = (2-3-4)
Asset-1	22.73	0.51	1.50	20.72
Asset-2	815.42	9.54	28.63	777.25

**Projected additional capital expenditure**

40. 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.

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



“cut-off date” means 31<sup>st</sup> 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 31<sup>st</sup> March of the year closing after three years of the year of commercial operation”.

Accordingly, the cut-off date of the instant transmission asset is 31.3.2017.

42. The petitioner has claimed additional capital expenditure for the financial year 2015-16 as mentioned above. The projected additional capital expenditure as claimed by the petitioner has been considered for tariff which is subject to true up.

### **Debt- equity ratio**

43. 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”

44. Details of debt-equity in respect of the asset as on the date of commercial operation and as on 31.3.2019 are as follows:-



(₹ in lakh)

<b>Asset-1</b>			
<b>Particulars</b>	<b>%</b>	<b>As on COD</b>	<b>As on 31.3.2019</b>
Debt	70.00	14.50	544.08
Equity	30.00	6.22	233.18
<b>Total</b>	<b>100.00</b>	<b>20.72</b>	<b>777.25</b>

  

<b>Asset-2</b>			
<b>Particulars</b>	<b>%</b>	<b>As on COD</b>	<b>As on 31.3.2019</b>
Debt	70.00	23.63	751.59
Equity	30.00	10.13	322.11
<b>Total</b>	<b>100.00</b>	<b>33.76</b>	<b>1073.70</b>

Additional capital expenditure has been considered in the debt-equity ratio of 70:30.

### **Return on equity**

45. 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.”

46. We have computed RoE at the rate of 19.610% for tariff period 2014-19 after grossing up the RoE with MAT rate as per the above Regulation. Regulation 24 read with Regulation 25 of the 2014 Tariff Regulations provides for grossing up of return on equity with the effective tax rate for the purpose of return on equity. It further provides that in case the generating company or transmission licensee is paying Minimum Alternative Tax (MAT), the MAT rate including surcharge and cess will be considered for the grossing up of return on equity. The petitioner has submitted that



MAT rate is applicable to the petitioner's company. Accordingly, the MAT rate applicable during 2013-14 has been considered for the purpose of return on equity, which shall be trued up with actual tax rate in accordance with Regulation 25 (3) of the 2014 Tariff Regulations. Accordingly, the RoE allowed is given below:-

(₹ in lakh)

<b>Asset 1</b>					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Equity	6.22	6.22	10.13	10.13	10.13
Addition due to Additional Capitalisation	0.00	3.91	0.00	0.00	0.00
Closing Equity	6.22	10.13	10.13	10.13	10.13
Average Equity	6.22	8.17	10.13	10.13	10.13
Return on Equity (Base Rate )	15.50%	15.50%	15.50%	15.50%	15.50%
Tax rate for the year 2008-09 (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)	1.22	1.60	1.99	1.99	1.99
<b>Asset 2</b>					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Equity	233.18	233.18	322.11	322.11	322.11
Addition due to Additional Capitalisation	0.00	88.94	0.00	0.00	0.00
Closing Equity	233.18	322.11	322.11	322.11	322.11
Average Equity	233.18	277.64	322.11	322.11	322.11
Return on Equity (Base Rate )	15.50%	15.50%	15.50%	15.50%	15.50%
Tax rate for the year 2008-09 (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)	45.73	54.45	63.17	63.17	63.17

### **Interest on loan**

47. 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.”

48. In keeping with the provisions of Regulation 26 of the 2014 Tariff Regulations, the petitioner's entitlement to interest on loan has been calculated on the following basis:-

- (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 Form 9C given in the affidavit dated 15.10.2015;
- (ii) The normative repayment for the tariff period 2014-19 shall deemed 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.

49. Detailed calculations in support of the weighted average rates of interest have been given in Annexure 1 and 2 to this order.



50. Based on the above, interest on loan has been calculated are given as follows:-

(₹ in lakh)

<b>Asset 1</b>					
Particular	2014-15	2015-16	2016-17	2017-18	2018-19
Gross Normative Loan	14.50	14.50	23.63	23.63	23.63
Cumulative Repayment up to Previous year	0.00	1.31	3.04	5.17	7.31
Net Loan-Opening	14.50	13.19	20.60	18.46	16.32
Addition due to Additional Capitalization	0.00	9.13	0.00	0.00	0.00
Repayment during the year	1.31	1.72	2.14	2.14	2.14
Net Loan-Closing	13.19	20.60	18.46	16.32	14.19
Average Loan	13.85	16.89	19.53	17.39	15.25
Weighted Avg Rate of Interest on Loan	8.6680%	8.6680%	8.6534%	8.6369%	8.6338%
Interest	1.20	1.46	1.69	1.50	1.32
<b>Asset 2</b>					
Particular	2014-15	2015-16	2016-17	2017-18	2018-19
Gross Normative Loan	544.08	544.08	751.59	751.59	751.59
Cumulative Repayment up to Previous year	0.00	49.20	107.78	175.75	243.71
Net Loan-Opening	544.08	494.88	643.81	575.84	507.88
Addition due to Additional Capitalization	0.00	207.52	0.00	0.00	0.00
Repayment during the year	49.20	58.58	67.97	67.97	67.97
Net Loan-Closing	494.88	643.81	575.84	507.88	439.91
Average Loan	519.48	569.34	609.83	541.86	473.89
Weighted Avg Rate of Interest on Loan	8.6093%	8.6093%	8.5950%	8.5803%	8.5799%
Interest	44.72	49.02	52.41	46.49	40.66

### **Depreciation**

51. 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.”

52. The instant transmission assets were put under commercial operation during 2014-15. 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-III to the 2014 Tariff Regulations.

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

(₹ in lakh)					
<b>Asset 1</b>					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Gross Block	20.72	20.72	33.76	33.76	33.76
Addition during 2009-14 due to Projected Additional Capitalisation	0.00	13.04	0.00	0.00	0.00
Closing Gross Block	20.72	33.76	33.76	33.76	33.76
Average Gross Block	20.72	27.24	33.76	33.76	33.76
Rate of Depreciation	6.3300%	6.3300%	6.3300%	6.3300%	6.3300%
Depreciable Value	18.65	24.52	30.38	30.38	30.38
Remaining Depreciable Value	18.65	17.34	15.61	13.48	11.34
Depreciation	1.31	1.72	2.14	2.14	2.14
<b>Asset 2</b>					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Gross Block	777.25	777.25	1073.70	1073.70	1073.70





Addition during 2009-14 due to Projected Additional Capitalisation	0.00	296.45	0.00	0.00	0.00
Closing Gross Block	777.25	1073.70	1073.70	1073.70	1073.70
Average Gross Block	777.25	925.48	1073.70	1073.70	1073.70
Rate of Depreciation	6.3300%	6.3300%	6.3300%	6.3300%	6.3300%
Depreciable Value	699.53	832.93	966.33	966.33	966.33
Remaining Depreciable Value	699.53	650.33	591.74	523.78	455.81
Depreciation	49.20	58.58	67.97	67.97	67.97

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

54. Regarding the O&M expenses the Commission vide order dated 8.12.2011 in Petition No. 68/2010, had observed that the petitioner should be allowed O & M expenses on actual for the communication systems already in operation under ULDC schemes in different region. The relevant extract of order is as under:-

27. “..... It is observed that O&M charges for the year 2008-09 vary from 3.54% to 8.59% of the capital cost as on 31.03.2009 for different regions. We are of the view that the petitioner should be allowed O & M expenses on actual for the communication systems already in operation under ULDC schemes in different regions. However, for the new systems, the O&M norms would be decided at the time of framing of regulation for communication system”

55. Accordingly, O&M expenses for the period 2014-19 is not allowed in the instant petition. The petitioner is directed to submit the actual O&M Expenses at the time of true-up for consideration.

56. 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 during 2014-19 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 block 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.



57. 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**

58. 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;”

59. 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) 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).



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

(₹ in lakh)					
<b>Asset 1</b>					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	0.00	0.00	0.00	0.00	0.00
O & M expenses	0.00	0.00	0.00	0.00	0.00
Receivables	0.64	0.82	0.99	0.96	0.93
Total	0.64	0.82	0.99	0.96	0.93
Interest	<b>0.09</b>	<b>0.11</b>	<b>0.13</b>	<b>0.13</b>	<b>0.13</b>
<b>Asset 2</b>					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	0.00	0.00	0.00	0.00	0.00
O & M expenses	0.00	0.00	0.00	0.00	0.00
Receivables	23.81	27.63	31.30	30.29	29.29
Total	23.81	27.63	31.30	30.29	29.29
Interest	<b>3.21</b>	<b>3.73</b>	<b>4.22</b>	<b>4.09</b>	<b>3.95</b>

### Transmission charges

61. The transmission charges being allowed for the assets are as follows:-

(₹ in lakh)					
<b>Asset-A</b>					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	1.31	1.72	2.14	2.14	2.14
Interest on Loan	1.20	1.46	1.69	1.50	1.32
Return on Equity	1.22	1.60	1.99	1.99	1.99
Interest on Working Capital	0.09	0.11	0.13	0.13	0.13
O & M Expenses	0.00	0.00	0.00	0.00	0.00
Total	<b>3.82</b>	<b>4.90</b>	<b>5.95</b>	<b>5.75</b>	<b>5.57</b>
<b>Asset-B</b>					
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	49.20	58.58	67.97	67.97	67.97
Interest on Loan	44.72	49.02	52.41	46.49	40.66
Return on Equity	45.73	54.45	63.17	63.17	63.17
Interest on Working Capital	3.21	3.73	4.22	4.09	3.95
O & M Expenses	0.00	0.00	0.00	0.00	0.00
Total	<b>142.86</b>	<b>165.77</b>	<b>187.77</b>	<b>181.71</b>	<b>175.74</b>

### Filing fee and the publication expenses

62. 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**

63. 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**

64. 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. We consider petitioner's prayer pre-mature and accordingly this prayer is rejected.

### **Sharing of Transmission Charges**

#### **65. (i) Central Portion:**

The tariff for transmission (communication system) of Electricity (Annual Fixed Cost) shall be shared as per Regulation-43 of 2014 Tariff Regulations. These charges shall be recovered on monthly basis and the billing collection and



disbursement of transmission charges shall be governed by provision of Central Electricity Regulatory Commission (sharing of interstate Transmission Charges and Losses) Regulations, 2010 as amended time to time.

**(ii) State Portion:**

The charges for the Unified Scheme under State Sector mentioned shall be shared by the respondents in proportion to the capital cost of the state portion.

66. The transmission tariff for the assets covered under this petition shall be charged from the respondents in accordance with para 65 above.

67. This order disposes of Petition No. 540/TT/2014.

Sd/-

**(Dr. M.K. Iyer)**  
**Member**

Sd/-

**(A.S. Bakshi)**  
**Member**

Sd/-

**(A.K. Singhal)**  
**Member**

Sd/-

**(Gireesh B. Pradhan)**  
**Chairperson**



## Annexure 1

### CALCULATION OF WEIGHTED AVERAGE RATE OF INTEREST ON LOAN FOR ASSET 1

(₹ in lakh)

	Details of Loan	2014-15	2015-16	2016-17	2017-18	2018-19
<b>1</b>	<b>Bond-XL</b>					
	Gross loan opening	8.57	8.57	8.57	8.57	8.57
	Cumulative Repayment upto COD/previous year	0.00	0.00	0.00	0.71	1.43
	Net Loan-Opening	8.57	8.57	8.57	7.86	7.14
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.71	0.71	0.71
	Net Loan-Closing	8.57	8.57	7.86	7.14	6.43
	Average Loan	8.57	8.57	8.21	7.50	6.78
	Rate of Interest	9.30%	9.30%	9.30%	9.30%	9.30%
	Interest	0.80	0.80	0.76	0.70	0.63
	Rep Schedule	12 Annual Installment from 28.06.2016				
<b>2</b>	<b>BOND XLIII</b>					
	Gross loan opening	7.34	7.34	7.34	7.34	7.34
	Cumulative Repayment upto COD/previous year	0.00	0.00	0.00	0.00	0.61
	Net Loan-Opening	7.34	7.34	7.34	7.34	6.73
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00	0.61	0.61
	Net Loan-Closing	7.34	7.34	7.34	6.73	6.12
	Average Loan	7.34	7.34	7.34	7.03	6.42
	Rate of Interest	7.93%	7.93%	7.93%	7.93%	7.93%
	Interest	0.58	0.58	0.58	0.56	0.51
	Rep Schedule	12 Annual Installment from 20.05.2017				
	<b>Total Loan</b>					
	Gross loan opening	15.91	15.91	15.91	15.91	15.91
	Cumulative Repayment upto COD/previous year	0.00	0.00	0.00	0.71	2.04
	Net Loan-Opening	15.91	15.91	15.91	15.20	13.87
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.71	1.33	1.33
	Net Loan-Closing	15.91	15.91	15.20	13.87	12.54
	Average Loan	15.91	15.91	15.55	14.53	13.21
	Rate of Interest	8.6680%	8.6680%	8.6534%	8.6369%	8.6338%
	<b>Interest</b>	1.38	1.38	1.35	1.26	1.14



## Annexure 2

### CALCULATION OF WEIGHTED AVERAGE RATE OF INTEREST ON LOAN FOR ASSET 2

(₹ in lakh)

	Details of Loan	2014-15	2015-16	2016-17	2017-18	2018-19
<b>1</b>	<b>SBI (21.03.2012)</b>					
	Gross loan opening	80.79	80.79	80.79	80.79	80.79
	Cumulative Repayment upto COD/previous year	0.00	0.00	0.00	7.34	14.69
	Net Loan-Opening	80.79	80.79	80.79	73.45	66.10
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	7.34	7.34	7.34
	Net Loan-Closing	80.79	80.79	73.45	66.10	58.76
	Average Loan	80.79	80.79	77.12	69.77	62.43
	Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%
	Interest	8.28	8.28	7.90	7.15	6.40
	Rep Schedule	22 Semi Annual Installment from 31.08.2016				
<b>2</b>	<b>Bond-XL</b>					
	Gross loan opening	70.00	70.00	70.00	70.00	70.00
	Cumulative Repayment upto COD/previous year	0.00	0.00	0.00	5.83	11.67
	Net Loan-Opening	70.00	70.00	70.00	64.17	58.33
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	5.83	5.83	5.83
	Net Loan-Closing	70.00	70.00	64.17	58.33	52.50
	Average Loan	70.00	70.00	67.08	61.25	55.42
	Rate of Interest	9.30%	9.30%	9.30%	9.30%	9.30%
	Interest	6.51	6.51	6.24	5.70	5.15
	Rep Schedule	12 Annual Installment from 28.06.2016				
<b>3</b>	<b>Bond XLII</b>					
	Gross loan opening	120.00	120.00	120.00	120.00	120.00
	Cumulative Repayment upto COD/previous year	0.00	0.00	0.00	0.00	0.00
	Net Loan-Opening	120.00	120.00	120.00	120.00	120.00
	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	120.00	120.00	120.00	120.00	120.00
	Average Loan	120.00	120.00	120.00	120.00	120.00
	Rate of Interest	8.80%	8.80%	8.80%	8.80%	8.80%
	Interest	10.56	10.56	10.56	10.56	10.56
	Rep Schedule	Bullet payment on 13.3.2023				
<b>4</b>	<b>BOND XLIII</b>					
	Gross loan opening	300.00	300.00	300.00	300.00	300.00



Cumulative Repayment upto COD/previous year	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>25.00</b>
Net Loan-Opening	300.00	300.00	300.00	300.00	275.00
Additions during the year	0.00	0.00	0.00	0.00	0.00
Repayment during the year	0.00	0.00	0.00	25.00	25.00
Net Loan-Closing	300.00	300.00	300.00	275.00	250.00
Average Loan	300.00	300.00	300.00	287.50	262.50
Rate of Interest	7.93%	<b>7.93%</b>	<b>7.93%</b>	<b>7.93%</b>	<b>7.93%</b>
Interest	23.79	23.79	23.79	22.80	20.82
Rep Schedule	12 Annual Installment from 20.05.2017				
<b>Total Loan</b>					
Gross loan opening	<b>570.79</b>	<b>570.79</b>	<b>570.79</b>	<b>570.79</b>	<b>570.79</b>
Cumulative Repayment upto COD/previous year	0.00	0.00	0.00	13.18	51.36
Net Loan-Opening	570.79	570.79	570.79	557.61	519.43
Additions during the year	0.00	0.00	0.00	0.00	0.00
Repayment during the year	0.00	0.00	13.18	38.18	38.18
Net Loan-Closing	570.79	570.79	557.61	519.43	481.26
Average Loan	570.79	570.79	564.20	538.52	500.35
Rate of Interest	<b>8.6093%</b>	<b>8.6093%</b>	<b>8.5950%</b>	<b>8.5803%</b>	<b>8.5799%</b>
<b>Interest</b>	49.14	49.14	48.49	46.21	42.93

