

CENTRAL ELECTRICITY REGULATORY COMMISSION

NEW DELHI

Petition No. 48/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 : 5.12.2016

In the matter of:

Determination of tariff for fibre optic communication system in lieu of existing Unified Load Despatch and Communication (ULDC) Microwave links in Eastern Region for tariff block 2014-19 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. NTPC Limited,
NTPC Bhawan, Core-7, Scope Complex,
7, Institutional Area, Lodhi Road,
New Delhi-110 003
2. National Hydro Power Corporation Limited,
NHPC Office Complex, Institutional Area,
Lodhi Road, New Delhi-110 003
3. Orissa hydro Power Corporation Limited,
Burla Power House,
Dist. Sambalpur, Burla-768 017
4. Meija Thermal Power Station
DVC, P.O. MTPS,
District Bankura-722 183



5. West Bengal State Electricity Distribution Co. Limited,
Bidyut Bhawan, 8th Floor (A Block),
Block DJ, Salt Lake City,
Kolkata-700 091
6. Bihar State Electricity Board,
Vidyut Bhawan, Bailey Road,
Patna-800 001
7. Gird Corporation of Orissa Limited,
Vidyut Bhawan, Janpath,
Bhubaneshwar-751 007
8. Power Department,
Government of Sikkim,
Gangtok-727 102
9. Jharkhand State Electricity Board,
Engineering Building, HEC Township,
Dhurwa, Ranchi-834 004
10. Damodar Valley Corporation
DVC Tower, VIP Road,
Calcutta-700 054
11. Powerlinks Transmission Limited,
Vidyut Nagar, P.O. Satellite Township,
Siliguri-734 015

..... Respondents

For petitioner : Shri Rakesh Prasad, PGCIL
Shri S.K. Venkatesan, PGCIL
Shri M.M. Mondal, PGCIL
Shri S.S Raju, PGCIL

For respondents : None

ORDER

The petition is filed by Power Grid Corporation of India Limited (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 for determination of annual transmission charges for fibre optic communication system in lieu of existing Unified Load



Despatch and Communication (ULDC) Microwave links in Eastern Region for the 2014-19 period.

2. The details of the asset covered in the instant petition are as under:-

Particulars	Details of the Asset	COD		Time over-run
		Scheduled	Actual	
Asset-1	1 no. OPGW link 21.003 km under Central sector	1.9.2013	1.10.2014	Thirteen months
Asset-2	1 no. OPGW link 17.03 km under WBSETCL sector		1.10.2014	
Asset-3	7 nos. OPGW link 196.81 km under DVC sector		1.10.2014	
Asset-4	2 nos. OPGW link 278.641 km under Central sector		20.4.2015	Twenty months
Asset-5	2 nos. OPGW link 35.044 km under WBSETCL sector		20.4.2015	
Asset-6	1 no. OPGW link 0.80 km under DVC sector		20.4.2015	

3. This order has been issued after considering petitioner's affidavit dated 24.8.2016.

4. The Investment Approval (IA) for the Fibre Optic Communication System in lieu of existing ULDC Microwave links was accorded by Board of Directors of the petitioner company vide letter Reference No. C/CP/Fibre Optic in ER dated 15.2.2011 at an estimated cost of ₹5743 lakh, including IDC of ₹331 lakh (based on 3rd Quarter, 2010 price level). The scheduled completion time of the project was 30 months from the date of investment approval i.e. 15.2.2011. Therefore, the scheduled COD is 14.8.2013 say 1.9.2013.

5. The broad scope of work covered under the project is as follows:-

“(i) Installation of OPGW fibre optic cable on the existing EHV transmission line of POWERGRID and constituents, the estimated length of such cable is approximately 2325 kms.

(ii) Installation of approximately 34 kms under ground fibre optic to provide last mile connectivity to the control room where transmission



line connectivity is not available. It is also envisaged that portion of the network which involves installation of the underground cable would be provided with radio based communication which operates in free band to back up the underground cable link of the network. Four number of radio links are proposed.

- (iii) The terminal equipment for communication based upon synchronous digital hierarchy (SDH) technology shall be installed in the substations of constituents and POWERGRID. 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.

The constituent wise break-up of the scope of the work is as follows:

Sl. No.	Utility	OPGW Cable (in km)	SDH (Nos.)	Under Ground FO Cable (in km)	Radio links (Nos.)	DCPS (Nos.)
1	Central Sector	537	10	11	1	5
2	BSEB	439	11	0	0	3
3	OPTCL	379	12	8	1	0
4	DVC	459	19	15	2	9
5	WBSETCL	511	15	0	0	10
Total		2325	67	34	4	27

6. The petitioner has submitted that the other assets covered in the scope of the project are covered in Petition No. 57/TT/2014. The tariff for the assets covered in Petition No.57/TT/2014 was approved vide order dated 15.9.2016 based on the Capital Recovery Factor.

7. The details of assets covered in these two petitions are as follows:-

Petition No.	Asset No.	Utility	OPGW in km	No. of Optic Fibre	Actual COD
48/TT/2016 (i.e. instant petition)	Asset-1	Central	21.003	1	1.10.2014
	Asset-2	WBSETCL	17.03	1	1.10.2014
	Asset-3	DVC	196.81	7	1.10.2014
	Asset-4	Central	278.641	2	20.4.2015
	Asset-5	WBSETCL	35.044	2	20.4.2015
	Asset-6	DVC	0.8	1	20.4.2015
57/TT/2014	Asset-1	Not available	759	17	1.10.2012
	Asset-2	Not available	490	9	1.4.2013
	Asset-3	Not available	440	10	1.11.2013
Total			2238.328	50	



8. As per the directions of the Department of Telecommunication, the Digital Microwave System has been replaced by Optic Fibre. According to Investment Approval (IA) the project scope includes OPGW fiber optic cable at estimated length of 2325 km, against which, the total length of OPGW Cable claimed in Petition No. 57/TT/2014 and the instant petition is 2238.328 km, which is almost 96% of the estimated length approved in the IA. The petitioner neither in Auditors' Certificate nor in Form-2 has provided the details of other elements covered in the investment approval like SDH (in Nos.), Under Ground FO Cable (in km), Radio links (Nos.) and DCPS (Nos.). However, the petitioner, vide Form-5B for Asset-4 has apportioned the estimated capital cost of ₹5743 lakh of the project among the assets covered in Petition No. 57/TT/2014 and the instant assets and the balance assets to be commissioned. It is observed that as per Form-5B, out of the total project cost of ₹5743 lakh, the cost allocated to the commissioned assets covered in Petition No. 57/TT/2014 and the instant petition is ₹3401.12 lakh, and the cost allocated to the assets to be commissioned is ₹2341.88 lakh. Therefore, the estimated cost allocated to commissioned assets is ₹3401.12 lakh which is 59% of the total estimated cost. Thus, it appears that 59% of the approved estimated cost has been allocated to the 96% of approved estimated length of OPGW cable and the balance 41% of approved estimated cost has been allocated to only 4% of approved estimated length. Further, as per Form-5B there are assets still to be commissioned, however, the petitioner has not submitted the status of other elements covered in the scope of the project. Therefore, the petitioner is directed to submit the reconciliation of the assets covered in the scope of the project as given in the IA with the assets actually commissioned along with petition details at the time of filing the true-up petition. The reconciliation should cover all elements like



OPGW cable (in km), SDH (in Nos.), Under Ground FO Cable (in km), Radio links (Nos.) and DCPS (Nos.).

Brief Background

9. As per the directives of Government of India vide order dated 4.7.2008, Power System Operation Corporation Ltd. (POSOCO), a wholly owned subsidiary of Power Grid Corporation of India Ltd. was created and POSOCO is responsible for system operation of National Load Despatch Centre (NLDC) and Regional Load Despatch Centres (RLDCs). Pursuant to Satnam Singh Committee's report, the assets pertaining to system operations have been transferred to POSOCO for which separate tariff orders had been issued by the Commission.

10. Government of India had also constituted a Task Force to look into the financial aspects for augmentation and up-gradation of the State Load Despatch Centres and issues related to emoluments for the personnel engaged in the system operation. The Task Force made certain recommendations with regard to the ownership of the assets. The petitioner constituted committees at the regional level, subsequent to the Task Force's report, to identify the assets to be transferred to POSOCO. The recommendations of the committees for asset transfer were as under:-

(A) Assets to be transferred to POSOCO:

- (i) EMS/SCADA system (computer system, hardware and software)
- (ii) Auxiliary power supply system comprising of uninterrupted power supply, diesel generating set etc.
- (iii) Building and civil works.

(B) Assets which will remain with petitioner:

I. Central Portion:

- (i) Fibre Optic Cables (overhead and underground)
- (ii) Fibre Optic Communication Equipment
- (iii) Digital Microwave Communication System (Tower, Antenna, Equipment etc.)



- (iv) PABX
- (v) Power Line Carrier Communication System;
- (vi) Auxiliary power supply system.

II. State Portion: Entire state portion which consists of the following equipment will remain with the petitioner:

- (i) EMS/SCADA system
- (ii) Fibre Optic System
- (iii) Digital Microwave Communication System (Tower, Antenna, Equipment etc.)
- (iv) PABX
- (v) Power Line Carrier Communication System
- (vi) Auxiliary power supply system (part)

11. Thereafter, the petitioner filed a Miscellaneous Petition No. 68/2010 under sub-section (4) of Section 28 of Electricity Act 2003 and Regulations 44 "Power to Relax" of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 for fixation of tariff norms for recovery of cost for the assets ("Communication system" and "Sub-Load Dispatch Centre system") to be retained/to be installed by the petitioner after formation of POSOCO for the period 2009-14 block.

12. The Commission in Petition No. 68/2010 vide order dated 8.12.2011, had observed as under:-

“9.....Since the communication system and SLDC system form part of the assets of the CTU, there is a requirement to specify regulations for determination of tariff of these assets. We direct the staff of the Commission to undertake the exercise separately and include these assets of CTU in the tariff regulations applicable for the next tariff period i.e.2014-19. As regards the tariff of these assets for the period 2009-14, we are not inclined to determine the tariff of these assets by exercising our power to relaxation under Regulation 44 of the 2009 regulations since there is no provision for determination of tariff for the assets covered under the communication system and ULDC system. We are of the view that the tariff of these assets shall be determined under our general power of determination of tariff for inter-State transmission system under section 79(1)(d) of the Act.....”

“.....It clearly emerges from the above judgment that the Central Commission can specify the terms and conditions of tariff even in the absence of the regulations. Since no regulation was specified for determination of tariff of the communication system and the ULDC system, the Commission determined the tariff of these assets during the period 2004-09 on levelised basis by adopting some of the parameters of 2004 tariff regulations. We have decided to continue with the levelised tariff for the existing assets in the absence of any provision in 2009 regulations regarding determination of tariff of



communication system and ULDC system of the petitioner. For the new assets, the tariff will be decided as per the regulations for communication systems to be framed. Accordingly we direct the staff of the Commission to take necessary action to prepare draft regulations for determination of tariff for the communication system and ULDC system of the petitioner.”

“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.”

13. However, the provisions for determining tariff of communication system and ULDC system of the petitioner have now been specified in the 2014 Tariff Regulations as an element of a transmission system. Accordingly, the annual transmission charges of the optic fibre have been determined as per the provisions of the 2014 Tariff Regulations in this order. Since the Microwave Links have been replaced by Optic Fibre, the tariff allowed for Unified Load Despatch and Communication Microwave Links, would be treated as withdrawn from the date of commercial operation of Optic Fibre.

14. The annual transmission charges claimed by the petitioner based on the actual date of commercial operation are as hereunder:-

Particulars	Asset-1 under Central sector				
	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Depreciation	1.08	3.29	3.84	3.84	3.84

(₹ in lakh)



Interest on Loan	0.98	2.82	3.03	2.71	2.39
Return on Equity	1.01	3.06	3.57	3.57	3.57
Interest on Working Capital	0.13	0.32	0.35	0.35	0.35
O & M Expenses	0.97	2.00	2.06	2.13	2.20
Total	4.17	11.49	12.85	12.60	12.35
Particulars	Asset-2 under WBSETCL sector				
	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Depreciation	0.87	2.62	3.03	3.03	3.03
Interest on Loan	0.80	2.27	2.42	2.16	1.91
Return on Equity	0.81	2.43	2.82	2.82	2.82
Interest on Working Capital	0.06	0.17	0.19	0.18	0.18
O & M Expenses	-	-	-	-	-
Total	2.54	7.49	8.46	8.19	7.94
Particulars	Asset-3 under DVC sector				
	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Depreciation	9.60	28.46	33.01	33.01	33.01
Interest on Loan	8.52	23.88	25.47	22.76	20.08
Return on Equity	8.92	26.45	30.68	30.68	30.68
Interest on Working Capital	0.62	1.81	2.05	1.99	1.93
O & M Expenses	-	-	-	-	-
Total	27.66	80.60	91.21	88.44	85.70

(₹ in lakh)

Particulars	Asset-4 under Central sector			
	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Depreciation	29.84	39.21	42.38	42.38
Interest on Loan	29.61	35.97	35.36	31.39
Return on Equity	27.73	36.44	39.38	39.38
Interest on Working Capital	3.68	4.39	4.58	4.55
O & M Expenses	30.25	33.00	34.09	35.23
Total	121.11	149.01	155.79	152.93
Particulars	Asset-5 under WBSETCL sector			
	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Depreciation	5.05	6.50	6.81	6.81
Interest on Loan	4.53	5.38	5.13	4.56
Return on Equity	4.69	6.04	6.33	6.33
Interest on Working Capital	0.33	0.41	0.42	0.41
O & M Expenses	-	-	-	-
Total	14.60	18.33	18.69	18.11
Particulars	Asset-6 under DVC sector			
	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Depreciation	1.01	1.14	1.16	1.16
Interest on Loan	0.89	0.93	0.85	0.75
Return on Equity	0.94	1.06	1.08	1.08
Interest on Working Capital	0.07	0.07	0.07	0.07
O & M Expenses	-	-	-	-
Total	2.91	3.20	3.16	3.06



15. The details submitted by the petitioner in support of its claim for interest on working capital are as below:-

(₹ in lakh)

Particulars	Asset-1 under Central sector				
	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	0.29	0.30	0.31	0.32	0.33
O & M expenses	0.16	0.17	0.17	0.18	0.18
Receivables	1.39	1.92	2.14	2.10	2.06
Total	1.84	2.39	2.62	2.60	2.57
Interest Rate	13.50%	13.50%	13.50%	13.50%	13.50%
Interest	0.12	0.32	0.35	0.35	0.35
Particulars	Asset-2 under WBSETCL sector				
	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	-	-	-	-	-
O & M expenses	-	-	-	-	-
Receivables	0.85	1.25	1.41	1.37	1.32
Total	0.85	1.25	1.41	1.37	1.32
Interest Rate	13.50%	13.50%	13.50%	13.50%	13.50%
Interest	0.06	0.17	0.19	0.18	0.18
Particulars	Asset-3 under DVC sector				
	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	-	-	-	-	-
O & M expenses	-	-	-	-	-
Receivables	9.22	13.43	15.20	14.74	14.28
Total	9.22	13.43	15.20	14.74	14.28
Interest Rate	13.50%	13.50%	13.50%	13.50%	13.50%
Interest	0.62	1.81	2.05	1.99	1.93

(₹ in lakh)

Particulars	Asset-4 under Central sector			
	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Maintenance Spares	4.79	4.95	5.11	5.28
O & M expenses	2.66	2.75	2.84	2.94
Receivables	21.31	24.84	25.97	25.49
Total	28.76	32.54	33.92	33.71
Interest Rate	13.50%	13.50%	13.50%	13.50%
Interest	3.68	4.39	4.58	4.55
Particulars	Asset-5 under WBSETCL sector			
	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Maintenance Spares	-	-	-	-
O & M expenses	-	-	-	-
Receivables	2.57	3.06	3.12	3.02
Total	2.57	3.06	3.12	3.02
Interest Rate	13.50%	13.50%	13.50%	13.50%
Interest	0.33	0.41	0.42	0.41
Particulars	Asset-6 under DVC sector			
	2015-16	2016-17	2017-18	2018-19



	(pro-rata)			
Maintenance Spares	-	-	-	-
O & M expenses	-	-	-	-
Receivables	0.51	0.53	0.53	0.51
Total	0.51	0.53	0.53	0.51
Interest Rate	13.50%	13.50%	13.50%	13.50%
Interest	0.07	0.07	0.07	0.07

16. 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. None of the respondents have filed a reply.

17. Having heard the representatives of the petitioner and perused the material on record, we proceed to dispose of the petition.

Capital cost

18. 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.”

19. The petitioner has submitted as per Auditors' Certificate dated 28.9.2015, the details of actual expenditure incurred as on the date of commercial operation (COD) and additional capital expenditure incurred/projected to be incurred corresponding to the instant assets. Accordingly, the gross value of assets as on COD, submitted by the petitioner have been considered for the purpose of Annual Transmission Charges for 2014-19 period as follows:-

(₹ in lakh)

Particulars*	AppORTIONED approved cost	Cost as on COD	Estimated additional capital expenditure-			Estimated completion cost
			2014-15	2015-16	2016-17	
Asset-1	57.34	25.79	17.81	17.00	-	60.60
Asset-2	45.37	20.87	14.03	13.00	-	47.90
Asset-3	451.39	233.85	147.57	140.00	-	521.42
Asset-4	745.01	433.48	-	135.96	100.00	669.44
Asset-5	93.37	73.85	-	23.80	10.00	107.65
Asset-6	17.51	17.22	-	0.61	0.50	18.33
Total	1409.99	805.06	179.41	330.37	110.50	1425.34

*As per Auditors' Certificate, the claimed capital costs have been verified from the audited book of accounts of the petitioner upto COD and 31.3.2015 in case of asset-1 to asset-3 and Asset-4 to asset-6 respectively.

Cost over-run

20. The total completion cost is ₹1425.34 lakh against the total approved appORTIONED cost of ₹1409.99 lakh, which is 1.08% more than the approved appORTIONED cost. Hence, there is cost over-run in commissioning of the instant assets.

21. The petitioner has submitted that the cost variation is mainly due to variation in cost received in competitive bidding compared to initial estimates at the time of award of contracts. As, for procurement, open competitive bidding route is followed



and by providing equal opportunity to all eligible firms, lowest possible market prices for required product/services is obtained and contracts are awarded on the basis of lowest evaluated eligible bidder. The best competitive bid prices against tenders may happen to be lower or higher than the cost estimate depending upon prevailing market conditions. The reasons for item wise cost variation between approved cost (FR) and anticipated cost as on COD are explained in detail in Form-5. There is also small variation in quantity.

22. We have considered the submissions made by the petitioner. The total estimated completion cost of the assets exceeds the approved apportioned cost in case of all the assets except Asset-4. As such, the capital cost of Assets-1, 2, 3, 5 and 6 is restricted to the approved apportioned cost. Accordingly, the apportioned approved cost of the individual asset is considered for the purpose of tariff calculations. This approach of restricting the capital cost to the apportioned cost of individual assets has been upheld by the Appellate Tribunal for Electricity in its order dated 28.11.2013 in Appeal No. 165 of 2012, and subsequently the Commission, vide its order dated 18.2.2014 in Petition No. 216/TT/2012, has considered the apportioned approved cost of individual asset for restricting the capital expenditure due to cost over-run for the purpose of tariff determination.

Time over-run

23. As per the IA dated 15.2.2011, the instant assets were to be commissioned within 30 months from the date of IA by 14.8.2013, say 1.9.2013. Assets-1 to 3 and Assets-4 to 6 were commissioned on 1.10.2014 and 20.4.2015 respectively. Thus, there is time over-run of 13 months and approximately 20 months in the case of Assets-1 to 3 and Assets-4 to 6 respectively.



22. The petitioner has submitted that there is time over-run in case of instant assets was due to delay on the part of WBSETCL and delay in getting shutdown from grid operators. The petitioner has submitted that WBSETCL completed the survey work in November, 2013, though the IA was accorded in February, 2011 and thus there is delay about 14 months in initiation of the work. Further, WBSETCL delayed the approval for carrying out OPGW replacement works in their line. The petitioner has submitted that after initiation of OPGW replacement works there was delay due to non-availability of PTW/shutdown from grid operators. The request for shutdown was made on 2.6.2014 and same was accorded in February, 2015. The petitioner has further submitted that there were severe ROW problems at several locations during installation of OPGW cable.

23. The petitioner was directed to submit detailed justification of delay vide RoP dated 5.7.2016. In response, the petitioner has submitted that the reasons for delay have already been submitted in the petition.

24. We have considered the submissions of the petitioner. The petitioner has submitted that the delay was mainly due to obtaining approval from WBSETCL for carrying out OPGW replacement works, non-availability of PTW/Shut down from Grid operators and severe RoW problems at several locations during installation of OPGW cable. However, the petitioner has not submitted detailed justification of delay, time over-run and chronology of activities and documentary evidence to substantiate the time over-run. Further, in order dated 8.12.2011 in Petition No. 68/2010 it was made clear that the timeline for replacement of the digital microwave by optical fibre should be strictly complied with. The relevant extract of the said order is as overleaf:-



"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."

Therefore, we are not inclined to condone the delay of 13 months and 20 months in commissioning of Asset-1 to Asset-3 and Asset-4 to Asset-6 respectively.

Treatment of IDC and IEDC

25. The petitioner, vide Auditors' Certificate dated 28.9.2015 has submitted the claim for IDC as under:-

(₹ in lakh)

Particulars	IDC claimed
Asset-1	2.18
Asset-2	1.77
Asset-3	19.80
Asset-4	31.91
Asset-5	5.43
Asset-6	2.01

26. The petitioner has further submitted the statement showing IDC discharged up to COD for all the assets, in which, the loan wise drawl date has also been indicated. However, it is observed that loan amount indicated in IDC statement and Form-9C and Form-12B are not same. The petitioner, vide affidavit dated 24.8.2016 has submitted that the loan considered in Form-9C w.r.t COD cost including



additional capital expenditure for accrued IDC shall match with the total loans shown in the statement showing IDC discharged upto COD. Therefore, it is understood that the loan amount shown for additional capital expenditure has been included for IDC computation. However, the loan drawn up to actual COD as per Form-9C and Form-12B only have been considered for IDC computation for the purpose of tariff in this order. Further, in view of non-condonation of delay of 13 months and 20 months in the commissioning of Asset-1 to Asset-3 and Asset-4 to Asset-6, IDC has been allowed upto scheduled COD i.e. 1.9.2013. Thus, IDC upto COD has been considered as under:-

(₹ in lakh)

Particulars	IDC claimed	IDC disallowed due to time over-run	Un-discharged IDC as on COD	IDC allowed on cash basis
Asset-1	2.18	1.61	-	0.57
Asset-2	1.77	1.28	-	0.49
Asset-3	19.80	14.35	-	5.45
Asset-4	31.91	30.78	-	1.13
Asset-5	5.43	4.75	-	0.68
Asset-6	2.01	1.84	-	0.17

27. Similarly, the petitioner, vide Auditors' Certificate dated 28.9.2015 has submitted the claim for IEDC as under:-

(₹ in lakh)

Particulars	IEDC claimed
Asset-1	0.29
Asset-2	0.24
Asset-3	2.67
Asset-4	0.20
Asset-5	0.03
Asset-6	0.01

28. The amount of IEDC claimed being of minor amounts, is allowed for working out the tariff in this order without making any deduction on account of delay in the commissioning of instant assets. However, it shall be subject to review at the time of



truing-up.

Initial Spares

29. The petitioner, vide Management Certificate dated 28.9.2015 in the instant petition has claimed initial spares for all six assets. The petitioner has submitted that the actual cost claimed on COD is inclusive of the cost of initial spares. The initial spares claimed by the petitioner are within the ceiling limits specified as per the 2014 Tariff Regulations and are allowed as claimed. The details of cost of initial spares included in the capital cost and allowed are as under:-

Particulars	(₹ in lakh)		
	Total completion cost as on 31.3.2019	Initial spares claimed (amount)	Initial spares %age
Asset-1	60.60	0.87	1.43%
Asset-2	47.90	0.65	1.36%
Asset-3	521.42	7.61	1.46%
Asset-4	669.44	10.25	1.53%
Asset-5	107.65	1.67	1.55%
Asset-6	18.33	0.31	1.69%

Capital Cost as on COD

30. The capital cost considered for the purpose of annual transmission charges, after adjusting the disallowed amount of IDC is as follows:-

Particulars	(₹ in lakh)			
	Total Capital Cost as on COD claimed	Less: IDC disallowed as on COD	Less: IEDC disallowed on COD	Capital cost considered for tariff calculation as on COD
Asset-1	25.79	1.61	-	24.18
Asset-2	20.87	1.28	-	19.59
Asset-3	233.85	14.35	-	219.50
Asset-4	433.48	30.78	-	402.70
Asset-5	73.85	4.75	-	69.10
Asset-6	17.22	1.84	-	15.38



Projected additional capital expenditure

31. 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.

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

“cut-off date” means 31st March of the year closing after two years of the year of commercial operation of whole or part of the project, and in case the whole or part of the project is declared under commercial operation in the last quarter of the year, the cut-off date shall be 31st March of the year closing after three years of the year of commercial operation”.

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

33. The cut-off date is 31.3.2017 and 31.3.2018 in the case of Asset-1 to Asset-3 and Asset-4 to Asset-6 respectively.

34. The petitioner has claimed additional capital expenditure for all assets. The additional capital expenditure claimed is for balance and retention payment. Therefore, we allow the additional capital expenditure claimed by the petitioner. However, as discussed at para-18, the projected additional capital expenditure as



claimed by the petitioner has been restricted to approved apportioned cost for working out tariff for all assets, except Asset-4. Therefore, the actual completed cost shall be reviewed at the time of truing up. Thus, the details of capital cost considered as on COD and 31.3.2019 after consideration of additional capital expenditure in the instant petition are as under:-

(₹ in lakh)

Particulars	Capital cost allowed as on COD	Estimated additional expenditure			Total completion cost as on 31.3.2019
		2014-15	2015-16	2016-17	
Asset-1	24.18	17.81	15.35	-	57.34
Asset-2	19.59	14.03	11.75	-	45.37
Asset-3	219.50	147.57	84.32	-	451.39
Asset-4	402.70	-	135.96	100.00	638.66
Asset-5	69.10	-	23.80	0.47	93.37
Asset-6	15.38	-	0.61	0.50	16.49

Debt-equity ratio

35. 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.”

36. The capital cost on the date of commercial operation and additional capital expenditure allowed, have been considered in the normative debt-equity ratio of 70:30 for working out tariff in this order. The details of debt-equity as on date of commercial operation and 31.3.2019 considered on normative basis are as under:-

(₹ in lakh)

Particulars	Asset-1			
	As on COD		As on 31.3.2019	
	Amount	%	Amount	%
Loan/Debt	16.92	70.00	40.14	70.00
Equity	7.25	30.00	17.20	30.00
Total	24.18	100.00	57.34	100.00
Particulars	Asset-2			
	As on COD		As on 31.3.2019	
	Amount	%	Amount	%
Loan/Debt	13.72	70.00	31.76	70.00
Equity	5.88	30.00	13.61	30.00
Total	19.59	100.00	45.37	100.00
Particulars	Asset-3			
	As on COD		As on 31.3.2019	
	Amount	%	Amount	%
Loan/Debt	153.65	70.00	315.98	70.00
Equity	65.85	30.00	135.42	30.00
Total	219.50	100.00	451.39	100.00
Particulars	Asset-4			
	As on COD		As on 31.3.2019	
	Amount	%	Amount	%
Loan/Debt	281.89	70.00	447.07	70.00
Equity	120.81	30.00	191.59	30.00
Total	402.70	100.00	638.66	100.00
Particulars	Asset-5			
	As on COD		As on 31.3.2019	
	Amount	%	Amount	%
Loan/Debt	48.37	70.00	65.36	70.00
Equity	20.73	30.00	28.01	30.00
Total	69.10	100.00	93.37	100.00
Particulars	Asset-6			
	As on COD		As on 31.3.2019	
	Amount	%	Amount	%
Loan/Debt	10.77	70.00	11.54	70.00
Equity	4.61	30.00	4.95	30.00
Total	15.38	100.00	16.49	100.00



Return on equity

37. Clause (1) and (2) of Regulation 24 and Clause (1) and (2) of Regulation 25 of the 2014 Tariff Regulations specify as under:-

“ 24. Return on Equity: (1) Return on equity shall be computed in rupee terms, on the equity base determined in accordance with regulation 19.

(2) Return on equity shall be computed at the base rate of 15.50% for thermal generating stations, transmission system including communication system and run of the river hydro generating station, and at the base rate of 16.50% for the storage type hydro generating stations including pumped storage hydro generating stations and run of river generating station with pondage:

Provided that:

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

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

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

(iv) the rate of return of a new project shall be reduced by 1% for such period as may be decided by the Commission, if the generating station or transmission system is found to be declared under commercial operation without commissioning of any of the Restricted Governor Mode Operation (RGMO)/ Free Governor Mode Operation (FGMO), data telemetry, communication system up to load dispatch centre or protection system:

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

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

“25. Tax on Return on Equity:

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

“(2) Rate of return on equity shall be rounded off to three decimal places and shall be computed as per the formula given below:

Rate of pre-tax return on equity = Base rate / (1-t)



Where “t” is the effective tax rate in accordance with Clause (1) of this regulation and shall be calculated at the beginning of every financial year based on the estimated profit and tax to be paid estimated in line with the provisions of the relevant Finance Act applicable for that financial year to the company on pro-rata basis by excluding the income of non-generation or non-transmission business, as the case may be, and the corresponding tax thereon. In case of generating company or transmission licensee paying Minimum Alternate Tax (MAT), “t” shall be considered as MAT rate including surcharge and cess.”

38. The petitioner has submitted that RoE has been calculated at the rate of 19.610% after grossing up the RoE with MAT rate of 20.961% based on the rate prescribed as per illustration under Regulation 25 (2) (i) of the 2014 Tariff Regulations. The petitioner has further submitted that the grossed up RoE is subject to truing up based on the actual tax paid along with any additional tax or interest, duly adjusted for any refund of tax including the interest received from IT authorities, pertaining to the tariff period 2014-19 on actual gross income of any financial year. Any under-recovery or over-recovery of grossed up ROE after truing up shall be recovered or refunded to the beneficiaries on year to year basis.

39. The petitioner has further submitted that adjustment due to any additional tax demand including interest duly adjusted for any refund of the tax including interest received from IT authorities shall be recoverable/ adjustable after completion of income tax assessment of the financial year.

40. We have considered the submissions made by the petitioner. Regulation 24 read with Regulation 25 of the 2014 Tariff Regulations provides for grossing up of return on equity with the effective tax rate for the purpose of return on equity. It further provides that in case the generating company or transmission licensee is paying Minimum Alternative Tax (MAT), the MAT rate including surcharge and cess will be considered for the grossing up of return on equity. The petitioner has



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

(₹ in lakh)					
Particulars	Asset-1				
	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Opening Equity	7.25	12.60	17.20	17.20	17.20
Addition due to Additional Capitalization	5.34	4.61	-	-	-
Closing Equity	12.60	17.20	17.20	17.20	17.20
Average Equity	9.92	14.90	17.20	17.20	17.20
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)	0.97	2.92	3.37	3.37	3.37
Particulars	Asset-2				
	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Opening Equity	5.88	10.08	13.61	13.61	13.61
Addition due to Additional Capitalization	4.21	3.53	-	-	-
Closing Equity	10.08	13.61	13.61	13.61	13.61
Average Equity	7.98	11.85	13.61	13.61	13.61
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)	0.78	2.32	2.67	2.67	2.67
Particulars	Asset-3				
	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Opening Equity	65.85	110.12	135.42	135.42	135.42
Addition due to Additional Capitalization	44.27	25.30	-	-	-
Closing Equity	110.12	135.42	135.42	135.42	135.42
Average Equity	87.98	122.77	135.42	135.42	135.42
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)	8.63	24.07	26.56	26.56	26.56



(₹ in lakh)

Particulars	Asset-4			
	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Opening Equity	120.81	161.59	191.59	191.59
Addition due to Additional Capitalization	40.79	30.00	-	-
Closing Equity	161.59	191.59	191.59	191.59
Average Equity	141.20	176.59	191.59	191.59
Return on Equity (Base Rate)	15.50%	15.50%	15.50%	15.50%
Tax rate for the year 2013-14 (MAT)	20.961%	20.961%	20.961%	20.961%
Rate of Return on Equity (Pre Tax)	19.610%	19.610%	19.610%	19.610%
Return on Equity (Pre Tax)	26.25	34.63	37.57	37.57
Particulars	Asset-5			
	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Opening Equity	20.73	27.87	28.01	28.01
Addition due to Additional Capitalization	7.14	0.14	-	-
Closing Equity	27.87	28.01	28.01	28.01
Average Equity	24.30	27.94	28.01	28.01
Return on Equity (Base Rate)	15.50%	15.50%	15.50%	15.50%
Tax rate for the year 2013-14 (MAT)	20.961%	20.961%	20.961%	20.961%
Rate of Return on Equity (Pre Tax)	19.610%	19.610%	19.610%	19.610%
Return on Equity (Pre Tax)	4.52	5.48	5.49	5.49
Particulars	Asset-6			
	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Opening Equity	4.61	4.80	4.95	4.95
Addition due to Additional Capitalization	0.18	0.15	-	-
Closing Equity	4.80	4.95	4.95	4.95
Average Equity	4.71	4.87	4.95	4.95
Return on Equity (Base Rate)	15.50%	15.50%	15.50%	15.50%
Tax rate for the year 2013-14 (MAT)	20.961%	20.961%	20.961%	20.961%
Rate of Return on Equity (Pre Tax)	19.610%	19.610%	19.610%	19.610%
Return on Equity (Pre Tax)	0.87	0.96	0.97	0.97

Interest on loan

41. Regulation 26 of the 2014 Tariff Regulations with regard to Interest on Loan specifies 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.”

42. 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:-

(a) Gross amount of loan, repayment of instalments and rate of interest have been considered as per Form-9C submitted with the petition;

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



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

43. The petitioner has submitted that the interest on loan has been considered on the basis of rate prevailing as on COD/1.4.2014 and the change in interest due to floating rate of interest applicable, if any, for the project needs to be claimed/adjusted over the tariff block 2014-19 directly from the beneficiaries. We would like to clarify that the interest on loan has been calculated on the basis of rate prevailing as on the date of commercial operation. Any change in rate of interest subsequent to the date of commercial operation will be considered at the time of truing-up.

44. Detailed calculations in support of weighted average rate of interest on actual average loan have been given at Annexure-1 to Annexure-6 of this order.

45. The details of Interest on Loan calculated are as under:-

Particulars	(₹ in lakh)				
	Asset-1				
	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Gross Normative Loan	16.92	29.39	40.14	40.14	40.14
Cumulative Repayment upto Previous Year	-	1.05	4.19	7.82	11.45
Net Loan-Opening	16.92	28.34	35.95	32.32	28.69
Addition due to Additional Capitalisation	12.47	10.75	-	-	-
Repayment during the year	1.05	3.14	3.63	3.63	3.63
Net Loan-Closing	28.34	35.95	32.32	28.69	25.06
Average Loan	22.63	32.14	34.13	30.50	26.87
Weighted Average Rate of Interest on Loan	8.3754%	8.3754%	8.3754%	8.3846%	8.4043%
Interest on Loan	0.95	2.69	2.86	2.56	2.26
Particulars	Asset-2				
	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Gross Normative Loan	13.72	23.54	31.76	31.76	31.76
Cumulative Repayment	-	0.84	3.34	6.21	9.09



upto Previous Year					
Net Loan-Opening	13.72	22.69	28.42	25.55	22.68
Addition due to Additional Capitalisation	9.82	8.23	-	-	-
Repayment during the year	0.84	2.50	2.87	2.87	2.87
Net Loan-Closing	22.69	28.42	25.55	22.68	19.80
Average Loan	18.21	25.56	26.98	24.11	21.24
Weighted Average Rate of Interest on Loan	8.4799%	8.4799%	8.4799%	8.4884%	8.5064%
Interest on Loan	0.77	2.17	2.29	2.05	1.81
Particulars	Asset-3				
	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Gross Normative Loan	153.65	256.95	315.97	315.97	315.97
Cumulative Repayment upto Previous Year	-	9.28	35.19	63.76	92.33
Net Loan-Opening	153.65	247.67	280.79	252.21	223.64
Addition due to Additional Capitalisation	103.30	59.02	-	-	-
Repayment during the year	9.28	25.90	28.57	28.57	28.57
Net Loan-Closing	247.67	280.79	252.21	223.64	195.07
Average Loan	200.66	264.23	266.50	237.93	209.35
Weighted Average Rate of Interest on Loan	8.2091%	8.2091%	8.2048%	8.2046%	8.2139%
Interest on Loan	8.24	21.69	21.87	19.52	17.20

(₹ in lakh)

Particulars	Asset-4			
	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Gross Normative Loan	281.89	377.07	447.07	447.07
Cumulative Repayment upto Previous Year	-	28.25	65.51	105.94
Net Loan-Opening	281.89	348.82	381.56	341.13
Addition due to Additional Capitalisation	95.17	70.00	-	-
Repayment during the year	28.25	37.26	40.43	40.43
Net Loan-Closing	348.82	381.56	341.13	300.70
Average Loan	315.36	365.19	361.34	320.92
Weighted Average Rate of Interest on Loan	9.4018%	9.3634%	9.3463%	9.3386%
Interest on Loan	28.11	34.19	33.77	29.97
Particulars	Asset-5			
	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Gross Normative Loan	48.37	65.03	65.36	65.36
Cumulative Repayment upto Previous Year	-	4.86	10.76	16.67
Net Loan-Opening	48.37	60.17	54.60	48.69
Addition due to Additional Capitalisation	16.66	0.33	-	-
Repayment during the year	4.86	5.90	5.91	5.91
Net Loan-Closing	60.17	54.60	48.69	42.78
Average Loan	54.27	57.38	51.65	45.74



Weighted Average Rate of Interest on Loan	8.4707%	8.4707%	8.4847%	8.5150%
Interest on Loan	4.36	4.86	4.38	3.89
Particulars	Asset-6			
	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Gross Normative Loan	10.77	11.19	11.54	11.54
Cumulative Repayment upto Previous Year	-	0.94	1.97	3.01
Net Loan-Opening	10.77	10.25	9.57	8.53
Addition due to Additional Capitalisation	0.43	0.35	-	-
Repayment during the year	0.94	1.03	1.04	1.04
Net Loan-Closing	10.25	9.57	8.53	7.49
Average Loan	10.51	9.91	9.05	8.01
Weighted Average Rate of Interest on Loan	7.9365%	7.9365%	7.9368%	7.9374%
Interest on Loan	0.79	0.79	0.72	0.64

Depreciation

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

"27. Depreciation:

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

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

(2) The value base for the purpose of depreciation shall be the capital cost of the asset admitted by the Commission. In case of multiple units of a generating station or multiple elements of transmission system, weighted average life for the generating station of the transmission system shall be applied. Depreciation shall be chargeable from the first year of commercial operation. In case of commercial operation of the asset for part of the year, depreciation shall be charged on pro rata basis

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



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

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

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

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

(5) Depreciation shall be calculated annually based on Straight Line Method and at rates specified in **Appendix-II** to these regulations for the assets of the generating station and transmission system:

Provided that the remaining depreciable value as on 31st March of the year closing after a period of 12 years from the effective date of commercial operation of the station shall be spread over the balance useful life of the assets.

(6) In case of the existing projects, the balance depreciable value as on 1.4.2014 shall be worked out by deducting the cumulative depreciation as admitted by the Commission upto 31.3.2014 from the gross depreciable value of the assets.”

47. The petitioner has claimed actual depreciation. In our calculations, depreciation has been calculated in accordance with Regulation 27 extracted above.

48. The instant assets were put under commercial operation during 2014-15 and 2015-16. Accordingly, these will complete 12 years after 2018-19. As such, depreciation has been calculated annually based on Straight Line Method at the rates specified in Appendix-II to the 2014 Tariff Regulations.

49. The details of the depreciation worked out are as follows:-



(₹ in lakh)

Particulars	Asset-1				
	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Gross Block as on COD	24.18	41.99	57.34	57.34	57.34
Addition during 2014-19 due to Projected Additional Capitalisation	17.81	15.35	-	-	-
Gross Block as on 31 st March	41.99	57.34	57.34	57.34	57.34
Average Gross Block	33.08	49.66	57.34	57.34	57.34
Rate of Depreciation	6.3300%	6.3300%	6.3300%	6.3300%	6.3300%
Depreciable Value	29.77	44.70	51.60	51.60	51.60
Remaining Depreciable Value	29.77	28.73	25.58	21.95	18.32
Depreciation	1.05	3.14	3.63	3.63	3.63
Particulars	Asset-2				
	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Gross Block as on COD	19.59	33.62	45.37	45.37	45.37
Addition during 2014-19 due to Projected Additional Capitalisation	14.03	11.75	-	-	-
Gross Block as on 31 st March	33.62	45.37	45.37	45.37	45.37
Average Gross Block	26.61	39.50	45.37	45.37	45.37
Rate of Depreciation	6.3300%	6.3300%	6.3300%	6.3300%	6.3300%
Depreciable Value	23.95	35.55	40.83	40.83	40.83
Remaining Depreciable Value	23.95	23.10	20.60	17.73	14.86
Depreciation	0.84	2.50	2.87	2.87	2.87
Particulars	Asset-3				
	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Gross Block as on COD	219.50	367.07	451.39	451.39	451.39
Addition during 2014-19 due to Projected Additional Capitalisation	147.57	84.32	-	-	-
Gross Block as on 31 st March	367.07	451.39	451.39	451.39	451.39
Average Gross Block	293.28	409.23	451.39	451.39	451.39
Rate of Depreciation	6.3300%	6.3300%	6.3300%	6.3300%	6.3300%
Depreciable Value	263.96	368.31	406.25	406.25	406.25
Remaining Depreciable Value	263.96	254.67	228.77	200.20	171.62
Depreciation	9.28	25.90	28.57	28.57	28.57

(₹ in lakh)

Particulars	Asset-4			
	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Gross Block as on COD	402.70	538.66	638.66	638.66
Addition during 2014-19 due to Projected Additional Capitalisation	135.96	100.00	-	-



Gross Block as on 31 st March	538.66	638.66	638.66	638.66
Average Gross Block	470.68	588.66	638.66	638.66
Rate of Depreciation	6.3300%	6.3300%	6.3300%	6.3300%
Depreciable Value	423.61	529.79	574.79	574.79
Remaining Depreciable Value	423.61	395.36	358.10	317.68
Depreciation	28.25	37.26	40.43	40.43
Particulars	Asset-5			
	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Gross Block as on COD	69.10	92.90	93.37	93.37
Addition during 2014-19 due to Projected Additional Capitalisation	23.80	0.47	-	-
Gross Block as on 31 st March	92.90	93.37	93.37	93.37
Average Gross Block	81.00	93.13	93.37	93.37
Rate of Depreciation	6.3300%	6.3300%	6.3300%	6.3300%
Depreciable Value	72.90	83.82	84.03	84.03
Remaining Depreciable Value	72.90	68.04	62.14	56.23
Depreciation	4.86	5.90	5.91	5.91
Particulars	Asset-6			
	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Gross Block as on COD	15.38	15.99	16.49	16.49
Addition during 2014-19 due to Projected Additional Capitalisation	0.61	0.50	-	-
Gross Block as on 31 st March	15.99	16.49	16.49	16.49
Average Gross Block	15.68	16.24	16.49	16.49
Rate of Depreciation	6.3300%	6.3300%	6.3300%	6.3300%
Depreciable Value	14.12	14.62	14.84	14.84
Remaining Depreciable Value	14.12	13.17	12.15	11.10
Depreciation	0.94	1.03	1.04	1.04

Operation & Maintenance Expenses (O&M Expenses)

50. Clause (4) (c) of Regulation 29 of the 2014 Tariff Regulations provides as follows:-

“The operation and maintenance expenses of communication system forming part of inter-state transmission system shall be derived on the basis of the actual O&M expenses for the period of 2008-09 to 2012-13 based on audited accounts excluding abnormal variations if any after prudence check by the Commission. The normalized O&M expenses after prudence check, for the years 2008-09 to 2012-13 shall be escalated at the rate of 3.02% for computing base year expenses for FY 2012-13 and 2013-14 and at the rate of 3.32% for escalation from 2014-15 onwards.”

51. The petitioner in the original petition has submitted the claim of the O&M Expenses only for Central portion i.e. Asset-1 and Asset-4, @ 7.5% of the capital cost subject to actual expenditure at the time of truing-up. The petitioner was



directed vide RoP dated 5.7.2016 to submit actual O&M expenditure details. The petitioner, in response, vide affidavit dated 24.8.2016 has submitted the details of actual O&M expenses for all six assets for 2014-15 and 2015-16, but has not submitted any break-up of O&M expenditure. As such, the O&M Expenses are allowed only for the Central portion i.e. Asset-1 and Asset-4, as per the claims of the petitioner. However, petitioner is directed to submit the actual expenditure to arrive at the correct base after carrying out due diligence by the Commission for adjusting the O&M Expenses along with break-up at the time of truing-up. The details of O&M expenditure allowed in this order are as under:-

(₹ in lakh)					
Particulars	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Asset-1	1.06	2.12	2.06	2.13	2.20
Particulars	2014-15	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Asset-4	-	21.99	22.72	23.47	24.24

52. 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.

53. The petitioner has also submitted that the claim for transmission tariff is inclusive of income tax but exclusive of any late payment surcharge, foreign exchange variations, any statutory taxes, levies, duties, cess, filing fees, license fee or any other kind of impositions levied by any government, local bodies/authorities and/or regulatory authorities etc. Such kinds of payments are generally included in



the O & M Expenses. While specifying the norms for the O & M Expenses, the Commission has in the 2014 Tariff Regulations, given effect to the impact of such charges/levies after extensive consultations with the stakeholders as one time compensation for O&M cost. We do not see any reason why the admissible amount is inadequate to meet the requirement of the O&M cost. In this order, we have allowed O&M Expenses as per the existing norms and the O&M Expenses shall be trued-up in line with Regulation 29(4)(c) of the 2014 Tariff Regulations. As regards impact of wage revision, we would like to clarify that 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

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

“28. Interest on Working Capital: (1) The working capital shall cover:

(a)-----

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

(i) Receivables equivalent to two months of fixed cost;

(ii) Maintenance spares @ 15% of operation and maintenance expenses specified in regulation 29; and

(iii) Operation and maintenance expenses for one month”

(3) Rate of interest on working capital shall be on normative basis and shall be considered as the bank rate as on 1.4.2014 or as on 1st April of the year during the tariff period 2014-15 to 2018-19 in which the generating station or a unit thereof or the transmission system including communication system or element thereof, as the case may be, is declared under commercial operation, whichever is later”

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



55. The interest on working capital is worked out in accordance with Regulation 28 of the 2014 Tariff Regulations. The rate of interest on working capital considered is 13.50% (SBI Base Rate as on 1.4.2014 and 1.4.2015 i.e. 10% plus 350 basis points). The interest on working capital for the instant assets covered in the petition has been worked out accordingly.

56. Necessary computations in support of interest on working capital are as given under:-

(₹ in lakh)

Particulars	Asset-1				
	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	0.32	0.32	0.31	0.32	0.33
O & M expenses	0.18	0.18	0.17	0.18	0.18
Receivables	1.38	1.87	2.04	2.00	1.97
Total	1.88	2.36	2.52	2.50	2.48
Interest Rate	13.50%	13.50%	13.50%	13.50%	13.50%
Interest	0.13	0.32	0.34	0.34	0.33
Particulars	Asset-2				
	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	-	-	-	-	-
O & M expenses	-	-	-	-	-
Receivables	0.82	1.19	1.33	1.29	1.25
Total	0.82	1.19	1.33	1.29	1.25
Interest Rate	13.50%	13.50%	13.50%	13.50%	13.50%
Interest	0.06	0.16	0.18	0.17	0.17
Particulars	Asset-3				
	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	-	-	-	-	-
O & M expenses	-	-	-	-	-
Receivables	8.92	12.22	13.13	12.73	12.33
Total	8.92	12.22	13.13	12.73	12.33
Interest Rate	13.50%	13.50%	13.50%	13.50%	13.50%
Interest	0.60	1.65	1.77	1.72	1.66

(₹ in lakh)

Particulars	Asset-4			
	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Maintenance Spares	3.48	3.41	3.52	3.64
O & M expenses	1.93	1.89	1.96	2.02
Receivables	18.94	22.08	23.19	22.67
Total	24.35	27.39	28.66	28.33



Interest Rate	13.50%	13.50%	13.50%	13.50%
Interest	3.12	3.70	3.87	3.82
Particulars	Asset-5			
	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Maintenance Spares	-	-	-	-
O & M expenses	-	-	-	-
Receivables	2.47	2.77	2.69	2.61
Total	2.47	2.77	2.69	2.61
Interest Rate	13.50%	13.50%	13.50%	13.50%
Interest	0.32	0.37	0.36	0.35
Particulars	Asset-6			
	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Maintenance Spares	-	-	-	-
O & M expenses	-	-	-	-
Receivables	0.47	0.47	0.47	0.45
Total	0.47	0.47	0.47	0.45
Interest Rate	13.50%	13.50%	13.50%	13.50%
Interest	0.06	0.06	0.06	0.06

Annual Transmission charges

57. The transmission charges allowed for the instant transmission assets are summarized as follows:-

(₹ in lakh)

Particulars	Asset-1				
	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Depreciation	1.05	3.14	3.63	3.63	3.63
Interest on loan	0.95	2.69	2.86	2.56	2.26
Return on Equity	0.97	2.92	3.37	3.37	3.37
Interest on Working Capital	0.13	0.32	0.34	0.34	0.33
O&M Expenses	1.06	2.12	2.06	2.13	2.20
Total	4.15	11.20	12.26	12.03	11.80

Particulars	Asset-2				
	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Depreciation	0.84	2.50	2.87	2.87	2.87
Interest on loan	0.77	2.17	2.29	2.05	1.81
Return on Equity	0.78	2.32	2.67	2.67	2.67
Interest on Working Capital	0.06	0.16	0.18	0.17	0.17
O&M Expenses	-	-	-	-	-
Total	2.45	7.15	8.01	7.76	7.52



Particulars	Asset-3				
	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Depreciation	9.28	25.90	28.57	28.57	28.57
Interest on loan	8.24	21.69	21.87	19.52	17.20
Return on Equity	8.63	24.07	26.56	26.56	26.56
Interest on Working Capital	0.60	1.65	1.77	1.72	1.66
O&M Expenses	-	-	-	-	-
Total	26.75	73.32	78.77	76.37	73.99

(₹ in lakh)

Particulars	Asset-4			
	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Depreciation	28.25	37.26	40.43	40.43
Interest on loan	28.11	34.19	33.77	29.97
Return on Equity	26.25	34.63	37.57	37.57
Interest on Working Capital	3.12	3.70	3.87	3.82
O&M Expenses	21.99	22.72	23.47	24.24
Total	107.72	132.50	139.11	136.03

Particulars	Asset-5			
	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Depreciation	4.86	5.90	5.91	5.91
Interest on loan	4.36	4.86	4.38	3.89
Return on Equity	4.52	5.48	5.49	5.49
Interest on Working Capital	0.32	0.37	0.36	0.35
O&M Expenses	-	-	-	-
Total	14.05	16.61	16.15	15.65

Particulars	Asset-6			
	2015-16 (pro-rata)	2016-17	2017-18	2018-19
Depreciation	0.94	1.03	1.04	1.04
Interest on loan	0.79	0.79	0.72	0.64
Return on Equity	0.87	0.96	0.97	0.97
Interest on Working Capital	0.06	0.06	0.06	0.06
O&M Expenses	-	-	-	-
Total	2.67	2.83	2.80	2.71

Filing Fee and the Publication Expenses

58. 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

59. The petitioner has requested to allow the petitioner to bill and recover License fee and RLDC fees and charges, separately from the respondents. The petitioner shall be entitled for reimbursement of licence fee and RLDC fees and charges in accordance with Clause (2)(b) and (2)(a), respectively, of Regulation 52 of the 2014 Tariff Regulations.

Service Tax

60. 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 Annual Transmission (Communication) Charges

61. Central Portion (Asset-1 and Asset-4): The tariff for transmission (Communication system) of Electricity (Annual Fixed Cost) shall be shared as per Regulation 43 of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014. These charges shall be recovered on monthly basis and the billing collection and disbursement of Transmission Charges shall be governed by provisions of Central Electricity Regulatory Commission (Sharing of



interstate transmission Charges and Losses) regulations, 2010. State Portion (Asset-2, 3, 5 and 6): 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.

62. This order disposes of Petition No. 48/TT/2016.

sd/-
(M.K. Iyer)
Member

sd/-
(A.S. Bakshi)
Member

sd/-
(A.K. Singhal)
Member

sd/-
(Gireesh B. Pradhan)
Chairperson



Annexure-1

(₹ in lakh)

CALCULATION OF WEIGHTED AVERAGE RATE OF INTEREST ON LOAN						
	Details of Loan	2014-15	2015-16	2016-17	2017-18	2018-19
1	BOND XLII					
	Gross loan opening	9.00	9.00	9.00	9.00	9.00
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.00	0.00
	Net Loan-Opening	9.00	9.00	9.00	9.00	9.00
	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	9.00	9.00	9.00	9.00	9.00
	Average Loan	9.00	9.00	9.00	9.00	9.00
	Rate of Interest	8.80%	8.80%	8.80%	8.80%	8.80%
	Interest	0.79	0.79	0.79	0.79	0.79
	Rep Schedule	One Instalment on 13.03.2023				
2	BOND XLIII					
	Gross loan opening	8.58	8.58	8.58	8.58	8.58
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.00	0.72
	Net Loan-Opening	8.58	8.58	8.58	8.58	7.87
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00	0.72	0.72
	Net Loan-Closing	8.58	8.58	8.58	7.87	7.15
	Average Loan	8.58	8.58	8.58	8.22	7.51
	Rate of Interest	7.93%	7.93%	7.93%	7.93%	7.93%
	Interest	0.68	0.68	0.68	0.65	0.60
	Rep Schedule	12 Annual Instalment from 20.05.2017				
	Total Loan					
	Gross loan opening	17.58	17.58	17.58	17.58	17.58
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.00	0.72
	Net Loan-Opening	17.58	17.58	17.58	17.58	16.87
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00	0.72	0.72
	Net Loan-Closing	17.58	17.58	17.58	16.87	16.15
	Average Loan	17.58	17.58	17.58	17.22	16.51
	Rate of Interest	8.3754%	8.3754%	8.3754%	8.3846%	8.4043%
	Interest	1.47	1.47	1.47	1.44	1.39



Annexure-2

(₹ in lakh)

CALCULATION OF WEIGHTED AVERAGE RATE OF INTEREST ON LOAN						
	Details of Loan	2014-15	2015-16	2016-17	2017-18	2018-19
1	BOND XLII					
	Gross loan opening	9.00	9.00	9.00	9.00	9.00
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.00	0.00
	Net Loan-Opening	9.00	9.00	9.00	9.00	9.00
	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	9.00	9.00	9.00	9.00	9.00
	Average Loan	9.00	9.00	9.00	9.00	9.00
	Rate of Interest	8.80%	8.80%	8.80%	8.80%	8.80%
	Interest	0.79	0.79	0.79	0.79	0.79
	Rep Schedule	One Instalment on 13.03.2023				
2	BOND XLIII					
	Gross loan opening	5.24	5.24	5.24	5.24	5.24
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.00	0.44
	Net Loan-Opening	5.24	5.24	5.24	5.24	4.80
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00	0.44	0.44
	Net Loan-Closing	5.24	5.24	5.24	4.80	4.37
	Average Loan	5.24	5.24	5.24	5.02	4.59
	Rate of Interest	7.93%	7.93%	7.93%	7.93%	7.93%
	Interest	0.42	0.42	0.42	0.40	0.36
	Rep Schedule	12 Annual Instalment from 20.05.2017				
	Total Loan					
	Gross loan opening	14.24	14.24	14.24	14.24	14.24
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.00	0.44
	Net Loan-Opening	14.24	14.24	14.24	14.24	13.80
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00	0.44	0.44
	Net Loan-Closing	14.24	14.24	14.24	13.80	13.37
	Average Loan	14.24	14.24	14.24	14.02	13.59
	Rate of Interest	8.4799%	8.4799%	8.4799%	8.4884%	8.5064%
	Interest	1.21	1.21	1.21	1.19	1.16



Annexure-3

(₹ in lakh)

CALCULATION OF WEIGHTED AVERAGE RATE OF INTEREST ON LOAN						
	Details of Loan	2014-15	2015-16	2016-17	2017-18	2018-19
1	Bond-XL					
	Gross loan opening	15.00	15.00	15.00	15.00	15.00
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	1.25	2.50
	Net Loan-Opening	15.00	15.00	15.00	13.75	12.50
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	1.25	1.25	1.25
	Net Loan-Closing	15.00	15.00	13.75	12.50	11.25
	Average Loan	15.00	15.00	14.38	13.13	11.88
	Rate of Interest	9.30%	9.30%	9.30%	9.30%	9.30%
	Interest	1.40	1.40	1.34	1.22	1.10
	Rep Schedule	12 Annual Instalment from 28.06.2016				
2	BOND XLII					
	Gross loan opening	27.77	27.77	27.77	27.77	27.77
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.00	0.00
	Net Loan-Opening	27.77	27.77	27.77	27.77	27.77
	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	27.77	27.77	27.77	27.77	27.77
	Average Loan	27.77	27.77	27.77	27.77	27.77
	Rate of Interest	8.80%	8.80%	8.80%	8.80%	8.80%
	Interest	2.44	2.44	2.44	2.44	2.44
	Rep Schedule	One Instalment on 13.03.2023				
3	BOND XLIII					
	Gross loan opening	117.44	117.44	117.44	117.44	117.44
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.00	9.79
	Net Loan-Opening	117.44	117.44	117.44	117.44	107.65
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00	9.79	9.79
	Net Loan-Closing	117.44	117.44	117.44	107.65	97.87
	Average Loan	117.44	117.44	117.44	112.55	102.76
	Rate of Interest	7.93%	7.93%	7.93%	7.93%	7.93%
	Interest	9.31	9.31	9.31	8.92	8.15
	Rep Schedule	12 Annual Instalment from 20.05.2017				
	Total Loan					
	Gross loan opening	160.21	160.21	160.21	160.21	160.21
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	1.25	12.29
	Net Loan-Opening	160.21	160.21	160.21	158.96	147.92
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	1.25	11.04	11.04
	Net Loan-Closing	160.21	160.21	158.96	147.92	136.89
	Average Loan	160.21	160.21	159.59	153.44	142.41



	Rate of Interest	8.2091%	8.2091%	8.2048%	8.2046%	8.2139%
	Interest	13.15	13.15	13.09	12.59	11.70



(₹ in lakh)

CALCULATION OF WEIGHTED AVERAGE RATE OF INTEREST ON LOAN					
	Details of Loan	2015-16	2016-17	2017-18	2018-19
1	BOND XLIII				
	Gross loan opening	50.00	50.00	50.00	50.00
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	4.17
	Net Loan-Opening	50.00	50.00	50.00	45.83
	Additions during the year	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	4.17	4.17
	Net Loan-Closing	50.00	50.00	45.83	41.67
	Average Loan	50.00	50.00	47.92	43.75
	Rate of Interest	7.93%	7.93%	7.93%	7.93%
	Interest	3.97	3.97	3.80	3.47
	Rep Schedule	12 Annual Instalment from 20.05.2017			
2	SBI 2012-13				
	Gross loan opening	116.18	116.18	116.18	116.18
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	10.56	21.12
	Net Loan-Opening	116.18	116.18	105.62	95.06
	Additions during the year	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	10.56	10.56	10.56
	Net Loan-Closing	116.18	105.62	95.06	84.49
	Average Loan	116.18	110.90	100.34	89.78
	Rate of Interest	10.10%	10.10%	10.10%	10.10%
	Interest	11.73	11.20	10.13	9.07
	Rep Schedule	22 Semi Annual Instalment from 31.08.2016			
3	BOND XLVI				
	Gross loan opening	0.00	67.40	67.40	67.40
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.00
	Net Loan-Opening	0.00	67.40	67.40	67.40
	Additions during the year	67.40	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00	0.00
	Net Loan-Closing	67.40	67.40	67.40	67.40
	Average Loan	33.70	67.40	67.40	67.40
	Rate of Interest	9.30%	9.30%	9.30%	9.30%
	Interest	3.13	6.27	6.27	6.27
	Rep Schedule	3 instalments on 04.09.2019, 04.09.2024 and 04.09.2029			
4	BOND XLVII				
	Gross loan opening	0.00	45.52	45.52	45.52
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.00
	Net Loan-Opening	0.00	45.52	45.52	45.52
	Additions during the year	45.52	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00	0.00
	Net Loan-Closing	45.52	45.52	45.52	45.52
	Average Loan	22.76	45.52	45.52	45.52
	Rate of Interest	8.93%	8.93%	8.93%	8.93%



	Interest	2.03	4.06	4.06	4.06
	Rep Schedule	12 Annual Instalment from 20.10.2018			
5	SBI 2014-15				
	Gross loan opening	0.00	19.00	19.00	19.00
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.00
	Net Loan-Opening	0.00	19.00	19.00	19.00
	Additions during the year	19.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00	0.00
	Net Loan-Closing	19.00	19.00	19.00	19.00
	Average Loan	9.50	19.00	19.00	19.00
	Rate of Interest	10.10%	10.10%	10.10%	10.10%
	Interest	0.96	1.92	1.92	1.92
	Rep Schedule	22 Semi Annual Instalment from 15.06.2019			
	Total Loan				
	Gross loan opening	166.18	298.10	298.10	298.10
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	10.56	25.29
	Net Loan-Opening	166.18	298.10	287.54	272.81
	Additions during the year	131.92	0.00	0.00	0.00
	Repayment during the year	0.00	10.56	14.73	14.73
	Net Loan-Closing	298.10	287.54	272.81	258.08
	Average Loan	232.14	292.82	280.17	265.45
	Rate of Interest	9.4018%	9.3634%	9.3463%	9.3386%
	Interest	21.83	27.42	26.19	24.79



(₹ in lakh)

CALCULATION OF WEIGHTED AVERAGE RATE OF INTEREST ON LOAN					
	Details of Loan	2015-16	2016-17	2017-18	2018-19
1	BOND XLIII				
	Gross loan opening	30.00	30.00	30.00	30.00
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	2.50
	Net Loan-Opening	30.00	30.00	30.00	27.50
	Additions during the year	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	2.50	2.50
	Net Loan-Closing	30.00	30.00	27.50	25.00
	Average Loan	30.00	30.00	28.75	26.25
	Rate of Interest	7.93%	7.93%	7.93%	7.93%
	Interest	2.38	2.38	2.28	2.08
	Rep Schedule	12 Annual Instalment from 20.05.2017			
2	BOND XLVI				
	Gross loan opening	19.56	19.56	19.56	19.56
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.00
	Net Loan-Opening	19.56	19.56	19.56	19.56
	Additions during the year	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00	0.00
	Net Loan-Closing	19.56	19.56	19.56	19.56
	Average Loan	19.56	19.56	19.56	19.56
	Rate of Interest	9.30%	9.30%	9.30%	9.30%
	Interest	1.82	1.82	1.82	1.82
	Rep Schedule	3 instalments on 04.09.2019, 04.09.2024 and 04.09.2029			
	Total Loan				
	Gross loan opening	49.56	49.56	49.56	49.56
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	2.50
	Net Loan-Opening	49.56	49.56	49.56	47.06
	Additions during the year	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	2.50	2.50
	Net Loan-Closing	49.56	49.56	47.06	44.56
	Average Loan	49.56	49.56	48.31	45.81
	Rate of Interest	8.4707%	8.4707%	8.4847%	8.5150%
	Interest	4.20	4.20	4.10	3.90



(₹ in lakh)

CALCULATION OF WEIGHTED AVERAGE RATE OF INTEREST ON LOAN					
	Details of Loan	2015-16	2016-17	2017-18	2018-19
1	BOND XLIII				
	Gross loan opening	7.50	7.50	7.50	7.50
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.63
	Net Loan-Opening	7.50	7.50	7.50	6.88
	Additions during the year	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.63	0.63
	Net Loan-Closing	7.50	7.50	6.88	6.25
	Average Loan	7.50	7.50	7.19	6.56
	Rate of Interest	7.93%	7.93%	7.93%	7.93%
	Interest	0.59	0.59	0.57	0.52
	Rep Schedule	12 Annual Instalment from 20.05.2017			
2	BOND XLVI				
	Gross loan opening	3.56	3.56	3.56	3.56
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.00
	Net Loan-Opening	0.04	0.04	0.04	0.04
	Additions during the year	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00	0.00
	Net Loan-Closing	0.04	0.04	0.04	0.04
	Average Loan	0.04	0.04	0.04	0.04
	Rate of Interest	9.30%	9.30%	9.30%	9.30%
	Interest	0.00	0.00	0.00	0.00
	Rep Schedule	3 instalments on 04.09.2019, 04.09.2024 and 04.09.2029			
	Total Loan				
	Gross loan opening	11.06	11.06	11.06	11.06
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.63
	Net Loan-Opening	7.54	7.54	7.54	6.91
	Additions during the year	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.63	0.63
	Net Loan-Closing	7.54	7.54	6.91	6.29
	Average Loan	7.54	7.54	7.22	6.60
	Rate of Interest	7.9365%	7.9365%	7.9368%	7.9374%
	Interest	0.60	0.60	0.57	0.52

