

CENTRAL ELECTRICITY REGULATORY COMMISSION

NEW DELHI

Petition No. 139/TT/2014

Coram:

Shri Gireesh B. Pradhan, Chairperson

Shri A.K. Singhal, Member

Shri A.S. Bakshi, Member

Dr. M.K. Iyer, Member

Date of Hearing : 06.10.2015

Date of Order : 12.04.2016

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 Northern 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. Rajasthan Rajya Vidyut Prasaran Nigam Limited,
Vidyut Bhawan, Vidyut Marg,
Jaipur-302 005
2. Ajmer Vidyut Vitran Nigam Limited,
400 kV GSS Building (Ground Floor),
Ajmer Road, Heerapura, Jaipur
3. Jaipur Vidyut Vitran Nigam Limited,
400 kV GSS Building (Ground Floor),
Ajmer Road, Heerapura, Jaipur
4. Jodhpur Vidyut Vitran Nigam Limited,
400 kV GSS Building (Ground Floor),
Ajmer Road, Heerapura, Jaipur



5. Himachal Pradesh State Electricity Board,
Vidyut Bhawan, Kumar House Complex Building II,
Shimla-171 004
6. Punjab State Power Corporation Limited,
Thermal Shed T-1A, Near 22 Phatak,
Patiala-147 001
7. Haryana Power Purchase Centre,
Shakti Bhawan, Sector-6,
Panchkula, Haryana-134 109
8. Power Development Department,
Government of Jammu & Kashmir,
Mini Secretariat, Jammu
9. Uttar Pradesh Power Corporation Limited,
(Formerly Uttar Pradesh State Electricity Board),
Shakti Bhawan, 14, Ashok Marg,
Lucknow-226 001
10. Delhi Transco Limited,
Shakti Sadan, Kotla Road,
New Delhi-110 002
11. BSES Yamuna Power Limited,
BSES Bhawan, Nehru Place,
New Delhi
12. BSES Rajdhani Power Limited,
BSES Bhawan, Nehru Place,
New Delhi
13. North Delhi Power Limited,
Power Trading & Load Dispatch Group,
Cennet Building,
Adjacent To 66/11 kV Pitampura-3 Grid Building,
Near PP Jewellers, Pitampura,
New Delhi-110 034
14. Chandigarh Administration,
Sector-9, Chandigarh
15. Uttarakhand Power Corporation Limited,
Urja Bhawan, Kanwali Road,
Dehradun
16. North Central Railway,
Allahabad



17. New Delhi Municipal Council,
Palika Kendra, Sansad Marg,
New Delhi-110 002

..... Respondents

For petitioner : Shri Jasbir Singh, PGCIL
Shri Subash C. Taneja, PGCIL
Shri K.K. Jain, PGCIL
Shri S.K. Venkatesan, PGCIL
Ms. Sangeeta Edwards, PGCIL
Shri M.M. Mondal, PGCIL
Shri S.S Raju, PGCIL

For respondents : Shri Vinod Kumar Yadav, Rajasthan Discoms
Shri B.L. Sharma, AVVNL

ORDER

The petition has been 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 Northern Region for the 2014-19 period.

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

S. No.	Details of the Asset	Scheduled COD	Actual COD	Time over-run
1	847.124 km of Fibre Optic Communication system	24.9.2012	1.4.2014	Eighteen months and 6 days

3. This order has been issued after considering petitioner's affidavits dated 5.9.2014 and 4.12.2015.



4. The Investment Approval 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 NR dated 25.3.2010 at an estimated cost of ₹16131 lakh, including IDC of ₹1474 lakh (based on 4th Quarter, 2009 price level). The scheduled completion time of the project was 30 months from the date of investment approval i.e. 24.9.2012.

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 4488 kms.
- (ii) Installation of approximately 18 kms underground 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. Three number of radio links are proposed. Further, in some portions of the proposed network around 14 kms of Aerial cable is also required.
- (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.”

Brief Background

6. 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.

7. 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)



8. 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 CERC (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.

9. 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.”

10. However, the provision 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.

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

(₹ in lakh)

Particulars	State portion				
	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	141.16	169.45	169.45	169.45	169.45
Interest on Loan	134.90	149.23	133.85	118.45	103.08
Return on Equity	131.20	157.49	157.49	157.49	157.49
Interest on Working Capital	9.37	10.96	10.61	10.25	9.90
O & M Expenses	-	-	-	-	-
Total	416.63	487.13	471.40	455.64	439.92
Particulars	Central portion				
	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	19.55	24.27	24.27	24.27	24.27
Interest on Loan	18.68	21.43	19.23	17.02	14.82
Return on Equity	18.17	22.56	22.56	22.56	22.56
Interest on Working Capital	2.27	2.57	2.56	2.54	2.52
O & M Expenses	17.57	18.15	18.76	19.38	20.02
Total	76.24	88.98	87.38	85.77	84.19

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



(₹ in lakh)

Particulars	State portion				
	2014-15	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	-	-	-	-	-
O & M expenses	-	-	-	-	-
Receivables	69.44	81.19	78.57	75.94	73.32
Total	69.44	81.19	78.57	75.94	73.32
Interest Rate	13.50%	13.50%	13.50%	13.50%	13.50%
Interest	9.37	10.96	10.61	10.25	9.90
Particulars	Central portion				
	2014-15	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	2.64	2.72	2.81	2.91	3.00
O & M expenses	1.46	1.51	1.56	1.62	1.67
Receivables	12.71	14.83	14.56	14.30	14.03
Total	16.81	19.06	18.93	18.83	18.70
Interest Rate	13.50%	13.50%	13.50%	13.50%	13.50%
Interest	2.27	2.57	2.56	2.54	2.52

13. 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. BSES Rajdhani Power Limited (BRPL), vide affidavit dated 8.9.2014 has raised issues that the estimated completion cost of the instant assets is ₹3060 lakh, as against the approved cost of ₹3663 lakh, resulting in a large savings, thus, there is over estimation of cost, time over-run and claim for higher O&M charges. BRPL has further submitted that the petitioner has not mentioned whether all the fibre optic cable will be used for the petitioner's own data and communication or some dark fibre cable is also available to be leased to third parties. In addition, there is already number of EHV transmission lines having OPGW and the cost of OPGW is covered in the cost of these EHV transmission lines. The installation of OPGW would require replacement of the earthwire on the existing EHV transmission line which is required to be de-capitalized and the system and proportion of revenue sharing needs to be clarified by the petitioner. The petitioner vide rejoinder dated 29.9.2015, submitted that the FR cost was estimated based on previous contracts and contracts were awarded based on



Open Tender competitive bidding to lowest evaluated and responsive bidder on fixed price basis. As regards earthwire, the scrap value of the same will be adjusted in the cost of the project at the time of truing up. The petitioner submitted that some of the dark fibre is available in OPGW. However, the utilization of dark fibre on constituent's lines for state sector is to be decided by the respective constituent and the utilization of dark fibre on the petitioner's lines in being finalized. The petitioner further submitted that OPGW was not installed at initial stage on the lines covered in the petition and accordingly cost of OPGW is also not covered in the cost of transmission line as OPGW has been installed after the construction of lines in all cases and sharing of revenue shall be done in line with CERC Regulations in this regard.

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

Capital cost

15. 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.”

16. The petitioner vide affidavit dated 4.12.2015 (Auditors’ certificate dated 30.4.2014) has submitted details of actual expenditure incurred as on the date of commercial operation (COD) and additional capital expenditure incurred/projected to be incurred corresponding to State portion and Central portion respectively. 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 under:-

(₹ in lakh)				
Particulars	Apportioned approved cost	Cost as on COD	Estimated additional capital expenditure- 2014-15	Estimated completion cost
State portion	3663.08	1783.19	893.79	2676.98
Central portion		234.26	149.13	383.39
Total	3663.08	2017.45	1042.92	3060.37

Cost over-run

17. The total estimated completion cost of the instant asset is ₹3060.37 lakh against the apportioned approved cost of ₹3663.08 lakh. Thus, there is no cost over-run in the case of instant asset.



18. However, as per Form-4A submitted vide affidavit dated 26.06.2014 in original petition, there is no mention of any liability as on COD and thereafter, whereas the petitioner vide Form-7 (i.e. "Statement of Additional Capitalization after COD) has submitted the justification that Additional capital expenditure is of 'balance & retention payment' nature. Hence, there is a mismatch between Form-4A and Form-7 with reference to the liability. We have considered the cost given in the Auditors' Certificate and accordingly tariff has been worked out. Therefore, the petitioner is directed to submit the correct Form-4A and Form-7 for both the instant asset, which would be subject to review at the time of truing-up.

Time over-run

19. As per the investment approval dated 25.3.2010, the instant asset was to be commissioned within 30 months from the date of investment approval by 24.9.2012. The instant asset has been commissioned on 1.4.2014. Thus, there is time over-run of 18 months and 6 days in the case of instant asset.

20. The petitioner submitted the reasons for delay in the case of instant asset which are as follows:-

- a. Delay due to late confirmation by UPPTCL: Initially UPPTCL did not agree to participate in the above microwave replacement project due to funding reasons as UPPTCL wanted DOT to compensate for the project as Microwave Replacement was necessitated due to vacation of frequency spectrum mandate by DOT. UPPTCL subsequently confirmed its participation in January, 2011 and asked the petitioner to take up the work, i.e. 10 months after the award of the package. Out of 4488 km of the OPGW



length, UPPTCL's share was 2039 km (almost 45%) thus causing substantial delay to the project.

b. Delay due to inclusion of PTCUL: Initially PTCUL was not part of the Project but was included in the project as per decision of NRPC in the month of September, 2011. Therefore, the process for taking up PTCUL portion of the work was delayed by around 18 months. The OPGW network is complex network which comprises lines of state utilities (Constituents) and Central sector. There are many lines of central sector viz Lucknow PG (LILO of UPPTCL Sultanpur-Sarojninagar), Rihand HVDC-Rihand, Rihand-Singrauli, Singrauli-Anpara, Allahabad PG-Allahabad UPPTCL, Roorkee PG-Nara etc, which cannot be made operational unless links of UPPTCL, PTCUL are ready, hence many Central Sector links have also been delayed due to late entry by UPPTCL & PTCUL.

c. Delay due to heavy foggy condition: During the installation of the OPGW, almost 4 months i.e. from mid December, 2011 to mid February, 2012 and mid December, 2012 to mid February, 2013 were lost due to heavy foggy conditions. As OPGW installation work is carried out in live line condition, it is not safe to work as lines have tripped on many occasions due to failure of T&P on account of fog.

21. We have considered the submissions of the petitioner. As regards the initial refusal of UPPTCL's, it has already been dealt by us in order dated 8.12.2011 in Petition No. 68/2010 wherein it was clarified if the state portion is not being implemented by UPPTCL separately, the same shall be implemented by the



petitioner and UPPTCL would be required to share the tariff in proportion to the assets being utilized by it. We have also noted that some portion of UPPTCL optic fibre (235.153km) was commissioned on 1.4.2013. It was made clear in the said order 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 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."

22. As regards the fog in Northern Part of India adversely affecting various services at regular intervals also affected the progress of the work. We are of the view that foggy conditions during winter season is a normal phenomenon in parts of Northern Region and that the impact of fog could not be so much that the work of laying OPGW was held resulting in such long delay. Therefore, we are not inclined to condone the delay of 18 months and 6 days in commissioning of the instant asset.

Treatment of IDC and IEDC

23. The petitioner has made a claim of ₹168.88 lakh and ₹24.19 lakh towards IDC for State portion and Central portion respectively. The petitioner vide affidavit



dated 4.12.2015 has submitted that the IDC for both the portions has been discharged as on COD However, IDC on cash basis has been considered based on the loans deployed as per Form-9C submitted with the petition. Further, in view of non-condonation of delay of 18 months and 6 days in the commissioning of the instant asset, corresponding IDC has not been allowed. Thus, IDC upto COD has been considered as ₹105.25 lakh and ₹13.83 lakh against the claim of the petitioner for ₹168.88 lakh and ₹24.19 lakh towards IDC for State portion and Central portion respectively.

24. Similarly, the petitioner has claimed ₹47.47 lakh and ₹6.80 lakh towards Incidental Expenditure during Construction (IEDC) as on COD for State portion and Central portion respectively. The petitioner has not submitted any supporting document in relation to the IEDC claim. However, the claim is within the percentage of 10.75% on Hard Cost as indicated in the Abstract Cost Estimate submitted by the petitioner. The amount of IEDC claimed, disallowed on account of delay in the commissioning and IEDC allowed in case of State portion and Central portion are as below:-

Particulars	(₹ in lakh)	
	State portion	Central portion
Total IEDC claimed for the total period of Completion (1468 days)	47.47	6.80
Detail of IEDC Disallowed for 18 months & 6 days		
Pro-Rata IEDC Disallowed (554 days)	17.91	2.57
Total IEDC Allowed	29.56	4.23

Initial Spares

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



(₹ in lakh)

Particulars	Total Capital Cost as on COD as per Auditor's Certificate dated: 30.4.2014	Less: IDC & IEDC claimed	Add: IDC on cash basis allowed	Add: IEDC allowed	Less: Excess Initial Spares*	Capital cost considered for tariff calculation as on COD
State portion	1783.20	216.35	105.25	29.56	-	1701.65
Central portion	234.26	30.99	13.83	4.23	-	221.33

*The petitioner has not claimed initial spares.

Projected additional capital expenditure

26. Clause (1) of Regulation 14 of the 2014 Tariff Regulations provides as under:-

“ (1) The capital expenditure in respect of the new project or an existing project incurred or projected to be incurred, on the following counts within the original scope of work, after the date of commercial operation and up to the cut-off date may be admitted by the Commission, subject to prudence check:

- (i) Undischarged liabilities recognised to be payable at a future date;
- (ii) Works deferred for execution;
- (iii) Procurement of initial capital spares within the original scope of work, in accordance with the provisions of Regulation 13;
- (iv) Liabilities to meet award of arbitration or for compliance of the order or decree of a court; and
- (v) Change in Law or compliance of any existing law.”

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

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

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

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;”



28. The cut-off date in the case of instant asset is 31.3.2017.

29. The petitioner has claimed additional capital expenditure of ₹893.79 lakh and ₹149.13 lakh for 2014-15 in the case of instant asset for State portion and Central portion respectively. The additional capital expenditure claimed is for balance and retention payment. Therefore, we allow the additional capital expenditure as claimed by the petitioner. 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 given under:-

(₹ in lakh)

Particulars	Capital cost allowed as on COD	Additional capitalisation- 2014-15	Total completion cost
State portion	1701.65	893.79	2595.44
Central portion	221.33	149.13	370.46

Debt-equity ratio

30. 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.”

31. 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. Details of debt-equity as on date of commercial operation and 31.3.2019 considered on normative basis are as under:-

Particulars	As on COD				As on 31.3.2019			
	State portion		Central portion		State portion		Central portion	
	Amount	%	Amount	%	Amount	%	Amount	%
Loan/Debt	1191.16	70.00	154.93	70.00	1816.81	70.00	259.32	70.00
Equity	510.50	30.00	66.40	30.00	778.63	30.00	111.14	30.00
Total	1701.65	100.00	221.33	100.00	2595.44	100.00	370.46	100.00

Return on equity

32. 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.”

33. 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.

34. 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.

35. 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:-

Particulars	(₹ in lakh)				
	State portion				
	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Equity	510.50	778.63	778.63	778.63	778.63
Addition due to Additional Capitalization	268.14	-	-	-	-



Closing Equity	778.63	778.63	778.63	778.63	778.63
Average Equity	644.56	778.63	778.63	778.63	778.63
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)	126.40	152.69	152.69	152.69	152.69
Particulars	Central portion				
	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Equity	66.40	111.14	111.14	111.14	111.14
Addition due to Additional Capitalization	44.74	-	-	-	-
Closing Equity	111.14	111.14	111.14	111.14	111.14
Average Equity	88.77	111.14	111.14	111.14	111.14
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)	17.41	21.79	21.79	21.79	21.79

Interest on loan

36. 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.”

37. 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 and weighted average rate of interest on actual average loan have been considered as per the petition;

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

(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.

38. The petitioner has submitted that the interest on loan has been considered on the basis of rate prevailing as on COD 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.

39. Detailed calculations in support of interest on loan have been given at Annexure-1 to Annexure-2 of this order.

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

(₹ in lakh)

Particulars	State portion				
	2014-15	2015-16	2016-17	2017-18	2018-19
Gross Normative Loan	1191.16	1816.81	1816.81	1816.81	1816.81
Cumulative Repayment upto Previous Year	-	136.00	300.29	464.59	628.88
Net Loan-Opening	1191.16	1680.81	1516.51	1352.22	1187.93
Addition due to Additional Capitalisation	625.65	-	-	-	-
Repayment during the year	136.00	164.29	164.29	164.29	164.29
Net Loan-Closing	1680.81	1516.51	1352.22	1187.93	1023.64
Average Loan	1435.98	1598.66	1434.37	1270.08	1105.79
Weighted Average Rate of Interest on Loan	9.0511%	9.0551%	9.0528%	9.0479%	9.0451%
Interest on Loan	129.97	144.76	129.85	114.91	100.02
Particulars	Central portion				
	2014-15	2015-16	2016-17	2017-18	2018-19
Gross Normative Loan	154.93	259.32	259.32	259.32	259.32
Cumulative Repayment upto Previous Year	-	18.73	42.18	65.63	89.08
Net Loan-Opening	154.93	240.59	217.14	193.69	170.24
Addition due to Additional Capitalisation	104.29	-	-	-	-
Repayment during the year	18.73	23.45	23.45	23.45	23.45
Net Loan-Closing	240.59	217.14	193.69	170.24	146.79
Average Loan	197.76	228.87	205.42	181.97	158.52
Weighted Average Rate of Interest on Loan	9.0511%	9.0551%	9.0527%	9.0478%	9.0451%
Interest on Loan	17.90	20.72	18.60	16.46	14.34

Depreciation

41. 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.”

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

43. The instant asset was 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-II to the 2014 Tariff Regulations.

44. The details of the depreciation worked out are as under:-

Particulars	State portion				
	2014-15	2015-16	2016-17	2017-18	2018-19
Gross Block as on COD	1701.65	2595.44	2595.44	2595.44	2595.44
Addition during 2014-19 due to Projected Additional Capitalisation	893.79	-	-	-	-
Gross Block as on 31 st March	2595.44	2595.44	2595.44	2595.44	2595.44
Average Gross Block	2148.55	2595.44	2595.44	2595.44	2595.44
Rate of Depreciation	6.3300%	6.3300%	6.3300%	6.3300%	6.3300%
Depreciable Value	1933.69	2335.90	2335.90	2335.90	2335.90
Remaining Depreciable Value	1933.69	2199.89	2035.60	1871.31	1707.02
Depreciation	136.00	164.29	164.29	164.29	164.29
Particulars	Central portion				
	2014-15	2015-16	2016-17	2017-18	2018-19
Gross Block as on COD	221.33	370.46	370.46	370.46	370.46
Addition during 2014-19 due to Projected Additional Capitalisation	149.13	-	-	-	-
Gross Block as on 31 st March	370.46	370.46	370.46	370.46	370.46
Average Gross Block	295.90	370.46	370.46	370.46	370.46
Rate of Depreciation	6.3300%	6.3300%	6.3300%	6.3300%	6.3300%
Depreciable Value	266.31	333.41	333.41	333.41	333.41
Remaining Depreciable Value	266.31	314.68	291.23	267.78	244.33
Depreciation	18.73	23.45	23.45	23.45	23.45



Operation & Maintenance Expenses (O&M Expenses)

45. 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.”

46. The petitioner in the original petition has submitted the claim of the O&M Expenses for Central portion only @ 7.5% of the capital cost subject to actual expenditure at the time of truing-up. As such, the O&M Expenses are allowed for the Central portion only as per the claims of the petitioner. However, petitioner is directed to submit the actual expenditure within 45 days to arrive at the correct base after carrying out due diligence by the Commission for adjusting the O&M Expenses.

47. 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.

48. 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

49. 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;”

50. 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 i.e. 10% plus 350 basis



points). The interest on working capital for the instant asset covered in the petition has been worked out accordingly.

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

(₹ in lakh)

Particulars	State portion				
	2014-15	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	-	-	-	-	-
O & M expenses	-	-	-	-	-
Receivables	66.90	78.73	76.19	73.64	71.10
Total	66.90	78.73	76.19	73.64	71.10
Interest Rate	13.50%	13.50%	13.50%	13.50%	13.50%
Interest	9.03	10.63	10.29	9.94	9.60
Particulars	Central portion				
	2014-15	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	2.64	2.72	2.81	2.91	3.00
O & M expenses	1.46	1.51	1.56	1.62	1.67
Receivables	12.30	14.44	14.18	13.93	13.68
Total	16.40	18.67	18.56	18.45	18.35
Interest Rate	13.50%	13.50%	13.50%	13.50%	13.50%
Interest	2.21	2.52	2.51	2.49	2.48

Annual Transmission charges

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

(₹ in lakh)

Particulars	State Portion				
	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	136.00	164.29	164.29	164.29	164.29
Interest on loan	129.97	144.76	129.85	114.91	100.02
Return on Equity	126.40	152.69	152.69	152.69	152.69
Interest on Working Capital	9.03	10.63	10.29	9.94	9.60
O&M Expenses	-	-	-	-	-
Total	401.41	472.37	457.12	441.84	426.60
Particulars	Central Portion				
	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	18.73	23.45	23.45	23.45	23.45



Interest on loan	17.90	20.72	18.60	16.46	14.34
Return on Equity	17.41	21.79	21.79	21.79	21.79
Interest on Working Capital	2.21	2.52	2.51	2.49	2.48
O&M Expenses	17.57	18.15	18.76	19.38	20.02
Total	73.82	86.64	85.11	83.58	82.08

Filing Fee and the Publication Expenses

53. 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

54. 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

55. 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

56. **Central Portion:** 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: 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.

56. This order disposes of Petition No. 139/TT/2014.

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 XXXV					
	Gross loan opening	83.57	83.57	83.57	83.57	83.57
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	6.96	13.93	20.89
	Net Loan-Opening	83.57	83.57	76.61	69.64	62.68
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	6.96	6.96	6.96	6.96
	Net Loan-Closing	83.57	76.61	69.64	62.68	55.71
	Average Loan	83.57	80.09	73.12	66.16	59.20
	Rate of Interest	9.64%	9.64%	9.64%	9.64%	9.64%
	Interest	8.06	7.72	7.05	6.38	5.71
	Rep Schedule	12 annual instalments from 31.05.2015.				
2	Bond XXXVI					
	Gross loan opening	64.32	64.32	64.32	64.32	64.32
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	4.29	8.58
	Net Loan-Opening	64.32	64.32	64.32	60.03	55.74
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	4.29	4.29	4.29
	Net Loan-Closing	64.32	64.32	60.03	55.74	51.46
	Average Loan	64.32	64.32	62.18	57.89	53.60
	Rate of Interest	9.35%	9.35%	9.35%	9.35%	9.35%
	Interest	6.01	6.01	5.81	5.41	5.01
	Rep Schedule	15 annual instalments from 29.08.2016.				
3	Bond XXXVII					
	Gross loan opening	29.41	29.41	29.41	29.41	29.41
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	2.45	4.90	7.35
	Net Loan-Opening	29.41	29.41	26.96	24.51	22.06
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	2.45	2.45	2.45	2.45
	Net Loan-Closing	29.41	26.96	24.51	22.06	19.61
	Average Loan	29.41	28.18	25.73	23.28	20.83
	Rate of Interest	9.25%	9.25%	9.25%	9.25%	9.25%
	Interest	2.72	2.61	2.38	2.15	1.93
	Rep Schedule	12 annual instalments from 26.12.2015				
4	Bond XL					
	Gross loan opening	159.11	159.11	159.11	159.11	159.11
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	13.26	26.52
	Net Loan-Opening	159.11	159.11	159.11	145.85	132.59
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	13.26	13.26	13.26
	Net Loan-Closing	159.11	159.11	145.85	132.59	119.33
	Average Loan	159.11	159.11	152.48	139.22	125.96
	Rate of Interest	9.30%	9.30%	9.30%	9.30%	9.30%
	Interest	14.80	14.80	14.18	12.95	11.71



	Rep Schedule	12 annual instalments from 28.06.2016				
5	Bond XXXII					
	Gross loan opening	220.97	220.97	220.97	220.97	220.97
	Cumulative Repayment upto DOCO/previous year	18.41	36.83	55.24	73.66	92.07
	Net Loan-Opening	202.56	184.14	165.73	147.31	128.90
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	18.41	18.41	18.41	18.41	18.41
	Net Loan-Closing	184.14	165.73	147.31	128.90	110.49
	Average Loan	193.35	174.93	156.52	138.11	119.69
	Rate of Interest	8.84%	8.84%	8.84%	8.84%	8.84%
	Interest	17.09	15.46	13.84	12.21	10.58
	Rep Schedule	12 annual instalments from 29.3.2014				
6	SBI (21.03.2012)					
	Gross loan opening	69.82	69.82	69.82	69.82	69.82
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	6.34	12.68
	Net Loan-Opening	69.82	69.82	69.82	63.48	57.14
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	6.34	6.34	6.34
	Net Loan-Closing	69.82	69.82	63.48	57.14	50.80
	Average Loan	69.82	69.82	66.65	60.31	53.97
	Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%
	Interest	7.16	7.16	6.83	6.18	5.53
	Rep Schedule	22 half yearly instalment from 31.08.2016				
7	Bond XXXIV					
	Gross loan opening	173.24	173.24	173.24	173.24	173.24
	Cumulative Repayment upto DOCO/previous year	0.00	14.44	28.87	43.31	57.75
	Net Loan-Opening	173.24	158.80	144.37	129.93	115.49
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	14.44	14.44	14.44	14.44	14.44
	Net Loan-Closing	158.80	144.37	129.93	115.49	101.06
	Average Loan	166.02	151.59	137.15	122.71	108.28
	Rate of Interest	8.84%	8.84%	8.84%	8.84%	8.84%
	Interest	14.68	13.40	12.12	10.85	9.57
	Rep Schedule	12 annual instalments from 21.10.2014				
8	Bond XXXVIII					
	Gross loan opening	84.10	84.10	84.10	84.10	84.10
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.00	0.00
	Net Loan-Opening	84.10	84.10	84.10	84.10	84.10
	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	84.10	84.10	84.10	84.10	84.10
	Average Loan	84.10	84.10	84.10	84.10	84.10
	Rate of Interest	9.25%	9.25%	9.25%	9.25%	9.25%
	Interest	7.78	7.78	7.78	7.78	7.78
	Rep Schedule	9.3.2027 Bullet Payment				
9	Bond XLI					
	Gross loan opening	107.48	107.48	107.48	107.48	107.48



	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	8.96	17.91
	Net Loan-Opening	107.48	107.48	107.48	98.52	89.57
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	8.96	8.96	8.96
	Net Loan-Closing	107.48	107.48	98.52	89.57	80.61
	Average Loan	107.48	107.48	103.00	94.05	85.09
	Rate of Interest	8.85%	8.85%	8.85%	8.85%	8.85%
	Interest	9.51	9.51	9.12	8.32	7.53
	Rep Schedule	12 annual instalments from 19.10.2016				
10	Bond XLII					
	Gross loan opening	195.91	195.91	195.91	195.91	195.91
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.00	0.00
	Net Loan-Opening	195.91	195.91	195.91	195.91	195.91
	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	195.91	195.91	195.91	195.91	195.91
	Average Loan	195.91	195.91	195.91	195.91	195.91
	Rate of Interest	8.80%	8.80%	8.80%	8.80%	8.80%
	Interest	17.24	17.24	17.24	17.24	17.24
	Rep Schedule	13.3.2023 Bullet Payment				
11	Bond XLIII					
	Gross loan opening	60.30	60.30	60.30	60.30	60.30
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.00	5.03
	Net Loan-Opening	60.30	60.30	60.30	60.30	55.28
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00	5.03	5.03
	Net Loan-Closing	60.30	60.30	60.30	55.28	50.25
	Average Loan	60.30	60.30	60.30	57.79	52.76
	Rate of Interest	7.93%	7.93%	7.93%	7.93%	7.93%
	Interest	4.78	4.78	4.78	4.58	4.18
	Rep Schedule	12 annual instalments from 20.5.2017				
	Total Loan					
	Gross loan opening	1248.23	1248.23	1248.23	1248.23	1248.23
	Cumulative Repayment upto DOCO/previous year	18.41	51.27	93.53	168.64	248.77
	Net Loan-Opening	1229.82	1196.97	1154.70	1079.59	999.46
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	32.85	42.27	75.11	80.13	80.13
	Net Loan-Closing	1196.97	1154.70	1079.59	999.46	919.32
	Average Loan	1213.39	1175.83	1117.14	1039.52	959.39
	Rate of Interest (weighted average)	9.0511%	9.0551%	9.0528%	9.0479%	9.0451%
	Interest	109.83	106.47	101.13	94.05	86.78



(₹ 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 XXXV					
	Gross loan opening	10.98	10.98	10.98	10.98	10.98
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.92	1.83	2.75
	Net Loan-Opening	10.98	10.98	10.07	9.15	8.24
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.92	0.92	0.92	0.92
	Net Loan-Closing	10.98	10.07	9.15	8.24	7.32
	Average Loan	10.98	10.52	9.61	8.69	7.78
	Rate of Interest	9.64%	9.64%	9.64%	9.64%	9.64%
	Interest	1.06	1.01	0.93	0.84	0.75
	Rep Schedule	12 annual instalments from 31.05.2015.				
2	Bond XXXVI					
	Gross loan opening	8.45	8.45	8.45	8.45	8.45
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.56	1.13
	Net Loan-Opening	8.45	8.45	8.45	7.89	7.32
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.56	0.56	0.56
	Net Loan-Closing	8.45	8.45	7.89	7.32	6.76
	Average Loan	8.45	8.45	8.17	7.61	7.04
	Rate of Interest	9.35%	9.35%	9.35%	9.35%	9.35%
	Interest	0.79	0.79	0.76	0.71	0.66
	Rep Schedule	15 annual instalments from 29.08.2016.				
3	Bond XXXVII					
	Gross loan opening	3.86	3.86	3.86	3.86	3.86
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.32	0.64	0.97
	Net Loan-Opening	3.86	3.86	3.54	3.22	2.90
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.32	0.32	0.32	0.32
	Net Loan-Closing	3.86	3.54	3.22	2.90	2.57
	Average Loan	3.86	3.70	3.38	3.06	2.73
	Rate of Interest	9.25%	9.25%	9.25%	9.25%	9.25%
	Interest	0.36	0.34	0.31	0.28	0.25
	Rep Schedule	12 annual instalments from 26.12.2015				
4	Bond XL					
	Gross loan opening	20.90	20.90	20.90	20.90	20.90
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	1.74	3.48
	Net Loan-Opening	20.90	20.90	20.90	19.16	17.42
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	1.74	1.74	1.74
	Net Loan-Closing	20.90	20.90	19.16	17.42	15.68
	Average Loan	20.90	20.90	20.03	18.29	16.55
	Rate of Interest	9.30%	9.30%	9.30%	9.30%	9.30%
	Interest	1.94	1.94	1.86	1.70	1.54



	Rep Schedule	12 annual instalments from 28.06.2016				
5	Bond XXXII					
	Gross loan opening	29.03	29.03	29.03	29.03	29.03
	Cumulative Repayment upto DOCO/previous year	2.42	4.84	7.26	9.68	12.10
	Net Loan-Opening	26.61	24.19	21.77	19.35	16.93
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	2.42	2.42	2.42	2.42	2.42
	Net Loan-Closing	24.19	21.77	19.35	16.93	14.52
	Average Loan	25.40	22.98	20.56	18.14	15.72
	Rate of Interest	8.84%	8.84%	8.84%	8.84%	8.84%
	Interest	2.25	2.03	1.82	1.60	1.39
	Rep Schedule	12 annual instalments from 29.3.2014				
6	SBI (21.03.2012)					
	Gross loan opening	9.17	9.17	9.17	9.17	9.17
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.83	1.67
	Net Loan-Opening	9.17	9.17	9.17	8.34	7.50
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.83	0.83	0.83
	Net Loan-Closing	9.17	9.17	8.34	7.50	6.67
	Average Loan	9.17	9.17	8.75	7.92	7.09
	Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%
	Interest	0.94	0.94	0.90	0.81	0.73
	Rep Schedule	22 half yearly instalment from 31.08.2016				
7	Bond XXXIV					
	Gross loan opening	22.76	22.76	22.76	22.76	22.76
	Cumulative Repayment upto DOCO/previous year	0.00	1.90	3.79	5.69	7.59
	Net Loan-Opening	22.76	20.86	18.97	17.07	15.17
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	1.90	1.90	1.90	1.90	1.90
	Net Loan-Closing	20.86	18.97	17.07	15.17	13.28
	Average Loan	21.81	19.92	18.02	16.12	14.23
	Rate of Interest	8.84%	8.84%	8.84%	8.84%	8.84%
	Interest	1.93	1.76	1.59	1.43	1.26
	Rep Schedule	12 annual instalments from 21.10.2014				
8	Bond XXXVIII					
	Gross loan opening	11.05	11.05	11.05	11.05	11.05
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.00	0.00
	Net Loan-Opening	11.05	11.05	11.05	11.05	11.05
	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	11.05	11.05	11.05	11.05	11.05
	Average Loan	11.05	11.05	11.05	11.05	11.05
	Rate of Interest	9.25%	9.25%	9.25%	9.25%	9.25%
	Interest	1.02	1.02	1.02	1.02	1.02
	Rep Schedule	9.3.2027 Bullet Payment				
9	Bond XLI					
	Gross loan opening	14.12	14.12	14.12	14.12	14.12
	Cumulative Repayment upto	0.00	0.00	0.00	1.18	2.35



	DOC0/previous year					
	Net Loan-Opening	14.12	14.12	14.12	12.94	11.77
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	1.18	1.18	1.18
	Net Loan-Closing	14.12	14.12	12.94	11.77	10.59
	Average Loan	14.12	14.12	13.53	12.36	11.18
	Rate of Interest	8.85%	8.85%	8.85%	8.85%	8.85%
	Interest	1.25	1.25	1.20	1.09	0.99
	Rep Schedule	12 annual instalments from 19.10.2016				
10	Bond XLII					
	Gross loan opening	25.74	25.74	25.74	25.74	25.74
	Cumulative Repayment upto DOC0/previous year	0.00	0.00	0.00	0.00	0.00
	Net Loan-Opening	25.74	25.74	25.74	25.74	25.74
	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	25.74	25.74	25.74	25.74	25.74
	Average Loan	25.74	25.74	25.74	25.74	25.74
	Rate of Interest	8.80%	8.80%	8.80%	8.80%	8.80%
	Interest	2.27	2.27	2.27	2.27	2.27
	Rep Schedule	13.3.2023 Bullet Payment				
11	Bond XLIII					
	Gross loan opening	7.92	7.92	7.92	7.92	7.92
	Cumulative Repayment upto DOC0/previous year	0.00	0.00	0.00	0.00	0.66
	Net Loan-Opening	7.92	7.92	7.92	7.92	7.26
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00	0.66	0.66
	Net Loan-Closing	7.92	7.92	7.92	7.26	6.60
	Average Loan	7.92	7.92	7.92	7.59	6.93
	Rate of Interest	7.93%	7.93%	7.93%	7.93%	7.93%
	Interest	0.63	0.63	0.63	0.60	0.55
	Rep Schedule	12 annual instalments from 20.5.2017				
	Total Loan					
	Gross loan opening	163.98	163.98	163.98	163.98	163.98
	Cumulative Repayment upto DOC0/previous year	2.42	6.74	12.29	22.15	32.68
	Net Loan-Opening	161.56	157.25	151.69	141.83	131.30
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	4.32	5.55	9.87	10.53	10.53
	Net Loan-Closing	157.25	151.69	141.83	131.30	120.77
	Average Loan	159.40	154.47	146.76	136.56	126.04
	Rate of Interest (weighted average)	9.0511%	9.0551%	9.0527%	9.0478%	9.0451%
	Interest	14.43	13.99	13.29	12.36	11.40

