CENTRAL ELECTRICITY REGULATORY COMMISSION

NEW DELHI

Petition No. 384/TT/2014

alongwith I.A. No. 04/IA/2015

Coram:

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

Date of Order : 16.01.2017

In the matter of:

Approval of transmission tariff for section of 400 kV (Quad) 2xS/C Parbati-Koldam transmission line (starting from LILO point of Parbati (Banala) Pooling Station to Koldam HEP) in Northern Region for 2014-19 period under Regulation 86 of Central Electricity Regulatory Commission (Conduct of business) Regulations, 1999 and Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014.

And in the matter of:

Parbati Koldam Transmission Company Limited,
B-9, Qutab Institutional Area,
Katwaria Sarai, New Delhi-110 016 **….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 TIA, 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. Tata Power Delhi Distribution Limited,
    Cennet Building, Adjacent to 66/11kV 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

18. Northern Region Electricity Board,
18-A, Shaheed Jeet Singh Marg,
Katwaria Sarai, New Delhi-110 016

19. Power Grid Corporation of India Limited,
Saudamini, Plot No.-2, Sector-29
Gurgaon-122 001 (Haryana)

20. NTPC Limited,
Scope Complex, Institutional Area,
Lodhi Road, Pragati Vihar,
New Delhi-110 016 **….Respondents**

For Petitioner	:	Shri Anil Rawal, PKTCL Shri Vikas Gupta, PKTCL Shri Lokendra Singh, PKTCL
For Respondents	:	None

ORDER

The instant petition has been filed by Parbati Koldam Transmission Company Limited (PKTCL), a joint venture company of Reliance Infrastructure Limited (RIL) (74%) and Power Grid Corporation of India Limited (PGCIL) (26%), incorporated under the Companies Act, 1956, seeking approval of transmission tariff for Section of 400 kV (Quad) 2xS/C Parbati-Koldam transmission line (starting from LILO point of Parbati (Banala) Pooling Station to Koldam HEP) (hereinafter referred to as “transmission asset”) in Northern Region for 2014-19 period under Central Electricity Regulation Commission (Terms and Conditions of Tariff) Regulations, 2014 (hereinafter referred to as “the 2014 Tariff Regulations”).

Background

2. The petitioner was entrusted with implementation of inter-State transmission system comprising the 400 kV transmission lines for evacuation of power from the

4x200 MW Parbati-II Hydroelectric Power Project ("Parbati-II HEP") and 4x200 MW Koldam Hydroelectric Power Project ("Koldam HEP") in the state of Himachal Pradesh for its onward transmission to the beneficiary states in the Northern Region. The Standing Committee on Transmission System Planning of Northern Region, in its 14th and 15th meetings held on 30.12.2002 and 30.5.2003 respectively, approved the construction of the Project i.e., the Associated Transmission System for Koldam HEP implemented by NTPC and Parbati-II HEP implemented by NHPC Ltd. A tender for selection of Joint Venture Partner (JVP) was floated by PGCIL on 2.2.2004 and Reliance Infrastructure Ltd. was selected as JVP for implementation of the project on 26.12.2005. In the meantime, PGCIL prepared the Feasibility Report on the basis of the Ministry of Power order dated 7.9.2005, granting Investment Approval for the transmission system associated with Koldam HEP. Ministry of Power decided to get the project executed on Build, Own and Operate (BOO) basis instead of initial approval for execution on Build, Own, Operate and Transfer (BOOT) basis. The petitioner company was formed on 23.11.2007 by executing Share Holders Agreement between Reliance Energy Ltd. and PGCIL and an Implementation Agreement was entered into between Reliance Energy Ltd. and PGCIL on 23.11.2007. As per para 2.0 of Schedule 5 of the Implementation Agreement, the project consists of following transmission lines:-

Transmission line	Route length
(i) Parbati-Koldam 400 kV (Quad)	
a) S/C line-I	61 km
b) S/C line-II	68 km
c) D/C line	20 km
d) S/C line (Realignment at Koldam)	3 km
(ii) Koldam-Ludhiana 400 kV D/C (Triple ACSR)	153 km

3. Thereafter, the petitioner applied for grant of transmission licence on 17.3.2008 and was granted transmission licence by the Commission on 15.9.2008

to construct, maintain and operate for a period of 25 years the following transmission assets-(a) 400 kV S/C Parbati-Koldam transmission line-I (Quad Moose conductor) (b) 400 kV S/C Parbati-Koldam transmission line-II (Quad Moose conductor) (c) 400 kV D/C Parbati-Koldam transmission line (Quad Moose conductor) and (d) 400 kV D/C Koldam-Ludhiana transmission line (Triple Snowbird conductor).

4. Thereafter, Bulk Power Transmission Agreements (BPTA) were executed between PKTCL and Northern Region beneficiaries for supply of power from Parbati-II HEP, as the transmission system for evacuation of power of Parbati-II HEP was entrusted to PKTCL and that of Parbati-III HEP was entrusted to PGCIL.

5. Subsequently, in the 30th meeting of Standing Committee of Northern Region held on 19.12.2011, it was reiterated that as agreed in the 14th, 15th and 16th meetings of Standing Committee of Northern Region, the transmission lines as a composite transmission scheme for Parbati II, Parbati III and Koldam Hydro Electric Projects (HEPs) to be executed by the petitioner, were still required, but some changes in priorities were envisaged, due to commissioning of Parbat-III-HEP and on account of delay in Parbati II-HEP.

6. The administrative approval to the transmission system of 2xS/C 400 kV Parbati-Koldam transmission lines, to be executed by PKTCL, was approved by the Board of Directors of PGCIL on 20.12.2005 at an estimated cost of the project at ₹35842 lakh including IDC of ₹2905 lakh (based on 2nd Quarter, 2005 price level). In addition, the administrative approval and expenditure sanction to the transmission project of Koldam-Ludhiana 400 kV D/C transmission line (Triple Aluminium Conductor Steel Reinforced) (also to be executed by PKTCL) was also

accorded by the Ministry of Power (MoP) vide order No. 12/19/2003-PG dated 7.9.2005 for ₹30195 lakh including IDC of ₹2048 lakh (based on 2nd Quarter, 2005 price level). The project was scheduled to be completed in time frame of 36 months from the date of Investment Approval (IA) to match the commissioning of generation project.

7. Thereafter, a Cost Estimate of the combined transmission project was submitted for financing purpose and approved by the lenders and also admitted by the Board of Directors of PKTCL in meeting held on 23.8.2010 for ₹110169 lakh including an IDC of ₹17267 lakh. Subsequently, the Revised Cost Estimate of the combined transmission project was approved by the Board of Directors of PKTCL vide meeting held on 19.5.2014 for ₹100653 lakh including IDC of ₹14340 lakh (based on November, 2013 price level). The details of the project costs are as follows:-

a. Transmission system associated with Parbati-Koldam transmission lines-₹50897 lakh, including IDC of ₹7438 lakh.
b. Transmission system associated with Koldam-Ludhiana transmission line-₹49756 lakh, including IDC of ₹6901 lakh.

8. The scope of work covered under the combined project is as follows:-

Transmission Lines

(i) 400 kV S/C Parbati-Koldam transmission line-I (Quad Moose Conductor);

(ii) 400 kV S/C Parbati-Koldam transmission line-II (Quad Moose Conductor);

(iii) 400 kV D/C Parbati-Koldam transmission line (Quad Moose Conductor); and

(iv) 400 kV D/C Koldam-Ludhiana transmission line (Triple Snowbird Conductor).

9. However, based on the proceedings of 26th, 29th and 32nd meetings of Standing Committee Meeting of Power System Planning of Northern Region held on 13.10.2008, 29.12.2010 and 31.8.2013 respectively and the 26th TCC and 29th NRPC meetings held on 12.9.2013 and 13.9.2013 respectively, it was decided to apportion the complete 2xsingle circuit line of Parbati-Koldam (Ckt-I and Ckt-II of Quad Moose conductor) traversing the total length of about 157 Ckt. km to three discrete sections for the commissioning purposes as follows:-

Section-I: 3.518 Ckt. km section of the Ckt.-II of the 2x400 kV S/C Parbati-Koldam TL starting from LILO point of Parbati III HEP to LILO point of Parbati (Banala) Pooling Station (COD Aug 2013)-(Tariff claimed in Petition No. 297/TT/2013).

(i) Section-II: 129.02 Ckt. km section starting from LILO point of Parbati (Banala) Pooling Point to Koldam HEP, 2x400 kV (Quad) S/C Parbati-II to Koldam.

(ii) Section-III: 24 Ckt. km section starting from LILO point of Parbati-III to Parbati-II having a line length of 8.25 km of S/C and from Parbati (Banala) Pooling point to Parbati-II with a line length of 12.838 km of S/C along with a stretch of 1.511 km of Double circuit-(Tariff claimed in Petition No. 156/TT/2015).

10. This order has been issued after considering PKTCL's affidavits dated 12.11.2014, 14.11.2014, 10.12.2014, 5.5.2015 (two affidavits), 28.10.2015 and 14.7.2016.

11. The instant petition covers Section-II having line length of 129.02 Ckt. km comprised of the 400 kV (Quad) 2 x S/C Parbati-Koldam TL (excluding Parbati-II to Parbati-III section) starting from LILO point of Parbati Pooling Station to Koldam HEP. The petitioner has claimed tariff for asset covered under Section-II as a single asset in the original petition. However, on account of different CODs of each circuit, it has been considered as two distinct assets i.e. Asset-I: 400 kV (Quad) S/C Parbati (Banala-Koldam-Ckt.-I)-66.381 km and Asset-II: 400 kV (Quad) S/C Parbati (Banala-Koldam-Ckt.-II)-62.638 km, in this order for purpose of calculation of tariff. As per the original investment approval, the project of transmission system for Parbati-II HEP was scheduled to be completed within 36 months from the date of IA matching with the commissioning of generation project. However, Asset-I and Asset-II were commissioned on 10.10.2014 and 4.10.2014 respectively. Thus, there is a delay of approximately 69 months in the commissioning of the instant assets.

12. Annual Fixed Charges (AFC) for the instant transmission assets was allowed vide order dated 22.12.2014 under Regulation 7(7) of the 2014 Tariff Regulations, subject to adjustment as per the said Regulation and subject to approval of CODs of the assets.

13. Thereafter, the petitioner filed an Interlocutory Application No. 04/15 dated 3.2.2015 for approval, as per clause 54 and 55 i.e. “Power to Relax and Power to Remove Difficulty” of the 2014 Tariff Regulations, of additional expenditure towards the cost of insurance of line length of 129.02 Ckt. Km comprised of the 400 kV (Quad) 2 x S/C Parbati-Koldam TL (excluding Parbati-II to Parbati-III section) starting from LILO point of Parbati Pooling Station to Koldam HEP.

14. The petitioner has submitted that as per Operation Interface Agreement entered with CTU i.e. PGCIL, it is required to undertake insurances during the operation period, against various risks in a manner, as required under prudent utility practices and the law. The prevailing practice in the sector is to create a Self Insurance Reserve @ 0.1% per annum on Gross Block of Fixed Assets (except assets covered under mega insurance policy) as at the end of the year by appropriating current year profit towards future loss which may arise from un-insured risks. The amount of Self Insurance Reserve, if created under similar approach by the petitioner, works out to be ₹40 lakh. The petitioner, further submitted that in view of the operational uncertainties, it is felt that the reserve of ₹40 lakh based on the prevailing practices is too meagre and may not be sufficient to restore the line in case of exigencies, as the average approach to these locations from the road is about 4 km with the average altitude of 1500 m above the sea level. The policy works well in case of multiple assets, however it may not stand in case of single project company. The minimum quotation received is of ₹30 lakh including service tax for the commissioned assets from National Insurance Company Ltd. (Public Sector undertaking company). Annual O&M Expenses for the instant assets work out ₹88 lakh for 2015-2016. The petitioner has submitted that insurance coverage would consume more than 34% of the Normative O&M Expenses provided under the 2014 Tariff Regulations, which shall make it financially unviable for the promoters and lenders of the company to operate and maintain the assets as required under prudent utility practices. The petitioner has requested that the cost of insurance for the project may be allowed to be borne by beneficiaries of the project and allowed as pass through cost as part of the tariff so as to ensure that the project

gets complete insurance cover and company stays viable and in sound financial health to operate and maintain the lines smoothly.

15. During the hearing on 16.4.2015, the petitioner reiterated its submissions and further submitted that the amount is too meagre and may not be sufficient to restore the lines in case of exigencies and vagaries of nature as the lines are located totally in the hilly terrain. Moreover, the norms specified in the 2014 Tariff Regulations work well in case of a petitioner who has multiple assets but not in case of a single project company like the petitioner and that too on hilly areas.

16. In response to a query, regarding the petitioner's prayer for allowing the cost of insurance for the transmission assets, the representative of PGCIL (joint venture partner of the petitioner) submitted that in case of single asset transmission licensee, the insurance amount included in the O&M Expenses may not be sufficient to meet the requirement of insurance premium particularly for transmission lines in the hilly terrain. The Commission directed PGCIL to submit its detailed comments on the petitioner's prayer and further directed the petitioner to submit the details of similar instances, if any, and copies of the Operation Interface Agreement with the CTU.

17. The petitioner, vide a common affidavit dated 5.5.2015, for both Petition No. 312/TT/2014 and the instant petition has submitted that it is a single project company and this project is unique in nature wherein the majority of the lines pass through tough hilly terrain and the locations are prone to adverse weather conditions. The self insurance of the assets covered in the instant project works out to be ₹84 lakh approximately. The high availability levels of these lines should

be high as they are must for evacuation of key HEPs and form the backbone for downstream evacuation of HEPs.

18. The petitioner has further submitted that the normative O&M Expenses specified in the 2014 Tariff Regulations works out to approximately ₹198 lakh and would consume more than 30% of the normative O&M Expenses. With the balance normative O&M amount, the petitioner has to maintain the other costs which shall render the process financially unviable. The petitioner will be left with no option but to utilize the additional expenditure from ROE. As per Section 61(b) of Electricity Act, 2003, the business is required to be conducted on commercial principles and therefore, the Commission had earlier used the provision of "Power to relax" for reimbursement of additional expenditure towards deployment of special security forces (CISF) at Salakati and Bongaigaon Sub-stations in Eastern and NE Region and at Wagoora Sub-station in NR for the year 2013-14. However, it has no information, if any petition in regard to additional expenditure on account of insurance for transmission lines had been filed.

19. PGCIL, vide affidavit dated 28.5.2015, has submitted that the unit normative O&M rates for control period 2014-19 have been notified considering the actual O&M Expenses from 2008-09 to 2012-13 which included the insurance charges for the respective years. PGCIL has a self insurance policy created for @ 0.1% p.a. on Gross Block of Fixed Assets (except assets covered under mega insurance policy). Accordingly, the insurance costs to be borne by the utility have been factored in the O&M rates specified for the control period 2014-19. PGCIL has pan-India presence and approximately 7% of its transmission line circuit km network is passing through hilly terrain. However, the instant line of PKTCL is

entirely in the hilly terrain and it falls on adverse end of normalization scale. In case of licensee with multiple projects falling across the normalization scale, the licensee shall endeavour to optimize its overall O&M Expenses as per the charges, however, in case of single project company like PKTCL which is having its transmission lines only in hilly terrain, it may not be able to match its O&M Expenses specified by the Commission. Normally, the employee cost constitutes 50% to 60% of O&M Expenses and remaining portion is to take care of other expenses such as Repair & Maintenance, Security expenses, Rent, Power charges, Tour & Travel, Insurance etc. Thus, the insurance cost in respect of PKTCL would consume most of the normative O&M Expenses and with the balance O&M charges, it may be difficult for the petitioner to maintain the employee cost, administrative cost and maintain the lines in such a high altitude. PKTCL will be forced to utilize the additional expenditure from ROE thereby eating into the basic returns of 15.5% on equity investments available under Tariff Regulation, 2014, which in turn shall adversely impact the recovery of cost of electricity transmission.

20. During the hearing held on 9.6.2015, the petitioner reiterated that the instant transmission assets are in landslide and heavy snow prone area. The assets have been designed as per the existing approved norms as per the standard industry practice. As per the Operation Interface Agreement entered with CTU, the petitioner is required to undertake insurance cover for the assets against various risks as required under prudent utility practices and the law, but there is no system for insuring the transmission line in the country. However, the O&M Expenses allowable for the instant assets do not take care of the insurance cost

as a major portion of the O&M Expenses specified is spent towards the manpower cost and the remaining amount is used for regular maintenance of the transmission assets. The instant lines are very critical lines evacuating power from the upper reaches and these lines are required to be insured properly and the high cost of insurance is eroding its return on equity. There is no intention to profit from the insurance. Therefore, the 15.5% of assured return on equity specified in the Regulations should be protected. The petitioner further clarified that the transmission lines were designed by PGCIL and it has merely paid the development charges for the design. The lines were designed to take load upto 1.5 cm of snow loading. Though, as per the latest design of PGCIL, 5 cm of snow loading is taken care of, the instant transmission lines have experienced 20 cm of snow loading recently resulting in failure of two towers.

21. We have considered the submissions of the petitioner and PGCIL. The petitioner has raised similar issue in Petition No.312/TT/2014. The relevant portion of the Commission's order dated 19.12.2016 in Petition No.312/TT/2014 is as follows:-

> "20. We have considered the submissions of the petitioner and PGCIL. As regards, the petitioners' contention that the existing O&M Expenses are not sufficient to meet the insurance expenses of the petitioner, the O&M norms have been specified in the 2014 Tariff Regulations after taking into consideration all the aspects and after exhaustive consultation with the stakeholders and they cannot be relaxed just because the petitioner is not able to meet its cost of insurance. Further, the expenses related to insurance have been considered while framing the 2014 Tarff Regulations and included in the O&M Expenses as specified in Clause (42) of Regulation 3 of the 2014 Tariff Regulations, which specifies as under:-
>
> > "**operation and maintenance expenses**' or **'O&M expenses'** means the expenditure incurred for operation and maintenance of the project, or part thereof, and includes the expenditure on manpower, repairs, spares, consumables, **insurance** and overheads but excludes fuel expenses"
>
> 21. As regards, the petitioner's contention that it is difficult for a Single Project Transmission Company, like the petitioner to bear the higher cost of insurance, it is observed that some of the stakeholders had raised this issue during the framing of

the 2014 Tariff Regulations and considered while framing these regulations. The relevant portion of the SOR is extracted hereunder. As stated in the SOR, we are of the view that the single project companies, like the petitioner should adopt efficient technology and methods to contain the O&M Expenses within the industry benchmarks.

> "31.34. As regards the suggestion that the basis considered for deriving per bay and per ckt-km cost is not prudent and separate treatment be given for the single project transmission companies for the Tariff Regulations 2014-19, the Commission has continued with the approach followed in the CERC Tariff Regulations, 2009. The Commission has analysed the asset configuration of the single project companies and observed that though the single project transmission licensees are not comparable with the other licensees in terms of asset configuration, there should not be significant difference in O&M expenses in terms of cost drivers. The norms for O&M expenses have been derived giving due consideration to the suggestions of stakeholders. Further, single project companies need to undertake more efficient measures to contain the O&M expenses within industry bench marks."

22. In view of above, we are of the view that there is no justification to allow higher O&M Expenses to cover the higher insurance expenses of the petitioner and accordingly the petitioner's prayer for additional expenditure towards the cost of insurance of 400 kV D/C Koldam-Ludhiana Line in I.A. No. 03/IA/2015 is rejected."

22. We do not find any reason to differ from the decision taken by us in order dated 19.12.2016 in Petition No.312/TT/2014. Further, there is no justification to grant higher O&M Expenses for the instant assets to cover the higher insurance expenses. Accordingly, I.A. No. 04/IA/2015 is rejected.

23. The petitioner has claimed the following transmission charges for the instant assets for the 2014-19 tariff block:-

(₹ in lakh)

Particulars	**Asset-I**				
	2014-15 (pro-rata)	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Depreciation	420.96	938.82	995.39	1028.59	1028.59
Interest on Loan	718.39	1519.86	1499.26	1427.06	1292.65
Return on Equity	470.40	1057.39	1125.75	1164.56	1164.56
Interest on working capital	38.17	83.37	85.85	85.93	82.92
O & M Expenses	20.22	44.09	45.54	47.05	48.62
Total	**1668.13**	**3643.53**	**3751.79**	**3753.19**	**3617.34**

(₹ in lakh)

Particulars	Asset-II				
	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Depreciation	411.07	888.07	940.26	968.92	968.92
Interest on Loan	701.41	1436.71	1415.00	1342.27	1215.65
Return on Equity	459.57	1000.68	1063.85	1097.46	1097.46
Interest on working capital	37.26	78.81	81.04	80.88	78.05
O & M Expenses	19.48	41.06	42.40	43.82	45.28
Total	**1628.79**	**3445.33**	**3542.56**	**3533.35**	**3405.36**

24. The petitioner's claim for interest on working capital is as given under:-

(₹ in lakh)

Particulars	Asset-I				
	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	6.40	6.61	6.83	7.06	7.29
O & M Expenses	3.55	3.67	3.79	3.92	4.05
Receivables	586.58	607.25	625.30	625.53	602.89
Total	**596.53**	**617.54**	**635.92**	**636.51**	**614.23**
Rate of Interest	13.50%	13.50%	13.50%	13.50%	13.50%
Interest	**38.17**	**83.37**	**85.85**	**85.93**	**82.92**

Particulars	Asset-II				
	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	5.96	6.16	6.36	6.57	6.79
O & M Expenses	3.31	3.42	3.53	3.65	3.77
Receivables	553.55	574.22	590.43	588.89	567.56
Total	**562.82**	**583.80**	**600.32**	**599.11**	**578.12**
Rate of Interest	13.50%	13.50%	13.50%	13.50%	13.50%
Interest	**37.26**	**78.81**	**81.04**	**80.88**	**78.05**

25. 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. Uttar Pradesh Power Corporation Ltd. (UPPCL), Respondent No. 9, has filed reply vide affidavit dated 3.11.2014. Ajmer Vidyut Vitran Nigam Limited (AVVNL), Respondent No. 2, Jaipur Vidyut Vitran Nigam Limited (JVVNL), Respondent No. 3 and Jodhpur Vitran Nigam Limited (JdVVNL), Respondent No. 4 (collectively referred to as "Rajasthan Discoms") have filed a combined reply

vide affidavit dated 21.11.2014. NTPC Limited (NTPC), Respondent No. 20, (impleaded as a respondent in terms of Commissions' directions as on 13.11.2014) has filed reply vide affidavits dated 20.11.2014 and 14.7.2016. UPPCL has mainly raised issues of time over-run and cost over-run, capital cost and additional capitalisation, interest on loan, pre-tax rate of return on equity, service tax and reimbursement of expenditure towards filing fee, license fee etc. The petitioner has filed rejoinder dated 22.11.2014 to the reply of UPPCL. Rajasthan Discoms have raised issues of time over-run and thereby additional capitalisation, O&M Expenses, Interest on working capital, cost over-run, interest on loan and service tax etc. The petitioner has not filed rejoinder to the reply of Rajasthan Discoms. NTPC in its reply has submitted that the instant assets are not the part of associated transmission system (ATS) of Koldam HEP but are part of a composite scheme and to be executed by the petitioner as Parbati-II ATS. NTPC has further submitted that Central Electricity Authority vide its letter dated 23.2.2009 has clarified to the petitioner that PGCIL is already building Koldam-Nalagarh lines which would suffice as far as evacuation of power from Koldam HEP is concerned. The petitioner has filed rejoinder dated 5.8.2016 to the reply of NTPC. The objections raised by the respondents and the clarifications given by the petitioner are addressed in the relevant paragraphs of this order.

<u>Date of commercial operation (COD)</u>

26. The petitioner has claimed the actual COD of Assets-I and II as 10.10.2014 and 4.10.2014 respectively. The petitioner has submitted that the assets were ready for its intended use but could not be commissioned due to delay in commissioning of switchyard at the end of Koldam HEP. Therefore, the petitioner was not able to provide service for the reasons not attributable to itself, its

suppliers or contractors. The petitioner has submitted that Assets-I and II accordingly qualify for approval of the CODs as 10.10.2014 and 4.10.2014, prior to the element coming into regular service.

27. The dates of commercial operation of Asset-I and Asset-II were provisionally approved vide order dated 22.12.2014, while allowing AFC under Regulation 7(7) of the 2014 Tariff Regulations and it was stated that the same will be approved at the time of issue of final order. The relevant portion of the order is as under:-

> "4. We have considered the submissions of the petitioner and NTPC. We notice that NTPC has taken divergent stands in the matter with regard to the readiness of the Bays and Switchyard for charging of the transmission line. From the submissions, it appears that the transmission line has not been charged as NTPC has not made available switchyard at Koldam HEP at rate voltage level. NTPC is directed to facilitate the petitioner in the immediate charging of 400 kV S/C Banala-Koldam Transmission Line at its rated voltage level. As regards the petitioner's request to approve the date of commercial operation of the asset under Regulation 4(3)(ii) of the 2014 Tariff Regulations, it is clarified that the dates of commercial operation of the assets (4.10.2014 for Asset I and 10.10.2014 for Asset II) have been provisionally accepted for the purpose of granting tariff under proviso (i) of Regulation 7(7) of the 2014 Tariff Regulations and the issue shall be decided at the time of determination of final tariff."

28. As per proviso (ii) of Regulation 4 (3) of the 2014 Tariff Regulations, in case of non-readiness of downstream/upstream system, the transmission licensee shall approach the Commission for approval of the COD of such Transmission system. Regulation 4(3) of the 2014 Tariff Regulations, provides as under:-

> "(3) date of commercial operation in relation to a transmission system shall mean the date declared by the transmission licensee from 0000 hour of which an element of the transmission system is in regular service after successful trial operation for transmitting electricity and communication signal from sending end to receiving end:
>
> Provided that:
>
> i) Where the transmission line or substation is dedicated for evacuation of power from a particular generating station, the generating company and transmission licensee shall endeavour to commission the generating station and the transmission system simultaneously as far as practicable and shall ensure the same

through appropriate Implementation Agreement in accordance with Regulation 12(2) of these Regulations:

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

29. Further, Regulation 5(2) of the 2014 Tariff Regulations specifies as follows:-

"5. Trial Run and Trial Operation.-

(2) Trial operation in relation to a transmission system or an element thereof shall mean successful charging of the transmission system or an element thereof for 24 hours at continuous flow of power, and communication signal from sending end to receiving end and with requisite metering system, telemetry and protection system in service enclosing certificate to that effect from concerned Regional Load Dispatch Centre."

30. We have considered the submissions made by the petitioner and NTPC and perused the documents available on records. It is observed that in the 34th Meeting of the Standing Committee on Power System Planning of Northern Region held on 8.8.2014, the representative of NTPC informed as under:-

"NTPC informed that pre-commissioning activities at Koldam Switchyard are being carried out and thereafter clearance from Electrical Inspectorate shall be taken and after that the switchyard can be charged in about one month's time."

31. It is further observed that after completion of re-commissioning activities, NTPC requested for CEA clearance on 18.8.2014 for charging of switchyard at 400 kV, the switchyard was inspected on 25.9.2014 by CEA and approval for charging was accorded on 17.10.2014. NTPC provided bay equipments associated with the transmission line terminating at the Koldam Switchyard in July, 2008. However, the switchyard was charged at 11 kV, which got charged at required voltage of 400 kV on 6.2.2015 through Koldam-Nalagarh line after completion of required jumper connection activities. Therefore, in our view, the 400

kV bays in switchyard of Koldam HEP were not ready at rated voltage of 400 kV in October, 2014, when the Asset-II in the instant petition was ready for charging.

32. NTPC in its reply dated 14.7.2016 has reiterated its submission in reply dated 20.11.2014 and also raised the issue regarding PLCC commissioning, which has been completed on 3.4.2015, inspite of rigorous follow up by the NTPC. We have noted that the petitioner was ready with the Ckt.-II of 400 kV S/C Parbati-Koldam line for charging after receiving the 'Approval for Energisation' certificate from CEA under Regulation 43 of CEA (Measures relating to safety and Electric Supply) Regulations, 2010 and idle charged the lines in October, 2014. The commissioning of PLCC was not in the scope of the petitioner and is carried out by the PGCIL after rigorous follow-up by NTPC.

33. NTPC has contended that length of transmission line has been given by PKTCL on 19.11.2014, for the purpose of relay setting is 63.888 km, whereas, the length of the line is 66.786 km, as per order dated 22.12.2014. Thus, the petitioner has declared provisional CODs of the transmission lines without proper relay setting co-ordination, endangering grid security. The petitioner has submitted that the length of Banala-Koldam section of transmission line is 62.636 km as indicated in the petition. The balance of 0.814 km for Ckt-I is the section of line from Banala Pooling Station to LILO point of Banala Pooling Station and 0.438 km for Ckt-I from Tower-9E to gantry of Koldam Switchyard of Koldam Nalagarh Transmission Line. Thus, the total is 1.252 km. Therefore, the line length of 63.888 km submitted for the purpose of relay settings is absolutely correct.

34. We have perused the letter dated 23.2.2009 of CEA and agree with the contention of NTPC that the instant assets are not part of NTPC Koldam HEP-ATS. Instead, the instant assets are considered as a part of composite scheme of transmission system for Parbati-II, Parbati-III and Koldam HEP as per decision taken in the 14th meeting of Standing Committee on Power System Planning of Northern Region. However, the upstream 400 kV bays for the Ckt.-II of Parbati-Koldam-II line were in the scope of NTPC and were to be matched with the commissioning of Parbati-Koldam-II line for regular service of the transmission line. The Ckt.-II of Parbati-Koldam line was commissioned with idle charged condition on 4.10.2014. NTPC provided bays equipment associated with the transmission line terminating at the Koldam Switchyard in July, 2008. However, the switchyard was charged at 11 kV, which got charged at required voltage of 400 kV on 6.2.2015, through Koldam-Nalagarh line, after completion of required jumper connection activities. The flow of power in the line was started on 21.3.2015 after commissioning of PLCC and the Ckt.-II of Parbati-Koldam-II line is being put to use only on 21.3.2015.

35. It is observed that Ckt.-I of Parbati-Koldam line was put into service on 10.10.2014, therefore we allow the COD of Asset-I as 10.10.2014. However, we are not inclined to approve the petitioner's prayer for approval of COD of Ckt-II of Parbati-Koldam line as 4.10.2014 under Regulation 4(3) of the 2014 Tariff Regulations, as Ckt-II of Koldam-Ludhiana line though was idle charged on 4.10.2014 it was not put into service. The Ckt.-II was put into use only on 21.3.2015 on account of the delay in commissioning of the 400 kV bays in Koldam switchyard of NTPC.

36. Accordingly, the COD of the Ckt.-I and Ckt.-II of Parbati-Koldam line shall be reckoned as 10.10.2014 and 21.3.2015 respectively. However, IDC and IEDC for Ckt-II of Parbati-Koldam line from 4.10.2014 to the date of usage of the Parbati-Koldam Line i.e. 20.3.2015 would be borne by NTPC. The IDC and IEDC borne by NTPC shall not be capitalized in its book of accounts for the purpose of claiming tariff for its generation from Koldam HEP NTPC as well as for transmission services by the petitioner.

Capital cost

37. 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.

38. The petitioner has submitted details of approved apportioned cost, RCE, costs as on COD and estimated/projected additional capitalisation as per Auditors' certificate dated 4.7.2016, vide affidavit dated 14.7.2016. The details are as under:-

(₹ in lakh)

Particulars	Approved apportioned cost		Expenditure upto COD	Proposed additional capital expenditure**			Estimated completion cost
	As per original IA	As per RCE		2014-15#	2015-16	2016-17	
Asset-I: (COD-10.10.2014)	15071.32	20651.12	16353.13	1033.89	1000.00	1312.85	19699.87
Asset-II: (COD-4.10.2014)	14221.04	19485.99	15430.54	997.11	1000.00	1137.23	18564.88
Total	29292.36	40137.11	31783.67	2031.00	2000.00	2450.08	38264.75

*The capital cost have been stated to be verified from the information given by PGCIL upto respective CODs of the assets, by the Auditors.
**As per Form-7, of the respective assets, submitted vide affidavit dated 5.8.2016.
#It is assumed that add-cap for 2014-15 includes the entire balance IDC and IEDC as on COD, certified in the Auditors' certificate.

39. However, the Auditors' Certificate submitted by the petitioner does not indicate the year wise estimated payment made for IDC and IEDC, after CODs. Therefore, it has been assumed that the claimed estimated IDC and IEDC after COD is discharged by the petitioner in respect of Asset-I and Asset-II upto 31.3.2015 and 21.3.2015 respectively i.e. add-cap for 2014-15. As the Tariff COD of Asset-II is considered as 21.3.2015, the add-cap claimed by the petitioner during 2014-15 i.e. from 5.10.2014 to 31.3.2015 has been reduced to pro-rata value for the revised add-cap i.e. add-cap from 22.3.2015 to 31.3.2015, for the purpose of tariff in this order. Further, in case of both Asset-I and Asset-II, the add-cap for 2014-15 has been reduced by the amounts of estimated payment towards IDC and IEDC as discussed later in this order, for the purpose of working out tariff in this order. Thus, the capital cost considered as on COD and revised add-cap considered for tariff purpose and total estimated completion cost, are summarized as follows:-

(₹ in lakh)

Particulars	Approved apportioned cost as per RCE	Capital cost as on COD	Projected additional capital expenditure			Total estimated completion cost
			2014-15	2015-16	2016-17	
Asset-I (10.10.2014)*	20651.12	16353.13	800.00***	1000.00	1312.85	19465.98
Asset-II (21.3.2015)*	19485.99	16181.38	49.16**	1000.00	1137.23	18367.77

*COD for Asset-I as 10.10.2014 and Tariff COD for Asset-II as 21.3.2015.
**Revised add-cap from 22.3.2015 to 31.3.2015 for 2014-15 as discussed at para 40.
***Add-cap for 2014-15 as reduced by the estimated discharge of IDC and IEDC.

Cost Over-run

40. UPPCL has submitted that the cost of the instant assets has increased mainly due to delay in commissioning of NHPC HEPs and NTPC HEP. As such, price escalation, IDC and IEDC upto 31.3.2013 may not be included in the capital cost of the instant asset, and the petitioner be directed to realize the same from NHPC and NTPC in terms of Regulation 4(3)(i), Regulation 11(b)(3) and provision 1 and 2 of Regulation 12(2) of the 2014 Tariff Regulations. Rajasthan Discoms have submitted that the additional expenditure incurred due to delays needs to be scrutinized properly before being allowed to the petitioner. However, the total estimated completion cost of instant assets is within the RCE. Hence, there is no cost over-run in the case of instant assets.

Time Over-run

41. As per the IA, the instant assets were scheduled to be commissioned within 36 months from the date of IA i.e. 26.12.2005. Thus, the instant assets were scheduled to be commissioned by 25.12.2008 say 1.1.2009, against which the instant assets have been commissioned on 10.10.2014 and 4.10.2014 respectively. Thus, there is a delay of approximately 69 months in the commissioning of the instant assets. According to the petitioner the delay is on

account frequent shifting and delay in the commissioning of HEPs, delay due to forest clearance, delay due to ROW issues and delay due to shut down issues. In this regard, the petitioner filed Petition No.135/MP/2011 for freezing the COD of Parbati-II and Koldam as the transmission system entrusted to it was being affected by the delay in commissioning of the generation projects. The submissions made by the petitioner are as under:-

A. Shifting of COD of HEPs

a. COD shifted from 25.12.2008 to 31.12.2011: In the 26th meeting of the Standing Committee on Power System Planning of Northern Region held on 13.10.2008, it was decided that NHPC would be inform possible date of commissioning of Parbati-II HEP to work out the RCOD of the Parbati-Koldam II Line. The petitioner had signed an Indemnification Agreement dated 18.12.2008 with NHPC according to which the commissioning of first unit of Parbati-II HEP was scheduled on 31.12.2011 (Zero Date). The said date was subject to review and revision in zero date due to change in commissioning schedule of Parbati-II HEP. In view of 26th SCM decision and zero date fixed under Implementation Agreement, the petitioner vide letter dated 13.2.2009 and 5.3.2009 requested PGCIL to amend the Implementation Agreement and suitably revise the RCOD. PGCIL (CTU) amended the Implementation Agreement on 22.4.2009 to revise the RCOD to 31.12.2011.

b. COD shifted from 31.12.2011 to 30.6.2012: NHPC vide its letter dated 26.3.2009, informed that the zero date is to be revised to December, 2012. Accordingly, after a request made by the petitioner on 6.7.2009, the CTU and the petitioner amended the Implementation Agreement on 27.8.2009, to revise the RCOD to 30.6.2012

c. COD shifted from 30.6.2012 to 31.3.2013: The petitioner was informed by NHPC on 16.3.2011 that Parbati-II HEP was expected to be commissioned by July, 2014. Accordingly it requested NHPC to sign another supplementary Implementation Agreement with the revised "zero date" vide letter dated 31.3.2011, but the letter was not replied by NHPC. Thereafter, CEA sent a letter dated 18.5.2011 to the petitioner intimating that the commissioning schedules of the transmission lines associated with Koldam HEP and Parbati-II HEP were as under:-

(a) Koldam HEP-March 2013 onwards;
(b) Parbati-II HEP-2014-15

In view of the frequent shifting of commissioning date of Parbati-II HEP and Koldam HEP, the RCOD of the Parbati-Koldam Line was also shifted. The 30th Meeting of the Standing Committee on Power System Planning of Northern Region was held on 19.12.2011, wherein the petitioner confirmed that it was putting in its best efforts for completion of Parbati-Koldam lines but the Stage-II Forest Clearance was still pending. Accordingly, CTU amended the Implementation Agreement on 12.9.2012, to revise the RCOD to 31.3.2013.

B. <u>Delay due to Forest Clearance</u>

The complete Parbati-Koldam line 2xS/C 400 kV (Quad) traverses through 231.347 ha. Of forest area in Banjar, Mandi, Nachan, Suket and Bilaspur forest divisions of the state of Himachal Pradesh and out of this, about 155.351 ha. is traversed by Parbati-Koldam-II line. Thus, forest clearance was required for total 231.347 ha. of forest area. The portion of the Parbati-Koldam Line falling in forest areas is approximately 45 km, although construction is affected to the extent of approximately 56 km. PGCIL had submitted proposals for diversion of forest land in Himachal Pradesh during 2005 and 2006, before the formation of the joint venture company, (the petitioner), to the concerned Divisional Forest Officers in the aforesaid forest divisions in Himachal Pradesh.

a. <u>Forest clearance for Himachal Pradesh portion</u>

a) Stage-I (in-principle) Forest Clearance in respect of the State of Himachal Pradesh was granted vide letter dated 5.12.2007 sent by MoEF to the Additional Chief Secretary (Forests), Department of Forests, Government of Himachal Pradesh.

b) Stage-II (final) Forest Clearance was granted vide letter dated 30.11.2012 in the name of PGCIL. As such, the petitioner vide letter dated 12.11.2011 requested MoEF for the change in name of the user from PGCIL to itself.

The petitioner has submitted that thereafter, it took up the matter with PGCIL vide letter dated 19.3.2013 intimating receipt of Stage II Forest Clearance, wherein it was stated that, considering the work involved in the forest stretches, it would be able to complete the line by the last quarter 2013 or the first quarter of 2014. This letter dated 19.3.2013 was also deliberated upon, in the 25th Meeting of Technical Coordination Sub-committee held on 25.4.2013 and the 28th Meeting of Northern Region Power Committee held on 26.4.2013. Further, upon receipt of Stage-II

Forest Clearance in Himachal Pradesh, it was learnt that a separate tree cutting approval is required from the state authorities for felling of trees in forest stretches en-route the transmission line. It was observed, while pursuing the case with the forest authorities that tree cutting is a very lengthy, tedious exercise and requires a lot of time. The process is exclusively carried out by the State Forest Authorities, which includes recounting/enumeration as per the location and approval by divisional forest tender economics/cost estimate prepared and approved by Director HPSFDC. Thereafter, bids are invited and scrutinized to determine the lowest bidder. The consolidated report, after discounted price of lowest bidder, is sent to Director for approval and placement of award. Five forest divisions were involved in the process which took lot of time. The tree cutting process took more than 6 to 7 months, which is similar to the time taken by PGCIL and other utilities in the vicinity. Thereafter, all the tree cutting approvals were obtained by late September, 2013. The actual site was available for work only in the month of October, 2013 after cutting of trees in the forest area and the construction could be started thereafter. In view of the above developments, the Board of Directors of the petitioner, in its 59th meeting held on 16.8.2013, deliberated in detail, on the developments and approved the extension of the RCOD to 30.6.2014. CTU on 24.1.2014 amended the Implementation Agreement to revise the RCOD to 30.6.2014.

C. Delay due to ROW issues

The petitioner has submitted that in addition to usual challenges faced while undertaking construction of the transmission lines in hilly areas, it faced severe right of way challenges while implementing the Parbati-Koldam-II Line, despite having secured authorization under Section 164 of the Electricity Act, 2003 ("the Act"). The time taken for disposal and final settlement of the court cases prevented construction of work on the affected portions of land for more than 20 months. It took steps to mitigate the consequences of the challenges faced in regard to right of way issues by involving the local panchayats and local administration to persuade the landowners to settle out of court, holding elaborate meetings with all stakeholders including the land owners to reach the amicable solution and impressing upon the land owners, local administration and local leaders about the national importance of the project and authorization under Section 164 of the Act, provided to it. A total of 54 court cases were filed against it, affecting construction activities at large stretch of the Parbati-Koldam-II Line. Landowners demanded unreasonable amounts in terms of crop compensation defying the rates prescribed by concerned state authorities and the prevailing rates in the area. The time taken for disposal and final settlement of the court cases prevented construction of work on the affected portions of land for varying periods of time ranging from one month to one year. By June 2014, the foundation work, stringing work was completed for Ckt.-I and Ckt.-II and significant portion of balance work being held up due to pending court cases. As this line was mostly completed and court settlements were taking longer time, the cases were settled out of Court with the land owners. The cases, which could not be settled out of court, were processed in courts, police protection was sought and under situations of extreme resistance and distress the work was completed. 27 cases are still open and final orders from various courts are still awaited. In all these cases work was accomplished based on DM's orders with police protection, while the final order from various courts on any additional compensation required to be paid are awaited. In at least 10 cases, active police involvement was needed to complete the work on the line. In some of the cases, odds were too high and the executives and workers on site were mistreated, manhandled and threatened by land owners. Thus, court cases regarding land on some of the locations took long period of time to resolve causing inordinate delays in completion of the line.

The RoW problems started on 10.3.2013 and the issue could partly be resolved on 25.11.2014 after intimating DC Banjar about obstructions faced at site and requesting him to issue orders under Section 16 of Indian Telegraph Act, 1885, pursuing the matter with SDM/DM/Police officers and meeting with MLA of the area, the RoW issue took about more than 20 months (10.3.2013 to 25.11.2014).

D. Delay due to Shut-Down Issues

The petitioner has submitted that after completion of work on Ckt.-I in June, 2014, it sought No-Objection Certificate from HPSEB for their 11 kV line which was granted to the petitioner. However, the work on some sites could not be undertaken as there was severe resistance from land owners, leading to a court case on location (190-190A of Ckt.-I). Orders under Section 16 of Indian Telegraph Act, 1885 were received from the office of District Magistrate-Bilaspur on 10.9.2014. However, police protection had to be sought from SHO-Barmana for implementation of the orders of DM-Bilaspur as the protest from land owners was still continuing. Therefore, shut down was again requested and was approved for a period of 25.9.2014 to 27.9.2014 and the work could be completed against all extreme odds of protests by the help of local administration, police and shut down made available by HPSEB. These events delayed the commissioning of Ckt.-I by 4 months (from June, 2014 to September, 2014).

42. During the hearing dated 13.11.2014, the learned counsel for the petitioner submitted that the "Certificate of Charging of Transmission Element' issued by NRLDC has been filed vide affidavit dated 12.11.2014. As per the certificate issued by the NRLDC, Circuit-I (i.e. 400 kV Banala-Koldam-1), connected with Nalagarh-Koldam Ckt.-1 near Koldam end line was charged and synchronized as Banala-Nalagarh and power flow started, Ckt.-I was charged on 9.10.2014 and put under commercial operation on 10.10.2014. Circuit-II (i.e. 400 kV Banala-Koldam-2) was idle charged up to gantry tower near Koldam on 3.10.2014, which is under the scope of NTPC and Koldam Switchyard-I of NTPC is yet to be commissioned. The learned counsel further submitted that as per the minutes of the 34th meeting of Standing Committee on Power System Planning of Northern Region held on 8.8.2014, NTPC has stated that pre-commissioning activities were being carried out at Koldam Switchyard and thereafter the switchyard would be charged in about one month time. It is understood that NTPC was granted clearance for charging of Koldam switchyard by Electrical Inspectorate. In the absence of commissioning of Koldam switchyard this section of the transmission line could not be charged

from both the end point terminals. Hence, as per the direction of the Commission, NTPC was impleaded as a respondent and NRLDC was directed to assist the Commission.

43. NTPC vide its reply dated 20.11.2014 has submitted that that the Parbati-Koldam transmission lines are not a part of the Associated Transmission System of the Koldam HEP, but are a part of ATS associated with Parbati-II of NHPC project as is evident by the Indemnification Agreement between the petitioner and NHPC. In this regard, the Central Electricity Authority in its letter dated 23.2.2009 addressed to the petitioner has clarified as under:-

> "Powergrid is already building Koldam-Nalagarh lines which would suffice as far as evacuation of power from Koldam HEP is concerned."

NTPC has further submitted that the commissioning of the Parbati-Koldam 2xSingle Circuit Lines, it is only required to provide the bay equipment associated with the transmission lines terminating at the Koldam Switchyard. Accordingly, it had completed work at its switchyard as far back as in July, 2008. The petitioner awarded the contract for the EPC of the various packages of the 400 kV (quad) 2xSingle Circuit Parbati-Koldam Lines in August-September, 2010. Further, the stage-II Forest Clearance was granted in December, 2012. Thus, the reason for changing of the COD is attributed to the delay on the part of the petitioner in awarding the contract and obtaining the necessary clearance and is in no way attributed to NTPC.

44. During the hearing on 24.11.2014, the representative of NTPC reiterated its submissions made vide affidavit dated 20.11.2014 and submitted that it was required to provide the bay equipments associated with the transmission lines

terminating at the Koldam switchyard, which was completed in 2008. Therefore, the delay is not attributable to NTPC. The petitioner vide affidavit dated 10.12.2014 submitted that despite submission of NTPC that switchyard is available for Koldam-Ludhiana line charging since the year 2008, the fact remains that switchyard is not available for interconnection at the rated voltage and thus cannot be connected with the transmission line. Therefore, as per the actual status of commissioning of NTPC switchyard, the same situation exists towards commissioning of transmission lines in the instant petition.

45. The petitioner, vide affidavit dated 5.5.2015 has submitted the RLDC Certificate for power flow in case of 400 kV Circuit-II of Parbati-Koldam transmission line from Parbati Pool (Banala)-Koldam-I is from 21.3.2015. The petitioner vide affidavit dated 28.10.2015 has prayed to consider the petition for grant of final tariff as the project has entered into the O&M phase and repayment to the lenders of the project started from July, 2015 onwards. Thus, the financial viability in maintaining the project and that of debt servicing of the project might get affected as the Parbati-Koldam line has been put to use. Further, the petitioner, vide affidavit dated 14.7.2016 has submitted the Auditors' certificate duly bifurcating the two sections of transmission lines along with Amendment No. V to the Implementation Agreement. The petitioner has further submitted that as per Amendment No. V to the Implementation Agreement dated 17.3.2015, the RCOD of the assets in the instant petition is changed from June, 2014 to October, 2014.

46. NTPC vide its reply dated 14.7.2016 has reiterated that as has already been submitted vide its affidavit dated 20.11.2014, the Parbati-Koldam

transmission lines are not a part of the Associated Transmission System of the Koldam HEP. In this regard, the Central Electricity Authority in its letter dated 23.2.2009 addressed to the petitioner has clarified as under:-

> "Powergrid is already building Koldam-Nalagarh lines which would suffice as far as evacuation of power from Koldam HEP is concerned".

NTPC has further submitted that as regards the commissioning of the Parbati-Koldam 2xS/C Lines, it is required to provide the bay equipments associated with Parbati (Banala)-Koldam transmission line (Ckt.-II) only, terminating at the Koldam Switchyard. Accordingly, it had completed work at its switchyard as far back as in the year 2008.

47. NTPC vide affidavit dated 14.7.2016 has made the following additional submissions in response to the Commission observation "NTPC has not made available the switchyard at rated Voltage Level" in order dated 22.12.2014:-

a) NTPC completed the switchyard in July, 2008. Thereafter, during the 34th Standing Committee Meeting held on 8.8. 2014, it was informed that the lines from Parbati pooling point-Banala to Koldam are nearing completion and would be charged at the earliest to enhance the power transmission reliability of Parbati-III by charging Koldam switchyard as a pooling Sub-station. Accordingly, after completion of re-commissioning activities, NTPC requested for CEA clearance on 18.8.2014 for charging of Switchyard at 400 kV. The petitioner vide its letter dated 25.9.2014 informed the likely charging of line by 30.9.2014 and NRLDC informed NTPC about the charging of Ckt.-II on 2.10.2014. The switchyard was inspected on 25.9.2014 by CEA and approval for charging was accorded on 17.10.2014.

b) The CTU provided the Con-5 details on 20.8.2014 based on NTPC application in August, 2012 and letter dated 16.10.2013. NTPC submitted a draft (Con-6) connection agreement on 6.9.2014 to PGCIL for signing [which is pre-requisite before the physical inter-connection with Grid as per Detailed Procedure in Grant of Connectivity Long term Access and Medium Term Open access in Inter State transmission and related matters Regulations, 2009. As per clause mentioned in the CON-6, the Special Energy Meters were arranged by PGCIL and they were installed at Koldam panels on 26.9.2014 for Line and Generator bays. PGCIL extended its consents on 31.12.2014 for signing the connection agreement, immediately the same was signed on 2.1.2015 and Koldam switchyard was finally charged on 6.2.2015 through Koldam Nalagarh line, after completion of required jumper connection activities. As such, it is clear that switchyard alongwith all associated equipment were available for charging well before COD of the instant transmission line. The switchyard was charged by NTPC immediately after receiving charging instructions. Therefore, it is not because of NTPC, the Parbati (Banala)-Koldam line Ckt.-II could not be put to regular use.

c) The PLCC commissioning for these lines has been completed only on 3.4.2015 inspite of rigorous follow up by NTPC.

d) The provisional COD of the transmission line has been declared by the petitioner without proper relay setting co-ordination for the instant transmission line, endangering Grid security.

e) As per the 2014Tariff Regulations, the Commission may decide the date of actual commercial operation from the dates when transmission line has been put into regular use along with communication system and RLDC certificate has been issued in this regard. Further, the transmission charges, if any, need to be borne by only those, for whom the asset has been built.

48. The petitioner has submitted its rejoinder, dated 5.8.2016, to the additional information submitted by NTPC dated 14.7.2016, as under:-

a) The date of commissioning of Circuit-I and Circuit-II of the Parbati-Koldam Line were provisionally accepted in the order dated 22.12.2014 in the instant petition as 10.10.2014 and 4.10.2014 respectively and it was observed that the Koldam Switchyard at Koldam HEP was not made available by NTPC at the rated voltage. The above mentioned findings have neither been challenged nor any review of the order dated 22.12.2014 in the instant petition has been filed by NTPC.

b) An in-consistent stand taken by NTPC regarding the commissioning of the Koldam Switchyard is evident from the following:-

a. At the 34th Meeting of the Standing Committee on Power System Planning of Northern Region held on 8.8.2014, NTPC informed that the pre-commissioning activities at Koldam Switchyard are being carried out and thereafter clearance from Electrical Inspectorate shall be taken. The switchyard can be charged after that in about one month's time.

b. NTPC by its email dated 3.10.2014 had informed Power Coordination Committee that Koldam Switchyard is not ready yet. In the said email NTPC also indicated that if the petitioner wants to charge the line upto the last tower, with jumper from last tower to NTPCs' gantry, the same can be charged.

49. The petitioner has further submitted that NTPC has wrongly relied on CEA Certificate dated 18.7.2008. The same is evident from a perusal of Regulation 43 of the CEA (Measures relating to Safety and Electricity Supply) Regulations, 2010, which provides that approval of Electrical Inspector will be required before commencement of supply or recommencement of supply after shutdown of 6 months. Furthermore, Rule 63 of the Indian Electricity Rules, 1956, provides that the approval of the Electrical Engineer will be required before commencement of supply or recommencement of supply after shutdown of 1 year or more. Therefore, as the Koldam Switchyard is shut down for more than 1 year the validity of CEA approval granted on 18.7.2008 may have elapsed. Further, in the 28th NRPC and 25th TCC meeting held on 26.4.2013, it was submitted by the CTU that the Banala-Koldam section of Parbati-Koldam-II line is to be commissioned by last quarter of 2013/first quarter of 2014 say June 2014. This was also intimated to all the associated power utilities including NTPC and duly accepted by the members.

50. The petitioner also submitted that NTPC requested the CEA on 18.8.2014 to carry out inspection of the Koldam Switchyard at rated voltage. However, the switchyard was nowhere near completion as is evident from NTPCs' email dated 3.10.2014 to CTU. In the said email, it was stated that Koldam Switchyard

is not ready yet and it would take more time for completion. NTPC was only able to finish the Koldam Switchyard on 6.2.2015 and was able to charge the same. Thereafter, the switchyard could be commissioned only by 21.3.2015, post completion of PLCC work, alongwith the Parbati-Koldam section of Parbati-Koldam-II Line being commissioned on the same day. Thereafter, RLDC certificates regarding commissioning of Parbati-Pool (Banala)-Koldam (NTPC)-I Line dated 17.4.2015 was issued confirming power flow in the Parbati-Koldam Line. It is also evident from the NTPCs' reply that there was a substantial quantum of work pending in the Koldam Switchyard on account of the following:-

a. NTPC had made a revised application to CEA Inspectorate for inspection of switchyard on 18.8.2014. CEA inspection was carried on 25.9.2014. The approval for charging was issued by CEA Inspectorate on 17.10.2014

b. After charging clearance was granted, the switchyard of NTPC could be finally charged on 6.2.2015 i.e. after a delay of 3.5 months from the date of issue of CEA clearance.

Therefore, the Banala-Koldam section of Parbati-Koldam-II Lines was idle charged since October, 2014 and attained power flow post completion and charging of NTPCs' switchyard on 21.3.2015. As such, NTPC failed to charge the Koldam switchyard at 400 kV in a timely fashion and the delay on account of the same is attributable to the NTPC. Further, the transmission line had already attained power flow on 21.3.2015, much prior to the date 3.4.2015 as mentioned by NTPC. The same is validated by the RLDC certificate, which indicates the synchronization of line on 20.3.2015 and subsequent completion of uninterrupted power flow of 24 hrs. on 21.3.2015. Thus, the Banala-Koldam section of Parbati-Koldam-II Line was prevented from getting charged post 4.10.2014 on account of non-availability of Koldam switchyard. This position has been accepted in its order dated 22.12.2014 by the Commission.

51. UPPCL has submitted that time over-run and subsequent increase in costs was mainly due to delay in commissioning of HEPs by NHPC and NTPC and has submitted that the petitioner may be directed to realize escalation in price, IDC and IEDC upto 31.3.2013 from NHPC and NTPC in terms of Regulation 4(3)(i), Regulation 11(3) and provision 1 and 2 of Regulation 12(2) of the 2014 Tariff Regulations.

52. We have considered the submissions of both the petitioner, NTPC and UPPCL. There is a delay of 69 months 15 days and 69 months 8 days respectively in the commissioning of Ckt-I and Ckt-II of Parbati-Koldam line. The transmission line was to be commissioned within 36 months from the date of IA i.e. by 25.12.2008 as per original IA. The COD of the line was revised number of times in consultation with PGCIL as CTU and after discussions in various RPC meetings, due to delay in commissioning of generation projects. CEA also in its letter dated 18.5.2011 intimated the petitioner about the commissioning schedule of Koldam and Parbati-II HEP as follows:-

1. Koldam HEP-March, 2013 onwards
2. Parbati-II HEP-2014-15

53. The petitioner also approached the forest authority for forest clearance on 31.5.2005 for the Parbati-Koldam-II line. As per the Forest (Conservation) Amendment Rules, 2004 notified by MoEF dated 3.2.2004, the timeline for

forest approval after submission of proposal is 210 days by State Government and 90 days by Forest Advisory Committee of Central Government i.e. total 300 days. Accordingly the forest clearance could have been provided on 31.3.2006 as per notification of MoEF dated 3.2.2004. However, the stage II clearance for Parbati-Koldam-II line was granted on 30.11.2012. Thereafter, on 24.1.2014, PGCIL as CTU amended the Implementation Agreement to revise the scheduled COD to 30.6.2014, for matching the transmission line with the commissioning of the generating stations and due to delay in obtaining forest clearance. Thus, the additional time taken by the forest authority in forest clearance is 80 months (31.3.2006 to Stage-II clearance 30.11.2012). Therefore, the effective delay due to forest clearance is 73 months (300 days from Investment approval i.e. 26.10.2006 to stage-II clearance 30.11.2012). In our view, delay due to forest clearance and for matching the transmission line with the commissioning of the generating stations is beyond the control of the petitioner.

54. There is delay due to RoW issues also, including court cases filed by the land owners. The petitioner could not start the construction work even after getting the Stage-II forest clearance on 30.11.2012, due to RoW issue. The petitioner had to organize meetings with land owners, local administration and leaders to pursue them about the national importance of the project. It took about 3 months from 30.11.2012 onward. Afterwards, court case started on 10.3.2013 which also affected the construction work. As per the petitioner, it was taking more time to resolve the RoW issues and almost all the work on Parbati-Koldam-II line was completed except the line location where court cases were not settled. RoW issues in some of the cases were settled on 25.11.2014.

In this regard, DM Bilaspur issued order under section 16 of Telegraph Act 1985 on 10.9.2014. Therefore, it is evident that settlement of RoW issues took about 20 months 15 days (date of start of RoW issue 10.3.2013 to settlement date 25.11.2014). In our view, the delay due to RoW and court case is beyond the control of the petitioner.

55. It is further observed that there was delay in commissioning of Parbati-Koldam line due to availing shut-down from HPSEB, which was accorded on 8.7.2014 for the period 25.9.2014 to 27.9.2014. However, the time taken for availing the shut-down of HPSEB line has been subsumed in RoW issue period.

56. The sequence of events alongwith dates is summarized as follows:-

Date	Event	Time taken	Remarks
26.12.2005	Investment approval		
25.12.2008	SCOD as per IA	36 months from the date of IA	
30.5.2005	PGCIL approached authority for forest clearance		
5.12.2007	Stage-I clearance for HP portion		
30.11.2012	Stage-II clearance for HP portion	73 months	From 26.10.2006 to Stage II forest clearance date 30.11.2012
10.3.2013	RoW issue started/Court case filed		
25.11.2014	RoW issue partly settled some issue in court are still pending	20 moths 15 days	10.3.2013 to 25.11.2014
10.10.2014	COD of circuit-I		69 months 15 days
3.10.2014	COD of circuit-II		69 months 8 days
	Total delay	**93 months 15 days**	

57. The total time taken in various activities such as matching the transmission line with generating station, forest clearance, RoW issues and shutdown issues is 93 months and 15 days. The petitioner has commissioned Asset-I and Asset-II with a delay of 69 months and 15 days and 69 months and

8 days respectively. We are of the view that the reasons for time over-run are beyond the control of the petitioner and as such the time over-run in respect of the instant assets is condoned.

Treatment of IDC and IEDC

58. The petitioner has submitted Form-9C vide affidavit dated 14.7.2016, which indicate that the loan has been taken from PFC and REC. However, there are certain gaps in the information such as date of drawl of loans, repayment schedule mismatch between claimed and submitted and proof of interest rates for these loans. Therefore, in the absence of such requisite information required to work out the IDC, the claimed IDC on cash basis has been considered for further analysis in the instant petition. Thus, the estimated payments made against the IDC after COD in case of Asset-I and from COD to tariff COD in case of Asset-II is not allowed/ capitalised as it is on estimation basis and not on cash basis. Therefore, the IDC from COD and from actual COD to tariff COD in case of Asset-I and Asset-II respectively has been reduced from the capital cost as on COD and tariff COD as under:-

(₹ in lakh)

Particulars	Claimed estimated IDC after COD	Capitalisation allowed/disallowed
Asset-I	202.69	Disallowed
Asset-II	167.67	Disallowed

59. Further, the IDC and IEDC for Asset-II (Ckt.-II) from 4.10.2014, till the date of usage of Ckt.-II of the Parbati-Koldam Line i.e. 20.3.2015, would be borne by NTPC.

60. Thus, for the purpose of working out tariff in this order, as it is assumed that the claimed IDC after COD is discharged by the petitioner in add-cap for 2014-15 (For Asset-I: upto 31.3.2015 and for Asset-II: upto 21.3.2015) for both the assets, the petitioner is directed, in case of any variation, if any, to submit year wise discharge of IDC at the time of truing-up, which shall be subject to review.

61. The estimated IDC of ₹202.69 lakh and ₹167.67 lakh in case of Asset-I and Asset-II disallowed above shall be subject to review at the time of truing-up. Therefore, the petitioner is directed to submit information related to date of drawl, clarify mismatch in repayment schedule and interest rate proof of the loans for the instant assets, as well as separate information related to the discharge of IDC on cash basis i.e. IDC discharged upto COD and tariff COD on cash basis and IDC discharged after COD and tariff COD in 2014-15, 2015-16 and 2016-17, in case of instant assets. The IDC disallowed and reduced as above shall be subject to prudence check and review at the time of the true-up petition after prudence check of the IDC details to be submitted by the petitioner.

62. The petitioner, vide affidavit dated 14.7.2016, has submitted Form-12A for instant assets, wherein the year wise details of IEDC discharged upto claimed COD has been indicated. Therefore, the IEDC discharged on cash basis as per Auditors' Certificate dated 4.7.2016 is allowed in the instant petition subject to it being within limits as indicated in the abstract cost as worked out later as at Para 65. However, estimated IEDC to be discharged by the petitioner in case of instant assets, as indicated in the Auditors' Certificate, is not allowed

as it is on estimation basis and not on cash basis. Therefore, the estimated IEDC in case of instant assets has been reduced from the capital cost as on COD and tariff COD as under:-

(₹ in lakh)

Particulars	Claimed IEDC from COD to 21.3.2015	Capitalisation allowed/disallowed
Asset-I	31.20	Disallowed
Asset-II	29.44	Disallowed

COD for Asset-I as 10.10.2014 and Tariff COD for Asset-II as 21.3.2015.

63. Further, the IDC and IEDC from 4.10.2014 for Ckt-II of Parbati-Koldam line, till the date of usage of the Parbati-Koldam Line i.e. 20.3.2015, would be borne by NTPC.

64. The petitioner has submitted "RCE abstract cost estimate" which indicates the limit of IEDC as ₹3707.00 lakh (10.81% of the estimated hard cost). Further, the maximum allowable IEDC limit being applied in most of the petitions is 10.75% of the Hard Cost. Therefore, in the instant petition too, IEDC limit of 10.75% on Hard Cost is considered. The IEDC claimed by the petitioner on cash basis is within the allowable limit of 10.75% of Hard cost of the instant assets as on COD and tariff COD and accordingly it is allowed. The details of IEDC allowed are as under:-

(₹ in lakh)

Particulars	Claimed IEDC upto COD	Allowed IEDC upto COD
Asset-I	1100.12	1100.12
Asset-II	1038.06	1038.06

65. However, the petitioner is directed to submit separate information related to the year wise discharge of IEDC i.e. IEDC discharged upto COD/tariff COD

and IEDC discharged after COD/tariff COD in 2014-15, 2015-16 and 2016-17, if any. The IEDC disallowed and reduced as above shall be subject to prudence check and review at the time of the truing-up.

Treatment of Initial Spares

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

> **"13. Initial Spares**
> Initial spares shall be capitalised as a percentage of the Plant and Machinery cost upto cut-off date, subject to following ceiling norms:
>
> (d) Transmission system
>
> (i) Transmission line - 1.00%
>
> (ii) Transmission Sub-station (Green Field) - 4.00%
>
> (iii) Transmission Sub-station (Brown Field) - 6.00%
>
> (iv) Series Compensation devices and HVDC Station - 4.00%
>
> (v) Gas Insulated Sub-station (GIS)-5.00%
> (vi) Communication system-3.5%
>
> Provided that:
>
> (i) where the benchmark norms for initial spares have been published as part of the benchmark norms for capital cost by the Commission, such norms shall apply to the exclusion of the norms specified above:
>
> (ii) --------
>
> (iii) Once the transmission project is commissioned, the cost of initial spares shall be restricted on the basis of plant and machinery cost corresponding to the transmission project at the time of truing up:
>
> (iv) for the purpose of computing the cost of initial spares, plant and machinery cost shall be considered as project cost as on cut-off date excluding IDC, IEDC, Land Cost and cost of civil works. The transmission licensee shall submit the breakup of head wise IDC & IEDC in its tariff application."

67. The petitioner has claimed initial spares of ₹147.18 lakh and ₹138.88 lakh for Asset-I and Asset-II respectively, which is within the ceiling limit

specified in Regulation 13 of the 2014 Tariff Regulations. Hence, the initial spares claimed by the petitioner are allowed subject to true-up. However, the petitioner is directed to submit the year wise discharge of the initial spares at the time of truing-up.

Capital cost as on COD/tariff COD i.e. 21.3.2015

68. The detail of capital cost considered as on COD/Tariff COD after adjusting the claim of IDC and IEDC is as follows:-

(₹ in lakh)

Particulars	Capital cost claimed as on COD	Add: Hard cost from COD to tariff COD	Less: IDC and IEDC claimed upto COD	Add: allowable		Less: excess initial spares	Capital cost as on COD/Tariff COD considered
				IDC	IEDC		
Asset-I*	16353.13	-	3816.68	2716.56	1100.12	-	16353.13
Asset-II	15430.54	750.84**	3601.36	2563.30	1038.06	-	16181.38

*COD for Asset-I considered as 10.10.2014 and Tariff COD for Asset-II as 21.3.2015.
**Pro-rata Hard cost from 5.10.2014 to 21.3.2015 is being added in the capital cost as on Tariff COD, after removing IDC and IEDC for this period.

Projected additional capital expenditure

69. 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.

70. 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".

71. The cut-off date in the case of instant assets is 31.3.2017. The petitioner has claimed additional capital expenditure for 2014-15, 2015-16 and 2016-17 and has submitted that the additional capital expenditure claimed is towards balance and retention payments and the same is allowed for tariff purpose in this order.

72. The capital cost as on COD and the estimated completion cost of the instant assets considered for the purpose of tariff is summarized as under:-

(₹ in lakh)

Particulars	Capital cost considered as on COD/tariff COD*	Additional capital expenditure			Total estimated completion capital cost as on 31.3.2017
		2014-15	2015-16	2016-17	
Asset-I	16353.13	800.00	1000.00	1312.85	19465.98
Asset-II	16181.38	49.16**	1000.00	1137.23	18367.77

*COD considered for Asset-I is 10.10.2014 and Asset-II is 21.3.2015.
**Revised add-cap for Asset-II (from 22.3.2015 to 31.3.2015) during 2014-15.

Debt-Equity Ratio

73. 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:

b. 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."

74. The petitioner has claimed debt: equity ratio of 70:30 as on the COD/tariff date of commercial operation of the instant assets. However, based on actual gross loan amount indicated by the petitioner in Form-9C, in case of Asset-II the Debt: Equity ratio as on Tariff COD is 70.80: 29.20 as against notional 70:30 in case of Asset-I. Therefore, the details of debt: equity in respect of the instant assets as on COD and tariff COD and as on 31.3.2019 respectively are considered as under:-

Particulars	**Asset-I**			
	Capital cost as on COD		**Capital cost as on 31.3.2019**	
	Amount (₹ in lakh)	**%**	**Amount (₹ in lakh)**	**%**
Debt	11447.19	70.00	13626.19	70.00
Equity	4905.94	30.00	5839.79	30.00
Total	**16353.13**	**100.00**	**19465.98**	**100.00**
Particulars	**Asset-II**			
	Capital cost as on tariff COD		**Capital cost as on 31.3.2019**	
	Amount (₹ in lakh)	**%**	**Amount (₹ in lakh)**	**%**
Debt	11456.47	70.80	12986.94	70.71

Equity	4724.91	29.20	5380.83	29.29
Total	**16181.38**	**100.00**	**18367.77**	**100.00**

75. The above stated debt-equity ratio has been applied for the purpose of tariff calculation in this order. However, the variation, if any, shall be reviewed on submission of details of the actual gross loan as on COD for Asset-I and Asset-II respectively at the time of truing-up.

Return on Equity

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

> **"24. Return on Equity:** (1) Return on equity shall be computed in rupee terms, on the equity base determined in accordance with regulation 19.
>
> (2) Return on equity shall be computed at the base rate of 15.50% for thermal generating stations, transmission system including communication system and run of the river hydro generating station, and at the base rate of 16.50% for the storage type hydro generating stations including pumped storage hydro generating stations and run of river generating station with pondage:
>
> Provided that:
> (i) in case of projects commissioned on or after 1st April, 2014, an additional return of 0.50 % shall be allowed, if such projects are completed within the timeline specified in **Appendix-I:**
>
> (ii) the additional return of 0.5% shall not be admissible if the project is not completed within the timeline specified above for reasons whatsoever:
>
> (iii) additional RoE of 0.50% may be allowed if any element of the transmission project is completed within the specified timeline and it is certified by the Regional Power Committee/National Power Committee that commissioning of the particular element will benefit the system operation in the regional/national grid:
>
> (iv) the rate of return of a new project shall be reduced by 1% for such period as may be decided by the Commission, if the generating station or transmission system is found to be declared under commercial operation without commissioning of any of the Restricted Governor Mode Operation (RGMO)/ Free Governor Mode Operation (FGMO), data telemetry, communication system up to load dispatch centre or protection system:
>
> (v) as and when any of the above requirements are found lacking in a generating station based on the report submitted by the respective RLDC, RoE shall be reduced by 1% for the period for which the deficiency continues:

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

"25. Tax on Return on Equity:

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

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

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

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

77. UPPCL has submitted that the petitioner may be allowed to recover or refund the excess AFC on account of RoE subject to submission of documentary proof of having paid the Income Tax as per the actual income tax rates. The petitioner has submitted that it may be allowed to recover the shortfall or refund the excess Annual Fixed Charges, on account of return on equity due to change in applicable Minimum Alternate Tax/Corporate Income Tax rate as per the Income Tax Act, 1961 of the respective financial year directly without making any application before the Commission.

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

(₹ in lakh)

Particulars	**Asset-I**				
	2014-15 (pro-rata)	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Opening Equity	4905.94	5145.94	5445.94	5839.79	5839.79
Addition due to Additional Capitalisation	240.00	300.00	393.86	-	-
Closing Equity	5145.94	5445.94	5839.79	5839.79	5839.79
Average Equity	5025.94	5295.94	5642.87	5839.79	5839.79
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)	**467.14**	**1038.53**	**1106.57**	**1145.18**	**1145.18**
Particulars	**Asset-II**				
	2014-15 (pro-rata)	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Opening Equity	4724.91	4739.66	5039.66	5380.83	5380.83
Addition due to Additional Capitalisation	14.75	300.00	341.17	-	-
Closing Equity	4739.66	5039.66	5380.83	5380.83	5380.83
Average Equity	4732.28	4889.66	5210.24	5380.83	5380.83
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)	**27.97**	**958.86**	**1021.73**	**1055.18**	**1055.18**

Interest on loan

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

> "(1) The loans arrived at in the manner indicated in regulation 19 shall be considered as gross normative loan for calculation of interest on loan
>
> (2) The normative loan outstanding as on 1.4.2014 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to 31.3.2014 from the gross normative loan.

(3) The repayment for each of the year of the tariff period 2014-19 shall be deemed to be equal to the depreciation allowed for the corresponding year/period. In case of decapitalization of assets, the repayment shall be adjusted by taking into account cumulative repayment on a pro rata basis and the adjustment should not exceed cumulative depreciation recovered upto the date of decapitalisation of such asset.

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

(5) The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio after providing appropriate accounting adjustment for interest capitalized:

Provided that if there is no actual loan for a particular year but normative loan is still outstanding, the last available weighted average rate of interest shall be considered:

Provided further that if the generating station or the transmission system, as the case may be, does not have actual loan, then the weighted average rate of interest of the generating company or the transmission licensee as a whole shall be considered.

(6) The interest on loan shall be calculated on the normative average loan of the year by applying the weighted average rate of interest."

80. In these calculations, interest on loan has been worked out as hereinafter:-

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

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

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

(iv) Loans have been adjusted pro-rata for gross opening loans and for add-cap, in view of discussion at para-58

81. The petitioner has submitted that it be allowed to bill and adjust impact on Interest on Loan due to change in interest due to floating rate of interest applicable, if any, from the respondents. UPPCL has submitted that the loan portfolios indicated by the petitioner do not contain any element of floating rate of interest. Rajasthan discoms have also raised a similar issue. Therefore, the prayer is not tenable. The interest on loan has been calculated on the basis of rate prevailing as on the tariff date of commercial operation. Any change in rate of interest subsequent to the tariff date of commercial operation will be considered at the time of truing up.

82. Detailed calculation of the weighted average rate of interest has been given at Annexure-1 and Annexure-II to this order.

83. Based on above, details of Interest on Loan calculated are as under:-

(₹ in lakh)

Particulars	**Asset-I**				
	2014-15 (pro-rata)	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Gross Normative Loan	11447.19	12007.19	12707.19	13626.19	13626.19
Cumulative Repayment upto Previous Year	-	418.03	1344.50	2327.54	3343.78
Net Loan-Opening	11447.19	11589.16	11362.70	11298.65	10282.40
Addition due to Additional Capitalisation	560.00	700.00	919.00	-	-
Repayment during the year	418.03	926.47	983.04	1016.24	1016.24
Net Loan-Closing	11589.16	11362.70	11298.65	10282.40	9266.16
Average Loan	11518.18	11475.93	11330.67	10790.52	9774.28
Weighted Average Rate of Interest on Loan	13.0717%	13.0717%	13.0717%	13.0717%	13.0716%
Interest	**713.62**	**1500.09**	**1481.11**	**1410.50**	**1277.66**
Particulars	**Asset-II**				
	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**

	(pro-rata)				
Gross Normative Loan	11456.47	11490.88	12190.88	12986.94	12986.94
Cumulative Repayment upto Previous Year	-	25.71	903.50	1833.49	2792.14
Net Loan-Opening	11456.47	11465.18	11287.38	11153.45	10194.80
Addition due to Additional Capitalisation	34.41	700.00	796.06	-	-
Repayment during the year	25.71	877.80	929.99	958.65	958.65
Net Loan-Closing	11465.18	11287.38	11153.45	10194.80	9236.15
Average Loan	11460.82	11376.28	11220.42	10674.13	9715.48
Weighted Average Rate of Interest on Loan	13.0717%	13.0717%	13.0717%	13.0716%	13.0716%
Interest	**45.15**	**1487.07**	**1466.69**	**1395.28**	**1269.97**

84. However, there appears to be a mismatch in the repayment of loans as per amortization schedule vis-à-vis Form-9C. The weighted average rate of interest has been worked out for the instant assets on the basis of the information on loans submitted in Form-9C for each asset. The loan repayment, rates of interest and the gross loan have been considered as per the petitioner's claim for the purpose of tariff in this order. Therefore, the petitioner is directed to reconcile the gross loan for the calculation of weighted average rate of interest in Form-9C with the Auditors' certificate, as on tariff COD for Asset-II and also submit the repayment schedule, revised, if any alongwith rate of interest proofs alongwith reconciliation of the mismatch of amortization schedule, for both the loans at the time of truing-up for review.

Depreciation

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

"27. Depreciation:

(1) Depreciation shall be computed from the date of commercial operation of a generating station or unit thereof or a transmission system including communication system or element thereof. In case of the tariff of all the units of a generating station or all elements of a transmission system including

communication system for which a single tariff needs to be determined, the depreciation shall be computed from the effective date of commercial operation of the generating station or the transmission system taking into consideration the depreciation of individual units or elements thereof.

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

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

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

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

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

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

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

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

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

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

86. The petitioner has claimed actual depreciation as a component of annual fixed charges. In our calculations, depreciation has been calculated in accordance with Regulation 27 of the 2014 Tariff Regulations extracted above.

87. The instant assets were put under commercial operation during 2014-15. 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.

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

(₹ in lakh)

Particulars	**Asset-I**				
	2014-15 (pro-rata)	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Opening Gross Block	16353.13	17153.13	18153.13	19465.98	19465.98
Additional Capital expenditure	800.00	1000.00	1312.85	-	-
Closing Gross Block	17153.13	18153.13	19465.98	19465.98	19465.98
Average Gross Block	16753.13	17653.13	18809.56	19465.98	19465.98
Rate of Depreciation	5.2645%	5.2482%	5.2263%	5.2206%	5.2206%
Depreciable Value	15077.82	15840.44	16833.84	17424.62	17424.62
Remaining Depreciable Value	15077.82	15422.41	15489.34	15097.08	14080.84
Depreciation	**418.03**	**926.47**	**983.04**	**1016.24**	**1016.24**
Particulars	**Asset-II**				
	2014-15 (pro-rata)	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Opening Gross Block	16181.38	16230.54	17230.54	18367.77	18367.77
Additional Capital expenditure	49.16	1000.00	1137.23	-	-
Closing Gross Block	16230.54	17230.54	18367.77	18367.77	18367.77
Average Gross Block	16205.96	16730.54	17799.16	18367.77	18367.77
Rate of Depreciation	5.2633%	5.2467%	5.2249%	5.2192%	5.2192%
Depreciable Value	14585.36	15012.78	15929.82	16441.58	16441.58
Remaining Depreciable Value	14585.36	14987.07	15026.32	14608.09	13649.44
Depreciation	**25.71**	**877.80**	**929.99**	**958.65**	**958.65**

Operation & Maintenance Expenses (O & M Expenses)

89. Regulation 29(4) (a) of the 2014 Tariff Regulations specifies the norms for operation and maintenance expenses for the transmission system based on the

type of sub-station and the transmission line. Norms specified in respect of the elements covered in the instant petition are as under:-

Elements	2014-15	2015-16	2016-17	2017-18	2018-19
S/C quad conductor T/L (₹ lakh per km)	0.606	0.627	0.647	0.669	0.691
D/C quad conductor T/L (₹ lakh per km)	1.062	1.097	1.133	1.171	1.210

90. Accordingly, as per norms specified in the 2014 Tariff Regulations, O&M Expenses have been allowed and they are as follows:-

(₹ in lakh)

Element	Asset-I (COD: 10.10.2014)				
	2014-15 (pro-rata)	2015-16	2016-17	2017-18	2018-19
40.463 km, S/C quad T/L	11.62	25.37	26.18	27.07	27.96
25.918 km, Ckt. km (12.959 km) D/C quad T/L	6.52	14.22	14.68	15.17	15.68
Total	**18.14**	**39.59**	**40.86**	**42.24**	**43.64**
Element	**Asset-II (Tariff COD: 21.3.2015)**				
	2014-15 (pro-rata)	**2015-16**	**2016-17**	**2017-18**	**2018-19**
36.718 km, S/C quad T/L	0.67	23.02	23.75	24.56	25.37
25.918 km, Ckt. km (12.959 km) D/C quad T/L	0.41	14.22	14.68	15.17	15.68
Total	**1.08**	**37.24**	**38.43**	**39.73**	**41.05**

91. The petitioner has submitted that the claim for transmission tariff is inclusive of income tax but exclusive of incentive, 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.

Interest on working capital

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

> "**28. Interest on Working Capital**
>
> (1) The working capital shall cover:
>
> (c) Hydro generating station including pumped storage hydro electric generating station and transmission system including communication system:
>
> (i) Receivables equivalent to two months of fixed cost;
>
> (ii) Maintenance spares @ 15% of operation and maintenance expenses specified in regulation 29; and
>
> (iii) Operation and maintenance expenses for one month"
>
> (3) Rate of interest on working capital shall be on normative basis and shall be considered as the bank rate as on 1.4.2014 or as on 1st April of the year during the tariff period 2014-15 to 2018-19 in which the generating station or a unit thereof or the transmission system including communication system or element thereof, as the case may be, is declared under commercial operation, whichever is later.
>
> "(5) 'Bank Rate' means the base rate of interest as specified by the State Bank of India from time to time or any replacement thereof for the time being in effect plus 350 basis points;"

93. The petitioner is entitled to claim interest on working capital as per the 2014 Tariff Regulations. The interest on working capital is worked out in accordance with Regulation 28 of the 2014 Tariff Regulations. As per the 2011 Tariff Regulations dated 21.6.2011, the rate of interest on working capital

considered is 13.50% (SBI Base Rate of 10% plus 350 basis points). The interest on working capital has been accordingly allowed.

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

(₹ in lakh)

Particulars	Asset-I				
	2014-15 (pro-rata)	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Maintenance Spares	5.74	5.94	6.13	6.34	6.55
O & M expenses	3.19	3.30	3.41	3.52	3.64
Receivables	581.87	597.77	616.00	616.45	594.05
Total	**590.80**	**607.01**	**625.54**	**626.31**	**604.23**
Rate of Interest	13.50%	13.50%	13.50%	13.50%	13.50%
Interest	**37.80**	**81.95**	**84.45**	**84.55**	**81.57**
Particulars	**Asset-II**				
	2014-15 (pro-rata)	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Maintenance Spares	5.38	5.59	5.76	5.96	6.16
O & M expenses	2.99	3.10	3.20	3.31	3.42
Receivables	565.40	573.25	589.61	588.25	567.12
Total	**573.76**	**581.94**	**598.58**	**597.52**	**576.70**
Rate of Interest	13.50%	13.50%	13.50%	13.50%	13.50%
Interest	**2.33**	**78.56**	**80.81**	**80.67**	**77.85**

Transmission charges

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

(₹ in lakh)

Particulars	Asset-I				
	2014-15 (pro-rata)	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Depreciation	418.03	926.47	983.04	1016.24	1016.24
Interest on Loan	713.62	1500.09	1481.11	1410.50	1277.66
Return on equity	467.14	1038.53	1106.57	1145.18	1145.18
Interest on Working Capital	37.80	81.95	84.45	84.55	81.57
O & M Expenses	18.14	39.59	40.86	42.24	43.64
Total	**1654.73**	**3586.63**	**3696.02**	**3698.72**	**3564.30**
Particulars	**Asset-II**				
	2014-15 (pro-rata)	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Depreciation	25.71	877.80	929.99	958.65	958.65
Interest on Loan	45.15	1487.07	1466.69	1395.28	1269.97

Return on equity	27.97	958.86	1021.73	1055.18	1055.18
Interest on Working Capital	2.33	78.56	80.81	80.67	77.85
O & M Expenses	1.08	37.24	38.43	39.73	41.05
Total	**102.24**	**3439.53**	**3537.65**	**3529.51**	**3402.71**

Filing fee and the publication expenses

96. 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

97. 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

98. 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 the exemption is withdrawn and the transmission of power is notified as a taxable service. Both UPPCL and Rajasthan Discoms have submitted that presently there is no service tax hence the prayer of the petitioner is not tenable. We consider petitioner's prayer pre-mature and accordingly this prayer is rejected.

Sharing of Transmission Charges

99. The billing, collection and disbursement of the transmission charges approved (w.e.f. 10.10.2014 for Asset-I and 21.3.2015, the tariff date for Asset-II) shall be governed by the provisions of Central Electricity Regulatory Commission (Sharing of Inter-State Transmission Charges and Losses) Regulations, 2010, as amended from time to time.

100. This order disposes of Petition No. 384/TT/2014 alongwith I.A. No. 04/IA/2015.

sd/-	sd/-	sd/-	sd/-
(M.K. Iyer)	**(A.S. Bakshi)**	**(A.K. Singhal)**	**(Gireesh B. Pradhan)**
Member	**Member**	**Member**	**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	**PFC Loan**					
	Gross loan opening	6679.68	7101.99	7510.45	8046.70	8046.70
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	489.81	1142.89	1842.60
	Net Loan-Opening	6679.68	7101.99	7020.64	6903.81	6204.10
	Additions during the year	422.31	408.46	536.25	0.00	0.00
	Repayment during the year	0.00	489.81	653.08	699.71	699.71
	Net Loan-Closing	7101.99	7020.64	6903.81	6204.10	5504.39
	Average Loan	6890.84	7061.31	6962.22	6553.95	5854.24
	Rate of Interest	13.08%	13.08%	13.08%	13.08%	13.08%
	Interest	901.32	923.62	910.66	857.26	765.73
	Rep Schedule	46 Quarter instalments from 15.07.2015				
2	**REC Loan**					
	Gross loan opening	4767.51	5068.92	5360.46	5743.20	5743.20
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	330.58	796.71	1296.12
	Net Loan-Opening	4767.51	5068.92	5029.88	4946.49	4447.08
	Additions during the year	301.41	291.54	382.74	0.00	0.00
	Repayment during the year	0.00	330.58	466.13	499.41	499.41
	Net Loan-Closing	5068.92	5029.88	4946.49	4447.08	3947.67
	Average Loan	4918.22	5049.40	4988.19	4696.79	4197.38
	Rate of Interest	13.06%	13.06%	13.06%	13.06%	13.06%
	Interest	642.32	659.45	651.46	613.40	548.18
	Rep Schedule	46 Quarters instalments from 30.09.2015				
	Total Loan					
	Gross loan opening	11447.19	12170.91	12870.91	13789.90	13789.90
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	820.39	1939.60	3138.72
	Net Loan-Opening	11447.19	12170.91	12050.52	11850.30	10651.18
	Additions during the year	723.72	700.00	918.99	0.00	0.00
	Repayment during the year	0.00	820.39	1119.21	1199.12	1199.12
	Net Loan-Closing	12170.91	12050.52	11850.30	10651.18	9452.06
	Average Loan	11809.05	12110.71	11950.41	11250.74	10051.62
	Rate of Interest	13.0717%	13.0717%	13.0717%	13.0717%	13.0716%
	Interest	**1543.64**	**1583.07**	**1562.12**	**1470.66**	**1313.91**

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	**PFC Loan**					
	Gross loan opening	6685.10	6710.13	7118.59	7583.11	7583.11
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	464.26	1083.27	1742.67
	Net Loan-Opening	6685.10	6710.13	6654.33	6499.84	5840.44
	Additions during the year	25.03	408.46	464.52	0.00	0.00
	Repayment during the year	0.00	464.26	619.01	659.40	659.40
	Net Loan-Closing	6710.13	6654.33	6499.84	5840.44	5181.04
	Average Loan	6697.62	6682.23	6577.09	6170.14	5510.74
	Rate of Interest	13.08%	13.08%	13.08%	13.08%	13.08%
	Interest	876.05	874.04	860.28	807.05	720.80
	Rep Schedule	46 Quarters instalments from 15.07.2015				
2	**REC Loan**					
	Gross loan opening	4771.37	4789.23	5080.77	5412.31	5412.31
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	312.34	754.15	1224.79
	Net Loan-Opening	4771.37	4789.23	4768.43	4658.16	4187.52
	Additions during the year	17.86	291.54	331.54	0.00	0.00
	Repayment during the year	0.00	312.34	441.81	470.64	470.64
	Net Loan-Closing	4789.23	4768.43	4658.16	4187.52	3716.88
	Average Loan	4780.30	4778.83	4713.30	4422.84	3952.20
	Rate of Interest	13.06%	13.06%	13.06%	13.06%	13.06%
	Interest	624.31	624.12	615.56	577.62	516.16
	Rep Schedule	46 Quarters instalments from 30.09.2015				
	Total Loan					
	Gross loan opening	11456.47	11499.36	12199.36	12995.42	12995.42
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	776.60	1837.42	2967.46
	Net Loan-Opening	11456.47	11499.36	11422.76	11158.00	10027.96
	Additions during the year	42.89	700.00	796.06	0.00	0.00
	Repayment during the year	0.00	776.60	1060.82	1130.04	1130.04
	Net Loan-Closing	11499.36	11422.76	11158.00	10027.96	8897.92
	Average Loan	11477.91	11461.06	11290.38	10592.98	9462.94
	Rate of Interest	13.0717%	13.0717%	13.0717%	13.0716%	13.0716%
	Interest	**1500.36**	**1498.15**	**1475.84**	**1384.68**	**1236.96**