

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 215/TT/2017

Coram:

**Shri P. K Pujari, Chairperson
Shri A. K. Singhal, Member
Shri A. S. Bakshi, Member
Dr. M. K. Iyer, Member**

Date of Order: 20.06.2018

In the matter of:

Determination of Tariff for the year 2017-18 in respect of RVPN owned transmission lines/system connecting with other States and Intervening transmission lines incidental to inter-State transmission of electricity for inclusion in the POC transmission charges in accordance with the Central Electricity Regulatory Commission (Terms and Condition of Tariff) Regulation 2014 and Central Electricity Regulatory Commission (Sharing of Transmission Charges and Losses) Regulation, 2010 and its subsequent amendments.

And in the matter of:

Rajasthan Rajya Vidyut Prasaran Nigam Limited (RRVPNL)
Vidyut Bhawan, Jyoti Nagar,
Jaipur-302005

.....Petitioner

Vs

1. Power Grid Corporation of India Ltd.
Saudamini, Plot No.2, Sector-29,
Near IFFCO Chowk,
Gurgaon, (Haryana) - 122001.
2. Haryana Vidyut Prasaran Nigam,
Shakti Bhawan, Sector-6,
Panchkula, (Haryana) – 134109.
3. Haryana Power Purchase Center (HPPC),
2nd Floor, Shakti Bhawan, Sector-6,
Panchkula, (Haryana) – 134109.



4. M.P Power Transmission Company Ltd.
Block No.2, Shakti Bhawan, Rampur,
Jabalpur, (Madhya Pradesh) – 482008.
5. MP Power Management Co. Ltd. (MPPMCL),
Block No.11, 1st Floor, Shakti Bhawan, Rampur,
Jabalpur, (Madhya Pradesh) – 482008.
6. Delhi Transco Ltd.
Shakti Sadan, Kotla Road,
New Delhi – 110002.
7. BSES Yamuna Power Ltd.
BSES Bhawan, Nehru Place,
New Delhi.
8. BSES Rajdhani Power Ltd,
BSES Bhawan, Nehru Place,
New Delhi.
9. North Delhi Power Ltd,
Power Trading and Load Dispatch Group,
CENNET Building, Pitampura,
New Delhi – 110034.
10. UP Power Transmission Corporation Ltd,
Shakti Bhawan, 14, Ashok Marg,
Lucknow – 2266001.
11. UP Power Corporation Ltd,
Shakti Bhawan, 14, Ashok Marg,
Lucknow – 226001

.....Respondents

For petitioner : Shri Pradeep Misra, Advocate, RRVPNL

For respondents : Shri Vivek Kumar Singh, PGCIL
Shri Aryaman Saxena, PGCIL
Shri B. Dash, PGCIL
Shri Rakesh Prasad, PGCIL



ORDER

Rajasthan Rajya Vidyut Prasaran Nigam Limited (RRVPNL) has filed the instant petition for the approval of transmission tariff of the following 21 deemed inter-State transmission lines for the year 2017-18, for inclusion in computation of point of connection (PoC) transmission charges in accordance with the Central Electricity Regulatory Commission (Terms and Condition of Tariff) Regulations 2014 (hereinafter referred to as “2014 Tariff Regulations”):-

Srl. No.	Name of Line	Voltage Level	Length of Line in ckt-km	COD
1.	Asset-I: kV S/C Chirawa-Hissar line (Raj-Har)	220 kV	118.00	27.11.2010
2.	Asset-II: kV S/C Sadulpur (Rajgarh)-Hissar line	132 kV	78.00	3.10.1959
3.	Asset-III: Asset-I: 132 kV S/C Amrapura Thedi- Sirsa line	132 kV	80.00	19.12.1970
4.	Asset-IV: 132 kV S/C Khandar-Sheopur line	132 kV	12.62	5.07.2008
5.	Asset-V: 220 kV S/C Anta-Kota Line	220 kV	67.00	1.3.1969
6.	Asset-VI:220 kV SC RAPP (B)-Kota Line	220 kV	42.00	1.9.1977
7.	Asset-VII:220 kV S/C RAPP (B)-RAPP (A) Line	220 kV	2.00	1.9.1977
8.	Asset-VIII:220 kV S/C MIA (Alwar)-Badarpur Line	220 kV	131.60	22.11.1975
9.	Asset-IX:220 kV S/C Agra-Bharatpur Line(Raj-UP)	220 kV	48.12	30.12.1982
10.	Asset-X: 220 kV S/C Kota (Sakatpura)-Badod (Raj-MP)	220 kV	59.62	20.8.1977
11.	Asset-XI:220 kV S/C Modak-Badod (Raj-MP)	220 kV	16.50	2.1.1988
12.	Asset-XII:220 kV S/C Khetri-Dadri Line I (Raj-Haryana)	220 kV	70.91	23.12.1977



13.	Asset-XIII:220 kV S/C Khetri-Dadri Line II (Raj-Haryana)	220 kV	77.00	2.3.1985
14.	Asset-XIV: 400 kV S/C Jodhpur -Merta Line-I	400 kV	106.86	15.9.2004
15.	Asset-XV:400 kV S/C Jodhpur - Merta Line-II	400 kV	107.48	27.10.2012
16.	Asset-XVI:400 kV S/C Merta-Ratargarh Line	400 kV	172.50	9.5.2008
17.	Asset-XVII:400 kV S/C Merta-Heerapura Line	400 kV	178.07	13.7.2004
18.	Asset-XVIII:220 kV D/C Aau-Baithwasia Line	220 kV	46.63	29.3.2015
19.	Asset-XIX: 220 kV D/C Baithwasia-Bhawad Line	220 kV	33.03	25.3.2015
20.	Asset-XX:220 kV D/C Badisid-Aau Line	220 kV	59.20	13.4.2016
21.	Asset-XXI:220 kV S/C Bhadla-Bap Line	220 kV	52.06	31.3.2014

2. RRVPNL has filed the present petition in line with the Commission's orders dated 14.3.2012 and 12.5.2017 in Petition Nos. 15/SM/2012 and 7/SM/2017 directing the State utilities to file tariff petitions for the ISTS lines connecting two States for the 2009-14 and 2014-19 tariff periods respectively.

3. RRVPNL earlier filed Petition No. 213/TT/2013 claiming tariff for 20 ISTS lines. The Commission awarded YTC from 1.7.2011 to 31.3.2014 for 6 assets and YTC was not allowed for the remaining 14 ISTS lines and the petitioner was directed to approach the NRPC for required certification. The relevant portion of the order dated 18.3.2015 is extracted below:-

"14. The certificate of NRPC is available in terms of the above Regulation in respect of six transmission lines which were included in the Commission's order dated 14.3.2012. Since the certification is not available for the 14 transmission lines, we direct the petitioner to approach NRPC for the required certification of these lines for inclusion in the PoC Charges. Accordingly, only the six transmission lines are being considered in this petition for grant of annual transmission charges. Further, since the Central Electricity Regulatory Commission (Sharing of inter-State Transmission Charges and Losses) Regulations, 2010



came into force with effect from 1st July, 2011, Yearly Transmission Charges (YTC) for these six transmission lines have been calculated for the year 2011-12 (1.7.2011 to 31.3.2012), 2012-13 and 2013-14.”

The tariff of the 6 ISTS lines for the 2011-14 period was tried-up vide order dated 9.3.2018 in Petition No. 111/TT/2017 and the Commission’s observations were as follows:-

“9. We have considered the submissions made by RRVPNL and UPPCL. YTC for the period 2011-12 to 2013-14 was already allowed only on the basis of certification by NRPC. We are satisfied with the certification issued by NRPC and there is no ambiguity on this issue. Accordingly, YTC granted for the said period for the six transmission lines owned by RRVPNL is tried up in the instant order.”

4. Later, the petitioner filed Petition No. 26/TT/2017 claiming tariff for Assets 1 to 7 on 1.3.2017 for the 2011-14 period, whose tariff was not granted in Petition No. 213/TT/2013 as it would have led to revision of the PoC charges retrospectively. The relevant portion of the order dated 18.10.2017 is extracted below:-

“6. We have considered the submissions made by RRVPNL. RRVPNL has claimed transmission tariff for seven inter-State transmission lines retrospectively for the 2009-14 tariff period. The instant transmission lines are part of the State network and are shared by STU. The State Commission has already granted ARR for the State network for the 2009-14 period which is inclusive of the tariff for the transmission lines covered in the instant petition. As such, RRVPNL has already recovered tariff for these lines. Further, PoC charges for the 2011-14 period have already been processed and recovered. Granting of tariff for these transmission lines afresh by this Commission and inclusion in the PoC charges would lead to revision of the PoC charges retrospectively. Further, it would require revision/adjustment of the ARR already granted by the State Commission for the 2011-14 period. Hence, we are not inclined to allow tariff for these lines retrospectively for the period 2011-14. RRVPNL has already filed the petition claiming tariff for the inter-State transmission lines under its State network for the 2014-19 tariff period under the 2014 Tariff Regulations and will be granted tariff accordingly as per the relevant regulations.”

5. The petitioner, vide Petition No. 112/TT/2017, had prayed for approval of YTC for Assets 1 to 13 for the period 2014-17. Further, RRVPNL, had prayed for approval of YTC for the year 2016-17 for Assets 14 to 19 and also for 220 kV D/C Gajner-Bikaner (400 kV GSS) line. The Commission, vide order dated 4.5.2018 approved the tariff in



Petition No 112/TT/2017, for the Assets 1 to 17. The tariff for 2014-19 period was not allowed for Assets 18 and 19 in Petition No 112/TT/2017 which were put into commercial operation after 31.3.2014 and RRVPNL was granted liberty to file a fresh petition for determination of YTC of these lines along with the relevant cost data as per the 2014 Tariff Regulations. The relevant portion of the order dated 4.5.2018 is extracted below:-

“20. Assets-18 and 19 were put into commercial operation on 29.3.2015 and 25.3.2015 respectively and tariff is not allowed in this order for these assets as per the methodology mentioned above as RRVPNL must have the audited financial data of these transmission lines. RRVPNL is granted liberty to file a fresh petition for determination of YTC of these lines along with the relevant cost data as per the 2014 Tariff Regulations.”

6. RRVPNL has submitted that the tariff claimed in the instant petition is worked out on the basis of ARR methodology adopted by the Commission while determining the YTC charges vide its order dated 18.3.2015 in Petition No. 213/TT/2013, and subsequently summing up all these charges for particular years. The petitioner has prayed to approve the YTC for 21 ISTS lines, as per the procedure adopted by the Commission in order dated 18.3.2015.

7. The petitioner has claimed YTC for the following 13 natural inter-State lines for 2017-18 in the instant petition:

Srl. No.	Name of Transmission Lines	Line Length in km	YTC in ₹
			2017-18
1	Asset-I: kV S/C Chirawa-Hissar line (Raj-Har)	118.00	76228803
2	Asset-II: kV S/C Sadulpur (Rajgarh)-Hissar line	78.00	44089964
3	Asset-III: Asset-I: 132 kV S/C Amrapura Thedi- Sirsa line	80.00	45220476
4	Asset-IV: 132 kV S/C Khandar-Sheopur line	12.62	7133530



5	Asset-V: 220 kV S/C Anta-Kota Line	67.00	43282456
6	Asset-VI:220 kV SC RAPP (B)-Kota Line	42.00	27132286
7	Asset-VII:220 kV S/C RAPP (B)-RAPP (A) Line	2.00	1292014
8	Asset-VIII:220 kV S/C MIA (Alwar)-Badarpur Line	131.60	85014495
9	Asset-IX:220 kV S/C Agra-Bharatpur Line(Raj-UP)	48.12	31085847
10	Asset-X: 220 kV S/C Kota (Sakatpura)-Badod (Raj-MP)	59.624	38517509
11	Asset-XI:220 kV S/C Modak-Badod (Raj-MP)	16.50	10659112
12	Asset-XII:220 kV S/C Khetri-Dadri Line I (Raj-Haryana)	70.91	45808342
13	Asset-XIII:220 kV S/C Khetri-Dadri Line II (Raj-Haryana)	77.00	49742524
		TOTAL	505207358

8. The petitioner has also claimed the YTC for the following remaining 8 inter-State transmission lines for 2017-18:-

Srl. No.	Name of Transmission Lines	Line Length in km	YTC in ₹
			2017-18
1	Asset-XIV: 400 kV S/C Jodhpur - Merta Line-I	106.86	191987064
2	Asset-XV:400 kV S/C Jodhpur - Merta Line-II	107.48	193106412
3	Asset-XVI:400 kV S/C Merta-Ratangarh Line	172.50	309937247
4	Asset-XVII:400 kV S/C Merta-Heerapura Line	178.07	319939511
5	Asset-XVIII:220 kV D/C Aau-Baithwasia Line	D/C length 46.63	60242718
		S/C length 2x46.63 = 93.25	
6	Asset-XIX: 220 kV D/C Baithwasia-Bhawad Line	D/C length 33.03	42668749
		S/C length 2x33.03 = 66.05	
7	Asset-XX:220 kV D/C Badisid-Aau Line	D/C length 59.20	76484621
		S/C length 2x59.20 = 118.40	
8	Asset-XXI:220 kV S/C Bhadla- Bap Line	52.06	33628530
		TOTAL	1227994852

Lines at Sl. No. 5, 6 and 7 are D/C lines, but in ARR line length has been considered as ckt-km.



9. MPPMCL, the Respondent No. 5, vide affidavit dated 17.2.2018 has submitted, inter alia, the following:-

- a) Out of the 21 lines as indicated by the Petitioner, two lines are related to MPPTCL namely 220 kV Badod-Kota line and 220 kV Badod-Modak line (up to MP border). Therefore, the petitioner and MPPTCL should ensure correctness of the length of the above assets in their geographical locations.
- b) The Commission in order dated 1.12.2008 in Petition No. 76/2008 had directed to synchronize the 220 kV Ujjain-Kota and 220 kV Ujjain-Modak transmission lines with immediate effect. In compliance of the above order, 220 kV Ujjain-Kota (or Kota-Badod) and 220 kV Ujjain-Modak (or Modak-Badod) lines (LILO at Badod) were synchronized on 24.1.2009. Since the synchronization of Western Region and Northern Region, these lines are being utilized for LTOA and STOA. However, the petitioner has not submitted any adjustment of the STOA charges in the instant petition. The petitioner may be directed to submit the details of STOA charges of the said two assets.

10. UPPCL, the Respondent No. 11, vide affidavit dated 14.3.2018, has raised some issues which are as follows:

- a) Assets 8 to 13 have not been certified by NRPC for their usage as ISTS and therefore the petitioner be directed to submit the NRPC certification for these assets.
- b) In case of inter-State lines, CTU (PGCIL) charges transmission charges from the beneficiary of different states as per TSA with PGCIL. However, in case of



inter-State lines belonging to RRVPNL, there is no such TSA. As such, the beneficiaries are not bound to pay transmission charges. Therefore, RRVPNL should execute TSA with the beneficiaries.

- c) The transmission lines of RRVPNL which are being used as ISTS lines are also being used to transmit power for the benefit of consumers of Rajasthan. Therefore, 50% of YTC of the transmission lines in question should be levied on other beneficiaries.
- d) The petitioner may be directed to inform how the income tax of the instant lines will be paid.

11. The petitioner has not submitted any rejoinder to the replies of MPPMCL and UPPCL.

12. We have considered the submissions of the petitioner and respondents placed on record. In the instant petition, the petitioner has prayed for approval of YTC for 21 deemed ISTS lines, for year 2017-18. In Petition No. 112/TT/2017, the petitioner has submitted a NRPC letter dated 9.11.2016 wherein it has been mentioned that Assets 1 to 4, are Natural ISTS lines and they do not require certification under the category of “non-ISTS line being used for carrying inter-state power”. Further, the petitioner has submitted a NRPC letter dated 8.6.2011, wherein it has been mentioned that Assets 5 to 7, are NRPC certified lines even before the notification of Central Electricity Regulatory Commission (Sharing of Inter-State Transmission Charges and Losses) Regulations, 2010. Further, in line with the order dated 14.3.2012 in Petition No. 15/SM/2012, Assets 8 to 13 are Natural ISTS lines and do not require NRPC



certification. The Petitioner has submitted minutes of 35th TCC and 39th NRPC meetings dated 14.7.2017 with the petition, wherein Asset 14 to 21 have been recommended to be considered as deemed ISTS line for the purpose of POC computation for year 2017-18. Therefore, in the instant case, tariff is to be allowed for 2017-18, for all the 21 lines.

13. Some of the State Utilities have filed similar petitions claiming tariff of inter-State transmission lines connecting two States for the 2014-19 tariff periods as per the directions of the Commission. The information submitted by the State Utilities is incomplete and inconsistent. Further, some of the lines were more than 25 years old and the States were not having the details of the capital cost, Funding, etc. To overcome these difficulties, the Commission evolved a methodology for allowing transmission charges for such transmission lines connecting two States in orders dated 19.12.2017 in Petition Nos. 88/TT/2017, 173/TT/2016 and 168/TT/2016 filed by Madhya Pradesh Power Transmission Corporation Limited, Maharashtra State Electricity Regulatory Commission and Uttar Pradesh Power Transmission Corporation Limited respectively. The Commission adopted the same methodology in order dated 4.5.2018 in Petition No.112/TT/2017, while granting tariff for ISTS connecting Rajasthan with other States and owned by Rajasthan Rajya Vidyut Prasaran Limited. The Commission derived the benchmark cost on the basis of the transmission lines owned by PGCIL. The useful life of the transmission line was considered as 25 years and for lines more than or equal to 25 years, only O & M Expenses and Interest on Working Capital (IWC) is decided to be allowed as per the existing Tariff Regulations. For assets put into commercial operation on or after 1.4.2014, tariff is decided to be allowed on the basis of



the audited financial capital cost. The relevant portion of the order dated 4.5.2018 is extracted hereunder:-

“13. It is observed that the information submitted by the petitioner States for computation of transmission charges for the deemed ISTS lines are not uniform, thereby causing divergence in working out the tariff. In some cases, the data related to funding and depreciation was not available and in some cases the assets have already completed, or nearing, their useful life. In most of the petitions, the states have expressed their inability to furnish the audited capital cost of transmission lines as the lines are old. As a result, tariff workings for old assets are ending in skewed results. It is further observed that the YTC figures emerging out by the existing ARR methodology are on the higher side. Considering these facts, we have conceptualized a modified methodology for determining the tariff of the inter-State transmission lines. The methodology is broadly based on the following:-

- (a) PGCIL's Annual Report data has been used as the reference data; based on which, year wise benchmark cost has been derived.
- (b) Useful life of Transmission Line has been considered as 25 years. Thus, if life is more than or equal to 25 years as on 1.4.2014, only O & M Expenses and Interest on Working Capital (IWC) shall be allowed as per the existing Tariff Regulations, in lieu of complete tariff.
- (c) It is expected that the States do have the audited financial data of recently commissioned (i.e. on or after 1.4.2014) lines.

Tariff Methodology

14. As per the petitions filed by the states, their ISTS lines generally have the configuration of 132 kV, 220 kV or 400 kV. In the absence of an established tariff data base, in order to develop this methodology Annual Reports of PGCIL from 1989-90 to 2013-14 have been referred to. The Annual Reports depict, inter alia, the information pertaining to year wise total length of transmission lines in ckt-km and corresponding Gross Block. This pan-India data represents all the five transmission regions and is a composite mix of parameters like terrains, wind-zones, tower and conductor type etc. +/- 500 kV HVDC and 765 kV and above voltage level AC lines too have come up in between and the data also includes those lines. Voltage level-wise data as on 30th April 2017, obtained from PGCIL indicates that the percentage of 220 kV, 132 kV and 66 kV Transmission Line taken together makes it around 8.3 % of the total line length owned by PGCIL. Further, 132 kV Transmission Lines were established in NER prior to 1990, and Transmission Lines of 220 kV voltage levels were last commissioned in around the year 2004 in NR. Majority of the transmission lines consist of 400 kV which corresponds to 66% of the total transmission line lengths. Thus, the 400 kV and lesser voltage levels account for approximately 75% of the transmission lines. Assuming the above referred spread of voltage wise percentages for earlier years too, it can be said that the year wise average Transmission Line cost figures derived from PGCIL data, when further reduced by 25%, fairly represent the average transmission line capital



cost corresponding to a 400 kV S/C line. Considering 400 kV S/C transmission line cost as reference cost, analysis of PGCIL's indicative cost data (P/L Feb 2017) suggests the following:-

	Reference cost of 400 kV S/C TL	₹ X lakh/km
1.	400 kV D/C TL	1.39 X
2.	220 kV D/C TL	0.57 X
3.	220 kV S/C TL	0.36 X
4.	132 kV D/C TL	0.43 X
5.	132 kV S/C TL	0.31 X

15. Therefore, for arriving at the costs of transmission lines of other voltage levels and circuit configurations, the average transmission line cost data shall be multiplied by the factors illustrated in the above table. Lower voltage levels can be treated as part of 132 kV. The above table contemplates *Twin Moose* conductor which is widely used in State transmission lines.

16. Based on respective year end data, average transmission line length during the year has been worked out. Difference between a particular year's average transmission line length figures and that for the immediate preceding year provides us the transmission line length added during that year. Average gross block corresponding to transmission lines has been divided by the average transmission line length to arrive at the Average Cost of transmission line (in ₹ lakh per ckt-km) during the year. Thus, considering the year of COD of a State's ISTS line and its ckt-km, its cost would be worked out by relating it to PGCIL's transmission line cost during that year. Although the Commission has relied on PGCIL's Annual Reports, there are certain deviations in the cost data worked out. The year 1989-90 was the year of incorporation for PGCIL, and the transmission assets of NTPC, NHPC, NEEPCO etc. were taken over by PGCIL by mid 1991-92. Thus, as the base data for these years was not available, the corresponding average cost of transmission line could not be worked out. The average cost from 1992-93 onwards up to 2013-14 shows an increasing trend at a CAGR of 5.17%. Therefore, for the years 1989-90, 1990-91 and 1991-92, the average cost of transmission line has been back derived considering the 1992-93 average cost. Similarly, abnormal dip/spikes in the transmission line cost for the years 1996-97, 2001-02 and 2004-05 has been corrected by considering the average values of the transmission line costs in the immediate preceding and succeeding years.

17. While calculating tariff, the following has been considered:-

- (i) Useful life of the transmission line shall be deemed to be 25 years.
- (ii) Prevailing depreciation rates as per the 2014 Tariff Regulations shall be considered uniformly for all the previous tariff periods so as to do away with the Advance Against Depreciation which was in vogue during earlier tariff periods. Notwithstanding the depreciation considered as recovered earlier, for the purpose of these tariff calculations, remaining depreciable value shall be spread over the



remaining useful life of the transmission line, where the elapsed life is more than or equal to 12 years.

(iii) Normative Debt-Equity ratio shall be 70:30.

(iv) Normative loan repayment during a year shall be deemed to be equal to the depreciation allowed for that year.

(v) Rate of Interest on normative loan shall be the weighted average rate of interest as derived on the basis of PGCIL's Balance Sheet.

(vi) In order to avoid complexity, grossing up of rate of Return on Equity with tax rate is being dispensed with.

(vii) Bank rate as defined in 2014 Tariff Regulations, 2014 as on 1.4.2014 shall be applied for calculating the rate of interest on working capital on normative basis.

(viii) O & M Expenses as per the 2014 Tariff Regulations shall be considered.

(ix) Where the life of transmission line is more than or equal to 25 years as on 1.4.2014, only O & M Expenses and IWC shall be allowed in lieu of complete tariff.

18. Thus, in effect, this is a normative tariff working methodology which shall be applied in those cases where the audited capital cost information is not available.”

14. The petitioner has not submitted the Audited capital cost certificates for the instant assets. Accordingly, the tariff for the instant 21 ISTS lines is considered in line with the methodology explained in foregoing paragraphs. Assets 2, 3 and 5 to 13 have already completed twenty five years of their useful lives. Therefore, as per above said methodology, only IWC and O & M Expenses of tariff are allowed for the said assets. In case of Assets 1, 4, 14 to 17 and 21, all the components of tariff have been worked out for 2017-18. Assets 18, 19 and 20 were put into commercial operation on 29.3.2015, 25.3.2015 and 13.4.2016 respectively and therefore YTC is been worked out as the petitioner is expected to be in possession of the Audited capital cost and financial data. RRVPNL is directed to file a fresh petition for approval of tariff for Assets 18, 19 and 20



as per the provisions of the 2014 Tariff Regulations along with the required information specified in the Tariff Forms.

15. The annual transmission charges for the instant assets for 2017-18 are as follows:

(₹ in lakh)

Particulars	Asset-1	Asset-2	Asset-3
Depreciation	117.22	0.00	0.00
Interest on Loan	57.11	0.00	0.00
Return on Equity	103.23	0.00	0.00
IWC	9.30	1.92	1.97
O & M Expenses	52.63	34.79	35.68
Total	339.48	36.71	37.65

(₹ in lakh)

Particulars	Asset-4	Asset-5	Asset-6
Depreciation	9.82	0.00	0.00
Interest on Loan	3.37	0.00	0.00
Return on Equity	8.65	0.00	0.00
IWC	0.81	1.65	1.03
O & M Expenses	5.63	29.88	18.73
Total	28.28	31.53	19.77

(₹ in lakh)

Particulars	Asset-7	Asset-8	Asset-9
Depreciation	0.00	0.00	0.00
Interest on Loan	0.00	0.00	0.00
Return on Equity	0.00	0.00	0.00
IWC	0.05	3.24	1.19
O & M Expenses	0.89	58.69	21.46
Total	0.94	61.94	22.65

(₹ in lakh)

Particulars	Asset-10	Asset-11	Asset-12
Depreciation	0.00	0.00	0.00
Interest on Loan	0.00	0.00	0.00
Return on Equity	0.00	0.00	0.00
IWC	1.47	0.41	1.75
O & M Expenses	26.59	7.36	31.63
Total	28.06	7.77	33.37



(₹ in lakh)			
Particulars	Asset-13	Asset-14	Asset-15
Depreciation	0.00	59.56	372.67
Interest on Loan	0.00	0.00	235.33
Return on Equity	0.00	135.16	328.21
IWC	1.90	7.11	24.20
O & M Expenses	34.34	47.66	47.94
Total	36.24	249.49	1008.34

(₹ in lakh)			
Particulars	Asset-16	Asset-17	Asset-21
Depreciation	432.99	99.27	93.69
Interest on Loan	148.53	0.00	65.91
Return on Equity	381.33	225.25	82.51
IWC	26.41	11.86	6.86
O & M Expenses	76.94	79.42	23.22
Total	1066.21	415.79	272.18

Detailed tariff calculations in case of Assets 1, 4, 14, 15, 16, 17 and 21 are given in the **Annexure-I to VII.**

Sharing of Transmission Charges

16. The transmission charges shall be recovered on monthly basis in accordance with Regulation 43 of Central Electricity Regulatory Commission (Terms and Condition of Tariff) Regulations, 2014 and shall be shared by the beneficiaries and long term transmission customers in Central Electricity Regulatory Commission (Sharing of Inter State Transmission Charges and Losses) Regulations, 2010 as amended from time to time. Further, the transmission charges allowed in this order shall be adjusted against the ARR approved by the RERC.



17. Accordingly, Petition No. 215/TT/2017 is disposed of.

sd/-
(Dr. M. K. Iyer)
Member

sd/-
(A.S. Bakshi)
Member

sd/-
(A.K. Singhal)
Member

sd/-
(P.K. Pujari)
Chairperson



CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSET - 1			
(₹ in lakh)			
Rationalised cost of 400 kV line ₹ lakh per ckt km		52.26	Life in years = 25
Transmission Line length, in ckt km		118.00	Voltage = 220 kV
Multiplication factor		0.36	
			2017-18
Gross Block			2220.00
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			2220.00
Average Gross Block			2220.00
Depreciation			
Rate of Depreciation		5.2800%	5.2800%
Depreciable value		90%	1998.00
Elapsed Life as on 31.03.2014		3	6.00
Balance useful life of the asset			19.00
Remaining Depreciable value			1294.71
Cumulative Depreciation	351.65	351.65	820.51
	1646.36		
Depreciation			117.22
Interest on Loan			
Gross Normative Loan		1554.00	1554.00
Cumulative Repayment upto Previous Year			703.30
Net Loan-Opening			850.71
Addition due to Additional Capitalisation			0.00
Repayment during the year			117.22
Net Loan-Closing			733.49
Average Loan			792.10
Weighted Average Rate of Interest on Loan			7.2104%
Interest			57.11
Return on Equity			
Gross Notional Equity		666.00	
Opening Equity			666.00
Average Equity			666.00
Rate of Return on Equity			15.50%
Return on Equity			103.23
Interest on Working Capital			



Maintenance Spares			7.89
O & M expenses			4.39
Receivables		2 Months	56.58
Total			68.86
Interest		13.50%	9.30
Annual Transmission Charges			
Depreciation			117.22
Interest on Loan			57.11
Return on Equity			103.23
Interest on Working Capital			9.30
O & M Expenses			52.63
Total			339.48



ANNEXURE – II

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSET - 4			
(₹ in lakh)			
Rationalised cost of 400 kV line ₹ lakh per ckt km		47.54	Life in years = 25
Transmission Line length , in ckt km		12.62	Voltage = 132 kV
Multiplication factor		0.31	
			2017-18
Gross Block			185.99
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			185.99
Average Gross Block			185.99
Depreciation			
Rate of Depreciation		5.2800%	5.2800%
Depreciable value		90%	167.39
Elapsed Life as on 31.03.2014		5	8.00
Balance useful life of the asset			17.00
Remaining Depreciable value			88.83
Cumulative Depreciation	49.10	49.10	88.38
	118.29	0.00	
Depreciation			9.82
Interest on Loan			
Gross Normative Loan		130.19	130.19
Cumulative Repayment upto Previous Year			78.56
Net Loan-Opening			51.63
Addition due to Additional Capitalisation			0.00
Repayment during the year			9.82
Net Loan-Closing			41.81
Average Loan			46.72
Weighted Average Rate of Interest on Loan			7.2104%
Interest			3.37
Return on Equity			
Gross Notional Equity		55.80	
Opening Equity			55.80
Average Equity			55.80
Rate of Return on Equity			15.50%
Return on Equity			8.65



Interest on Working Capital			
Maintenance Spares			0.84
O & M expenses			0.47
Receivables		2 Months	4.71
Total			6.03
Interest		13.50%	0.81
Annual Transmission Charges			
Depreciation			9.82
Interest on Loan			3.37
Return on Equity			8.65
Interest on Working Capital			0.81
O & M Expenses			5.63
Total			28.28



ANNEXURE – III

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSET - 14			
(₹ in lakh)			
Rationalised cost of 400 kV line ₹ lakh per ckt km	27.20		Life in years = 25
Transmission Line length, in ckt km	106.86		Voltage = 400 kV
Multiplication factor	1.00		
			2017-18
Gross Block			2906.59
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			2906.59
Average Gross Block			2906.59
Depreciation			
Rate of Depreciation		5.2800%	5.2800%
Depreciable value		90%	2615.93
Elapsed Life as on 31.03.2014		9	12.00
Balance useful life of the asset			13.00
Remaining Depreciable value			774.32
Cumulative Depreciation	1381.21	1381.21	1901.18
	1234.72		
Depreciation			59.56
Interest on Loan			
Gross Normative Loan		2034.61	2034.61
Cumulative Repayment upto Previous Year			2034.61
Net Loan-Opening			0.00
Addition due to Additional Capitalisation			0.00
Repayment during the year			0.00
Net Loan-Closing			0.00
Average Loan			0.00
Weighted Average Rate of Interest on Loan			7.2104%
Interest			0.00
Return on Equity			
Gross Notional Equity		871.98	
Opening Equity			871.98
Average Equity			871.98
Rate of Return on Equity			15.50%
Return on Equity			135.16
Interest on Working Capital			
Maintenance Spares			7.15



O & M expenses			3.97
Receivables		2 Months	41.58
Total			52.70
Interest		13.50%	7.11
Annual Transmission Charges			
Depreciation			59.56
Interest on Loan			0.00
Return on Equity			135.16
Interest on Working Capital			7.11
O & M Expenses			47.66
Total			249.49



ANNEXURE – IV

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSET - 15			
(₹ in lakh)			
Rationalised cost of 400 kV line ₹ lakh per ckt km		65.67	Life in years = 25
Transmission Line length, in ckt km		107.48	Voltage = 400 kV
Multiplication factor		1.00	
			2017-18
Gross Block			7058.21
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			7058.21
Average Gross Block			7058.21
Depreciation			
Rate of Depreciation		5.2800%	5.2800%
Depreciable value		90%	6352.39
Elapsed Life as on 31.03.2014		1	4.00
Balance useful life of the asset			21.00
Remaining Depreciable value			4861.70
Cumulative Depreciation	372.67	372.67	1863.37
	5979.72		
Depreciation			372.67
Interest on Loan			
Gross Normative Loan		4940.75	4940.75
Cumulative Repayment upto Previous Year			1490.69
Net Loan-Opening			3450.05
Addition due to Additional Capitalisation			0.00
Repayment during the year			372.67
Net Loan-Closing			3077.38
Average Loan			3263.72
Weighted Average Rate of Interest on Loan			7.2104%
Interest			235.33
Return on Equity			
Gross Notional Equity		2117.46	
Opening Equity			2117.46
Average Equity			2117.46
Rate of Return on Equity			15.50%
Return on Equity			328.21
Interest on Working Capital			
Maintenance Spares			7.19



O & M expenses			3.99
Receivables		2 Months	168.06
Total			179.24
Interest		13.50%	24.20
Annual Transmission Charges			
Depreciation			372.67
Interest on Loan			235.33
Return on Equity			328.21
Interest on Working Capital			24.20
O & M Expenses			47.94
Total			1008.34



ANNEXURE – V

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSET - 16			
(₹ in lakh)			
Rationalised cost of 400 kV line ₹ lakh per ckt km		47.54	Life in years = 25
Transmission Line length, in ckt km		172.50	Voltage = 400 kV
Multiplication factor		1.00	
			2017-18
Gross Block			8200.65
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			8200.65
Average Gross Block			8200.65
Depreciation			
Rate of Depreciation		5.2800%	5.2800%
Depreciable value		90%	7380.59
Elapsed Life as on 31.03.2014		5	8.00
Balance useful life of the asset			17.00
Remaining Depreciable value			3916.63
Cumulative Depreciation	2164.97	2164.97	3896.95
	5215.61		
Depreciation			432.99
Interest on Loan			
Gross Normative Loan		5740.46	5740.46
Cumulative Repayment upto Previous Year			3463.95
Net Loan-Opening			2276.50
Addition due to Additional Capitalisation			0.00
Repayment during the year			432.99
Net Loan-Closing			1843.51
Average Loan			2060.00
Weighted Average Rate of Interest on Loan			7.2104%
Interest			148.53
Return on Equity			
Gross Notional Equity		2460.20	
Opening Equity			2460.20
Average Equity			2460.20
Rate of Return on Equity			15.50%
Return on Equity			381.33



Interest on Working Capital			
Maintenance Spares			11.54
O & M expenses			6.41
Receivables		2 Months	177.70
Total			195.65
Interest		13.50%	26.41
Annual Transmission Charges			
Depreciation			432.99
Interest on Loan			148.53
Return on Equity			381.33
Interest on Working Capital			26.41
O & M Expenses			76.94
Total			1066.21



ANNEXURE – VI

CALCULATION OF ANNUAL TRANSMISSION CHARGES FOR ASSET - 17			
(₹ in lakh)			
Rationalised cost of 400 kV line ₹ lakh per ckt km		27.20	Life in years = 25
Transmission Line length, in ckt km		178.07	Voltage = 400 kV
Multiplication factor		1.00	
			2017-18
Gross Block			4844.08
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			4844.08
Average Gross Block			4844.08
Depreciation			
Rate of Depreciation		5.2800%	5.2800%
Depreciable value		90%	4359.67
Elapsed Life as on 31.03.2014		9	12.00
Balance useful life of the asset			13.00
Remaining Depreciable value			1290.46
Cumulative Depreciation	2301.91	2301.91	3168.48
	2057.77		
Depreciation			99.27
Interest on Loan			
Gross Normative Loan		3390.86	3390.86
Cumulative Repayment upto Previous Year			3390.86
Net Loan-Opening			0.00
Addition due to Additional Capitalisation			0.00
Repayment during the year			0.00
Net Loan-Closing			0.00
Average Loan			0.00
Weighted Average Rate of Interest on Loan			7.2104%
Interest			0.00
Return on Equity			
Gross Notional Equity		1453.22	
Opening Equity			1453.22
Average Equity			1453.22
Rate of Return on Equity			15.50%
Return on Equity			225.25
Interest on Working Capital			
Maintenance Spares			11.91



O & M expenses			6.62
Receivables		2 Months	69.30
Total			87.83
Interest		13.50%	11.86
Annual Transmission Charges			
Depreciation			99.27
Interest on Loan			0.00
Return on Equity			225.25
Interest on Working Capital			11.86
O & M Expenses			79.42
Total			415.79



ANNEXURE – VII

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSET - 21			
(₹ in lakh)			
Rationalised cost of 400 kV line ₹ lakh per ckt km		94.67	Life in years = 25
Transmission Line length, in ckt km		52.06	Voltage = 220 kV
Multiplication factor		0.36	
			2017-18
Gross Block			1774.34
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			1774.34
Average Gross Block			1774.34
Depreciation			
Rate of Depreciation		5.2800%	5.2800%
Depreciable value		90%	1596.90
Elapsed Life as on 31.03.2014		0	3.00
Balance useful life of the asset			22.00
Remaining Depreciable value			1315.85
Cumulative Depreciation	0.00	0.00	374.74
	1596.90		
Depreciation			93.69
Interest on Loan			
Gross Normative Loan		1242.04	1242.04
Cumulative Repayment upto Previous Year			281.06
Net Loan-Opening			960.98
Addition due to Additional Capitalisation			0.00
Repayment during the year			93.69
Net Loan-Closing			867.30
Average Loan			914.14
Weighted Average Rate of Interest on Loan			7.2104%
Interest			65.91
Return on Equity			
Gross Notional Equity		532.30	
Opening Equity			532.30
Average Equity			532.30
Rate of Return on Equity			15.50%
Return on Equity			82.51
Interest on Working Capital			



Maintenance Spares			3.48
O & M expenses			1.93
Receivables		2 Months	45.36
Total			50.78
Interest		13.50%	6.86
Annual Transmission Charges			
Depreciation			93.69
Interest on Loan			65.91
Return on Equity			82.51
Interest on Working Capital			6.86
O & M Expenses			23.22
Total			272.18

