CENTRAL ELECTRICITY REGULATORY COMMISSION

NEW DELHI

Petition No. 237/TT/2016

Coram:

Shri A. K. Singhal, Member
Shri A. S. Bakshi, Member
Dr. M. K. Iyer, Member

Date of Order : 21.06.2018

In the matter of:

Approval of transmission tariff of the Inter-State transmission lines connecting two States for the APTRANSCO owned transmission lines/system as per the Central Electricity Regulatory Commission's order dated 14.3.2012 in Petition No. 15/Suo-Motu/2012, for inclusion in POC Transmission charges under Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014.

And in the matter of:

Transmission Corporation of Andhra Pradesh Limited,
6th Floor, A Block,
Vidyut Soudha, Khairathabad,
Hyderabad-500 082. **….Petitioner**

Vs

1. Transmission Corporation of Telangana Ltd.,
   6th Floor, A Block,
   Vidyut Soudha, Khairathabad,
   Hyderabad-500 082.

2. Karnataka Power Transmission Corporation Ltd. [KPTCL],
   Kaveri Bhavan, Kempegowda Road,
   Bangalore-560 009.

3. Tamil Nadu Transmission Corporation Ltd.,
   No. 144, Anna Salai,
   Chennai-600 002.

4. APPCC,
   451 A Block, 4th Floor Vidyut Soudha,
   Khairathabad,
   Hyderabad-500 082. **….Respondents**

For Petitioner : Shri S. Vallinayagam, Advocate, APTRANSCO
Shri Amit Kapur, Advocate, APTRANSCO
Shri Rohit Venkat, Advocate, APTRANSCO
Ms. Vidhi Jain, Advocate, APTRANSCO
Ms. Harsha Peechara, Advocate, APTRANSCO
Shri P. V. Ramana Rao, APTRANSCO

For Respondents : Shri Swapna Seshadri, Advocate, TSTRANSCO
Shri D. N. Sarma, TSTRANSCO
Shri K. Anand, TSTRANSCO

ORDER

The present petition has been filed by Transmission Corporation of Andhra Pradesh Ltd. ("APTRANSCO") seeking approval of transmission tariff of the Inter-State transmission lines connecting two States and owned by APTRANSCO as per the Commission's order dated 14.3.2012 in Petition No. 15/Suo-Motu/2012, for inclusion in POC Transmission charges for the 2016-17 period under Central Electricity Regulation Commission (Terms and Conditions of Tariff) Regulations, 2014 (hereinafter referred to as "the 2014 Tariff Regulations").

2. The order is issued on the basis of the petitioner's affidavits dated 28.10.2016, 9.1.2017, 28.3.2017, 12.4.2017, 8.1.2017 and TCTL's affidavits dated 28.3.2017 and 1.6.2017.

3. The petitioner, APTRANSCO initially in the petition claimed tariff for the inter-State transmission lines between Andhra Pradesh (AP) and Telangana, Karnataka, Puducherry and Tamil Nadu on the basis of the SRPC letter dated 31.10.2016 certifying 38 transmission lines as inter-State transmission lines. Later, vide affidavit dated 9.1.2017 requested to add four more transmission lines connecting AP and Telangana on the basis of the SRPC certificate dated 23.11.2016. Accordingly, 42 inter-State transmission lines connecting Andhra

Pradesh with other States is considered in the instant petition. The details of these transmission lines, like COD, type of conductor and ckt km are given below:-

Srl. No	Asset	Type of Conductor	Ckt km	Connecting states	Date of Commercial Operation
1	Asset-I: 400 kV VTPS – Malkaram line	D/C ACSR TWIN MOOSE	143.26	AP-Telangana	2.4.2013
2.	Asset-II: 400 kV VTPS-Suryapet line				
3	Asset-III: 400 kV Srisailam-Sattenapalli CKT I	D/C ACSR TWIN MOOSE	330.80	AP-Telangana	12.2.2014
4	Asset-IV: 400 kV Srisailam-Sattenapalli CKT II				
5	Asset-V: 400 kV Srisailam - Kurnool (SC) feeder	S/C ACSR TWIN MOOSE	100.50	AP-Telangana	6.3.2001
6	Asset-VI: 400 kV Kalpaka-Khammam- I feeder	D/C ACSR TWIN MOOSE	478	AP-Telangana	10.5.2002
7	Asset-VII: 400 kV Kalpaka-Khammam- II feeder				
8.	Asset-VIII: 400 kV Uravakonda-Veltoor- I feeder	D/C ACSR TWI MOOSE	246.71	AP-Telangana	17.11.2016
9	Asset-IX: 400 kV Uravakonda-Veltoor- II feeder				18.11.2016
10	Asset-X: 220 kV Nunna - KTPS SC Line	S/C ACSR ZEBRA	61.15	AP-Telangana	21.1.1992
11	Asset-XI: 220 kV Tallapalli - Nagarjunasagar - I & II feeder	D/C ACSR TWIN MOOSE	20.00	AP-Telangana	5.8.1985
12	Asset-XII: 220 kV Tallapalli - Nagarjunasagar -II feeder				
13	Asset-XIII: 220 kV Tallapalli - Nagarjunasagar -III feeder	S/C ACSR ZEBRA	11.00	AP-Telangana	27.1.1985
14	Asset-XIV: 220 kV Tallapalli - Chalakurthy feeder	S/C ACSR DEER	11.00	AP-Telangana	21.7.2007
15	Asset-XV: 220 kV Chillakallu - Narketpalli I feeder	D/C ACSR MOOSE	24.00	AP-Telangana	10.3.2010
16	Asset-XVI: 220 kV Chillakullu-Narketpalli II feeder				

17	Asset-XVII: 220 kV Brahmanakotkur-Wanaparthy Line (LIS)	S/C ACSR MOOSE	18.85	AP-Telangana	29.10.2009
18	Asset-XVIII: 220 kV Srisailam-Dindi-I feeder	D/C SCSR ZEBRA	2.40	AP-Telangana	12.9.1982
19	Asset-XIX: 220 kV Srisailam-Dindi-II feeder				
20	Asset-XX: 220 kV Nagarjuna Sagar Receiving station-Srisailam SC line	S/C ACSR DEER	86.00	AP-Telangana	7.2.1989
21	Asset-XXI: 220 kV LSR-KTPS-I feeder	S/C ACSR DEER	60.17	AP-Telangana	31.03.1967
22	Asset-XXII: 220 kV LSR-KTPS-II feeder	S/C ACSR DEER	88.20	AP-Telangana	31.3.1979
23	Asset-XXIII: 220 kV Chitoor-Tiruvalam	S/C ACSR DEER	28.71	AP-Tamil Nadu	17.3.2013
24	Asset-XXIV: 220 kV Raghulapadu-Alipura line	S/C ACSR ZEBRA - MOOSE	71.32	AP-Karnataka	17.10.2012
25	Asset-XXV: 220 kV Sulurupeta-Gummadipundi	S/C ACSR ZEBRA	30.74	AP-Tamil Nadu	31.10.2012
26	Asset-XXVI: 132 kV Nagarjunasagar-RACPH feeder	S/C ACSR BEAR	6.00	AP-Telangana	25.2.1983
27	Asset-XXVII: 132 kV Piduguralla-Wadapalli	S/C ACSR PANTHER	43.22	AP-Telangana	22.2.2014
28	Asset-XXVIII: 132 kV Tangeda-Wadapalli line	S/C ACSR PANTHER	27.38	AP-Telangana	26.8.2010
29	Asset-XXIX: 132 kV Chillakullu-Kodada line	S/C ACSR PANTHER	11.72	AP-Telangana	10.6.2004
30	Asset-XXX: 132 kV Chillakallu-Ramapuram line	D/C ACSR PANTHER	15.00	AP-Telangana	21.10.1982
31	Asset-XXXI: 132 kV Chillakallu-Sitapuram line	D/C ACSR PANTHER	15.00	AP-Telangana	6.4.2004
32	Asset-XXXII: 132 kV Chillakallu-Khammam line	D/C ACSR PANTHER	11.00	AP-Telangana	2.12.2001
33	Asset-XXXIII: 132 kV Chillakallu-Kusumanchi line	D/C ACSR PANTHER	11.00	AP-Telangana	24.12.1985
34	Asset-XXXIV: 132 kV Chillakallu-Madhira line	S/C ACSR PANTHER	21.00	AP-Telangana	27.10.2001
35	Asset-XXXV: 132 kV Sitapuram-KCP line	S/C ACSR PANTHER	2.03	AP-Telangana	10.5.2010
36	Asset-XXXVI: 132 kV Chillakallu-Bonakallu- I feeder	D/C ACSR PANTHER	37.00	AP-Telangana	20.1.1987
37	Asset-XXXVII:132 kV Chillakallu-Bonakallu-II feeder				
38	Asset-XXXVIII: 132 kV	D/C ACSR	14.10	AP-	20.1.1987

	A.P.Carbiders-Alampur	PANTHER		Telangana	
39	Asset-XXXIX: 132 kV A.P. Carbides-Gadwal	D/C ACSR PANTHER	14.10	AP-Telangana	13.1.2000
40	Asset-XXXX: 132 kV K. Kota-Aswaraopet-I feeder	D/C ACSR PANTHER	62.10	AP-Telangana	9.6.1982
41	Asset-XXXXI: 132 kV K. Kota-Aswaraopet-II feeder				
42	Asset-XXXXII: 132 kV Pratap Nagar-Yanam Feeder	S/C AAAC/ ACSR PANTHER	30.30	AP-Pondicherry	21.11.2013

4. The petitioner has submitted as follows:-

a. As per the provisions of Andhra Pradesh Electricity Reform Act, 1998, Government of Andhra Pradesh restructured the erstwhile Andhra Pradesh State Electricity Board (APSEB). APTRANSCO was formed as a successor to APSEB as per the first Statutory Transfer Scheme notified on 1.2.1999 to manage the transmission and distribution systems of APSEB. Subsequently, the Second Transfer Scheme was notified on 31.3.2000 wherein the petitioner retained the functions of transmission, SLDC and bulk supply within the State of AP, while the distribution and retail supply was transferred to four distribution companies. As per the Third Transfer Scheme, notified on 7.6.2005, the bulk supply business is vested with the discoms and the petitioner is presently carrying out the functions of the STU.

b. The erstwhile State of Andhra Pradesh was bifurcated into Andhra Pradesh and Telangana on 2.6.2014 by The Andhra Pradesh Reorganisation Act, 2014 (hereinafter referred to "2014 Act"). The bifurcation resulted in number of inter-State transmission lines between Andhra Pradesh and Telangana State and some of these lines are partly/wholly owned by AP.

c. The individual audited capital cost, the actual repayment schedule and interest rates of the loans of the lines and sub-stations owned by the petitioner are not available. Further, the State Commission considers the depreciation for the entire transmission assets of the petitioner while approving the Aggregate Revenue Requirement (ARR) of the licensee.

d. The transmission tariff is claimed on the basis of indicative cost given in the Commission's document titled "Assumptions in Computation in PoC charges and Losses for 2016-17 (Q3) that has been considered for the latest PoC charges computations".

e. The multi-year tariff was issued by the Andhra Pradesh Electricity Regulatory Commission (APERC) on 9.5.2015 for the 2014-19 period. As per the erstwhile Government of Andhra Pradesh order dated 8.5.2014 the ARR of APTRANSCO is 46.11% of the overall of the ARR approved by the APERC.

f. The transmission tariff claimed on the basis of configuration, ckt. km., line length and indicative cost are as follows:-

(₹ in lakh)

Srl. No.	**Name of the transmission line**	**Annual Transmission Charges claimed**
1	Asset-I	1494.93
2	Asset-II	
3	Asset-III	3451.92
4	Asset-IV	
5	Asset-V	1454.98
6	Asset-VI	4987.96
7	Asset-VII	
8	Asset-VIII	4453.07
9	Asset-IX	
10	Asset-X	298.93
11	Asset-XI	82.73
12	Asset-XII	
13	Asset-XIII	53.77
14	Asset-XIV	53.77

15	Asset-XV	99.27
16	Asset-XVI	
17	Asset-XVII	92.15
18	Asset-XVIII	9.93
19	Asset-XIX	
20	Asset-XX	420.41
21	Asset-XXI	294.14
22	Asset-XXII	431.17
23	Asset-XXIII	140.35
24	Asset-XXIV	348.65
25	Asset-XXV	150.27
26	Asset-XXVI	23.69
27	Asset-XXVII	170.67
28	Asset-XXVIII	108.11
29	Asset-XXIX	46.28
30	Asset-XXX	43.71
31	Asset-XXXI	43.71
32	Asset-XXXII	32.06
33	Asset-XXXIII	32.06
34	Asset-XXXIV	82.92
35	Asset-XXXV	8.02
36	Asset-XXXVI	107.83
37	Asset-XXXVII	
38	Asset-XXXVIII	41.09
39	Asset-XXXIX	41.09
40	Asset-XXXX	180.98
41	Asset-XXXXI	
42	Asset-XXXXII	119.64

g. Approve the annual fixed charges for the instant assets as per the provisions of the 2014 Tariff Regulations and include the same in the PoC charges in accordance with the 2014 Tariff Regulations.

5. Transmission Corporation of Telangana Limited (TCTL), Respondent No.1, in its reply vide affidavit dated 28.3.2017 has made the following submissions:-

a. Out of the 42 transmission lines for which the petitioner has claimed tariff, 38 transmission lines connect AP and Telangana and the remaining four lines connect AP and Tamil Nadu, Karnataka and Puducherry.

b. Most of the transmission lines connecting AP and Telangana were commissioned prior to bifurcation of the State in 2014 and are part of the infrastructure augmentation of the combined State of AP.

c. The Power Purchase Agreements (PPAs) existing on the date of bifurcation with the respective discoms are protected by the 2014 Reorganisation Act. Further, as per the 2014 Reorganisation Act both AP and Telangana are having capacity entitlements in the generating stations located in both the places in the ratio of 53.89%:46.11% between Telangana and AP. Both the States are utilizing the transmission lines connecting the States for transfer of power from the generating stations which means there is a bi-directional flow of power from each State to the other State. Thus, Telangana is not the only State utilizing these inter-connecting transmission lines as projected by AP and AP is also drawing power through these lines. However, there is a net power flow of 7.78% to Telangana from AP on account of higher capacity entitlement of 53.89% to Telangana.

d. The petitioner has not mentioned about the bi-directional power flow between the two States in the petition. As per the Central Electricity Regulatory Commission (Sharing of inter-State Transmission Charges and Losses) Regulations, 2010 (2010 Sharing Regulations) the YTC for non ISTS lines which carry inter-State power shall be certified by RPCs based on the Load Flow Studies which should establish that these lines are carrying more than 50% of the total power carried by them is inter-State power, which is to be vetted by NLDC and certified by RPC as non ISTS lines carrying inter-State Power. The instant transmission lines

may not qualify the condition of carrying more than 50% of the total power as inter-State power on annual basis.

e. Some of these inter-State transmission lines are very old and serving beyond their useful life and their capital cost is fully depreciated. As such O&M Expenses and Interest on Working Capital (IWC) may only be allowed.

f. The petitioner is already recovering its share of ARR for the transmission assets covered in the petition from the two discoms located in the State and allowing transmission tariff for these lines would lead to excess recovery of revenue. There is no loss of revenue to the petitioner as it is recovering tariff from the discoms.

6. In response, the petitioner in its rejoinder, vide affidavit dated 12.4.2017 has submitted the following clarifications:-

a. The transmission charges are claimed for the transmission lines which are classified as inter-State transmission system under Section 2(36)(i) of the Electricity Act, 2003 which are carrying electricity from one State to another State.

b. The petitioner does not state that Telangana is the only beneficiary of the instant transmission lines. Transmission charges are sought for the ISTS lines so that the tariff of the transmission assets could be included in the PoC mechanism. The instant transmission lines are required to be included in the PoC computation as they geographically run across AP and Telangana. The YTC would be attributed to the beneficiaries of the transmission lines based on the Power Flow Studies and PoC mechanism.

c. The instant transmission lines are ISTS lines connecting two States (natural ISTS lines) and not ISTS lines carrying inter-State power to establish through power flow studies. Further, the instant transmission lines have been certified by SRPC as natural inter-State transmission lines.

d. The petitioner has sought determination of tariff for the part of the transmission lines owned by the petitioner and not the entire length of the transmission line.

e. As per the 2010 Sharing Regulations, beneficiaries of the ISTS lines should share the charges as per the utilization. The petitioner intends to include the ISTS lines in PoC mechanism so that the cost can be shared between the beneficiaries to the extent of their utilization. The petitioner does not intend to divide excess revenue and the transmission charges allowed for the instant assets may be adjusted in the ARR approved for the petitioner.

7. TCTL in its additional reply filed vide affidavit date 25.5.2017 has raised issues similar to the issues raised in its reply dated 28.3.2017. The issues raised are as follows:-

a. While it may be correct that on bifurcation of erstwhile Andhra Pradesh State into Andhra Pradesh and Telangana States, ISTS Lines that run across Andhra Pradesh and Telangana are partly owned by Andhra Pradesh and balance part owned by Telangana State, the same does not automatically make the lines to be included in POC.

b. Unlike the inter-State Transmission Lines owned by other States, the instant transmission lines have not been laid by the State of Andhra

Pradesh. The lines were laid by the erstwhile State of Andhra Pradesh which is combined property of both Andhra Pradesh and Telangana. The cost of these lines was borne by erstwhile Andhra Pradesh. Hence, the instant transmission lines should not be included in the POC Charges.

c. The instant inter-State transmission lines are not only being utilized by the State of Telangana but are also being utilized by the State of Andhra Pradesh. The said lines should not be included in POC Charges as there is a bi-directional power flow from each State to the other State and Telangana State is not the only State utilizing these lines. Further, most of the PPAs are going to expire during 2019 and due to upcoming generating stations in Telangana State, PPAs from Chhattisgarh, the power flow to these ISTS power lines will be highly reduced. Most of the lines are very old and the capital cost itself has been recovered. Therefore, including these lines in POC at this stage is an exercise in futility.

d. After the expiry of PPAs, the net power flow will become negligible (except in the case of contingencies). Hence, instant transmission lines may not be included in the POC Charges.

e. The present State of AP has not invested any amount in the instant transmission lines and these are the lines laid before the bifurcation of the erstwhile State of AP. However, these transmission lines Inter-Connecting the two States are serving both State Utilities on account of power sharing by both the State Utilities (DISCOMS) from the generating stations of the other State, in pursuance of the 2014

Reorganisation Act provisions (the existing PPAs to be continued).

f. The existing arrangement of power drawal in the ratio of 53.89%:46.11% may continue till 2019 when the PPAs will expire and there would be barely any power flow on these lines. There is no need to allow tariff for inclusion in the PoC at the fag end of the life of the lines and when the cost of most of the lines has already been recovered through tariff.

g. SRPC has certified the instant transmission lines as ISTS lines because of the bifurcation of erstwhile State of AP into Telangana and AP. Mere certification does not mean that a tariff determination exercise needs to be undertaken by the Commission for the instant lines.

h. The petitioner has submitted that the interconnecting transmission lines are natural ISTS lines and non-ISTS lines. The Commission by an amendment to the 2010 Sharing Regulations has amended the definition of natural inter-State lines as “inter-State transmission lines connecting two states” and there is no word “natural ISTS in PoC Regulations”.

8. In response, the petitioner has reiterated the clarifications made in its rejoinder dated 12.4.2017. Some of the clarifications given by the petitioner are as follows:-

a. As per the 2014 Reorganisation Act, the transmission lines within the territory of AP would be the assets of APTRANSCO. APTRANSCO takes care of the repairs and maintenance of the instant transmission lines within the territory of AP and as such it should be included in the PoC mechanism as these lines are being used as ISTS lines.

b. As regards the contention of TCTL that the instant transmission lines were laid by the erstwhile AP, TSTRANSCO has filed a petition before TSERC for revising the ARR of 2017-19 by including the transmission lines connecting the two States, falling within the territory of Telangana even though an order was issued by erstwhile APERC for the control period 2014-19. Further, APTRANSCO is not getting any transmission charges for the power transmitted to Telangana discoms.

c. As regards, TCTL's contention that energy sharing arrangement and actual power flow between Telangana and AP is not relevant, the petitioner seeks to include the instant transmission lines in the PoC mechanism as they are transmission lines connecting two States and not on the virtue of power flow.

d. The expiry of PPAs and power flow are not relevant as the petitioner has sought determination of tariff as the instant transmission lines are connecting two States.

e. The term "natural ISTS" has been mentioned in some places in the petition to bring clarity. It has been clearly mentioned that the petition is for determination of "tariff of the inter-State transmission lines connecting two States" as stated in the Commission's order dated 14.3.2012 in Petition No. 15/SM/2012.

9. The Commission directed the Chief (Engineering) of the Commission to look into the concerns raised by TCTL and the petitioner and submit a report in consultation with the petitioner, TCTL, SRPC and SRLDC. Accordingly, the Chief (Engineering) of the Commission submitted the report. The highlights of the report are as follows:-

a. The instant transmission lines may be treated as inter-State transmission lines connecting another State as certified by RPC.

b. As per the methodology of computation of PoC/Sharing of ISTS charges and losses among DICs, PoC charges depends on location, distance and direction of the node in the grid. Accordingly, only the net power flow capacity i.e. actual usage to Telangana is considered for inclusion in the POC methodology. As per the 2010 Sharing Regulations, the beneficiaries of the ISTS lines would share the charges in accordance with their utilization.

c. The Commission in order dated 12.5.2017 in Petition No. 07/SM/2017 directed the State utilities, whose lines have been certified by respective RPCs, to file tariff petition for determination of tariff under the 2014 Tariff Regulations for inclusion in the PoC charges. Accordingly, TCTL may approach the Commission for determination of tariff for the portion of the transmission line owned by TCTL.

d. As the availability of norms for 132 kV/66 kV level is not available, the norms of concerned State Commission with regard to 132/66 kV may be taken into consideration.

10. A copy of the report filed by the Chief (Engineering) was provided to the petitioner and the respondents and were asked to submit their comments, if any. In response, APTRANSCO has submitted its comments vide affidavit dated 28.11.2017. The comments of APTRANSCO are similar to the submissions made in the petition and the rejoinder to the TCTL's reply. The comments are as follows:-

a. The 132 kV lines are inter-state lines as per Section 2(36)(i) of the Electricity Act, 2003 as the instant lines are the interconnecting

transmission lines between two States. The said definition does not differentiate between part of meshed network and radial lines. SRPC has also certified the above mentioned lines as inter-State lines vide letters dated 31.10.2016 and 23.11.2016. As per the Section 79(1)(d) of the Electricity Act, 2003, the Central commission has an obligation to determine tariff for inter-State transmission of electricity. Hence, the tariff of these lines is to be determined by the Commission. In view of the above, APTRANSCO has filed the instant petition for determination of tariff for the same and the 132 kV lines need to be included in the PoC methodology, so that the yearly transmission charges of the said lines be recovered. The 2010 Sharing Regulations also does not differentiate between meshed lines and radial lines, if the lines are ISTS lines, they need to be included in PoC mechanism. The tariff may be determined for the instant transmission lines so as to include the same in the PoC methodology.

b. These transmission lines convey electricity from the territory of one State to another. Hence, quantum of flow is not necessary to establish them as natural ISTS lines.

c. APTRANSCO has filed the instant petition for the determination of tariff for their part of the ISTS lines which are in line with the Regulations. Further, APTRANSCO is not fully recovering the tariff for the said lines, as the lines have not been included in the PoC mechanism till date. The Commission has directed the State utilities to file the tariff petition for all the ISTS lines so as to consider the same under PoC methodology.

11. We have considered the submissions of the petitioner and TCTL. As regards the availability norms for 132/66 kV level raised by TCTL, the norms of

the State Commission shall be taken into consideration. In case, no norms are specified by the State Commission, the RPC is directed to frame the norms regarding availability of 132/66 kV voltage level and submit this to the Commission within six months of issue of this order.

12. The Commission in order dated 14.3.2012 in Petition No.15/SM/2012, taking into consideration the request of the State utilities, observed that it proposes to include the transmission lines connecting two States in the PoC charges and accordingly directed the States owning ISTS connecting two States to file appropriate petitions for determination of tariff for the 2011-14 period as per the provisions of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 (2009 Tariff Regulations). Further, the Commission vide order dated 12.5.2017 in Petition No.7/SM/2017 directed the State utilities to file tariff petitions for the ISTS lines connecting two States, alongwith the certificate from the concerned RPC, for the 2014 19 tariff period as per the 2014 Tariff Regulations. The relevant portion of the order dated 12.5.2017 is extracted hereunder:-

> "7. Further, Statement of Reason (SOR) dated 26.10.2015 of Sharing Regulations (Third Amendment) provides as follows:-
>
> 15.21 A question arises for consideration is whether to fix a minimum percentage figure to consider a STU line as an ISTS line or not. As per Electricity Act and Tariff Policy, all lines which are incidental to Inter-state flow of power are to be considered as ISTS. In a meshed transmission system, many intra-State transmission lines carry inter-State power and therefore become incidental to inter-State transmission system. However, as Electricity Grid is being operated in a cooperative manner, for a minor fraction of ISTS power, it is expected that STU would not insist on considering its line(s) to be inter-State as on the one hand it will receive payment for its own lines, on the other it has to pay for usage of other States' lines. If a STU puts up a proposal for considering its line as ISTS and it is found that it is being utilized to a large extent by its own drawee nodes, then it would be merely an academic exercise as major part of tariff would be allocated to home State only. So keeping in view the regulatory process involved in getting a line certified as carrying ISTS power, getting its tariff approved and then adjustment from STU's ARR, it is expected that this claim will be raised

judiciously. An interesting situation happened during 2011 when in Eastern and Northern Regions, many lines were submitted to RPCs for approval as ISTS, Southern States realizing that they all are using each other State's line, decided that they will not put up any line for certification by RPC as ISTS. While Commission wants to consider legitimate claims but this must not result in making process too complex. The RPC may therefore uniformly decide a percentage below which (say 10%) such a line would not be considered as an ISTS. Further, it is intended that for assessment of a particular line being used for carrying inter-State power, technical knowhow and tools will be provided by Secretariat of RPCs and NLDC/ RLDCs shall provide all necessary support to States in this regard.

8. In view of the above, State utilities whose lines have been certified by respective RPCs to be considered under PoC should also file the tariff petition under the 2014 Tariff Regulations."

Accordingly, APTRANSCO has filed the instant petition on the basis of the directions of the Commission in orders dated 14.3.2012 and 12.5.2017.

13. SRPC vide letters dated 31.10.2016 and 23.11.2016 has certified that the instant forty two transmission lines are inter-State lines connecting between two States. Accordingly, the instant transmission lines have been considered for grant of tariff for the 2016-17 period. It is observed that out of the 42 transmission lines covered in the instant petition, 16 transmission lines have already completed twenty five years. APTRANSCO has submitted that the audited capital cost, the actual repayment schedule and interest rates of the loans of the instant assets are not available.

14. 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 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."

15. The same methodology is adopted for calculating the tariff for the inter-State transmission lines owned by APTRANSCO. Assets XI, XII, XIII, XVIII, XIX, XX, XX1, XXII, XXVI, XXX, XXXIII, XXXVI, XXXVII, XXXVIII, XXXX and XXXXI have already completed twenty five years. Therefore, only 'Interest on Working Capital' and 'O & M Expenses' are allowed for the said assets. Assets VIII and IX were put into commercial operation on 17.11.2016 and 18.11.2016. APTRANSCO

must be in possession of the audited capital cost of these two assets. Accordingly, in terms of the above said methodology, APTRANSCO is directed to file a fresh petition for approval of tariff for these two assets as per the provisions of the 2014 Tariff Regulations alongwith the required information specified in the Tariff Forms.

Transmission charges

16. The transmission charges allowed for the instant assets are summarized in the following tables. The details of the transmission charges allowed for the assets are given in Annexure I to XXXII of this order.

(₹ in lakh)

	Asset-I and II	**Asset-III and IV**	**Asset-V**	**Asset-VI and VII**
Particulars	**2016-17**	**2016-17**	**2016-17**	**2016-17**
Depreciation	497.69	1149.20	112.39	231.46
Interest on Loan	386.04	891.40	0.00	0.00
Return on equity	438.30	1012.08	255.02	525.22
Interest on Working Capital	33.42	77.16	10.86	27.39
O & M Expenses	54.08	124.88	43.42	180.45
Total	**1409.53**	**3254.72**	**421.68**	**964.52**

(₹ in lakh)

	Asset-X	**Asset-XI and XII**	**Asset-XIII**	**Asset-XIV**
Particulars	**2016-17**	**2016-17**	**2016-17**	**2016-17**
Depreciation	13.39	0.00	0.00	9.84
Interest on Loan	0.00	0.00	0.00	3.37
Return on equity	30.39	0.00	0.00	8.66
Interest on Working Capital	2.47	0.42	0.26	0.77
O & M Expenses	26.42	7.55	4.75	4.75
Total	**72.67**	**7.97**	**5.01**	**27.39**

(₹ in lakh)

	Asset-XV and XVI	**Asset-XVII**	**Asset-XVIII and XIX**	**Asset-XX**
Particulars	**2016-17**	**2016-17**	**2016-17**	**2016-17**
Depreciation	17.49	17.36	0.00	0.00
Interest on Loan	8.52	8.46	0.00	0.00
Return on equity	15.41	15.29	0.00	0.00
Interest on Working Capital	1.45	1.40	0.05	2.05

O & M Expenses	9.06	8.14	0.91	37.15
Total	**51.94**	**50.64**	**0.96**	**39.20**

(₹ in lakh)

	Asset-XXI	**Asset-XXII**	**Asset-XXIII**	**Asset-XXIV**
Particulars	**2016-17**	**2016-17**	**2016-17**	**2016-17**
Depreciation	0.00	0.00	35.84	89.03
Interest on Loan	0.00	0.00	25.21	62.63
Return on equity	0.00	0.00	31.56	78.40
Interest on Working Capital	1.44	2.10	2.82	7.00
O & M Expenses	25.99	38.10	12.40	30.81
Total	**27.43**	**40.21**	**107.83**	**267.87**

(₹ in lakh)

	Asset-XXV	**Asset-XXVI**	**Asset-XXVII**	**Asset-XXVIII**
Particulars	**2016-17**	**2016-17**	**2016-17**	**2016-17**
Depreciation	38.37	0.00	66.97	23.42
Interest on Loan	27.00	0.00	51.95	13.10
Return on equity	33.79	0.00	58.98	20.63
Interest on Working Capital	3.02	0.14	5.13	1.97
O & M Expenses	13.28	2.59	18.67	11.83
Total	**115.46**	**2.74**	**201.70**	**70.94**

(₹ in lakh)

	Asset-XXIX	**Asset-XXX**	**Asset-XXXI**	**Asset-XXXII**
Particulars	**2016-17**	**2016-17**	**2016-17**	**2016-17**
Depreciation	5.22	0.00	4.63	2.15
Interest on Loan	0.66	0.00	0.59	0.00
Return on equity	4.60	0.00	4.08	4.87
Interest on Working Capital	0.52	0.31	0.53	0.39
O & M Expenses	5.06	5.66	5.66	4.15
Total	**16.06**	**5.98**	**15.49**	**11.56**

(₹ in lakh)

	Asset-XXXIII	**Asset-XXXIV**	**Asset-XXXV**	**Asset-XXXVI and XXXVII**
Particulars	**2016-17**	**2016-17**	**2016-17**	**2016-17**
Depreciation	0.00	5.91	1.74	0.00
Interest on Loan	0.00	0.00	0.97	0.00
Return on equity	0.00	13.40	1.53	0.00
Interest on Working Capital	0.23	0.95	0.15	0.77
O & M Expenses	4.15	9.07	0.88	13.97
Total	**4.38**	**29.33**	**5.26**	**14.74**

(₹ in lakh)

	Asset-XXXVIII	Asset-XXXIX	Asset-XXXX and XXXXI	Asset-XXXXII
Particulars	**2016-17**	**2016-17**	**2016-17**	**2016-17**
Depreciation	0.00	1.29	0.00	46.95
Interest on Loan	0.00	0.00	0.00	36.42
Return on equity	0.00	2.92	0.00	41.35
Interest on Working Capital	0.29	0.39	1.30	3.59
O & M Expenses	5.32	5.32	23.44	13.09
Total	**5.62**	**9.92**	**24.74**	**141.40**

Filing Fee and the Publication Expenses

17. APTRANSCO has sought reimbursement of fee paid by it for filing the petition and publication expenses. APTRANSCO 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.

Sharing of Transmission Charges

18. The transmission charges of the natural ISTS lines considered in the petition 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 State Commission.

19. This order disposes of Petition No. 237/TT/2016.

sd/-	sd/-	sd/-
(Dr. M. K. Iyer)	**(A. S. Bakshi)**	**(A. K. Singhal)**
Member	**Member**	**Member**

Annexure-I

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSETS I AND II			
			(₹ in lakh)
Rationalised cost of 400 kV line ₹ lakh per km	**94.67**		Life in years -25
Transmission Line length, in km	**71.63**		**Voltage, kV - 400**
Multiplication factor	1.39		
			2016-17
Gross Block			9425.88
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			9425.88
Average Gross Block			9425.88
Depreciation			
Rate of Depreciation		5.2800%	5.2800%
Depreciable value		90%	8483.30
Elapsed Life as on 31.03.2014		**0**	2.00
Balance useful life of the asset			23.00
Remaining Depreciable value			7487.92
Cumulative Depreciation	0.00	**0.00**	1493.06
	8483.30	**652.56**	
Depreciation			497.69
Interest on Loan			
Gross Normative Loan		6598.12	6598.12
Cumulative Repayment upto Previous Year			995.37
Net Loan-Opening			5602.75
Addition due to Additional Capitalisation			0.00
Repayment during the year			497.69
Net Loan-Closing			5105.06
Average Loan			5353.90
Weighted Average Rate of Interest on Loan			7.2104%
Interest			386.04
Return on Equity			
Gross Notional Equity		2827.77	
Opening Equity			2827.77
Average Equity			2827.77
Rate of Return on Equity			15.50%
Return on Equity			438.30
Interest on Working Capital			
Maintenance Spares			8.11
O & M expenses			4.51
Receivables		2 Months	234.92
Total			247.54
Interest		13.50%	**33.42**

Annual Transmission Charges			
Depreciation			497.69
Interest on Loan			386.04
Return on Equity			438.30
Interest on Working Capital			33.42
O & M Expenses			54.08
Total			**1409.53**

Annexure-II

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSETS III AND IV			
			(₹ in lakh)
Rationalised cost of 400 kV line ₹ lakh per km	**94.67**		Life in years - 25
Transmission Line length, in km	**165.40**		**Voltage, kV - 400**
Multiplication factor	1.39		
			2016-17
Gross Block			21765.20
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			21765.20
Average Gross Block			21765.20
Depreciation			
Rate of Depreciation		5.2800%	5.2800%
Depreciable value		90%	19588.68
Elapsed Life as on 31.03.2014		**0**	2.00
Balance useful life of the asset			23.00
Remaining Depreciable value			17290.28
Cumulative Depreciation	0.00	**0.00**	3447.61
	19588.68	**1506.82**	
Depreciation			1149.20
Interest on Loan			
Gross Normative Loan		15235.64	15235.64
Cumulative Repayment upto Previous Year			2298.41
Net Loan-Opening			12937.24
Addition due to Additional Capitalisation			0.00
Repayment during the year			1149.20
Net Loan-Closing			11788.03
Average Loan			12362.63
Weighted Average Rate of Interest on Loan			7.2104%
Interest			891.40
Return on Equity			
Gross Notional Equity		6529.56	
Opening Equity			6529.56
Average Equity			6529.56
Rate of Return on Equity			15.50%
Return on Equity			1012.08
Interest on Working Capital			
Maintenance Spares			18.73
O & M expenses			10.41
Receivables		2 Months	542.45

Total			571.59
Interest		13.50%	**77.16**
Annual Transmission Charges			
Depreciation			1149.20
Interest on Loan			891.40
Return on Equity			1012.08
Interest on Working Capital			77.16
O & M Expenses			124.88
Total			**3254.72**

Annexure-III

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSET-V			
			(₹ in lakh)
Rationalised cost of 400 kV line ₹ lakh per km	**54.57**		Life in years - 25
Transmission Line length, in km	**100.50**		**Voltage, kV - 400**
Multiplication factor	1.00		
			2016-17
Gross Block			5484.29
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			5484.29
Average Gross Blcok			5484.29
Depreciation			
Rate of Depreciation		5.28%	5.2800%
Depreciable value		90%	4935.86
Elapsed Life as on 31.03.2014		**13**	15.00
Balance useful life of the asset			10.00
Remaining Depreciable value			1123.86
Cumulative Depreciation	3474.84	**3587.23**	3924.39
	1461.01	**112.39**	
Depreciation			112.39
Interest on Loan			
Gross Normative Loan		3839.00	3839.00
Cumulative Repayment upto Previous Year			3839.00
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		1645.29	
Opening Equity			1645.29
Average Equity			1645.29
Rate of Return on Equity			15.50%
Return on Equity			255.02
Interest on Working Capital			

Maintenance Spares			6.51
O & M expenses			3.62
Receivables		2 Months	70.28
Total			80.41
Interest		13.50%	**10.86**
Annual Transmission Charges			
Depreciation			112.39
Interest on Loan			0.00
Return on Equity			255.02
Interest on Working Capital			10.86
O & M Expenses			43.42
Total			**421.68**

Annexure-IV

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSETS VI AND VII			
			(₹ in lakh)
Rationalised cost of 400 kV line ₹ lakh per km		**34**	Life in years - 25
Transmission Line length, in km		**239.00**	**Voltage, kV - 400**
Multiplication factor		1.39	
			2016-17
Gross Block			11295.14
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			11295.14
Average Gross Block			11295.14
Depreciation			
Rate of Depreciation		5.28%	5.28%
Depreciable value		90%	10165.63
Elapsed Life as on 31.03.2014		**11**	13.00
Balance useful life of the asset			12.00
Remaining Depreciable value			2777.56
Cumulative Depreciation	6560.22	**6560.22**	7619.53
	3605.41	**277.34**	
Depreciation			231.46
Interest on Loan			
Gross Normative Loan		7906.60	7906.60
Cumulative Repayment upto Previous Year			7906.60
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		3388.54	
Opening Equity			3388.54
Average Equity			3388.54
Rate of Return on Equity			15.50%
Return on Equity			525.22
Interest on Working Capital			
Maintenance Spares			27.07
O & M expenses			15.04
Receivables		2 Months	160.75
Total			

			202.86
Interest		13.50%	**27.39**
Annual Transmission Charges			
Depreciation			231.46
Interest on Loan			0.00
Return on Equity			525.22
Interest on Working Capital			27.39
O & M Expenses			180.45
Total			**964.52**

Annexure-V

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSET-X			
			(₹ in lakh)
Rationalised cost of 400 kV line ₹ lakh per km	**29.69**		Life in years - 25
Transmission Line length, in km	**61.15**		**Voltage, kV - 220**
Multiplication factor	0.36		
			2016-17
Gross Block			653.60
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			653.60
Average Gross Block			653.60
Depreciation			
Rate of Depreciation		5.2800%	5.2800%
Depreciable value		90%	588.24
Elapsed Life as on 31.03.2014		**22**	24.00
Balance useful life of the asset			1.00
Remaining Depreciable value			13.39
Cumulative Depreciation	414.12	**548.06**	588.24
	174.12	**13.39**	
Depreciation			13.39
Interest on Loan			
Gross Normative Loan		457.52	457.52
Cumulative Repayment upto Previous Year			457.52
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		196.08	
Opening Equity			196.08
Average Equity			196.08
Rate of Return on Equity			15.50%
Return on Equity			30.39
Interest on Working Capital			
Maintenance Spares			3.96
O & M expenses			2.20
Receivables		2 Months	12.11
Total			

			18.28
Interest		13.50%	**2.47**
Annual Transmission Charges			
Depreciation			13.39
Interest on Loan			0.00
Return on Equity			30.39
Interest on Working Capital			2.47
O & M Expenses			26.42
Total			**72.67**

Annexure-VI

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSETS XI AND XII			
			(₹ in lakh)
Rationalised cost of 400 kV line ₹ lakh per km	**0**		Life in years - 25
Transmission Line length, in km	**10.00**		**Voltage, kV 220**
Multiplication factor	0.00		
			2016-17
Gross Block			0.00
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			0.00
Average Gross Block			0.00
Depreciation			
Rate of Depreciation		5.2800%	5.2800%
Depreciable value		90%	0.00
Elapsed Life as on 31.03.2014		**28**	30.00
Balance useful life of the asset			0.00
Remaining Depreciable value			0.00
Cumulative Depreciation	0.00	**0.00**	0.00
	0.00	**0.00**	
Depreciation			0.00
Interest on Loan			
Gross Normative Loan		0.00	0.00
Cumulative Repayment upto Previous Year			0.00
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		0.00	
Opening Equity			0.00
Average Equity			0.00
Rate of Return on Equity			15.50%
Return on Equity			0.00
Interest on Working Capital			
Maintenance Spares			1.13
O & M expenses			0.63
Receivables		2 Months	1.33
Total			

			3.09
Interest		13.50%	**0.42**
Annual Transmission Charges			
Depreciation			0.00
Interest on Loan			0.00
Return on Equity			0.00
Interest on Working Capital			0.42
O & M Expenses			7.55
Total			**7.97**

Annexure-VII

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSET-XIII			
			(₹ in lakh)
Rationalised cost of 400 kv line ₹ lakh per km	**0**		Life in years - 25
Transmission Line length, in km	**11.00**		**Voltage, kV - 220**
Multiplication factor	0.00		
			2016-17
Gross Block			0.00
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			0.00
Average Gross Block			0.00
Depreciation			
Rate of Depreciation		5.2800%	5.2800%
Depreciable value		90%	0.00
Elapsed Life as on 31.03.2014		**29**	31.00
Balance useful life of the asset			0.00
Remaining Depreciable value			0.00
Cumulative Depreciation	0.00	**0.00**	0.00
	0.00	**0.00**	
Depreciation			0.00
Interest on Loan			
Gross Normative Loan		0.00	0.00
Cumulative Repayment upto Previous Year			0.00
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		0.00	
Opening Equity			0.00
Average Equity			0.00
Rate of Return on Equity			15.50%
Return on Equity			0.00
Interest on Working Capital			
Maintenance Spares			0.71
O & M expenses			0.40
Receivables		2 Months	0.84
Total			

			1.94
Interest		13.50%	**0.26**
Annual Transmission Charges			
Depreciation			0.00
Interest on Loan			0.00
Return on Equity			0.00
Interest on Working Capital			0.26
O & M Expenses			4.75
Total			**5.01**

Annexure-VIII

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSET-XIV			
			(₹ in lakh)
Rationalised cost of 400 kV line ₹ lakh per km	**47.04**		Life in years - 25
Transmission Line length, in km	**11.00**		**Voltage, kV - 220**
Multiplication factor	0.36		
			2016-17
Gross Block			186.28
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			186.28
Average Gross Block			186.28
Depreciation			
Rate of Depreciation		5.2800%	5.2800%
Depreciable value		90%	167.65
Elapsed Life as on 31.03.2014		**6**	8.00
Balance useful life of the asset			17.00
Remaining Depreciable value			88.97
Cumulative Depreciation	59.01	**59.01**	88.52
	108.64	**8.36**	
Depreciation			9.84
Interest on Loan			
Gross Normative Loan		130.39	130.39
Cumulative Repayment upto Previous Year			78.68
Net Loan-Opening			51.71
Addition due to Additional Capitalisation			0.00
Repayment during the year			9.84
Net Loan-Closing			41.88
Average Loan			46.79
Weighted Average Rate of Interest on Loan			7.2104%
Interest			3.37
Return on Equity			
Gross Notional Equity		55.88	
Opening Equity			55.88
Average Equity			55.88
Rate of Return on Equity			15.50%
Return on Equity			8.66
Interest on Working Capital			
Maintenance Spares			0.71
O & M expenses			0.40
Receivables		2 Months	4.56
Total			

			5.67
Interest		13.50%	**0.77**
Annual Transmission Charges			
Depreciation			9.84
Interest on Loan			3.37
Return on Equity			8.66
Interest on Working Capital			0.77
O & M Expenses			4.75
Total			**27.39**

Annexure-IX

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSETS XV AND XVI			
			(₹ in lakh)
Rationalised cost of 400 kV line ₹ lakh per km	**48.44**		Life in years - 25
Transmission Line length, in km	**12.00**		**Voltage, kV - 220**
Multiplication factor	0.57		
			2016-17
Gross Block			331.33
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			331.33
Average Gross Block			331.33
Depreciation			
Rate of Depreciation		5.2800%	5.2800%
Depreciable value		90%	298.20
Elapsed Life as on 31.03.2014		**4**	6.00
Balance useful life of the asset			19.00
Remaining Depreciable value			193.23
Cumulative Depreciation	69.98	**69.98**	122.46
	228.22	**17.56**	
Depreciation			17.49
Interest on Loan			
Gross Normative Loan		231.93	231.93
Cumulative Repayment upto Previous Year			104.97
Net Loan-Opening			126.97
Addition due to Additional Capitalisation			0.00
Repayment during the year			17.49
Net Loan-Closing			109.47
Average Loan			118.22
Weighted Average Rate of Interest on Loan			7.2104%
Interest			8.52
Return on Equity			
Gross Notional Equity		99.40	
Opening Equity			99.40
Average Equity			99.40
Rate of Return on Equity			15.50%
Return on Equity			15.41
Interest on Working Capital			
Maintenance Spares			1.36
O & M expenses			0.76
Receivables		2 Months	8.66
Total			

			10.77
Interest		13.50%	**1.45**
Annual Transmission Charges			
Depreciation			17.49
Interest on Loan			8.52
Return on Equity			15.41
Interest on Working Capital			1.45
O & M Expenses			9.06
Total			**51.94**

Annexure-X

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSET-XVII			
			(₹ in lakh)
Rationalised cost of 400 kV line ₹ lakh per km	**48.44**		Life in years - 25
Transmission Line length, in km	**18.85**		**Voltage, kV - 220**
Multiplication factor	0.36		
			2016-17
Gross Block			328.71
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			328.71
Average Gross Block			328.71
Depreciation			
Rate of Depreciation		5.2800%	5.2800%
Depreciable value		90%	295.84
Elapsed Life as on 31.03.2014		**4**	6.00
Balance useful life of the asset			19.00
Remaining Depreciable value			191.71
Cumulative Depreciation	69.42	**69.42**	121.49
	226.42	**17.42**	
Depreciation			17.36
Interest on Loan			
Gross Normative Loan		230.10	230.10
Cumulative Repayment upto Previous Year			104.14
Net Loan-Opening			125.96
Addition due to Additional Capitalisation			0.00
Repayment during the year			17.36
Net Loan-Closing			108.61
Average Loan			117.29
Weighted Average Rate of Interest on Loan			7.2104%
Interest			8.46
Return on Equity			
Gross Notional Equity		98.61	
Opening Equity			98.61
Average Equity			98.61
Rate of Return on Equity			15.50%
Return on Equity			15.29
Interest on Working Capital			
Maintenance Spares			1.22
O & M expenses			0.68
Receivables		2 Months	8.44
Total			

			10.34
Interest		13.50%	**1.40**
Annual Transmission Charges			
Depreciation			17.36
Interest on Loan			8.46
Return on Equity			15.29
Interest on Working Capital			1.40
O & M Expenses			8.14
Total			**50.64**

Annexure-XI

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSETS XVIII & XIX			
			(₹ in lakh)
Rationalised cost of 400 kv line ₹ lakh per km	**0**		Life in years - 25
Transmission Line length, in km	**1.20**		**Voltage, kV - 220**
Multiplication factor	0.00		
			2016-17
Gross Block			0.00
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			0.00
Average Gross Block			0.00
Depreciation			
Rate of Depreciation		5.2800%	5.2800%
Depreciable value		90%	0.00
Elapsed Life as on 31.03.2014		**31**	33.00
Balance useful life of the asset			0.00
Remaining Depreciable value			0.00
Cumulative Depreciation	0.00	**0.00**	0.00
	0.00	**0.00**	
Depreciation			0.00
Interest on Loan			
Gross Normative Loan		0.00	0.00
Cumulative Repayment upto Previous Year			0.00
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		0.00	
Opening Equity			0.00
Average Equity			0.00
Rate of Return on Equity			15.50%
Return on Equity			0.00
Interest on Working Capital			
Maintenance Spares			0.14
O & M expenses			0.08
Receivables		2 Months	0.16
Total			

			0.37
Interest		13.50%	**0.05**
Annual Transmission Charges			
Depreciation			0.00
Interest on Loan			0.00
Return on Equity			0.00
Interest on Working Capital			0.05
O & M Expenses			0.91
Total			**0.96**

Annexure-XII

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSET-XX			
			(₹ in lakh)
Rationalised cost of 400 kV line ₹ lakh per km	**0**		Life in years - 25
Transmission Line length , in km	**86.00**		**Voltage, kV - 220**
Multiplication factor	0.00		
			2016-17
Gross Block			0.00
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			0.00
Average Gross Block			0.00
Depreciation			
Rate of Depreciation		5.2800%	5.2800%
Depreciable value		90%	0.00
Elapsed Life as on 31.03.2014		**25**	27.00
Balance useful life of the asset			0.00
Remaining Depreciable value			0.00
Cumulative Depreciation	0.00	**0.00**	0.00
	0.00	**0.00**	
Depreciation			0.00
Interest on Loan			
Gross Normative Loan		0.00	0.00
Cumulative Repayment upto Previous Year			0.00
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			7.21%
Interest			0.00
Return on Equity			
Gross Notional Equity		0.00	
Opening Equity			0.00
Average Equity			0.00
Rate of Return on Equity			15.50%
Return on Equity			0.00
Interest on Working Capital			
Maintenance Spares			5.57
O & M expenses			3.10
Receivables		2 Months	6.53
Total			

			15.20
Interest		13.50%	**2.05**
Annual Transmission Charges			
Depreciation			0.00
Interest on Loan			0.00
Return on Equity			0.00
Interest on Working Capital			2.05
O & M Expenses			37.15
Total			**39.20**

Annexure-XIII

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSET-XXI			
			(₹ in lakh)
Rationalised cost of 400 kV line ₹ lakh per km	**0**		Life in years - 25
Transmission Line length, in km	**60.17**		**Voltage, kV - 220**
Multiplication factor	0.00		
			2016-17
Gross Block			0.00
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			0.00
Average Gross Block			0.00
Depreciation			
Rate of Depreciation		5.28%	5.28%
Depreciable value		90%	0.00
Elapsed Life as on 31.03.2014		**47**	49.00
Balance useful life of the asset			0.00
Remaining Depreciable value			0.00
Cumulative Depreciation	0.00	**0.00**	0.00
	0.00	**0.00**	
Depreciation			0.00
Interest on Loan			
Gross Normative Loan		0.00	0.00
Cumulative Repayment upto Previous Year			0.00
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			7.21%
Interest			0.00
Return on Equity			
Gross Notional Equity		0.00	
Opening Equity			0.00
Average Equity			0.00
Rate of Return on Equity			15.50%
Return on Equity			0.00
Interest on Working Capital			
Maintenance Spares			3.90
O & M expenses			2.17
Receivables		2 Months	4.57
Total			

			10.64
Interest		13.50%	**1.44**
Annual Transmission Charges			
Depreciation			0.00
Interest on Loan			0.00
Return on Equity			0.00
Interest on Working Capital			1.44
O & M Expenses			25.99
Total			**27.43**

Annexure-XIV

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSET-XXII			
			(₹ in lakh)
Rationalised cost of 400 kV line ₹ lakh per km	**0**		Life in years - 25
Transmission Line length, in km	**88.20**		**Voltage, kV - 220**
Multiplication factor	0.00		
			2016-17
Gross Block			0.00
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			0.00
Average Gross Block			0.00
Depreciation			
Rate of Depreciation		5.28%	5.28%
Depreciable value		90%	0.00
Elapsed Life as on 31.03.2014		**35**	37.00
Balance useful life of the asset			0.00
Remaining Depreciable value			0.00
Cumulative Depreciation	0.00	**0.00**	0.00
	0.00	**0.00**	
Depreciation			0.00
Interest on Loan			
Gross Normative Loan		0.00	0.00
Cumulative Repayment upto Previous Year			0.00
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			7.21%
Interest			0.00
Return on Equity			
Gross Notional Equity		0.00	
Opening Equity			0.00
Average Equity			0.00
Rate of Return on Equity			15.50%
Return on Equity			0.00
Interest on Working Capital			
Maintenance Spares			5.72
O & M expenses			3.18
Receivables		2 Months	6.70

Total			15.59
Interest		13.50%	**2.10**
Annual Transmission Charges			
Depreciation			0.00
Interest on Loan			0.00
Return on Equity			0.00
Interest on Working Capital			2.10
O & M Expenses			38.10
Total			**40.21**

Annexure-XV

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSET-XXIII			
			(₹ in lakh)
Rationalised cost of 400 kV line ₹ lakh per km	**65.67**		Life in years - 25
Transmission Line length, in km	**28.71**		**Voltage, kV - 220**
Multiplication factor	0.36		
			2016-17
Gross Block			678.74
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			678.74
Average Gross Block			678.74
Depreciation			
Rate of Depreciation		5.28%	5.28%
Depreciable value		90%	610.86
Elapsed Life as on 31.03.2014		**1**	3.00
Balance useful life of the asset			22.00
Remaining Depreciable value			503.35
Cumulative Depreciation	35.84	**35.84**	143.35
	575.03	**44.23**	
Depreciation			35.84
Interest on Loan			
Gross Normative Loan		475.12	475.12
Cumulative Repayment upto Previous Year			107.51
Net Loan-Opening			367.60
Addition due to Additional Capitalisation			0.00
Repayment during the year			35.84
Net Loan-Closing			331.77
Average Loan			349.69
Weighted Average Rate of Interest on Loan			7.21%
Interest			25.21
Return on Equity			
Gross Notional Equity		203.62	
Opening Equity			203.62
Average Equity			203.62
Rate of Return on Equity			15.50%
Return on Equity			31.56
Interest on Working Capital			
Maintenance Spares			1.86
O & M expenses			1.03
Receivables		2 Months	17.97
Total			

			20.87
Interest		13.50%	**2.82**
Annual Transmission Charges			
Depreciation			35.84
Interest on Loan			25.21
Return on Equity			31.56
Interest on Working Capital			2.82
O & M Expenses			12.40
Total			**107.83**

Annexure-XVI

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSET-XXIV			
			(₹ in lakh)
Rationalised cost of 400 kV line ₹ lakh per km	**65.67**		Life in years - 25
Transmission Line length, in km	**71.32**		**Voltage, kV - 220**
Multiplication factor	0.36		
			2016-17
Gross Block			1686.09
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			1686.09
Average Gross Block			1686.09
Depreciation			
Rate of Depreciation		5.28%	5.28%
Depreciable value		90%	1517.48
Elapsed Life as on 31.03.2014		**1**	3.00
Balance useful life of the asset			22.00
Remaining Depreciable value			1250.40
Cumulative Depreciation	89.03	**89.03**	356.10
	1428.46	**109.88**	
Depreciation			89.03
Interest on Loan			
Gross Normative Loan		1180.26	1180.26
Cumulative Repayment upto Previous Year			267.08
Net Loan-Opening			913.19
Addition due to Additional Capitalisation			0.00
Repayment during the year			89.03
Net Loan-Closing			824.16
Average Loan			868.67
Weighted Average Rate of Interest on Loan			7.21%
Interest			62.63
Return on Equity			
Gross Notional Equity		505.83	
Opening Equity			505.83
Average Equity			505.83
Rate of Return on Equity			15.50%
Return on Equity			78.40
Interest on Working Capital			
Maintenance Spares			4.62
O & M expenses			2.57
Receivables		2 Months	44.65
Total			

			51.83
Interest		13.50%	**7.00**
Annual Transmission Charges			
Depreciation			89.03
Interest on Loan			62.63
Return on Equity			78.40
Interest on Working Capital			7.00
O & M Expenses			30.81
Total			**267.87**

Annexure-XVII

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSET-XXV			
			(₹ in lakh)
Rationalised cost of 400 kV line ₹ lakh per km	**65.67**		Life in years - 25
Transmission Line length, in km	**30.74**		**Voltage, kV - 220**
Multiplication factor	0.36		
			2016-17
Gross Block			726.73
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			726.73
Average Gross Block			726.73
Depreciation			
Rate of Depreciation		5.28%	5.28%
Depreciable value		90%	654.06
Elapsed Life as on 31.03.2014		**1**	3.00
Balance useful life of the asset			22.00
Remaining Depreciable value			538.94
Cumulative Depreciation	38.37	**38.37**	153.49
	615.69	**47.36**	
Depreciation			38.37
Interest on Loan			
Gross Normative Loan		508.71	508.71
Cumulative Repayment upto Previous Year			115.11
Net Loan-Opening			393.60
Addition due to Additional Capitalisation			0.00
Repayment during the year			38.37
Net Loan-Closing			355.23
Average Loan			374.41
Weighted Average Rate of Interest on Loan			7.21%
Interest			27.00
Return on Equity			
Gross Notional Equity		218.02	
Opening Equity			218.02
Average Equity			218.02
Rate of Return on Equity			15.50%
Return on Equity			33.79
Interest on Working Capital			
Maintenance Spares			1.99
O & M expenses			1.11
Receivables		2 Months	19.24
Total			

			22.34
Interest		13.50%	**3.02**
Annual Transmission Charges			
Depreciation			38.37
Interest on Loan			27.00
Return on Equity			33.79
Interest on Working Capital			3.02
O & M Expenses			13.28
Total			**115.46**

Annexure-XVIII

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSET-XXVI			
			(₹ in lakh)
Rationalised cost of 400 kV line ₹ lakh per km	**0**		Life in years - 25
Transmission Line length, in km	**6.00**		**Voltage, kV - 132**
Multiplication factor	0.00		
			2016-17
Gross Block			0.00
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			0.00
Average Gross Block			0.00
Depreciation			
Rate of Depreciation		5.28%	5.28%
Depreciable value		90%	0.00
Elapsed Life as on 31.03.2014		**31**	33.00
Balance useful life of the asset			0.00
Remaining Depreciable value			0.00
Cumulative Depreciation	0.00	**0.00**	0.00
	0.00	**0.00**	
Depreciation			0.00
Interest on Loan			
Gross Normative Loan		0.00	0.00
Cumulative Repayment upto Previous Year			0.00
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			7.21%
Interest			0.00
Return on Equity			
Gross Notional Equity		0.00	
Opening Equity			0.00
Average Equity			0.00
Rate of Return on Equity			15.50%
Return on Equity			0.00
Interest on Working Capital			
Maintenance Spares			0.39
O & M expenses			0.22
Receivables		2 Months	0.46
Total			

			1.06
Interest		13.50%	**0.14**
Annual Transmission Charges			
Depreciation			0.00
Interest on Loan			0.00
Return on Equity			0.00
Interest on Working Capital			0.14
O & M Expenses			2.59
Total			**2.74**

Annexure-XIX

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSET-XXVII			
			(₹ in lakh)
Rationalised cost of 400 kV line ₹ lakh per km	**94.67**		Life in years - 25
Transmission Line length, in km	**43.22**		**Voltage, kV - 132**
Multiplication factor	0.31		
			2016-17
Gross Block			1268.41
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			1268.41
Average Gross Block			1268.41
Depreciation			
Rate of Depreciation		5.28%	5.28%
Depreciable value		90%	1141.57
Elapsed Life as on 31.03.2014		**0**	2.00
Balance useful life of the asset			23.00
Remaining Depreciable value			1007.62
Cumulative Depreciation	0.00	**0.00**	200.92
	1141.57	**87.81**	
Depreciation			66.97
Interest on Loan			
Gross Normative Loan		887.89	887.89
Cumulative Repayment upto Previous Year			133.94
Net Loan-Opening			753.94
Addition due to Additional Capitalisation			0.00
Repayment during the year			66.97
Net Loan-Closing			686.97
Average Loan			720.46
Weighted Average Rate of Interest on Loan			7.21%
Interest			51.95
Return on Equity			
Gross Notional Equity		380.52	
Opening Equity			380.52
Average Equity			380.52
Rate of Return on Equity			15.50%
Return on Equity			58.98
Interest on Working Capital			
Maintenance Spares			2.80
O & M expenses			1.56
Receivables		2 Months	33.62
Total			

			37.97
Interest		13.50%	**5.13**
Annual Transmission Charges			
Depreciation			66.97
Interest on Loan			51.95
Return on Equity			58.98
Interest on Working Capital			5.13
O & M Expenses			18.67
Total			**201.70**

Annexure-XX

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSET-XXVIII			
			(₹ in lakh)
Rationalised cost of 400 kV line ₹ lakh per km	**52.26**		Life in years - 25
Transmission Line length, in km	**27.38**		**Voltage, kV - 132**
Multiplication factor	0.31		
			2016-17
Gross Block			443.57
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			443.57
Average Gross Block			443.57
Depreciation			
Rate of Depreciation		5.28%	5.28%
Depreciable value		90%	399.22
Elapsed Life as on 31.03.2014		**3**	5.00
Balance useful life of the asset			20.00
Remaining Depreciable value			282.11
Cumulative Depreciation	70.26	**70.26**	140.52
	328.95	0.00	
Depreciation			23.42
Interest on Loan			
Gross Normative Loan		310.50	310.50
Cumulative Repayment upto Previous Year			117.10
Net Loan-Opening			193.40
Addition due to Additional Capitalisation			0.00
Repayment during the year			23.42
Net Loan-Closing			169.98
Average Loan			181.69
Weighted Average Rate of Interest on Loan			7.21%
Interest			13.10
Return on Equity			
Gross Notional Equity		133.07	
Opening Equity			133.07
Average Equity			133.07
Rate of Return on Equity			15.50%
Return on Equity			20.63
Interest on Working Capital			
Maintenance Spares			1.77
O & M expenses			0.99
Receivables		2 Months	11.82
Total			

			14.58
Interest		13.50%	**1.97**
Annual Transmission Charges			
Depreciation			23.42
Interest on Loan			13.10
Return on Equity			20.63
Interest on Working Capital			1.97
O & M Expenses			11.83
Total			**70.94**

Annexure-XXI

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSET-XXIX			
			(₹ in lakh)
Rationalised cost of 400 kV line ₹ lakh per km	**27.2**		Life in years - 25
Transmission Line length, in km	**11.72**		**Voltage, kV - 132**
Multiplication factor	0.31		
			2016-17
Gross Block			98.82
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			98.82
Average Gross Block			98.82
Depreciation			
Rate of Depreciation		5.28%	5.28%
Depreciable value		90%	88.94
Elapsed Life as on 31.03.2014		**9**	11.00
Balance useful life of the asset			14.00
Remaining Depreciable value			31.54
Cumulative Depreciation	46.96	**46.96**	62.61
	41.98	0.00	
Depreciation			5.22
Interest on Loan			
Gross Normative Loan		69.18	69.18
Cumulative Repayment upto Previous Year			57.40
Net Loan-Opening			11.78
Addition due to Additional Capitalisation			0.00
Repayment during the year			5.22
Net Loan-Closing			6.56
Average Loan			9.17
Weighted Average Rate of Interest on Loan			7.21%
Interest			0.66
Return on Equity			
Gross Notional Equity		29.65	
Opening Equity			29.65
Average Equity			29.65
Rate of Return on Equity			15.50%
Return on Equity			4.60
Interest on Working Capital			
Maintenance Spares			0.76
O & M expenses			0.42
Receivables		2 Months	2.68
Total			

			3.86
Interest		13.50%	**0.52**
Annual Transmission Charges			
Depreciation			5.22
Interest on Loan			0.66
Return on Equity			4.60
Interest on Working Capital			0.52
O & M Expenses			5.06
Total			**16.06**

Annexure-XXII

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSET-XXX			
			(₹ in lakh)
Rationalised cost of 400 kV line ₹ lakh per km		**0**	Life in years - 25
Transmission Line length, in km		**7.50**	**Voltage, kV - 132**
Multiplication factor		0.00	
			2016-17
Gross Block			0.00
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			0.00
Average Gross Block			0.00
Depreciation			
Rate of Depreciation		5.28%	5.28%
Depreciable value		90%	0.00
Elapsed Life as on 31.03.2014		**31**	33.00
Balance useful life of the asset			0.00
Remaining Depreciable value			0.00
Cumulative Depreciation	0.00	**0.00**	0.00
	0.00	0.00	
Depreciation			0.00
Interest on Loan			
Gross Normative Loan		0.00	0.00
Cumulative Repayment upto Previous Year			0.00
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			7.21%
Interest			0.00
Return on Equity			
Gross Notional Equity		0.00	
Opening Equity			0.00
Average Equity			0.00
Rate of Return on Equity			15.50%
Return on Equity			0.00
Interest on Working Capital			
Maintenance Spares			0.85
O & M expenses			0.47
Receivables		2 Months	1.00
Total			

			2.32
Interest		13.50%	**0.31**
Annual Transmission Charges			
Depreciation			0.00
Interest on Loan			0.00
Return on Equity			0.00
Interest on Working Capital			0.31
O & M Expenses			5.66
Total			**5.98**

Annexure-XXIII

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSET-XXXI			
			(₹ in lakh)
Rationalised cost of 400 kV line ₹ lakh per km	**27.2**		Life in years - 25
Transmission Line length, in km	**7.50**		**Voltage, kV - 132**
Multiplication factor	0.43		
			2016-17
Gross Block			87.72
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			87.72
Average Gross Block			87.72
Depreciation			
Rate of Depreciation		5.28%	5.28%
Depreciable value		90%	78.95
Elapsed Life as on 31.03.2014		**9**	11.00
Balance useful life of the asset			14.00
Remaining Depreciable value			28.00
Cumulative Depreciation	41.68	**41.68**	55.58
	37.26	0.00	
Depreciation			4.63
Interest on Loan			
Gross Normative Loan		61.40	61.40
Cumulative Repayment upto Previous Year			50.95
Net Loan-Opening			10.46
Addition due to Additional Capitalisation			0.00
Repayment during the year			4.63
Net Loan-Closing			5.82
Average Loan			8.14
Weighted Average Rate of Interest on Loan			7.21%
Interest			0.59
Return on Equity			
Gross Notional Equity		26.32	
Opening Equity			26.32
Average Equity			26.32
Rate of Return on Equity			15.50%
Return on Equity			4.08
Interest on Working Capital			
Maintenance Spares			0.85
O & M expenses			0.47
Receivables		2 Months	2.58
Total			

			3.90
Interest		13.50%	**0.53**
Annual Transmission Charges			
Depreciation			4.63
Interest on Loan			0.59
Return on Equity			4.08
Interest on Working Capital			0.53
O & M Expenses			5.66
Total			**15.49**

Annexure-XXIV

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSET-XXXII			
			(₹ in lakh)
Rationalised cost of 400 kV line ₹ lakh per km	**44.28**		Life in years - 25
Transmission Line length, in km	**5.50**		**Voltage, kV - 132**
Multiplication factor	0.43		
			2016-17
Gross Block			104.72
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			104.72
Average Gross Block			104.72
Depreciation			
Rate of Depreciation		5.28%	5.28%
Depreciable value		90%	94.25
Elapsed Life as on 31.03.2014		**12**	14.00
Balance useful life of the asset			11.00
Remaining Depreciable value			23.61
Cumulative Depreciation	66.35	**66.35**	72.79
	27.90	2.15	
Depreciation			2.15
Interest on Loan			
Gross Normative Loan		73.31	73.31
Cumulative Repayment upto Previous Year			73.31
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			7.21%
Interest			0.00
Return on Equity			
Gross Notional Equity		31.42	
Opening Equity			31.42
Average Equity			31.42
Rate of Return on Equity			15.50%
Return on Equity			4.87
Interest on Working Capital			
Maintenance Spares			0.62
O & M expenses			0.35
Receivables		2 Months	1.93
Total			

			2.90
Interest		13.50%	**0.39**
Annual Transmission Charges			
Depreciation			2.15
Interest on Loan			0.00
Return on Equity			4.87
Interest on Working Capital			0.39
O & M Expenses			4.15
Total			**11.56**

Annexure-XXV

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSET-XXXIII			
			(₹ in lakh)
Rationalised cost of 400 kV line ₹ lakh per km	**0**		Life in years 25
Transmission Line length, in km	**5.50**		**Voltage, kV - 132**
Multiplication factor	0.00		
			2016-17
Gross Block			0.00
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			0.00
Average Gross Block			0.00
Depreciation			
Rate of Depreciation		5.28%	5.28%
Depreciable value		90%	0.00
Elapsed Life as on 31.03.2014		**28**	30.00
Balance useful life of the asset			0.00
Remaining Depreciable value			0.00
Cumulative Depreciation	0.00	**0.00**	0.00
	0.00	0.00	
Depreciation			0.00
Interest on Loan			
Gross Normative Loan		0.00	0.00
Cumulative Repayment upto Previous Year			0.00
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			7.21%
Interest			0.00
Return on Equity			
Gross Notional Equity		0.00	
Opening Equity			0.00
Average Equity			0.00
Rate of Return on Equity			15.50%
Return on Equity			0.00
Interest on Working Capital			
Maintenance Spares			0.62
O & M expenses			0.35
Receivables		2 Months	0.73
Total			

			1.70
Interest		13.50%	**0.23**
Annual Transmission Charges			
Depreciation			0.00
Interest on Loan			0.00
Return on Equity			0.00
Interest on Working Capital			0.23
O & M Expenses			4.15
Total			**4.38**

Annexure-XXVI

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSET-XXXIV			
			(₹ in lakh)
Rationalised cost of 400 kV line ₹ lakh per km	**44.28**		Life in years - 25
Transmission Line length, in km	**21.00**		**Voltage, kV - 132**
Multiplication factor	0.31		
			2016-17
Gross Block			288.26
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			288.26
Average Gross Block			288.26
Depreciation			
Rate of Depreciation		5.28%	5.28%
Depreciable value		90%	259.44
Elapsed Life as on 31.03.2014		**12**	14.00
Balance useful life of the asset			11.00
Remaining Depreciable value			64.98
Cumulative Depreciation	182.64	**182.64**	200.36
	76.79	5.91	
Depreciation			5.91
Interest on Loan			
Gross Normative Loan		201.78	201.78
Cumulative Repayment upto Previous Year			201.78
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			7.21%
Interest			0.00
Return on Equity			
Gross Notional Equity		86.48	
Opening Equity			86.48
Average Equity			86.48
Rate of Return on Equity			15.50%
Return on Equity			13.40
Interest on Working Capital			
Maintenance Spares			1.36
O & M expenses			0.76
Receivables		2 Months	4.89
Total			

			7.00
Interest		13.50%	**0.95**
Annual Transmission Charges			
Depreciation			5.91
Interest on Loan			0.00
Return on Equity			13.40
Interest on Working Capital			0.95
O & M Expenses			9.07
Total			**29.33**

Annexure-XXVII

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSET-XXXV			
			(₹ in lakh)
Rationalised cost of 400 kV line ₹ lakh per km	**52.26**		Life in years -25
Transmission Line length, in km	**2.03**		**Voltage, kV - 132**
Multiplication factor	0.31		
			2016-17
Gross Block			32.89
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			32.89
Average Gross Block			32.89
Depreciation			
Rate of Depreciation		5.28%	5.28%
Depreciable value		90%	29.60
Elapsed Life as on 31.03.2014		**3**	5.00
Balance useful life of the asset			20.00
Remaining Depreciable value			20.92
Cumulative Depreciation	5.21	**5.21**	10.42
	24.39	0.00	
Depreciation			1.74
Interest on Loan			
Gross Normative Loan		23.02	23.02
Cumulative Repayment upto Previous Year			8.68
Net Loan-Opening			14.34
Addition due to Additional Capitalisation			0.00
Repayment during the year			1.74
Net Loan-Closing			12.60
Average Loan			13.47
Weighted Average Rate of Interest on Loan			7.21%
Interest			0.97
Return on Equity			
Gross Notional Equity		9.87	
Opening Equity			9.87
Average Equity			9.87
Rate of Return on Equity			15.50%
Return on Equity			1.53
Interest on Working Capital			
Maintenance Spares			0.13
O & M expenses			0.07
Receivables		2 Months	0.88
Total			

			1.08
Interest		13.50%	**0.15**
Annual Transmission Charges			
Depreciation			1.74
Interest on Loan			0.97
Return on Equity			1.53
Interest on Working Capital			0.15
O & M Expenses			0.88
Total			**5.26**

Annexure-XXVIII

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSETS XXXVI & XXXVII			
			(₹ in lakh)
Rationalised cost of 400 kV line ₹ lakh per km	**0**		Life in years - 25
Transmission Line length, in km	**18.50**		**Voltage, kV - 132**
Multiplication factor	0.00		
			2016-17
Gross Block			0.00
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			0.00
Average Gross Block			0.00
Depreciation			
Rate of Depreciation		5.28%	5.28%
Depreciable value		90%	0.00
Elapsed Life as on 31.03.2014		**27**	29.00
Balance useful life of the asset			0.00
Remaining Depreciable value			0.00
Cumulative Depreciation	0.00	**0.00**	0.00
	0.00	0.00	
Depreciation			0.00
Interest on Loan			
Gross Normative Loan		0.00	0.00
Cumulative Repayment upto Previous Year			0.00
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			7.21%
Interest			0.00
Return on Equity			
Gross Notional Equity		0.00	
Opening Equity			0.00
Average Equity			0.00
Rate of Return on Equity			15.50%
Return on Equity			0.00
Interest on Working Capital			
Maintenance Spares			2.10
O & M expenses			1.16
Receivables		2 Months	2.46
Total			

			5.72
Interest		13.50%	**0.77**
Annual Transmission Charges			
Depreciation			0.00
Interest on Loan			0.00
Return on Equity			0.00
Interest on Working Capital			0.77
O & M Expenses			13.97
Total			**14.74**

Annexure-XXIX

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSET-XXXVIII			
			(₹ in lakh)
Rationalised cost of 400 kV line ₹ lakh per km	**0**		Life in years - 25
Transmission Line length, in km	**7.05**		**Voltage, kV - 132**
Multiplication factor	0.00		
			2016-17
Gross Block			0.00
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			0.00
Average Gross Block			0.00
Depreciation			
Rate of Depreciation		5.28%	5.28%
Depreciable value		90%	0.00
Elapsed Life as on 31.03.2014		**27**	29.00
Balance useful life of the asset			0.00
Remaining Depreciable value			0.00
Cumulative Depreciation	0.00	**0.00**	0.00
	0.00	0.00	
Depreciation			0.00
Interest on Loan			
Gross Normative Loan		0.00	0.00
Cumulative Repayment upto Previous Year			0.00
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			7.21%
Interest			0.00
Return on Equity			
Gross Notional Equity		0.00	
Opening Equity			0.00
Average Equity			0.00
Rate of Return on Equity			15.50%
Return on Equity			0.00
Interest on Working Capital			
Maintenance Spares			0.80
O & M expenses			0.44
Receivables		2 Months	0.94
Total			

			2.18
Interest		13.50%	**0.29**
Annual Transmission Charges			
Depreciation			0.00
Interest on Loan			0.00
Return on Equity			0.00
Interest on Working Capital			0.29
O & M Expenses			5.32
Total			**5.62**

Annexure-XXX

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSET-XXXIX			
			(₹ in lakh)
Rationalised cost of 400 kV line ₹ lakh per km	**20.71**		Life in years - 25
Transmission Line length, in km	**7.05**		**Voltage, kV - 132**
Multiplication factor	0.43		
			2016-17
Gross Block			62.78
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			62.78
Average Gross Block			62.78
Depreciation			
Rate of Depreciation		5.28%	5.28%
Depreciable value		90%	56.50
Elapsed Life as on 31.03.2014		**14**	16.00
Balance useful life of the asset			9.00
Remaining Depreciable value			11.58
Cumulative Depreciation	39.78	**42.35**	46.21
	16.73	1.29	
Depreciation			1.29
Interest on Loan			
Gross Normative Loan		43.95	43.95
Cumulative Repayment upto Previous Year			43.95
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			7.21%
Interest			0.00
Return on Equity			
Gross Notional Equity		18.83	
Opening Equity			18.83
Average Equity			18.83
Rate of Return on Equity			15.50%
Return on Equity			2.92
Interest on Working Capital			
Maintenance Spares			0.80
O & M expenses			0.44
Receivables		2 Months	1.65
Total			

			2.90
Interest		13.50%	**0.39**
Annual Transmission Charges			
Depreciation			1.29
Interest on Loan			0.00
Return on Equity			2.92
Interest on Working Capital			0.39
O & M Expenses			5.32
Total			**9.92**

Annexure-XXXI

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSETS XXXX & XXXXI			
			(₹ in lakh)
Rationalised cost of 400 kV line ₹ lakh per km	**0**		Life in years
Transmission Line length, in km	**31.05**		**Voltage, kV**
Multiplication factor	0.00		
			2016-17
Gross Block			0.00
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			0.00
Average Gross Block			0.00
Depreciation			
Rate of Depreciation		5.28%	5.28%
Depreciable value		90%	0.00
Elapsed Life as on 31.03.2014		**31**	33.00
Balance useful life of the asset			0.00
Remaining Depreciable value			0.00
Cumulative Depreciation	0.00	**0.00**	0.00
	0.00	0.00	
Depreciation			0.00
Interest on Loan			
Gross Normative Loan		0.00	0.00
Cumulative Repayment upto Previous Year			0.00
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			7.21%
Interest			0.00
Return on Equity			
Gross Notional Equity		0.00	
Opening Equity			0.00
Average Equity			0.00
Rate of Return on Equity			15.50%
Return on Equity			0.00
Interest on Working Capital			
Maintenance Spares			3.52
O & M expenses			1.95
Receivables		2 Months	4.12
Total			

			9.59
Interest		13.50%	**1.30**
Annual Transmission Charges			
Depreciation			0.00
Interest on Loan			0.00
Return on Equity			0.00
Interest on Working Capital			1.30
O & M Expenses			23.44
Total			**24.74**

Annexure-XXXII

CALCULATION OF ANNUAL TRANSMISSION CHARGES OF ASSET-XXXXII			
			(₹ in lakh)
Rationalised cost of 400 kV line ₹ lakh per km	**94.67**		Life in years - 25
Transmission Line length, in km	**30.30**		**Voltage, kV - 132**
Multiplication factor	0.31		
			2016-17
Gross Block			889.24
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			889.24
Average Gross Block			889.24
Depreciation			
Rate of Depreciation		5.28%	5.28%
Depreciable value		90%	800.31
Elapsed Life as on 31.03.2014		**0**	2.00
Balance useful life of the asset			23.00
Remaining Depreciable value			706.41
Cumulative Depreciation	0.00	**0.00**	140.85
	800.31	0.00	
Depreciation			46.95
Interest on Loan			
Gross Normative Loan		622.46	622.46
Cumulative Repayment upto Previous Year			93.90
Net Loan-Opening			528.56
Addition due to Additional Capitalisation			0.00
Repayment during the year			46.95
Net Loan-Closing			481.61
Average Loan			505.09
Weighted Average Rate of Interest on Loan			7.21%
Interest			36.42
Return on Equity			
Gross Notional Equity		266.77	
Opening Equity			266.77
Average Equity			266.77
Rate of Return on Equity			15.50%
Return on Equity			41.35
Interest on Working Capital			
Maintenance Spares			1.96
O & M expenses			1.09
Receivables		2 Months	23.57
Total			

			26.62
Interest		13.50%	**3.59**
Annual Transmission Charges			
Depreciation			46.95
Interest on Loan			36.42
Return on Equity			41.35
Interest on Working Capital			3.59
O & M Expenses			13.09
Total			**141.40**