

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 173/TT/2016

Coram:

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

Date of Order: 19.12.2017

In the matter of:

Truing up of transmission tariff of 2009-14 tariff period under Regulation 6 of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009, and determination of transmission tariff for 2014-15 tariff period Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 of Maharashtra State Electricity Transmission Company Ltd. (MSETCL) owned Transmission Lines/System conveying electricity to other States under Regulation 86 of Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999.

And in the matter of:

Maharashtra State Electricity Transmission Company Limited
'Prakashganga', Plot No. C-19, E-Block,
Bandra Kurla Complex, Bandra (East),
Mumbai-400 051

.....Petitioner

Vs

1. Power Grid Corporation of India Limited
"Saudamini", Plot No. 2, Sector-29,
Near IFFCO Chowk,
Gurgaon-122 001
2. M. P. Power Transmission Company Limited
Block No.2, Shakti Bhawan, Rampur
Jabalpur-482 008
3. Gujarat Energy Transmisison Coporation Limited
Sardar Patel Vidyut Bhawan,



Race Course, Vadodara-390 007

4. Electricity Department,
Goa, Vidyut Bhawan,
3rd Floor, Tiswadi,
Panji-403 001
5. Karnataka Power Transmission Corporation Limited
Kaveri Bhavan, K. G. Road,
Bangalore-560 009

.....Respondents

For petitioner : Shri Shrikant B. Petkar, MSETCL
Shri R. N. Fatekade, MSETCL

For respondents : None

ORDER

The present petition has been filed by Maharashtra State Electricity Transmission Company Limited (MSETCL) for trueing up of capital expenditure of 2009-14 tariff period for combined 09 nos. of Transmission Lines/System (hereinafter referred to as "transmission assets") owned by MSETCL conveying electricity to other States (hereinafter referred to as "transmission scheme"), under Regulation 6 of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 (hereinafter referred to as "the 2009 Tariff Regulations") based on actual capital expenditure for the period from COD to 31.3.2014, and for determination of tariff for the period from 1.4.2014 to 31.3.2015 under the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 (hereinafter referred to as "the 2014 Tariff Regulations").



2. The transmission charges for the instant lines for the period from 1.7.2011 to 31.3.2012, 2012-13 and 2013-14 were allowed vide order dated 18.5.2015 in Petition No. 256/TT/2013 for inclusion in the POC transmission charges in accordance with 2009 Tariff Regulations.

3. The details of the assets covered in the instant petition along with the actual COD are furnished below:-

Srl. No.	Name of the inter-State Transmission Line	Connecting States	Date of COD
1	Asset-I: 220 kV Kalmeshwar-Pandurna S/C line	Maharashtra -M.P.	4.11.1988
2	Asset-II: 220 kV Mudshingi-Amona S/C line	Maharashtra-Goa	22.6.1981
3	Asset-III: 220 kV Tillari-Amona-2 S/C line	Maharashtra-Goa	11.1.1978
4	Asset-IV: 220 kV Nasik-Navsari-1 D/C line	Maharashtra-Gujarat	31.5.1977
5	Asset-V: 220 kV Nasik-Navsari-2 D/C line	Maharashtra-Gujarat	28.1.1989
6	Asset-VI: 220 kV Kolhapur-Chikkodi Ckt-I S/C line	Maharashtra-Karnataka	1.11.1970
7	Asset-VII: 220 kV Kolhapur-Chikkodi Ckt-II S/C line	Maharashtra-Karnataka	1.11.1970
8	Asset-VIII: 400 kV SSP-Dhule Ckt-1 S/C line	Maharashtra-Gujarat	13.12.1998
9	Asset-IX: 400 kV SSP-Dhule Ckt-2 S/C line	Maharashtra-Gujarat	22.12.1998

4. The details of the transmission charges allowed vide order dated 18.5.2015 in Petition No. 256/TT/2013 for the instant assets are summarized hereunder:-

Sl. No	Name of the lines	Line Length (ckt. km.)	₹ in lakh		
			2011-12* (Pro rata)	2012-13 (Pro-rata)	2013-14 (Pro-rata)
1	Asset-I	33.80	18364123	30809410	26828243
2	Asset-II	18.00	9779711	16407378	14287230
3	Asset-III	30.00	16299518	27345630	23812050
4	Asset-IV	100.00	54331725	91152100	79373500



5	Asset-V	100.00	54331725	91152100	79373500
6	Asset-VI	15.41	8372519	14046539	12231456
7	Asset-VII	24.00	13039614	21876504	19049640
8	Asset-VIII	142.00	154823310	265185994	258047512
9	Asset-IX	142.00	154823310	265185994	258047512
Total			484165554	823161648	771050643

*YTC for 9 months has been taken as Sharing Regulations, 2010 came into force from 1.7.2011.

5. The petitioner was directed vide RoP dated 25.10.2016 to submit the details of trued up ARR by the SERC for the periods 2011-12, 2012-13 and 2013-14.

6. In response, the petitioner vide affidavit dated 23.11.2016 has submitted the following:-

(₹ in lakh)

Particulars	ARR trued up in order dated 13.2.2014 in MERC Case No. 39 of 2013.	ARR trued up in order dated 26.6.2015 in MERC Case No. 207 of 2014.	
	2011-12	2012-13	2013-14
Aggregate Revenue Requirement	297787	348123	423488
Less: Non-tariff and Other Income	47501	29585	28887
Net ARR	250286	312238	394601
Add: Incentive for higher availability	4511	5295	6894
Add: Revenue Gap of previous years	84518	112891	96616
Total ARR	339315	430424	498111

7. The Commission in order dated 18.5.2015 in Petition No 256/TT/2013 has considered the following ARR:-

(₹ in lakh)



ARR approved by the Commission	2011-12	2012-13	2013-14
	3393.15	4474.89	4200.05

8. The petitioner has submitted the following details of the trued up ARR for the periods 2012-13 and 2013-14:-

	(₹ in lakh)	
Trued up ARR approved by MERC as per order dated 26.6.2015.	2012-13	2013-14
	4304.24	4981.11

9. We have considered the submissions of the petitioner. The trued-up ARR of 2011-12 was already considered in the Commission's order dated 18.5.2016 in Petition No. 256/TT/2013. Based on the trued up ARR submitted by the petitioner for the periods 2012-13 and 2013-14, we proceed to true-up the tariff of 2012-13 and 2013-14 period of the assets covered in the instant petition based on the ARR approved by MERC.

10. The petitioner has submitted vide affidavit dated 31.8.2016 that the trued-up ARR for the periods 2012-13 and 2013-14. The details of the approved ARR furnished by the petitioner are given hereunder:-

Line* Type	2012-13	2013-14
+500kV HVDC	1504	1504
+800kV HVDC	N.A	N.A
765kV D/C	N.A	N.A
765kV S/C	N.A	N.A
400kV D/C	7348	7468
400kV D/C Quad. Moose		
400 kV S/C		
220 kV D/C	13978	14597
220 kV S/C		
132 kV D/C	12869	13304
132 kV S/C	1722	1737
110 kV	686	686
66 kV	3281	3281



ARR approved by MERC **	4304.24	4981.11
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*Line length in ckt. km. ** ARR in ₹ in lakh

Procedure for calculating trued-up YTC for the Nine transmission lines

11. The petitioner has submitted that the capital costs of the instant transmission lines are not available. As such, indicative cost of lines of various configurations owned and operated by PGCIL has been considered by us for the purpose of computation of capital cost. The indicative cost of 400 kV D/C Quad Moose transmission line has been taken as base and indicative cost of lines with configurations other than 400 kV D/C Quad Moose have been made equivalent to indicative cost of 400 kV D/C Quad Moose (i.e. by dividing indicative cost of the 400 kV D/C Quad Moose line by the indicative cost of line of other configurations). For example-the indicative cost of 400 kV D/C Quad Moose is ₹202 lakh/km (cost/ckt. km.=₹101 lakh) and of 765 kV S/C is ₹159.25 lakh/km. Therefore, the ratio of indicative cost of ckt. km. of 400 kV D/C Quad Moose and indicative cost of ckt. km. of 765 kV S/C is ₹0.63 lakh (i.e. ₹101 lakh/₹159.25 lakh) and so on for other configurations.

12. Further, the petitioner also owns lines of 110 kV and 66 kV level but the indicative cost data provided by the CTU is for voltage level up to 132 kV level. Therefore, we have added line length of 110 kV and 66 kV level to 132 kV level and considered the indicative cost of 132 kV level as indicative cost for all the transmission lines having voltage level 132 kV and below.



13. Yearly break up of indicative cost of various configurations owned and operated by PGCIL is given hereunder:-

For 2012-13

Type	Cost (₹ in lakh)	Cost (₹ in lakh/circuit)	Co-efficient	
+/- 500 kV HVDC	152	152 (A)	a=E/A	0.74
765 kV D/C	357.00	178.5 (B)	b= E/B	0.63
765 kV S/C	179.20	179.20 (C)	c=E/C	0.63
400 kV D/C	122.60	61.3 (D)	d=E/D	1.83
400 kV D/C Quad. Moose	224.80	112.4 (E)	e=E/E	1.00
400 kV S/C	84.20	84.20 (F)	f=E/F	1.33
220 kV D/C	67.80	33.9 (G)	g=E/G	3.32
220 kV S/C	41.40	41.40 (H)	h=E/H	2.71
132 kV D/C	53.00	26.5 (I)	i=E/I	4.24
132 kV S/C	32.40	32.40 (J)	j=E/J	3.47

For 2013-14

Type	Cost (₹ in lakh)	Cost (₹ in lakh/circuit)	Co-efficient	
+/- 500 kV HVDC	157	157 (A)	a=E/A	0.74
765 kV D/C	412.00	206 (B)	a= E/B	0.56
765 kV S/C	179.80	179.80 (C)	b= E /C	0.65
400kV D/C Twin Moose	130.40	65.2 (D)	c= E /D	1.78
400 kV D/C Quad Moose	232.60	116.3(E)	d= E /E	1.00
400 kV S/C Twin Moose	87.00	87.00 (F)	e= E /F	1.34
220 kV D/C	61.40	30.7 (G)	f= E /G	3.79
220 kV S/C	37.80	37.80 (H)	g= E/H	3.08
132 kV D/C	48.40	24.2 (I)	h= E /I	4.81
132 kV S/C	30.00	30.00 (J)	i= E /J	3.88

14. After getting ratio with respect to 400 kV D/C Quad Moose, YTC per ckt. km. of 400 kV D/C Quad Moose transmission line has been calculated as follows:-



ARR for FY.....in ₹

$$\left\{ \text{YTC per ckt. km.} \right\} = \left[\begin{array}{l} 400 \text{ kV D/C Quad Moose (Length of 500 kV HVDC/a)+} \\ \text{(Length of 765 kV DC/b) + (Length of 765 kV SC/c) +} \\ \text{(Length of 400 kV DC QM/d) + (Length of 400 kV DC} \\ \text{TM /e) + (Length of 400 kV SC TM /f) + (Length of 220} \\ \text{kV DC /g) + (Length of 220 kV SC /h) + (Length of 132} \\ \text{kV DC /i) + (Length of 132 kV SC /j)} \end{array} \right]$$

*value of a, b, c, d, e, f, g, h, i & j are as given in para 13 and length in ckt. km. as given in para 4 above.

DC- Double circuit, SC- Single circuit, QM- Quad Moose, TM- Twin Moose

15. We have not carried out any due diligence of the tariff of these lines (for consideration of POC calculations) as the jurisdiction to determine the tariff of the lines owned by STU vests with the State Regulatory Commission. We have considered the ARR of the STU as approved by the State Regulatory Commission and have adopted the methodology for the purpose of calculation of POC charges and apportionment of transmission lines and charges to the transmission system of different configurations of the STU. This methodology has been adopted uniformly for the lines owned by other STUs used for inter-State transmission of power, duly certified by respective RPCs for the purpose of inclusion in the POC mechanism.

16. Accordingly, on the basis of the line length in ckt. km. and the trued up ARR approved by the State Commission for the years 2012-13 and 2013-14 and POC cost data for the respective years, YTC for the instant transmission assets for the years



2012-13 and 2013-14 have been calculated as given below:-

For 2012-13:

Total ARR approved by the SERC= ₹43042400000

(₹ in lakh)

S. No	Asset	For entire system (Maharashtra)		
		Line Length (ckt. km.)	YTC (Per ckt. km.)	YTC
1	500 kV HVDC	1504	3250429	4888645822
2	400 kV S/C	7348	1796290	13199138430
3	220 kV S/C	13978	876761	12255359145
4	132 kV S/C	18558	684301	12699256603
Total				43042400000

For 2013-14:

Total ARR approved by the SERC= ₹49811100000

(₹ in lakh)

S. No	Asset	For entire system (Maharashtra)		
		Line Length (ckt. km.)	YTC (₹ per ckt. km.)	YTC
1	500 kV HVDC	1504	3889227.86	5849398698
2	400 kV S/C	7468	2155177.22	16094863484
3	220 kV S/C	14597	941341.77	13740765883
4	132 kV S/C	19008	743164.56	14126071935
Total				49811100000

Trued-up YTC of the nine transmission lines:-

17. The YTC per ckt. km., total ARR for the transmission system in Maharashtra is matching with the ARR approved by the MERC and it is as given below:-

(₹ in lakh)

Voltage Level	2012-13	2013-14
400 kV S/C	1796290	2155177.22
220 kV S/C	876761	941341.77



18. Trued-up YTC of the nine transmission lines calculated as per the methodology discussed above is as follows:-

Srl. No.	Name of the Line	Line Length (ckt. km.)	(₹ in lakh)	
			2012-13	2013-14
1	Asset-I	33.80	29634522	31817352
2	Asset-II	18.00	15781698	16944152
3	Asset-III	30.00	26302830	28240253
4	Asset-IV	100.00	87676100	94134177
5	Asset-V	100.00	87676100	94134177
6	Asset-VI	15.41	13510887	14506077
7	Asset-VII	24.00	21042264	22592202
8	Asset-VIII	142.00	255073180	306035165
9	Asset-IX	142.00	255073180	306,035,165
Total			791770761	914438720

19. The billing, collection and disbursement of the transmission charges shall be governed and shall be considered in the YTC as per the provisions of Central Electricity Regulatory Commission (Sharing of Inter-State Transmission Charges and Losses) Regulations, 2010 (2010 Sharing Regulations). The annual transmission charges allowed herein shall be adjusted against the ARR of the petitioner approved by MERC.

Determination of Annual Transmission Charges for 2014-15

20. The petitioner has submitted that MERC has trued-up the ARR for the year 2014-15. The details of the total ARR approved by MERC for 2014-15 are as follows:-

Srl. No.	Asset	(₹ in lakh)		
		For entire system (Maharashtra)		
		Line length (ckt. km.)	YTC (in ₹ per ckt. km.)	YTC in ₹ per ckt. km.)
1.	500 kV	1504.00	3061639.58	4604705935
2.	400 kV S/C	7891.40	1705216.98	13456549306



3.	220 kV S/C	14942.22	721810.60	10785452758
4.	132 kV S/C	18122.57	576479.61	10447292001
	Total			39294000000

21. The YTC per ckt. km., total ARR for the transmission system in Maharashtra is matching with the ARR approved by the MERC and it is as follows:-

(₹ in lakh)	
Voltage Level	2014-15
220 kV S/C	721811
400 kV S/C	1705217

22. The petitioner has prayed for grant of transmission charges of ₹716134540 for the year 2014-15 as per the methodology adopted by the Commission in order dated 18.5.2015 in Petition No. 256/TT/2013 for the instant nine transmission lines conveying electricity to other States. The details of the petitioner's claim are as follows:-

(₹ in lakh)			
Sl. No.	Name of the lines	Line length (ckt. Km.)	YTC (in ₹ per ckt. km.) (FY 2014-15)
1	Asset-I	33.80	24397212
2	Asset-II	18.00	12992598
3	Asset-III	30.00	21654330
4	Asset-IV	100.00	7218100
5	Asset-V	100.00	72181100
6	Asset-VI	15.41	11123108
7	Asset-VII	24.00	17323464
8	Asset-VIII	142.00	242140.814
9	Asset-IX	142.00	242140.814
	Total		₹716134540

23. It is observed that States have been submitting the information required for determining the annual transmission charges of their inter-State transmission lines, in contrasting manner thereby causing divergence in working out the tariff. In some cases, it was observed that the data related to funding and depreciation was not



available and in other cases the assets have already completed their useful life 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 older. The tariff workings for such old assets are found to be ending in skewed results. It is further observed that the YTC figures worked out by the existing methodology are found to be on a higher side. Considering these facts, the Commission has conceptualized a modified methodology for determining the tariff of States' inter-State transmission lines.

24. 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 lines 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) are 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

25. As per the petitions filed by the States, their ISTS lines generally are of 132 kV, 220 kV or 400 kV configuration. 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 transmission lines' length 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 30.4.2017, obtained from PGCIL indicates that the percentage of 220 kV, 132 kV and 66 kV transmission lines taken together make 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 February, 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

26. 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 States' transmission lines.

27. 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. PGCIL was incorporated in 1989-90 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.

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



- (a) Useful life of the transmission line shall be deemed to be 25 years.
- (b) 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.
- (c) Normative Debt-Equity ratio shall be 70:30.
- (d) Normative loan repayment during a year shall be deemed to be equal to the depreciation allowed for that year.
- (e) Rate of Interest on normative loan shall be the weighted average rate of interest as derived on the basis of PGCIL's Balance Sheet.
- (f) In order to avoid complexity, grossing up of rate of Return on Equity with tax rate is being dispensed with.
- (g) Bank rate as defined in 2014 Tariff Regulations as on 1.4.2014 shall be applied for calculating the rate of interest on working capital on normative basis.
- (h) O & M Expenses as per the 2014 Tariff Regulations shall be considered.
- (i) 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.



29. Thus, in effect, this is a normative tariff working methodology which has been applied in the cases where the information relating to audited capital cost is not available.

30. In the instant case, the petitioner has not been able to provide the audited capital cost certificates. Accordingly, the tariff for the instant assets has been trued-up in line with the methodology explained in foregoing paragraphs. Assets 1 to 7 have already completed twenty five years. Therefore, as per the above methodology, only IWC and O & M Expenses are allowable for these assets. Tariff for Assets 8 and 9 has been separately worked out.

31. The annual transmission charges allowed for Assets 1 to 7 for 2014-15 are as follows:-

(₹ in lakh)				
Sl. No.	Particular	IWC	O & M Expenses	Annual Transmission Charges
1.	Asset-I	0.75	13.66	14.41
2.	Asset-II	0.40	7.27	7.67
3.	Asset-III	0.67	12.12	12.79
4.	Asset-IV	2.23	40.40	42.63
5.	Asset-V	2.23	40.40	42.63
6.	Asset-VI	0.34	6.23	6.57
7.	Asset-VII	0.54	9.70	10.23

32. The Assets 8 and 9 were put into commercial operation on 13.12.1998 and 22.12.1998 respectively. Assets 8 and 9 would complete 25 years beyond the current tariff period of 2014-19. Accordingly, tariff for 2014-15 for Assets 8 and 9 have been worked out as per the methodology discussed above.



Return on Equity (“RoE”)

33. In view of para 28(f), RoE is not being grossed up with the tax rate.

34. The details of Return on Equity allowed for Assets 8 and 9 as per the above said provisions are as under:-

Return on Equity	(₹ in lakh)	
	2014-15	2014-15
	Asset-VIII	Asset-IX
Gross Notional Equity	747.20	747.20
Opening Equity	747.20	747.20
Average Equity	747.20	747.20
Rate of Return on Equity	15.50%	15.50%
Return on Equity	115.82	115.82

Interest on Loan (“IOL”)

35. Clause (5) & (6) of Regulation 26 of the 2014 Tariff Regulations provides as under:-

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

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

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

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

36. The IOL considered and allowed for Assets 8 and 9 for the 2014-15 tariff is as under:-

Interest on Loan	(₹ in lakh)	
	2014-15	2014-15
	Asset-VIII	Asset-IX
Gross Normative Loan	1743.48	1743.48



Cumulative Repayment upto Previous Year	1743.48	1743.48
Net Loan-Opening	0.00	0.00
Addition due to Additional Capitalisation	0.00	0.00
Repayment during the year	0.00	0.00
Net Loan-Closing	0.00	0.00
Average Loan	0.00	0.00
Weighted Average Rate of Interest on Loan	7.1141%	7.1141%
Interest on Loan	0.00	0.00

Depreciation

37. Clause (2), (5) and (6) of Regulation 27 of the 2014 Tariff Regulations provide as follows:-

"27. Depreciation:

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

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

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

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

38. The details of the depreciation considered and allowed for the Assets 8 and 9 for the 2014-15 tariff period are given hereunder:-

Particulars	(₹ in lakh)	
	2014-15	2014-15
	Asset-VIII	Asset-IX



Gross Block as on COD	2490.68	2490.68
Addition during 2014-19 due to Projected Additional Capitalisation	0.00	0.00
Gross Block as on 31 st March	2490.68	2490.68
Average Gross Block	2490.68	2490.68
Rate of Depreciation	5.2800%	5.2800%
Depreciable Value	2241.61	2241.61
Remaining Depreciable Value	561.44	561.44
Depreciation	51.04	51.04

Operation & Maintenance Expenses (“O&M Expenses”)

39. The details of O&M Expenses allowed for Assets 8 and 9 are as follows:-

Particulars	(₹ in lakh)	
	2014-15	2014-15
	Asset-VIII	Asset-IX
O&M Expenses	57.37	57.37

Interest on Working Capital (“IWC”)

40. Clause 1 (c) of Regulation 28 and Clause 5 of Regulation 3 of the 2014 Tariff

Regulations specify as follows:-

“28. Interest on Working Capital

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

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

(iii) Operation and maintenance expenses for one month”

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

41. The petitioner is entitled to claim interest on working capital as per the 2014 Tariff Regulations. The components of the working capital and the petitioner’s entitlement to interest thereon are discussed hereunder:-



(i) Maintenance spares

Regulation 28 of the 2014 Tariff Regulations provides for maintenance spares @ 15% per annum of the O&M expenses. The value of maintenance spares has accordingly been worked out.

(ii) O & M expenses

Operation and maintenance expenses have been considered for one month as a component of working capital. The petitioner has claimed O&M expenses for 1 month of the respective year as claimed in the petition. This has been considered in the working capital.

(iii) Receivables

Receivables as a component of working capital will be equivalent to two months fixed cost. The petitioner has claimed the receivables on the basis of 2 months' annual transmission charges. In the tariff being allowed, receivables have been worked out on the basis of 2 months' transmission charges.

(iv) Rate of interest on working capital

As provided in Regulation 28(3) of the 2014 Tariff Regulations, SBI Base Rate (10.00%) as on 1.4.2014 plus 350 Bps i.e. 13.50 % have been considered as the rate of interest on working capital.

42. The interest on working capital allowed for the Assets 8 and 9 for 2014-15 is shown in the table below:-

(₹ in lakh)

Interest on Working Capital	Asset-VIII	Asset-IX
Maintenance Spares	8.61	8.61
O & M expenses	4.78	4.78
Receivables 2 Months	38.54	38.54



Total		51.92	51.92
Interest	13.50%	7.01	7.01

Annual Transmission Charges

43. The details of Annual Transmission Charges allowed for the Assets 8 and 9 for the year 2014-15 are enclosed as Annexures- (I) and (II) and tariff is summarised as below:-

Particulars	(₹ in lakh)	
	Asset-VIII	Asset-IX
Depreciation	51.04	51.04
Interest on Loan	0.00	0.00
Return on Equity	115.82	115.82
Interest on Working Capital	7.01	7.01
O & M Expenses	57.37	57.37
Total	231.23	231.23

Filing Fee and Publication Expenses

44. The petitioner has sought reimbursement of fee paid by it for filing the petition and publication expenses, in terms of Regulation 52 of the 2014 Tariff Regulations. The petitioner shall be entitled for reimbursement of the filing fees and publication expenses in connection with the present petition, directly from the beneficiaries on pro-rata basis in accordance with clause (1) of Regulation 52 of the 2014 Tariff Regulations.

Sharing of Transmission Charges

45. 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 MERC.

46. This order disposes of Petition No. 173/TT/2016.

**Sd/-
(M.K. Iyer)
Member**

**Sd/-
(A.S. Bakshi)
Member**

**Sd/-
(A.K. Singhal)
Member**

**Sd/-
(Gireesh B. Pradhan)
Chairperson**



Annexure I			
Name of the Tr. System:		400 kV SSP-Dhule ckt-1 S/C line (Maharashtra - Gujarat)	
COD		13.12.1998	
CALCULATION OF ANNUAL TRANSMISSION CHARGES			
(Rs. In lacs)			
Rationalised cost of 400 kv line Rs lakh per ckt km		17.54	
Transmission Line length , in ckt km		142.00	
Multiplication factor		1.00	
			2014-15
Gross Block			2490.68
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			2490.68
Average Gross Block			2490.68
Depreciation			
Rate of Depreciation		5.2800%	5.2800%
Depreciable value		90%	2241.61
Elapsed Life as on 31.03.2014		14	14.00
Balance useful life of the asset			11.00
Remaining Depreciable value			561.44
Cumulative Depreciation	1578.0948	1680.17	1731.21
	663.52	51.04	
Depreciation			51.04
Interest on Loan			
Gross Normative Loan		1743.48	1743.48
Cumulative Repayment upto Previous Year			1743.48
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			7.1141%
Interest			0.00
Return on Equity			
Gross Notional Equity		747.20	
Opening Equity			747.20
Average Equity			747.20
Rate of Return on Equity			15.50%
Return on Equity			115.82



Interest on Working Capital			
Maintenance Spares			8.61
O & M expenses			4.78
Receivables		2 Months	38.54
Total			51.92
Interest		13.50%	7.01
Annual Transmission Charges			
Depreciation			51.04
Interest on Loan			0.00
Return on Equity			115.82
Interest on Working Capital			7.01
O & M Expenses			57.37
Total			231.23
O&M for S/C (Twin & triple Conductor) in Rs. Lakhs/ Km			0.404



Annexure II			
Name of the Tr. System:	400 kV SSP-Dhule ckt-2 S/C line (Maharashtra -Gujarat)		
COD	22.12.1998		
CALCULATION OF ANNUAL TRANSMISSION CHARGES			
(Rs. In lacs)			
Rationalised cost of 400 kv line Rs lakh per ckt km	17.54		
Transmission Line length , in ckt km	142.00		
Multiplication factor	1.00		
			2014-15
Gross Block			2490.68
Addition during 2014-19 due to Projected Additional Capitalisation			0.00
Gross Block total			2490.68
Average Gross Blcok			2490.68
Depreciation			
Rate of Depreciation		5.2800%	5.2800%
Depreciable value		90%	2241.61
Elapsed Life as on 31.03.2014		14	14.00
Balance useful life of the asset			11.00
Remaining Depreciable value			561.44
Cumulative Depreciation	1578.0948	1680.17	1731.21
	663.52	51.04	
Depreciation			51.04
Interest on Loan			
Gross Normative Loan		1743.48	1743.48
Cumulative Repayment upto Previous Year			1743.48
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			7.1141%
Interest			0.00
Return on Equity			
Gross Notional Equity		747.20	
Opening Equity			747.20
Average Equity			747.20
Rate of Return on Equity			15.50%
Return on Equity			115.82



Interest on Working Capital			
Maintenance Spares			8.61
O & M expenses			4.78
Receivables		2 Months	38.54
Total			51.92
Interest		13.50%	7.01
Annual Transmission Charges			
Depreciation			51.04
Interest on Loan			0.00
Return on Equity			115.82
Interest on Working Capital			7.01
O & M Expenses			57.37
Total			231.23
O&M for S/C (Twin & triple Conductor) in Rs. Lakhs/ Km			0.404

