

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No.178/2010

Coram:

- 1. Shri S.Jayaraman, Member**
- 2. Shri V.S.Verma, Member**
- 3. Shri M. Deena Dayalan, Member**

DATE OF HEARING: 13.1.2011

DATE OF ORDER: 20.6.2011

In the matter of

Approval of transmission tariff for (a) Ramagundam-Hyderabad 400 kV S/C line-2 in Southern Region; and (b) Bhadrawati (Chandrapur) HVDC back to back station (2x500 MW) in Western Region-Southern Region for the period from 1.4.2009 to 31.3.2014.

**And
In the matter of**

Power Grid Corporation of India Limited, Gurgaon
Vs

..Petitioner

- 1 Madhya Pradesh Power Trading Company Ltd., Jabalpur
- 2 Maharashtra State Electricity Distribution Co. Ltd., Mumbai
- 3 Gujarat Urja Vikas Nigam Ltd., Vadodara
- 4 Electricity Department, Government of Goa, Panaji
- 5 Electricity Department, Administration of Daman and Diu
- 6 Electricity Department, Administration of Dadra Nagar Haveli, Silvassa
- 7 Chhattisgarh State Electricity Board, Raipur
- 8 Madhya Pradesh Audyognik Kendra Vikas Nigam(Indore) Ltd., Indore
- 9 Kerala State Electricity Board, Thiruvananthapuram
- 10 Tamil Nadu Electricity Board, Chennai
- 11 Electricity Department, Govt. of Pondicherry, Pondicherry
- 12 Electricity Department, Government of Goa, Panaji
- 13 Transmission Corporation of Andhra Pradesh Ltd., Hyderabad
- 14 Northern Power Distribution Company of Andhra Pradesh Limited, Warangal
- 15 Eastern Power Distribution Company of Andhra Pradesh Limited, Vishakhapatnam
- 16 Southern Power Distribution Company of Andhra Pradesh Limited, Tirupati
- 17 Central Power Distribution Company of Andhra Pradesh Limited, Hyderabad
- 18 Karnataka Power Transmission Corporation Limited, Bangalore
- 19 Bangalore Electricity Supply Company Ltd., Bangalore
- 20 Gulbarga Electricity Supply Company Ltd. Gulbarga



- 21 Hubli Electricity Supply Company Ltd., Hubli
- 22 MESCOM, Mangalore
- 23 Chamundeswari Electricity Supply Corporation Ltd., Mysore.

.Respondents

The following were present:

1. Shri M.M. Mondal, PGCIL
2. Shri Rakesh Prasad, PGCIL
3. Shri Rajiv Gupta, PGCIL

ORDER

The petition has been filed by the petitioner, Power Grid Corporation of India Limited for approval of transmission tariff for (a) Ramagundam-Hyderabad 400 kV S/C line-2 in Southern Region; and (b) Bhadrawati (Chandrapur) HVDC back to back station (2x500 MW) (hereinafter referred to as "the transmission assets") in Western Region-Southern Region for the period 1.4.2009 to 31.3.2014, based on the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 (hereinafter referred to as "the 2009 regulations"). The petitioner has made the following additional prayers:-

(a) Approve proposed additional capital expenditure of ₹ 240.00 lakh incurred during 2012-13 for Ramagundam-Hyderabad line-2 which has become necessary as per reasons recorded in the petition;

(b) To invoke the provision of Regulation 44 of the 2009 regulations for relaxation of regulations 15 (3) of the 2009 regulations so that grossing up the base rate may be allowed considering the tax rates viz, MAT, surcharge, any other cess, charges, levies etc. as per the relevant Finance Act and accordingly, consequential impact of tariff on account of trueing up may be allowed to be billed and settled directly with the beneficiaries every in the tariff;



(c) To approve reimbursement of petition filing fee and publication of notices in the newspaper as per the 2009 regulations;

(d) Allow to bill and recover the service tax on transmission charges separately from the respondents, if the petitioner is subjected to such service tax; and

(e) Allow reimbursement of licence fee separately from the respondents.

2. The details of transmission assets and their date of commercial operation are as under:

Assets	Name of the asset	Date of commercial operation
Asset-I	Ramagundam-Hyderabad 400 kV S/C line-2 in Southern Region	1.8.1997
Asset-II	Bhadravati (Chandrapur) HVDC back to back station (2x500 MW)	1.10.1997

3. The annual transmission charges for the transmission assets up to 31.3.2009 were approved by the Commission vide order dated 2.5.2006 in Petition No. 137/2004 and same were subsequently revised vide orders dated 12.3.2007 and 16.4.2008 in Petition No. 137/2004, based on admitted capital cost of ₹9051.09 lakh for Asset-I and ₹69107.40 lakh for Asset-II.

4. The petitioner has claimed the transmission charges in respect of the transmission assets as under:

(₹ in lakh)

	Asset-I					Asset-II				
	2009-10	2010-11	2011-12	2012-13	2013-14	2009-10	2010-11	2011-12	2012-13	2013-14
Depreciation	478.60	159.13	159.13	164.53	170.21	3596.98	834.37	834.37	834.37	834.37
Interest on Loan	132.27	105.68	92.41	86.33	79.75	213.06	137.29	108.07	80.36	53.66
Return on Equity	182.76	182.76	182.76	189.05	195.35	1383.99	1383.99	1383.99	1383.99	1383.99
Interest on Working Capital	25.28	18.56	18.81	19.49	20.19	152.57	95.92	98.01	100.23	102.68
O & M Expenses	174.61	184.51	195.14	206.33	218.09	886.00	936.00	990.00	1046.00	1106.00
Total	993.52	650.64	648.25	665.73	683.59	6232.60	3387.57	3414.44	3444.95	3480.70

5. The details submitted by the petitioner in support of its claim for interest on working capital are given hereunder:

(₹ in lakh)

	Asset-I					Asset-II				
	2009-10	2010-11	2011-12	2012-13	2013-14	2009-10	2010-11	2011-12	2012-13	2013-14
Maintenance Spares	26.19	27.68	29.27	30.95	32.71	132.90	140.40	148.50	156.90	165.90
O & M expenses	14.55	15.38	16.26	17.19	18.17	73.83	78.00	82.50	87.17	92.17
Receivables	165.59	108.44	108.04	110.95	113.93	1038.77	564.60	569.07	574.16	580.12
Total	206.33	151.50	153.57	159.09	164.81	1245.50	783.00	800.07	818.23	838.19
Rate of Interest	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%
Interest	25.28	18.56	18.81	19.49	20.19	152.57	95.92	98.01	100.23	102.68

6. No comments or suggestions have been received from the general public in response to the notices published by the petitioner under section 64 of the Electricity Act, 2003. Reply to the petition has been filed by Tamil Nadu Electricity Board (TNEB). The main issues raised by TNEB pertains to the petitioner's claim of additional capital expenditure, MAT, reimbursement of filing fee, publication expenses, service tax and licence fee etc. The issues have been addressed in relevant paras of this order.

CAPITAL COST

7. The last proviso to clause (2) of Regulation 7 of the 2009 regulations provides as under:

"Provided that in case of the existing projects, capital cost admitted by the Commission prior to 1.4.2009 and the additional capital expenditure projected to be incurred for the respective year of the tariff period 2009-14 as may be admitted by the Commission, shall form the basis for determination of tariff".

8. The petitioner has claimed the capital expenditure of ₹9051.09 lakh for Asset-I and ₹ 69107.40 lakh for Asset-II which was admitted vide order dated 12.3.2007 read with order dated 16.4.2008 in Petition No. 137/2004.

9. Accordingly, gross block of ₹ 9051.09 lakh for Asset-I and ₹ 69107.40 lakh for Asset-II as on 31.3.2009 has been considered as the capital cost for the purpose of tariff.

ADDITIONAL CAPITAL EXPENDITURE

10. Regulation 9 of the 2009 regulations provides as under:

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

- (i) Undischarged liabilities;
- (ii) Works deferred for execution;
- (iii) Procurement of initial capital spares within the original scope of work, subject to the provisions of regulating 8 ;
- (iv) Liabilities to meet award of arbitration or for compliance of the order or decree of a court; and
- (v) Change in law;

Provided that the details of works included in the original scope of work along with estimates of expenditure, undischarged liabilities and the works deferred for execution shall be submitted along with the application for determination of the tariff.

(2) The capital expenditure incurred on the following counts after the cut-off-date, in its discretion, be admitted by the Commission, subject to prudence check:

- (i) Liabilities to meet award of arbitration or for compliance of the order or decree of a court;
- (ii) Change in law;
- (iii) *****
- (iv) *****
- (v) In case of transmission system any additional expenditure on items such as relays, control and instrumentation, computer system, power line carrier communication, DC batteries, replacement of switchyard equipment due to increase of fault level, emergency restoration system, insulators cleaning infrastructure, replacement of damaged equipment not covered by insurance and any other expenditure which has become necessary for successful and efficient operation of the transmission system.

11. The petitioner has claimed additional capital expenditure for Asset-I. The details submitted by the petitioner in support of its claim for projected additional capital expenditure is given hereunder:

	Years	Nature and details of expenditure	Amount (₹ in lakh)
Asset-I	2012-13	Transmission line-Tower Strengthening	240.00
		Total	240.00

12. The petitioner has claimed additional capital expenditure of ₹ 240.00 lakh during 2012-13 for Asset-I on account of strengthening of the transmission towers. The petitioner has further submitted that Asset-I was designed as per IS 802:1977 in light wind zone and IS 802:1995, which falls in wind zone-3. It has been submitted that a committee consisting of the experts from CEA and Power Grid while investigating the cases of the tower collapse in January and June 2009 has recommended to provide hip bracing up to bottom cross arm level in suspension towers of the all transmission line. In the meeting, Chairman of Expert Committee opined that the expenditure incurred for such augmentation of towers can be capitalized. Accordingly, the petitioner has decided to

strengthen the suspension towers up to bottom cross arm level and projected the additional capital expenditure for that purpose during the year 2012-13.

13. TNEB in its reply dated 21.9.2010 has submitted that the transmission towers for all the transmission lines commissioned is based on the wind pressure as per the provisions of IS 802 :1977 and it should be revised based on the wind pressure indicated in the revised IS 802:1995. It has been further submitted that while designing the towers, a factor of safety has been built in to take care of any possible change in the basic parameters considered. Therefore, a factor of safety must be available in the changed situation to ensure safety of the suspension towers in the Southern Region. TNEB has further submitted that if it is considered absolutely necessary to introduce hip bracings up to bottom cross arm of all the suspension towers, then the expenditure can be recovered in three annual instalments after completion of the work instead of treating it as additional capital expenditure and awarding tariff to be recovered till the useful life of the asset. TNEB has further submitted that SERC study report does not suggest the strengthening of suspension towers. It is likely that the wind pattern and wind force remain un-altered in the Southern Region without the need for such reinforcement of all suspension towers in service as on date and if it is done, expenditure should be reimbursed in three instalments instead of capitalization.

14. In response, the petitioner in its rejoinder dated 19.1.2011 has submitted that strengthening has been proposed on suspension towers (A-type) only. Petitioner has clarified that the Standing Committee of Experts constituted by the Central Electricity Authority to investigate failure of transmission line towers

has investigated the cause of failure of towers and suggested preventive remedial action. Therefore, preventive actions need to be implemented across the country i.e. providing hip bracing on suspension towers. It has been submitted that a study was carried out by the PGCIL for strengthening of suspension towers and it was observed that strengthening of suspension towers is required if the line was designed for medium wind zone as per IS 802:1977 which falls in wind zone-3 as per IS 802:1995. The petitioner has also submitted that there were 54 incidents of failure of 400 kV suspension towers designed as per IS:802-1977-old code (100% wind in WBC) and one incident of tower collapse occurred on 400 kV D/C Ramagundam-Chandrapur transmission line in 1998. The Petitioner has requested to consider to allow strengthening of suspension towers of Asset-I.

15. We have examined the issue of tower strengthening of towers keeping in view the latest code IS 802:1995 considers the 'Drag Coefficient' and 'Guest Response Factor' while calculating the forces on the towers, conductors and insulators. Based on these two additional factors, the forces calculated on towers etc as per IS 802:1995, are more than those calculated as per IS 802:1977. The terrain category 2 has been calculated as under:

- (i) Design Wind Pressure, P_d is given in the IS 802:1995 for each of the six wind zones. The wind load on tower body, F_{wt} , as per the IS 802:1995, is calculated by the following formula:

$$\text{Wind load on tower, } F_{wt} = P_d * C_{dt} * A_o * G_T$$

Where C_{dt} is the Drag Coefficient and the value of C_{dt} ranges from 2 to 3.6 depending upon the solidity ratio of the tower.

G_T is the Gust Response Factor and value of G_T ranges from 1.7 to 3.8 depending upon the height of the panel and terrain category and

A_o is the net surface area of the legs, bracings

- (ii) For terrain category 2 and average height of tower 20 metre, value of G_T is 2.2, approximate value of C_{dt} for lattice type of structures is 3 and P_d for Reliability Level 1 for Terrain Category 2 for Wind Zone 3 is 614 Newton per square metre. [All these figures are available in various Tables in IS 802:1995]

$$F_{wt} = 2.2 * 3 * P_d * A_o = (6.6 * 614 * A_o) = 4052 A_o \text{ Newton}$$

[as per the IS 802:1995]

- (iii) Wind load on tower as per the IS 802:1977 is calculated based on the Factor of Safety.

$$\begin{aligned} \text{Wind load on tower} &= (\text{Factor of Safety}) * \text{Wind Pressure} * A_o \\ &= (1.5 * 1270 * A_o) \text{ N} = 1905 A_o \text{ Newton} \end{aligned}$$

[as per the IS 802:1977]

Where 1270 N/m² is the wind pressure on towers for light intensity of pressure upto the 30 metre above Mean Retarding Surface and Factor of Safety is 1.5.

- (iv) Thus, it is noted from the above calculations that wind load on towers as per IS 802:1995 is more than that as per the IS 802:1977.

16. It is observed that the Standing Committee of Experts constituted by the Central Electricity Authority to investigate failure of transmission line towers during the months of January 2009 to June, 2009 has recommended that in order to minimize the failure in existing lines, hip bracing up to bottom cross level, in all the suspension towers of all the transmission lines designed after 1995 should be provided in different phases keeping in view of priority of the transmission lines and in future, PGCIL should make provision for hip bracing on all the suspension tower.

17. Keeping in view the above observation and design of towers for a lower standard, change of wind zone and the recommendations of the Standing Committee of Experts for strengthening of existing towers, we are of the view that projected additional capital expenditure towards strengthening of towers during the year 2012-13 are considered essential for efficient and successful operation of the transmission system. Since the expenditure are proposed to be incurred after the cut-off date, we relax the provisions of Regulation 9 (2) of the 2009 regulations in the light of our decision in order dated 8.2.2011 in Petition No. 176/2010 and allow capitalization of ₹ 240.00 lakh for Asset-I during 2012-13.

TOTAL CAPITAL COST

18. Based on the above, gross block as given below has been considered for the purpose of tariff for the transmission asset, after allowing projected additional capital expenditure for Asset-I as claimed by the petitioner:

(₹ in lakh)			
Admitted capital cost as on the 31.3.2009	Projected additional capital expenditure proposed to be incurred during 2012-13	capital to be	Total capital cost as on 1.4.2014
9051.09		240.00	9291.09

DEBT- EQUITY RATIO

19. Clause (2) of Regulation 12 of the 2009 regulations *inter-alia* provides that,-

"(2) In case of the generating station and the transmission system declared under commercial operation prior to 1.4.2009, debt-equity ratio allowed by the Commission for determination of tariff for the period ending 31.3.2009 shall be considered."

20. The petitioner has claimed tariff based on debt-equity ratio of 88.45:11.55 and 88.54:11.46 for Asset-I and Asset-II, respectively as admitted vide order dated 12.3.2007 read with order dated 16.4.2008 in Petition No. 137/2004, same has been considered for the purpose of tariff as under:

Asset I	Admitted as on 31.3.2009	
	Amount (₹ in lakh)	%
Debt	8005.64	88.45
Equity	1045.45	11.55
Total	9051.09	100.00%
Asset II	Admitted as on 31.3.2009	
	Amount (₹ in lakh)	%
Debt	61190.28	88.54
Equity	7917.13	11.46
Total	69107.40	100.00

21. The petitioner has further claimed the amount of additional capital expenditure in the debt-equity ratio of 70:30 for Asset-I for the year 2012-13, same has been considered for the calculation of tariff.

RETURN ON EQUITY

22. Regulation 15 of the 2009 regulations provides that,-

"15. (1) Return on equity shall be computed in rupee terms, on the equity base determined in accordance with regulation 12.

(2) Return on equity shall be computed on pre-tax basis at the base rate of 15.5% to be grossed up as per clause (3) of this regulation:

Provided that in case of projects commissioned on or after 1st April, 2009, an additional return of 0.5% shall be allowed if such projects are completed within the timeline specified in **Appendix-II**:

Provided further that the additional return of 0.5% shall not be admissible if the project is not completed within the timeline specified above for reasons whatsoever.

(3) The rate of return on equity shall be computed by grossing up the base rate with the normal tax rate for the year 2008-09 applicable to the concerned generating company or the transmission licensee, as the case may be:

Provided that return on equity with respect to the actual tax rate applicable to the generating company or the transmission licensee, as the case may be, in line with the provisions of the relevant Finance Acts of the respective year during the tariff period shall be trued up separately for each year of the tariff period along with the tariff petition filed for the next tariff period.

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

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

Where t is the applicable tax rate in accordance with clause (3) of this regulation."

23. TENB has submitted that the issue of MAT should be dealt in accordance with Commission's order dated 3.8.2010 in Petition No. 38/2010 in which the Commission had directed to amend the 2009 regulations. In this regard, it is clarified that the Commission is in the process of amending the 2009 regulations to allow grossing up of the ROE as per the applicable MAT rate in accordance with the relevant Finance Act which would take care of the interest of the petitioner.

24. Accordingly, the return on equity has been computed as per the existing provision of Regulation 15 (3) of 2009 regulations as under:

(₹ in lakh)												
	Asset-I					Asset-II						
Details of return on equity		2009-10	2010-11	2011-12	2012-13	2013-14		2009-10	2010-11	2011-12	2012-13	2013-14
Opening Equity as on 1.4.2009	1045.45	1045.45	1045.45	1045.45	1045.45	1117.45	7917.13	7917.13	7917.13	7917.13	7917.13	7917.13
Addition due to Additional Capitalisation		0.00	0.00	0.00	72.00	0.00		0.00	0.00	0.00	0.00	0.00
Closing Equity		1045.45	1045.45	1045.45	1117.45	1117.45		7917.13	7917.13	7917.13	7917.13	7917.13
Average Equity		1045.45	1045.45	1045.45	1081.45	1117.45		7917.13	7917.13	7917.13	7917.13	7917.13
Return on Equity (Base Rate)		15.50%	15.50%	15.50%	15.50%	15.50%		15.50%	15.50%	15.50%	15.50%	15.50%
Tax rate for the year 2008-09 (MAT)		11.330%	11.330%	11.330%	11.330%	11.330%		11.330%	11.330%	11.330%	11.330%	11.330%
Rate of Return on Equity (Pre Tax)		17.481%	17.481%	17.481%	17.481%	17.481%		17.481%	17.481%	17.481%	17.481%	17.481%
Return on equity		182.76	182.76	182.76	189.05	195.34		1383.99	1383.99	1383.99	1383.99	1383.99

INTEREST ON LOAN

25. Regulation 16 of the 2009 regulations provides as under:

"16. (1) The loans arrived at in the manner indicated in regulation 12 shall be considered as gross normative loan for calculation of interest on loan.

(2) The normative loan outstanding as on 1.4.2009 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to 31.3.2009 from the gross normative loan.

(3) The repayment for the year of the tariff period 2009-14 shall be deemed to be equal to the depreciation allowed for that year:

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

(5) The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each year applicable to the project:

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.

(7) The generating company or the transmission licensee, as the case may be, shall make every effort to re-finance the loan as long as it results in net savings on interest and in that event the costs associated with such re-financing shall be borne by the beneficiaries and the net savings shall be shared between the beneficiaries and the generating company or the transmission licensee, as the case may be, in the ratio of 2:1.

(8) The changes to the terms and conditions of the loans shall be reflected from the date of such re-financing.

(9) In case of dispute, any of the parties may make an application in accordance with the Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999, as amended from time to time, including statutory re-enactment thereof for settlement of the dispute:

Provided that the beneficiary or the transmission customers shall not withhold any payment on account of the interest claimed by the generating company or the

transmission licensee during the pendency of any dispute arising out of re-financing of loan."

26. The interest on loan has been worked out as detailed below:

(i) Details of net outstanding loan as on 31.3.2009, cumulative repayment up to 31.3.2009, repayment schedule for the loans, rate of interest etc. have been taken from the order dated 16.4.2008 in Petition No. 137/2004 for Asset-I and Asset-II, respectively for working out weighted average rate of interest;

(ii) The tariff has been worked out considering normative loan and normative repayments;

(iii) Weighted average rate of interest on actual loan has been worked out and applied on the average loan during the year to arrive at the interest on loan; and

(iv) Loan taken for the projected additional capital expenditure has not been considered while calculating weighted average rate of interest for Asset-I as only actual loan has been considered.

27. The detailed calculations in support of the weighted revised average rate of interest for Asset-I and Asset-II are contained in **Annexure-I** and **Annexure-II**,

respectively attached to this order. Interest on loan has been worked out as under:

(₹ in lakh)

Details of Interest on loan	Asset-I						Asset-II					
		2009-10	2010-11	2011-12	2012-13	2013-14		2009-10	2010-11	2011-12	2012-13	2013-14
Gross Notional Loan	8005.64						61190.28					
Addition due to Additional Capitalisation	0.00						0.00					
Gross Normative Loan	8005.64	8005.64	8005.64	8005.64	8005.64	8173.64	61190.28	61190.28	61190.28	61190.28	61190.28	61190.28
Cumulative Repayment up to Previous Year		6180.34	6658.94	6818.07	6977.20	7141.73		52996.26	56593.24	57427.62	58261.99	59096.37
Net Loan-Opening		1825.30	1346.70	1187.57	1028.44	1031.91		8194.02	4597.03	3762.66	2928.29	2093.91
Addition due to Additional Capitalisation		0.00	0.00	0.00	168.00	0.00		0.00	0.00	0.00	0.00	0.00
Repayment during the year		478.60	159.13	159.13	164.53	170.21		3596.99	834.37	834.37	834.37	834.37
Net Loan-Closing		1346.70	1187.57	1028.44	1031.91	861.70		4597.03	3762.66	2928.29	2093.91	1259.54
Average Loan		1586.00	1267.13	1108.00	1030.18	946.81		6395.53	4179.85	3345.47	2511.10	1676.73
Weighted Average Rate of Interest on Loan		8.3400%	8.3400%	8.3400%	8.3400%	8.3400%		3.3314%	3.2845%	3.2303%	3.2000%	3.2000%
Interest		132.27	105.68	92.41	85.92	78.96		213.06	137.29	108.07	80.36	53.66

DEPRECIATION

28. Regulation 17 of the 2009 regulations provides for computation of depreciation in the following manner:

“17. (1) The value base for the purpose of depreciation shall be the capital cost of the asset admitted by the Commission.

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

xxxx

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

(4) Depreciation shall be calculated annually based on Straight Line Method and at rates specified in Appendix-III 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 date of commercial operation shall be spread over the balance useful life of the assets.

(5) In case of the existing projects, the balance depreciable value as on 1.4.2009 shall be worked out by deducting the cumulative depreciation as admitted by the Commission up to 31.3.2009 from the gross depreciable value of the assets.



(6) 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."

29. The Asset-I and Asset-II will complete 12 years as on 31.3.2010. Thus, the remaining depreciable value of transmission system as on 1.4.2011 has to be spread over the balance useful life of the transmission system. As per the 2009 regulations, transmission line and sub-station have useful life of 35 years and 25 years, respectively. For the purpose of calculation of depreciation, the life of building and Power Line Carrier Communication (PLCC) has been taken as 25 years as these are not specified in the 2009 regulations. The weighted average value of assets as on 1.4.2009 has been considered to work out the weighted average life of the transmission system which is 34 years for Asset-I and 25 years for Asset-II. Accordingly, depreciation works out is as under:

(₹ in lakh)

	Asset-I						Asset-II					
Details of depreciation		2009-10	2010-11	2011-12	2012-13	2013-14		2009-10	2010-11	2011-12	2012-13	2013-14
As per last order	9051.09	9051.09	9051.09	9051.09	9051.09	9291.09	69107.40	69107.40	69107.40	69107.40	69107.40	69107.40
Addition during 2009-14 due to projected Additional Capitalisation		0.00	0.00	0.00	240.00	0.00		0.00	0.00	0.00	0.00	0.00
Gross block as on 31.3.2009		9051.09	9051.09	9051.09	9291.09	9291.09		69107.40	69107.40	69107.40	69107.40	69107.40
Average gross block		9051.09	9051.09	9051.09	9171.09	9291.09		69107.40	69107.40	69107.40	69107.40	69107.40
Rate of Depreciation		5.2878%	5.2878%	5.2878%	5.2877%	5.2876%		5.2049%	5.2049%	5.2049%	5.2049%	5.2049%
Depreciable Value	90%	8145.98	8145.98	8145.98	8253.98	8361.98	90%	62145.89	62145.89	62145.89	62145.89	62145.89
Elapsed Life		11	12	13	14	15		11	12	13	14	15
Balance Useful life of the asset		23	22	21	20	19		14	13	12	11	10
Remaining Depreciable Value		3979.41	3500.80	3341.67	3290.55	3234.02		14443.84	10846.86	10012.48	9178.11	8343.74
Depreciation		478.60	159.13	159.13	164.53	170.21		3596.99	834.37	834.37	834.37	834.37

OPERATION & MAINTENANCE EXPENSES

30. In accordance with clause (g) of Regulation 19 the 2009 regulations, the following norms for 400 kV S/C Twin conductor, 400 kV bays, HVDC back to back station have been specified for O & M expenses:

	Year				
	2009-10	2010-11	2011-12	2012-13	2013-14
400 kV S/C, twin conductor transmission line (₹ in lakh/per ckt.km.)	0.358	0.378	0.400	0.423	0.447
400 kV bays (₹ in lakh/per bay)	52.40	55.40	58.57	61.92	65.46
HVDC back to back station (₹ in lakh 500 MW)	443.00	468.00	495.00	523.00	553.00

31. The petitioner's entitlement to O & M expenses has been worked out as given hereunder:

Asset-I

(₹ in lakh)

	Year				
	2009-10	2010-11	2011-12	2012-13	2013-14
400 kV S/C, twin conductor transmission line (195 km)	69.81	73.71	78.00	82.49	87.17
400 kV bays (one bay)	104.80	110.80	117.14	123.84	130.92
Total	174.61	184.51	195.14	206.33	218.09

Asset-II

(₹ in lakh)

	Year				
	2009-10	2010-11	2011-12	2012-13	2013-14
HVDC back to back station (2x500 MW)	886.00	936.00	990.00	1046.00	1106.00
Total	886.00	936.00	990.00	1046.00	1106.00

32. TNEB has submitted that O & M expenses for the period 2009-14 have been specified on normative basis and the regulations do not provide for revisiting the normative O & M expenses. The petitioner has submitted that O & M expenditure for 2009-14 tariff block had been arrived on the basis of normalized actual O & M expenses of the petitioner during the year 2003-04 to 2007-08. The wage hike of 50% on account of pay revision of the employees of public sector undertaking was also considered while calculating the O & M

charges for 2009-14 periods. The petitioner has submitted that it would approach the Commission for suitable revision in the norms of O & M expenses in case the impact of wage hike w.e.f. 1.1.2007 is more than 50%. With reference to the submission of the petitioner, it is clarified that if any such application is made, it will be dealt with in accordance with law.

INTEREST ON WORKING CAPITAL

33. The components of the working capital and the interest thereon are discussed hereunder:

(i) **Receivables:** As per Regulation 18(1)(c)(i) of the 2009 regulations, receivables will be equivalent to two months of fixed cost. The petitioner has claimed the receivables on the basis of 2 months' transmission charges. In the tariff being allowed, receivables have been worked out on the basis 2 months' transmission charges.

(ii) **Maintenance spares:** Regulation 18(1)(c)(ii) of the 2009 regulations provides for maintenance spares @ 15% per annum of the O & M expenses specified in Regulation 19. The value of maintenance spares has been accordingly worked out.

(iii) **O & M expenses:** Regulation 18(1)(c)(iii) of the 2009 regulations provides for operation and maintenance expenses for one month as a component of working capital. The petitioner has claimed O&M expenses for 1 month of O&M expenses of the respective year which has been considered for computing working capital.

(iv) **Rate of interest on working capital:** As per Regulation 18(3) of the 2009 regulations, rate of interest on working capital shall be on normative basis and shall be equal to the short-term Prime Lending Rate of State Bank of India as on 1.4.2009 or on 1st April of the year in which the project or part thereof (as the case may be) is declared under commercial operation, whichever is later. The petitioner has claimed interest on working capital @ 12.25% based on SBI PLR as on 1.4.2009, which is in accordance with the 2009 regulations and has been allowed.

34. The computations in support of interest on working capital are given as under:

(₹ in lakh)										
	Asset-I					Asset-II				
	2009-10	2010-11	2011-12	2012-13	2013-14	2009-10	2010-11	2011-12	2012-13	2013-14
Maintenance Spares	26.19	27.68	29.27	30.95	32.71	132.90	140.40	148.50	156.90	165.90
O & M expenses	14.55	15.38	16.26	17.19	18.17	73.83	78.00	82.50	87.17	92.17
Receivables	165.59	108.44	108.04	110.88	113.80	1038.77	564.59	569.07	574.16	580.12
Total	206.33	151.49	153.57	159.03	164.68	1,245.50	782.99	800.07	818.23	838.18
Rate of Interest	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%
Interest	25.28	18.56	18.81	19.48	20.17	152.57	95.92	98.01	100.23	102.68

TRANSMISSION CHARGES

35. The transmission charges being allowed for the transmission asset are summarised below:

(₹ in lakh)										
	Asset-I					Asset-II				
	2009-10	2010-11	2011-12	2012-13	2013-14	2009-10	2010-11	2011-12	2012-13	2013-14
Depreciation	478.60	159.13	159.13	164.53	170.21	3596.99	834.37	834.37	834.37	834.37
Interest on Loan	132.27	105.68	92.41	85.92	78.96	213.06	137.29	108.07	80.36	53.66
Return on Equity	182.76	182.76	182.76	189.05	195.34	1383.99	1383.99	1383.99	1383.99	1383.99
Interest on Working Capital	25.28	18.56	18.81	19.48	20.17	152.57	95.92	98.01	100.23	102.68
O & M Expenses	174.61	184.51	195.14	206.33	218.09	886.00	936.00	990.00	1046.00	1106.00
Total	993.52	650.63	648.24	665.30	682.78	6232.61	3387.57	3414.45	3444.95	3480.70

Application fee and the publication expenses

36. TNEB has submitted that the claim of filing fee should be dealt as per the decision taken by Commission vide order dated 11.9.2008 in Petition No. 129/2005 (*Suo motu*). It is clarified that the said decision was applicable to the tariff period 2004-09. However, Regulation 42 of the 2009 regulations provides for reimbursement of filing fees and expenses on publication of notices may be allowed in the discretion of the Commission. In accordance with our decision in order dated 11.1.2010 in Petition No. 109/2009, the petitioner shall be entitled to recover the filing fee from the beneficiaries on pro rata basis. The petitioner shall also be entitled for reimbursement of publication expenses from the beneficiaries on pro-rata basis.

Service Tax

37. The petitioner has prayed for reimbursement of service tax. The prayer has been opposed by TNEB on the ground that transmission is exempt from service tax by the Government of India vide notification dated 27.2.2010. We have already decided in our order dated 23.9.2010 in Petition No. 62/2009 that the petitioner is exempted from service tax as per the extant policy of the Government of India. Therefore, the prayer of the petitioner no more survives and is accordingly is rejected.

Licence fee

38. The petitioner has submitted that licence fee is a new component of cost to the transmission licensee and has become incidental to the petitioner with effect from the year 2008-09. The normative O & M rates in the 2009 regulations

do not capture the cost associated with the licence fee and therefore, it should be allowed to be recovered from the respondents. TENB has submitted that licence fee is a levy on the petitioner to be in the business and this should not be passed on to the beneficiaries over and above the O & M charges. In this regard, It is clarified that the matter is under consideration of the Commission and any decision on the issue as and when taken will be applicable to this petition.

39. The transmission charges allowed shall be recovered on monthly basis in accordance with Regulation 23 and shall be shared by the respondents in accordance with Regulation 33 of the 2009 regulations.

40. This order disposes of Petition No. 178/2010.

Sd/-

(M.Deena Dayalan)
Member

Sd/-

(V.S.Verma)
Member

Sd/-

(S.Jayaraman)
Member

CALCULATION OF WEIGHTED AVERAGE RATE OF INTEREST ON LOAN

Asset-I

		(₹ in lakh)				
	Details of Loan	2009-10	2010-11	2011-12	2012-13	2013-14
1	IBRD-I					
	Gross loan opening	4016.70	4016.70	4016.70	4016.70	4016.70
	Cumulative Repayment up to DOCO/previous year	2424.21	2734.34	3067.94	3426.74	3812.74
	Net Loan-Opening	1592.50	1282.36	948.77	589.96	203.96
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	310.13	333.60	358.80	386.00	203.96
	Net Loan-Closing	1282.36	948.77	589.96	203.96	0.00
	Average Loan	1437.43	1115.56	769.36	396.96	101.98
	Rate of Interest	8.34%	8.34%	8.34%	8.34%	8.34%
	Interest	119.88	93.04	64.17	33.11	8.51
	Rep Schedule	30 half yearly installment from 1.12.1998				
	Total Loan					
	Gross loan opening	4016.70	4016.70	4016.70	4016.70	4016.70
	Cumulative Repayment up to DOCO/previous year	2424.21	2734.34	3067.94	3426.74	3812.74
	Net Loan-Opening	1592.50	1282.36	948.77	589.96	203.96
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	310.13	333.60	358.80	386.00	203.96
	Net Loan-Closing	1282.36	948.77	589.96	203.96	0.00
	Average Loan	1437.43	1115.56	769.36	396.96	101.98
	Rate of Interest	8.3400%	8.3400%	8.3400%	8.3400%	8.3400%
	Interest	119.88	93.04	64.17	33.11	8.51

Asset-II

(₹ in lakh)

	Details of Loan	2009-10	2010-11	2011-12	2012-13	2013-14
1	Bond VI					
	Gross loan opening	564.00	564.00	564.00	564.00	564.00
	Cumulative Repayment up to DOCO/previous year	394.80	451.20	507.60	564.00	564.00
	Net Loan-Opening	169.20	112.80	56.40	0.00	0.00
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	56.40	56.40	56.40	0.00	0.00
	Net Loan-Closing	112.80	56.40	0.00	0.00	0.00
	Average Loan	141.00	84.60	28.20	0.00	0.00
	Rate of Interest	13.13%	13.13%	13.13%	13.13%	13.13%
	Interest	18.51	11.11	3.70	0.00	0.00
	Rep Schedule	10 Annual Instalments from 6.12.2002				
2	Credit National (Natexis Banque)					
	Gross loan opening	13168.34	13168.34	13168.34	13168.34	13168.34
	Cumulative Repayment up to DOCO/previous year	2321.60	2980.01	3638.43	4296.84	4955.25
	Net Loan-Opening	10846.75	10188.33	9529.92	8871.50	8213.09
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	658.42	658.41	658.41	658.41	658.41
	Net Loan-Closing	10188.33	9529.92	8871.50	8213.09	7554.68
	Average Loan	10517.54	9859.13	9200.71	8542.30	7883.88
	Rate of Interest	3.20%	3.20%	3.20%	3.20%	3.20%
	Interest	336.56	315.49	294.42	273.35	252.28
	Rep Schedule	Quarterly repayment from 30.9.2004				
	Total Loan					
	Gross loan opening	13732.34	13732.34	13732.34	13732.34	13732.34
	Cumulative Repayment up to DOCO/previous year	2716.40	3431.21	4146.03	4860.84	5519.25
	Net Loan-Opening	11015.95	10301.13	9586.32	8871.50	8213.09
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	714.82	714.81	714.81	658.41	658.41
	Net Loan-Closing	10301.13	9586.32	8871.50	8213.09	7554.68
	Average Loan	10658.54	9943.73	9228.91	8542.30	7883.88
	Rate of Interest	3.3314%	3.2845%	3.2303%	3.2000%	3.2000%
	Interest	355.07	326.60	298.13	273.35	252.28