CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No. 271/2009

Coram: **Dr. Pramod Deo, Chairperson**
Shri S.Jayaraman, Member
Shri V.S.Verma, Member

Date of Hearing: 15.3. 2011 **Date of Order: 12.7.2011**

In the matter of:

Determination of transmission tariff for 400 KV D/C Ramagundam-Bhadrawati (Chandrapur) Transmission System in Southern and Western Regions for the period 2009-14.

And

In the matter of:

Power Grid Corporation of India Limited, Gurgaon ……**Petitioner**

Vs

1. Karnataka Power Transmission Corporation, Ltd. Bangalore
2. Transmission Corporation of Andhra Pradesh Ltd. Hyderabad
3. Kerala State Electricity Board, Thiruvananthapuram
4. Tamil Nadu Electricity Board, Chennai
5. Electricity Department, Govt. of Pondicherry, Pondicherry
6. Eastern Power Distribution Company of Andhra Pradesh Ltd., Visakhapatnam
7. Southern Power Distribution Company of Andhra Pradesh Ltd., Tirupati
8. Central Power Distribution Company of Andhra Pradesh Ltd., Hyderabad
9. Northern Power Distribution Company of Andhra Pradesh Ltd. Warangal
10. Bangalore Electricity Supply Company Ltd., Bangalore
11. Gulbarga Electricity Supply Company Ltd., Gulbarga
12. Hubli Electricity Supply Company Ltd., Hubli
13. Mangalore Electricity Supply Company Ltd., Mangalore
14. Chamundeswari Electricity Supply Company Ltd., Mysore
15. Electricity Department, Govt. of Goa, Panaji
16. Madhya Pradesh Power Trading Company Ltd., Jabalpur
17. Maharashtra State Electricity Distribution Company Ltd., Mumbai
18. Gujarat Urja Vikas Nigam Ltd. Vadodara
19. Electricity Deptt. Administration of Daman and Diu, Daman
20. Electricity Deptt., Govt. of UT of Dadra and Nagar Haveli, Silvassa

21. Chattisgarh State Electricity Board, Raipur.
22. Madhya Pradesh Audyogik Kendra Vikas Nigam Ltd., Indore

Respondents

The following was present:

1. Shri U K Tyagi, PGCIL
2. Shri M.M. Mondal, PGCIL
3. Shri Rajiv Gupta, PGCIL
4. Shri S.S Raju, PGCIL

ORDER

This petition has been filed by the petitioner, Power Grid Corporation of India Limited, for determination of transmission tariff for the 400 kV D/C Ramagundam-Bhadrawati (Chandrapur) Transmission System (hereinafter referred to as "the transmission system") in Southern and Western Regions for the period from 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 also sought the following reliefs:

(a) Invoke the provisions of Regulation 44 (Power to relax) of the 2009 regulations so as to allow grossing up of base rate of return with the applicable tax rate as per the Finance Act for the relevant year and direct settlement of tax liability between the transmission licensee and long term transmission customers on year to year basis;

(b) Approve the reimbursement, by the beneficiaries, of expenditure towards petition filing fee, and publishing of notices in newspapers in terms of Regulation 42 of the 2009 regulations and other expenditure (if any) in relation to the filing of petition;

(c) Allow the petitioner to bill and recover Service Tax on transmission charges separately from the respondents, if at any time exemption from service tax is withdrawn and transmission is notified as at taxable service;

(d) Allow the petitioner to bill and recover licence fee separately from the respondents;

2. The petition was filed in the month of November 2009. Meanwhile, the petitioner had filed Interlocutory Application (I.A.) No. 1/2010 submitting that inadvertently, additional capital expenditure during the period 2009-14 was not considered while filing the petition. Accordingly, the petitioner sought permission to file revised petition with the requisite details. The Commission, vide its order dated 19.1.2010 directed the petitioner to submit the revised petition by 31.3.2010. Subsequently, the petitioner filed IA No. 17/2010 wherein it had prayed for extension of time for filing the revised petition because the details relating to additional capital expenditure were not firmed up. While disposing the IA, Commission vide its order dated 19.4.2010 allowed time up to 30.6.2010 for filing the revised petition. Accordingly, the petitioner had filed revised petition in the month of June 2010.

3. The transmission asset was declared under commercial operation w.e.f. 1.1.1991. The transmission charges for transmission system up to 31.3.2009 were initially approved by the Commission vide its order dated 20.12.2005 in Petition No. 138/2004 and same were revised vide order dated 14.2.2008 in process of implementation of the judgment dated 4.10.2006 of the Appellate Tribunal for Electricity in Appeal No. 135 of 2005 and other related appeals. Capital cost admitted by the Commission as on 31.3.2009 based on which transmission tariff was awarded is ₹ 5185.97 lakh.

4. The petitioner has claimed the following transmission charges:

(₹ in lakh)

	2009-10	2010-11	2011-12	2012-13	2013-14
Depreciation	89.39	89.39	96.20	107.42	111.62
Interest on Loan	0.00	0.00	6.26	15.18	16.87
Return on equity	423.65	423.65	429.21	437.70	440.64
Interest on Working Capital	26.75	27.67	29.03	30.65	31.92
O & M Expenses	320.96	339.35	358.78	379.29	400.90
Total	**860.75**	**880.06**	**919.48**	**970.24**	**1001.95**

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

(₹ in lakh)

	2009-10	2010-11	2011-12	2012-13	2013-14
Maintenance Spares	48.14	50.90	53.82	56.89	60.14
O & M expenses	26.75	28.28	29.90	31.61	33.41
Receivables	143.46	146.68	150.08	153.67	157.45
Total	**218.35**	**225.86**	**233.80**	**242.17**	**251.00**
Rate of Interest	12.25%	12.25%	12.25%	12.25%	12.25%
Interest	**26.75**	**27.67**	**28.64**	**29.67**	**30.75**

6. Reply to the petition has been filed by the Tamil Nadu Electricity Board (TNEB), Maharashtra State Electricity Distribution Company Ltd

(MSEDCL) and Madhya Pradesh Power Trading Company Ltd. (MPPTCL).

7. TNEB, respondent No. 4 has, vide its reply under affidavit dated 4.8.2010, 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.

8. MSEDCL in its reply has observed that the quantum of additional capital expenditure towards tower strengthening appears to be on the higher side. Besides, the MSEDCL has also objected to the reimbursement of Licence fee, petition filing fee and service tax. MPPTCL has reiterated its submissions regarding debt-equity ratio, made by it in affidavit dated 19.1.2010 in response to the petition initially filed in November 2010. According to the MPPTCL, debt-equity

ratio of 70:30 has been prescribed by the National Tariff Policy and the same must be adopted while computing tariff. MPPTCL has further questioned the necessity of tower strengthening and the admissibility of the above expenditure under Regulation 9(2)(v) of the 2009 regulations.

9. The petitioner has filed rejoinders in response to all the above stated replies wherein it has reiterated its submissions made in the petition and has requested for approval of transmission tariff as prayed for in the petition. More specifically, the petitioner in its rejoinder dated 11.3.2011 to the reply of TNEB has clarified that the additional capital expenditure is of the nature of capital expenditure and its reimbursement in three installments as proposed by TNEB is not in order. In response to the observation of MSEDCL regarding the cost of items for tower strengthening, the petitioner in its rejoinder dated 11.3.2011 has highlighted that it follows a competitive bidding route and contracts are awarded to the lowest evaluated eligible bidder. As regards the submission of MPPTCL regarding debt equity ratio, the petitioner has cited Regulations 12(2) of the 2009 regulations in support of its claim.

10. Having heard the representatives of the parties and perused the material on record, we proceed to dispose of the petition. While doing

so, we also take care of the submissions of the respondents and address them in the relevant paragraphs.

CAPITAL COST

11. Proviso to Regulation 7 (2) of the 2009 regulations provides as under:

> *"Provided also that in case of the existing projects, the 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."*

12. As stated herein above, the Commission had vide its order dated 14.2.2008 in Petition No. 138/2004 admitted Cost of ₹ 5185.97 lakh as on 31.3.2009 and the same has been considered for the purpose of Tariff calculation in this order.

ADDITIONAL CAPITAL EXPENDITURE

13. Clause 2 of Regulation 9 of the 2009 regulations as amended vide Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2011 provides as under:

> *"The capital expenditure incurred on the following counts after the cut-off date may, 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) Deferred works relating to ash pond or ash handling system in the original scope of work;*

(iv) In case of hydro generating stations, any expenditure which has become necessary on account of damage caused by natural calamities (but not due to flooding of power house attributable to the negligence of the generating company) including due to geological reasons after adjusting for proceeds from any insurance scheme, and expenditure incurred due to any additional work which has become necessary for successful and efficient plant operation; and

(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 transmission system:

Provided that in respect sub-clauses (iv) and (v) above, any expenditure on acquiring the minor items or the assets like tools and tackles, furniture, air-conditioners, voltage stabilizers, refrigerators, coolers, fans, washing machines, heat convectors, mattresses, carpets etc. brought after the cut-off date shall not be considered for additional capitalization for determination of tariff w.e.f. 1.4.2009.

(vi) In case of gas/liquid fuel based open/combined cycle thermal generating stations, any expenditure which has become necessary on renovation of gas turbines after 15 of operation from its COD and the expenditure necessary due to obsolescence or non-availability of spares for successful and efficient operation of the stations;

Provided that any expenditure included in the R & M on consumables and cost of components and spares which is generally covered in the O & M expense during the major overhaul of gas turbine shall be suitably deducted after due prudence from the R & M expenditure to be allowed.

(vii) Any capital expenditure found justified after prudence check necessitated on account of modifications required or done in fuel receipt system arising due to non-materialization of full coal linkage in respect of thermal generating station as result of circumstances not within the control of the generating station.

(vii) Any undercharged liability towards final payment/withheld payment due to contractual exigencies for works executed within the cut-off date, after prudence check of the details of

such deferred liability, total estimated cost of package, reason for such withholding of payment and release of such payments etc."

14. 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)
2011-12	**Transmission line**-Tower Strengthening	212.00
2012-13	**Transmission line**-Tower Strengthening	112.00
	Total	**324.00**

15. The petitioner has claimed projected additional capital expenditure amounting to ₹ 212.00 lakh and ₹ 112.00 lakh during 2011-12 and 2012-13 respectively on account of additional capital expenditure for tower strengthening for transmission asset which has become necessary due to change in the wind zone. The petitioner has further submitted that transmission asst was designed as per IS 802:1977 in light wind zone (wind pressure on conductor- 43 kg/sq m) and IS 802:1995, which falls in wind zone-3 and is more critical.

16. The petitioner had further submitted that tower strengthening is to be carried out on 360 nos of suspension towers. The approximate total weight of additional tower members is 324 MT. The strengthening work includes supply of the additional tower members and its installation on transmission line towers up to bottom cross arm in charged condition. The cost of strengthening work has been estimated

at ₹ 324 lakh @ ₹ 1 lakh per MT. As the supply and installation work are proposed to be undertaken through competitive bidding process, actual cost may vary with respect to estimated cost depending on market conditions prevailing at the time of procurement.

17. MSEDCL in its reply under affidavit dated 7.8.2010 has submitted that the total amount of ₹ 324 lakh @ ₹ 1 lakh per MT claimed by the petitioner appears on higher side compared to the prevailing market rates of steel and considering fluctuating steel market. MSEDCL has further requested to direct the petitioner to submit the details of the steel requirement and justify the steel rate claimed by the PGCIL.

18. TNEB in its reply under affidavit dated 4.8.2010, has submitted that it is likely that the wind pattern and wind force remains unaltered in the Southern Region without the need for such reinforcement in all the suspension towers in service as on date. The respondent has further contended that while designing the towers, a factor of safety would have been built in, to take care of any possible change in the basic parameters considered while designing the towers and hoped that a factor of safety might have been available in the changed situation to ensure safety of the suspension towers in the Region.

19. During the course of hearing on 15.3.2011, the representative of MPPTCL urged that tower strengthening should be undertaken at those

places where there has been some incidence of tower failure on account of changes in the wind zone. A generalized approach of strengthening of all the suspension towers of a transmission line which has never experienced any failure in last 20 years of its commissioning, according to it, cannot be considered as prudent exercise. The representative of MPPTCL further questioned the admissibility of the additional capital expenditure on account of tower strengthening under Regulation 9 (2) (v) of the 2009 regulations.

20. The Commission vide Record of Proceedings dated 15.3.2010 directed the petitioner to submit the report of the failure of towers during the year 1998. The petitioner, vide affidavit dated 31.3.2011, has submitted the "Committee's Report on Collapse of Towers at Location No. 223 and 285 of 400 kV D/C Ramagundam-Bhadrawati (Chandrapur) Transmission Line" constituted by the PGCIL to investigate the tower collapses at location no. 223 and 285. It can be seen that the Committee concluded that the failures can be attributed to the excessive wind pressure caused by hail storm with heavy wind (more than the designed wind pressure) experienced by the transmission towers and the conductors. The Committee suggested to explore the possibility of strengthening of the suspension towers of this line initially designed for light wind zone as per IS 802:1977 and presently coming under higher wind zone as per IS 802:1995.

21. 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 3 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:

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

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 1for 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]

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

[as per the IS 802:1995**]**

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

Wind load on tower = (Factor of Safety) * Wind Pressure * A_o

$= (1.5 * 1270 * A_o)$ N $= 1905 A_o$ Newton

[as per the IS 802:1977**]**

Where 1270 N/m^2 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.

(ii) 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.

22. It may be seen from the foregoing that wind load on towers as per IS 802:1995 is more than that as per the IS 802:1977. Accordingly, we are convinced about the justification for the projected additional capital expenditure for tower strengthening as claimed by the petitioner. As regards cost factor highlighted by the respondents, we direct the petitioner to exercise due diligence on the cost aspect while awarding the contracts for execution of the works.

23. Keeping in view the above observation, change of wind zone and the recommendations of the 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 2011-12 and 2012-13 are considered essential for efficient and successful operation of the transmission system. Therefore, we allow capitalization of ₹ 212.00 lakh and ₹ 112.00 lakh during 2011-12 and 2012-13, respectively.

DEBT- EQUITY RATIO

24. Clause (2) of Regulation 12 of the 2009 regulations provides that,-

*"12. **Debt-Equity Ratio**. (1) For a project declared under commercial operation on or after 1.4.2009, if the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan:*

Provided that where equity actually deployed is less than 30% of the capital cost, the actual equity shall be considered for determination of tariff:

Provided further that the equity invested in foreign currency shall be designated in Indian rupees on the date of each investment.

Explanation.- *The premium, if any, raised by the generating company or the transmission licensee, as the case may be, while issuing share capital and investment of internal resources created out of its free reserve, for the funding of the project, shall be reckoned as paid up capital for the purpose of computing return on equity, provided such premium amount and internal resources are actually utilised for meeting the capital expenditure of the generating station or the transmission system.*

(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.

(3) Any expenditure incurred or projected to be incurred on or after 1.4.2009 as may be admitted by the Commission as additional capital expenditure for determination of tariff, and renovation and modernisation expenditure for life extension shall be serviced in the manner specified in clause (1) of this regulation."

25. MPPTCL has in its reply contended that Regulation 12(2) of the 2009 regulations is in contravention of the National Tariff Policy which provides for the debt-equity ratio of 70:30. The MPPTCL has requested t to consider debt-equity ratio of 70:30 which shall be in accordance with tariff policy notified by the Government of India for determination of tariff and safeguard the interest of consumer. In this regard it is clarified that the debt-equity has been considered strictly as per 2009 regulations.

26. Details of debt-equity in respect of the transmission assets as admitted by the Commission for determination of tariff for the period ending 31.3.2009 is as under:

Particulars	As Admitted on 31.3.2009	
Asset	Amount (₹ in lakh)	%
Debt	2762.47	53.27
Equity	2423.50	46.73
Total	**5185.97**	**100.00**

27. The above debt equity ratio has been considered for tariff determination in this order as provided by Regulation 12 (2) of the 2009 regulations.

28. In respect of the additional capital expenditure debt-equity ratio of 70:30 has been adopted as mandated by clause (3) read with (1) of Regulation 12 of the 2009 regulations, extracted hereinabove. Details of the debt - equity in respect of additional capital expenditure are as under:

	Normative	
2011-12	**Amount (₹ in lakh)**	**%**
Debt	148.40	70.00
Equity	63.60	30.00
Total	**212.00**	**100.00**
2012-13	**Amount (₹ in lakh)**	**%**
Debt	78.40	70.00
Equity	33.60	30.00
Total	**112.00**	**100.00**

RETURN ON EQUITY

29. Regulation 15 of the 2009 regulations provides as under-

"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 Minimum Alternate/Corporate Income Tax Rate for the year 2008-09, as per the Income Tax Act, 1961, as applicable to the concerned generating company or the transmission licensee, as the case may be:

(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.

(5) The generating company or the transmission licensee, as the case may be, shall recover the shortfall or refund the excess Annual Fixed Charge on account of Return on Equity due to change in applicable Minimum Alternate/Corporate Income Tax Rate as per the Income Tax Act, 1961 (as amended from time to time) of the respective financial year directly without making any application before the Commission:

Provided further that Annual Fixed Charge with respect to the 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 in accordance with Regulation 6 of these regulations."

30. Return on Equity has been calculated based on pre- tax basis on 11.33% MAT in accordance with the tax rate applicable for 2008-09 and has been allowed @ 17.481%.

31. The petitioner has prayed for grossing up of base rate of return with MAT rate as per the applicable Finance Act. The petitioner shall be entitled to recover the shortfall or refund the excess annual fixed charges, if any, on account of Return on Equity due to change in applicable Minimum Alternate/Corporate Income Tax rate as per the Income Tax Act, 1961 for the respective financial year in accordance with clause (5) of Regulation 15 of the 2009 regulations.

32. In view of the above , the following amount of equity has been considered for calculation of return on equity:

(₹ in lakh)

	2009-10	2010-11	2011-12	2012-13	2013-14
Opening Equity	2423.50	2423.50	2423.50	2487.10	2520.70
Addition due to additional capital expenditure	0.00	0.00	63.60	33.60	0.00
Closing Equity	2423.50	2423.50	2487.10	2520.70	2520.70
Average Equity	2423.50	2423.50	2455.30	2503.90	2520.70
Return on Equity (Base Rate)	15.50%	15.50%	15.50%	15.50%	15.50%
Tax rate for the year 2008-09	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%
Return on Equity (Pre Tax)	**423.65**	**423.65**	**429.21**	**437.71**	**440.64**

INTEREST ON LOAN

33. Regulation 16 of the 2009 regulations provides that,-

"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."

34. Against the above extracted provision, it is seen that in the present case, normative loan and actual loans have been repaid before 31.3.2004. Normative loan during 2011-12 and 2012-13

amounting to ₹ 148.40 lakh and ₹ 78.40 lakh against proposed additional capital expenditure of ₹ 212.00 lakh and ₹ 112.00 lakh, respectively is being repaid by the depreciation amounting to ₹ 96.21 lakh for 2011-12 and ₹ 107.42 lakh for 2012-13. However, entire loan is not being repaid within the same year and there are closing balances which will be getting repaid in subsequent years and thus interest on loan has to be paid. A problem arises with regard to the rate of interest for calculating the interest on loan in terms of clause 16(5) of the 2009 regulations extracted hereinabove.

35. There is no actual loan for the proposed additional capital expenditure and the petitioner has claimed the rate of interest as per Bond XXXII @ 8.84%. Moreover, there was no actual loan during 2004-09 tariff period. The last actual loan was during 2001-04 period in Petition No. 9/2002 and the loan was repaid in year 2002. Weighted Average rate of interest at that time was 0.94% having Bank loans IBJ-II (0.5225%), Commerz Bank Loan (1.73%) and ING Bank Loan (0.8475%). These were foreign Bank funding at very low rate which may not be available for projected additional capital expenditure. Further, it is very difficult to work out the weighted average rate of interest of the transmission licensee as a whole on the basis of Balance Sheet due to presence of floating rate loans and bank loans (including foreign borrowings) for which adequate information is not available and is

subject to frequent fluctuations. Therefore, these are not being considered.

36. In view of the peculiar situation pertaining to the case, we are constrained to explore alternatives in exercise of the powers under Regulation 44 of the 2009 regulations. Accordingly we consider the following options:

(a) Applying the SBI PLR Rate which is 12.25% during 2009-10. This is high considering the fact that long term loans are available to PSUs such as PGCIL at a discount to PLR.

(b) Applying the weighted average rate of interest of the similar transmission system. However, in this case, there is no similar transmission system available of which weighted average rate of interest can be considered.

(c) Applying the Interest rate of the latest loan drawn by the PGCIL in the year of 2009-10 i.e. Bond XXXII which is 8.84% (as per the Balance Sheet of 2009-10)

37. Among the above stated options, we eliminate the options at (a) and (b) above for the reasons recorded therein and adopt the one at (c) above, which reflects the current interest rate scenario for the year 2009-10.

38. Details of the interest on loan worked out on the above basis is as under:

(₹ in lakh)

	2009-20	2010-11	2011-12	2012-13	2013-14
Gross Normative Loan	2762.47	2762.47	2762.47	2910.87	2989.27
Cumulative Repayment up to Previous Year	2762.47	2762.47	2762.47	2858.68	2966.10
Net Loan-Opening	0.00	0.00	0.00	52.19	23.17
Addition due to additional capital expenditure	0.00	0.00	148.40	78.40	0.00
Repayment during the year	0.00	0.00	96.21	107.42	23.17
Net Loan-Closing	0.00	0.00	52.19	23.17	0.00
Average Loan	0.00	0.00	26.10	37.68	11.58
Weighted Average Rate of Interest on Loan	0.0000%	0.0000%	8.8400%	8.8400%	8.8400%
Interest	**0.00**	**0.00**	**2.31**	**3.33**	**1.02**

<u>DEPRECIATION</u>

39. Regulation 17 of the 2009 regulations provides for computation of depreciation in the following manner, namely:

"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.

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(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."

40. As the entire loan for the transmission assets covered in the present petition has already been repaid, the depreciation has been worked out by spreading the balance depreciation value over the remaining useful life of the transmission system. The same methodology had been followed in 2004-09 tariff period.

41. Details of the depreciation worked out are as under:

(₹ in lakh)

	2009-10	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Opening Gross Block (As per last order dated 14.2.2008 in Pet No. 138/2004)	5185.97	5185.97	5185.97	5397.97	5509.97
Addition during 2009-14 due to projected Additional capital expenditure	0.00	0.00	212.00	112.00	0.00
Closing Gross Block	5185.97	5185.97	5397.97	5509.97	5509.97
Average Gross Block	5185.97	5185.97	5291.97	5453.97	5509.97
Rate of Depreciation	5.2858%	5.2858%	5.2857%	5.2856%	5.2855%
Depreciable Value	4667.37	4667.37	4762.77	4908.57	4958.97
Weighted balance useful life (**21 Years as on 1.4.2004** as per Petition No. 138/2004)	16	15	14	13	12
Remaining Depreciable Value	1430.31	1340.92	1346.92	1396.52	1339.49
Depreciation	**89.39**	**89.39**	**96.21**	**107.42**	**111.62**

OPERATION & MAINTENANCE EXPENSES

42. Clause (g) of Regulation 19 of the 2009 regulations prescribes the norms for operation and maintenance expenses based on the type of

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

Elements	2009-10	2010-11	2011-12	2012-13	2013-14
400 kV D/C, twin conductor transmission line (₹ lakh per km.)	0.627	0.663	0.701	0.741	0.783
400 kV bays (₹ lakh per bay)	52.40	55.40	58.57	61.92	65.46

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

(₹ in lakh)

Elements	2009-10	2010-11	2011-12	2012-13	2013-14
400 kV D/C, twin conductor transmission line (177.605 kms)	111.36	117.75	124.50	131.61	139.06
400 kV bays (4 bays)	209.6	221.6	234.28	247.68	261.84
Total O&M expenses	**320.96**	**339.35**	**358.78**	**379.29**	**400.90**

44. 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.

45. MPPTCL has objected the petitioner`s contention reserving its right to approach the Commission for revision in the norms of O & M expenses in case impact of wage hike is more than 50%. He further submitted that no

need to further revision of the O & M norms as the Commission has already accounted for prospective wage hike to the employees of the petitioner company and accordingly decided the norms for O & M expenditure. In response , the petitioner vide its rejoinder dated 17.3.2011 has submitted that while framing of 2009 regulations, it had furnished the actual O & M cost, line and bay details of transmission system for the year 5 years period i.e 2003-04 to 2007-08, without taking into consideration expected man power cost implications on account of wage revision due w.e.f. 1.7.2007. He further submitted that O & M data was normalized by the Commission after removing the spikes in the O& M cost, abnormal O & M etc. and thereafter, the base norms at 2007-08 price levels was arrived. This was escalated at 5.72% to reach 2009-10 price level. The petitioner has also submitted that the wage revision for the employees has already been done and it would approach the Commission for additional man power cost on account of wage revision, if any during the period 2009-14. 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

46. As per the 2009 regulations 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 from 1.4.2009. The value of maintenance spares has accordingly been 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 one month of the respective year as claimed in the petition. This has been considered in the 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.

47. Necessary computations in support of interest on working capital are appended hereinbelow:

(₹ in lakh)

	2009-10	2010-11	2011-12	2012-13	2013-14
Maintenance Spares	48.14	50.90	53.82	56.89	60.14
O & M expenses	26.75	28.28	29.90	31.61	33.41
Receivables	143.46	146.68	152.58	159.69	164.30
Total	218.35	225.86	236.29	248.19	257.84
Rate of Interest	12.25%	12.25%	12.25%	12.25%	12.25%
Interest	**26.75**	**27.67**	**28.95**	**30.40**	**31.59**

<u>TRANSMISSION CHARGES</u>

48. The transmission charges being allowed for the transmission lines are summarized below:

(₹ in lakh)

	2009-10	2010-11	2011-12	2012-13	2013-14
Depreciation	89.39	89.39	96.21	107.42	111.62
Interest on Loan	0.00	0.00	2.31	3.33	1.02
Return on equity	423.65	423.65	429.21	437.71	440.64
Interest on Working Capital	26.75	27.67	28.95	30.40	31.59
O & M Expenses	320.96	339.35	358.78	379.29	400.90
Total	**860.75**	**880.06**	**915.45**	**958.16**	**985.78**

Filing fee and the publication expenses

49. The petitioner has sought approval for the reimbursement of fee paid by it for filing the petition. 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 ***<u>pro rata</u>*** basis. The petitioner shall also be entitled for reimbursement of publication expenses from the beneficiaries on ***<u>pro-rata</u>*** basis.

Service Tax

50. The petitioner has made a specific prayer to be allowed to bill and recover the Service tax on transmission charges separately from the respondents if the exemption granted to it is withdrawn and transmission of power is made a taxable service. As the petitioner has no liability for service tax at present, the prayer is infructuous and is accordingly rejected.

51. The transmission charges allowed shall be recovered on monthly basis in accordance with Regulation 23 and shall be shared by the respondent in accordance with Regulation 33 of the 2009 regulations up to 30.6.2011. With effect from 1.7.2011, billing, collection and disbursement of the transmission charges shall be governed by the provisions of Central Electricity Regulatory Commission (Sharing of inter-State transmission charges and losses) Regulations, 2010 and the Removal of Difficulties orders issued thereunder.

52. This order disposes of Petition No. 271/2009.

SD/-	**SD/-**	**SD/-**
(V.S.Verma) **Member**	**(S.Jayaraman)** **Member**	**(Dr. Pramod Deo)** **Chairperson**