CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No. 308/2009

1. Dr. Pramod Deo, Chairperson
2. Shri S. Jayaraman, Member
3. Shri V.S. Verma, Member
4. Shri M. Deena Dayalan, Member

Date of hearing: 11.3.2010 **Date of order: 29.7.2010**

In the matter of

Approval of tariff of Unit – I (250 MW) for the period 22.4.2009 to 20.10.2009 and for the Station (Unit-I and Unit-II) (2x 250 MW) for the period from 21.10.2009 to 31.03.2014 of Bhilai Expansion Power Project of NTPC-SAIL Power Company Ltd

And in the matter of

NTPC-SAIL Power Company Ltd, New Delhi ……**Petitioner**

Vs

1. Electricity Department, UT of Dadra & Nagar Haveli, Silvassa
2. Electricity Department, UT of Daman & Diu, Daman
3. Chhattisgarh State Power Distribution Company Ltd, Raipur
4. Steel Authority of India Ltd, (Bhilai Steel Plant), New Delhi ….**Respondents.**

The following were present

1. Shri R.N.Sen, NTPC-SAIL
2. Shri G.Basu, NTPC-SAIL
3. Shri S.D.Jha, NTPC-SAIL
4. Shri A.Pal, NTPC-SAIL
5. Shri P.V.Sanjeev, CSPDCL
6. Shri R.G.Gupta, SAIL (BSP)

ORDER

This petition has been filed by the petitioner, NTPC-SAIL Power Company Ltd, for approval of tariff for Unit–I (250 MW) for the period 22.4.2009 to 20.10.2009 and for Unit-I and Unit-II (2x 250 MW) for the period from 21.10.2009 to 31.3.2014 of the Bhilai Expansion Power Project (hereinafter referred to as the “generating station”) based on the Central Electricity Regulatory Commission (Terms and

Conditions of Tariff) Regulations, 2009 (hereinafter referred as "the 2009 regulations").

2. The petitioner is a joint venture company of NTPC Ltd and Steel Authority of India Ltd (SAIL) having equal equity participation in the ratio of 50:50. The petitioner has acquired certain captive power plants owned by SAIL, which includes the captive power plant at Bhilai with capacity of 74 MW (2x30 MW + 1 x 14 MW), which is expanded by addition of 2 units of 250 MW each. The power generated from the generating station will be consumed to the extent of 51% for captive requirements of SAIL and the balance power is to be supplied to the respondents 1 to 3 in terms of the Power Purchase Agreements entered into between them.

3. Out of total capacity of 500 MW, only 170 MW of power is utilized for the captive requirements of SAIL and the remaining 330 MW is to be supplied to beneficiaries as under:

Beneficiaries	Capacity allocated (MW)
UT of Dadra & Nagar Haveli (Respondent No.1)	135
UT of Daman &Diu (Respondent No.2)	95
CSEB(Respondent No.3)	100
SAIL/BSP (Respondent No.4)	170

4. The actual date of commercial operation is as under:

Units	Original schedule as per MoP / GoI	Actual date of commercial operation
Unit No. I	February, 2008	22.4.2009
Unit No. II	August, 2008	21.10.2009

5. It is observed from the above, that there has been a delay of about 14 months in the commercial operation of Unit-I and Unit-II of the generating station from the original date of commercial operation.

6. As regards the delay in the Commissioning of the units of the generating

station, the petitioner during the proceedings held on 11.3.2010 has submitted that the Unit-I was synchronized on 20.4.2008 on oil and coal fired on 5.1.2009. However, despite the allocation, due to inadequate supply of coal to the generating station, the declaration of the date of commercial operation of Unit-I was postponed to 22.4.2009 and that of Unit-II to 21.10.2009. The petitioner further submitted that it had signed the fuel supply agreement (FSA) with South Eastern Coalfields Ltd. (SECL) on 3.1.2009 for annual coal linkage of 2.4 million MT, but SECL had revised the coal linkage to 50% of FSA committed, as per the new Govt. of India policy in respect of captive power plants. As coal to captive power plants falls under category-3 of coal supply sector as per the supply preference of Coal India Ltd, the actual coal supply from SECL was about 70% of the revised coal allocation and hence the generating station could be operated only to 60-65% of full load capacity. The petitioner also submitted that at present both the units of the generating station were running with full load after procurement of 0.5 million MT of coal through e-auction with much higher price and after entering into an agreement with Singareni Collieries Co. Ltd. for 1.0 million MT supply of coal. The petitioner submitted that the date of commercial operation of the generating station was delayed on account of the reasons stated above which was beyond their control.

7. However, the petitioner was directed to furnish additional information as under :

(a) Detailed note elaborating reasons for delay beyond the contracted schedule and the steps taken to avoid the delay in order to substantiate that the delay was beyond its control;

(b) The actual completion time of important mile stones of the project as per the original schedule /contractual agreement and details to establish that the generating station was in a position to run at full load as per the original contracted commissioning schedule from the date of placement of order for main plant package;

(c) Details of cost implications if any, for the delay in date of commercial operation including any implications in IDC & FC from the original estimates prior to taking up the project, with clear explanation;

8. The petitioner vide its affidavit dated 15.4.2010, has submitted the additional information as above. The third respondent, CSPDCL has filed its reply and the petitioner has filed its rejoinder to the same. The matter has been examined in the light of the submissions, both oral and written, made by the parties and the additional information submitted by the petitioner.

9. The justification submitted by the petitioner for the delay in the commissioning of the units of the generating station has been examined in the subsequent paragraphs:

Delay on account of non availability of coal from SECL/CIL

10. From the documents submitted by the petitioner, it is observed that the Standing Committee for Coal Linkage approved a long-term coal linkage for the generating station vide its order dated 7.10.2003 for 2.5 million MT/annum from SECL. It is also observed that the coal linkage was approved with a specific condition that the Fuel Supply Agreement (FSA) should be concluded within a period of six (6) months from the date of issue of order, failing which, the linkage would automatically be cancelled. However, despite repeated persuasion with SECL at various levels, and with Coal India Ltd (CIL), SECL declined to sign the FSA with the petitioner. The petitioner also raised this issue with the Ministry of Power and the Ministry of Coal, Govt. of India, with a plea to direct SECL/ CIL to sign FSA and for commencement of coal supply as the coal firing of the generating station was targeted by the petitioner during September, 2008. Finally, on 1.3.2009, the FSA with the SECL was signed by the petitioner, for an annual linkage of 2.4 million

MT/annum of coal. In the meantime, the synchronization of Unit-I of the generating station, on oil, was also delayed from the original date of commercial operation in February, 2008. However, Unit-I of the generating station was synchronized on oil, on 20.4.2008.

11. While it is noticed that the petitioner has taken sincere efforts to persuade and sign FSA with SECL, the condition imposed by the State Govt. of Chhattisgarh linking the supply of water to the generating station to the allocation of additional power to the State over and above the allocation of 50 MW of power, compounded the problems faced by the petitioner to operationalise the generating station. In order to resolve the matter, the fourth respondent, SAIL (BSP) agreed vide its letter dated 19.5.2007 to supply 25 MW of power to the third respondent, from its allocated capacity of 280 MW for a period of one year. Subsequently, the petitioner vide its letter dated 24.4.2008 offered to supply power at 12.5 MW each from Unit-I and Unit-II of the generating station, for a period of one year which was followed by a supplementary Power Purchase Agreement dated 16.12.2008.

12. Pursuant to the FSA with SECL on 3.1.2009, the commercial operation of Unit-I of the generating station was declared on 22.4.2009, which is within three months from the establishment of coal linkage. This is reasonable. However, it is noted that despite the FSA, SECL had insisted for a separate MOU, under which, SECL unilaterally restricted the coal linkage supply to 50% of FSA. We find that the restriction imposed by SECL was in contravention to the provisions of the FSA and the New Coal Distribution Policy of the Ministry of Coal dated 18.10.2007. In addition, the actual coal supply from SECL was about 75% of the restricted coal linkage, as coal to captive power generating station falls under category-3 of the

coal supply sector, as per the supply preference of the Coal India Ltd. With the short quantum of supply of coal, Unit-I of the generating station could only be operated to 60-65% of the full load capacity on regular basis. The petitioner has also been forced to postpone the declaration of the commercial operation of Unit-II of the generating station, till the issue of coal shortage was resolved.

13. In view of the above, we are of the view that the time taken and the costs incurred on account of the delay of 14 months from the original date of commercial operation of both the units of generating station, was on account of circumstances which were beyond the control of the petitioner, for which the petitioner could not be made responsible. Hence, accepted.

Capital Cost

14. The capital cost as on 22.4.2009 (date of commercial operation of Unit-I) and 21.10.2009 (date of commercial operation of Unit-II and generating station) claimed by the petitioner for the purpose of tariff, is as under:

(Rs. in lakh)

	Unit-I	**Unit-II and generating station**
	As on 22.4.2009	As on 21.10.2009
Capital cost	**166079.39**	**244397.90**

15. The petitioner has submitted auditor's certificate dated 23.11.2009 in support of its claim for capital cost for Rs. 166079.39 lakh as on 22.4.2009 and Rs. 244397.90 lakh as on 21.10.2009.

Capital Work-in- Progress (CWIP)

16. The capital cost for the generating station as on 21.10.2009 includes Rs. 483.52 lakh as Capital Work-in- Progress (CWIP), which has not been considered as part of the capital cost, for the purpose of tariff. However, no CWIP has been claimed in the capital cost for Unit-I, as on 22.4.2009.

17. It is also noticed that the contract for main plant package was awarded to BHEL through International Competitive Bidding (ICB) and the price component consists of US dollar portion and Euro portion, amounting to Rs. 22800 lakh towards FERV, IDC and FC. The expenditure on main plant supply and erection package as on the date of commercial operation is Rs.177633 lakh which includes Rs.13360 lakh towards IEDC, IDC, taxes and duties. The generating station has not been accorded 'mega power project' status, being less than 1000 MW and therefore, the inclusion of taxes and duties in the capital cost is in order and allowed.

18. The capital cost of the generating station amounting to Rs. 284876.00 lakh includes the projected additional capital expenditure claim for Rs. 40960 lakh, excluding CWIP, which works out to Rs.5.70 crore/MW. This is on account of an excess amount of Rs. 263 crore, which includes water charges of Rs. 110 crore, land cost of Rs. 106 crore and the transmission cost of Rs. 47.42 crore, the details of which have been discussed in the subsequent paragraphs:

Water Charges

19. The petitioner has submitted that an advance amount of Rs. 110 crore was paid to Water Resources Department, State Govt. of Chhattisgarh for building of Mahad Reservoir for availability of water for the entire life of the generating station. The petitioner has submitted that it had received in-principle approval for 1 TMC water per year from the State Govt. of Chhattisgarh during August, 2003 out of the proposed saving of 1.8 TMC, after lining of Tandula main canal. Accordingly, the petitioner had paid commitment charges of Rs.7.13 lakh to the State Govt. of Chhattisgarh. However, during September, 2005, the State Govt. of Chhattisgarh proposed to the petitioner for building the Mohad reservoir, due to inadequate water savings in the Tandula Canal during the period of low rain fall

and also to bear the entire construction cost for the same. Keeping in view the approval for 1TMC water per year by the State Govt. of Chhattisgarh, the petitioner requested the State Govt. not to charge it for the construction cost of the proposed Mohad reservoir. However, the petitioner's request was rejected by the State Govt. of Chhattisgarh and it reiterated that the entire construction cost for the reservoir was to be borne by the petitioner. Subsequently, on account of acute water crisis, the State Govt. of Chhattisgarh reduced the water consumption for the generating station from 1 TMC/year to 0.6 TMC/year and the State Govt. by a revised proposal dated 2.11.2007 called upon the petitioner to share an amount of Rs.110 crore being the proportionate cost for 0.82 TMC water (including 0.22 TMC as evaporation& transmission loss through canal) for Mohad reservoir, against the current estimated cost of Rs. 205 crore, adjustable against the water charges payable in future as per prevailing rates for water supplied by the State Govt.

20. Since water forms a major ingredient for operation of the generating station, the petitioner agreed for the payment of the estimated cost of Rs. 110 crore as proposed by the State Govt. of Chhattisgarh. It was also made clear by the State Govt. that the estimated construction cost of Rs.205 crore was provisional and was subject to any upward or downward revision. In case of upward revision, the petitioner was liable to bear the same.

21. As per policy laid down by the State Govt. of Chhattisgarh, the ownership/proprietary right of the Mohad reservoir would remain with the State Government and do not encourage the category of self-made asset for industrial water use. However, it was clarified by the State Govt. that the requirement of water for the generating station would be made available from alternate sources,

till the construction of the reservoir was complete.

22. The advance amount of Rs.110 crore has been shown in the books of accounts of the petitioner, under the head "part of loans and advances" and this amount has been considered by the petitioner as part of the capital cost of the generating station for the purpose of tariff, in view of the following:

(a) considering the prevailing rate for industrial water, and without considering any interest burden implications , Rs. 110 crore shall be fully adjusted against annual water charges for a period of about 18 to 19 years and thereafter, water charges are payable to the State Govt. as per prevailing rates.

(b) While the ownership of the reservoir rests with the State Govt, water shall be made available to the generating station for a period of thirty years as per the agreement.

(c) The project cannot function without industrial water and such water is to be made available only from the State Govt. Hence, the petitioner had no options but to agree to pay the sum as demanded by the authorities.

(d) The beneficiaries have also agreed to share the additional cost in respect of this adjustable advance of Rs.110 crore as per the PPA executed with them.

23. There is no denying of the fact that the generating station requires industrial water, without which it cannot function and water is to be made available only from the State Govt. Also, the efforts made by the petitioner to prevail upon the State Govt. not to impose on it the construction cost of Rs.110 crore proved futile, as the State Govt. declined the request of the petitioner. Under these circumstances, the petitioner had no other alternative except to deposit the said advance amount, which was raised from the lenders/promoters of the project. The cost of loan needs to be serviced by the petitioner, as it has confirmed that no interest was being received for the amount deposited to the State Govt. The petitioner has thus prayed that the amount paid to the State Govt. of Chhattisgarh, be considered as part of the capital cost of the generating

station. In view of the above discussions, the water charge for Rs.110 crore is allowed and has been considered for the purposes of tariff.

Land Cost

24. The land acquired was a city land which belonged to the Steel Authority of India Ltd (SAIL). The price of Rs.106 crore for the land sold to the petitioner was decided by the Board of Director's of SAIL and the petitioner had no other alternative except to make the payment of such high cost for the land. As fixation of land price was beyond the control of the petitioner, the cost of land has been considered in the capital cost of the generating station.

Dedicated Transmission Line

25. The petitioner has submitted that the generating station established in terms of Section 2(8) read with Section 2(28) and Section 2(49) of the Electricity Act, 2003 (the Act) had constructed dedicated transmission lines as defined under Section 2(16) read with Sections 9 and 10 of the Act, which are operated and maintained for smooth operation and transfer of power to various beneficiaries. Accordingly, the petitioner has submitted that the capital cost incurred for the construction of dedicated transmission lines for evacuation of power from the generating station to the CTU grid should also be included in the capital cost.

26. The petitioner has submitted that the dedicated transmission line from Ex-bus to the grid was originally conceived with 220 kV switchyard, which has been upgraded to 400 kV. While supply of power to the first and second respondent was being made through 400 kV line, the supply to the fourth respondent was being stepped down to 220 kV. Also, adequate space has been provided for transmission system considering the future expansion of the generating station, as

per recommendations of PGCIL (CTU) and CEA.

27. Based on the directions of the Commission, during the proceedings on 11.3.2010, the petitioner has submitted the detailed break-up of the capital cost of Rs. 47.16 crore along with the scope of work for turnkey execution of 400 kV D/C transmission line and sub-station bays awarded to PGCIL. The petitioner has submitted that the transmission line cost of Rs. 47.00 crore for 13.79 km includes the cost for 7 bays (3 bays at Bhilai and 4 bays at PGCIL Raipur sub-station). The petitioner has confirmed that the assets included in the 4 bays at Raipur 400 kV sub-station of PGCIL belonged to the petitioner. It has also been submitted that the transmission charges is to be shared by the fourth respondent along with the other beneficiaries of the generating station. Since, the dedicated transmission line for supply of power from the generating station has been constructed in terms of the provisions of the Act, the cost incurred for the same, including the cost for 7 bays, is allowed to be capitalized for the purpose of tariff.

Infirm Power

28. The petitioner has submitted that it has adjusted an amount of Rs. 8152 lakh as on the date of commercial operation of the generating station based on the estimated amount of sale of infirm power and has to this extent reduced the capital cost. However, based on the provisional energy accounts issued by SLDC Bhilai, the adjustments on account of infirm power as on the date of commercial operation of the generating station is Rs.8034 lakh. As the energy accounting in respect of energy injected into the State Grid is maintained by the concerned SLDC (in terms of the statutory responsibility under the Electricity Act, 2003), and since SLDC has been equipped to maintain the exact amount of energy transacted, it is considered prudent to consider the provisional account of the

infirm power of Rs. 8034 lakh, certified by the SLDC, for the purpose of tariff. However, any adjustments in the amount of infirm power, based on the final certification by SLDC would be carried out at the time of truing up of capital cost, at the end of the tariff period. Thus, the capital expenditure as on 21.10.2009 (the date of commercial operation of the generating station) is to be considered after the addition of Rs.118.85 lakh (Rs.8152 lakh- Rs.8034 lakh).This additional amount of Rs 118.85 lakh has been allowed on a provisional basis and would be subject to truing up.

Interest During Construction (IDC)

29. The petitioner's claim for Rs.15711.77 lakh as on the date of commercial operation of Unit-I and Rs.26779.13 lakh as on the date of commercial operation of Unit-II towards IDC, has been examined and is found to be in order.

Undischarged Liabilities

30. It is observed that undischarged liabilities amounting to Rs.13869.69 lakh as on the date of commercial operation of Unit-I and Rs.19904.08 lakh as on the date of commercial operation of Unit-II have been included in the capital cost claimed by the petitioner. In terms of Regulation 3(2) of the 2009 regulations, the term 'expenditure incurred' should not include commitments/liabilities and hence, the above amounts have been deducted to arrive at the capital cost for the purpose of tariff. The outstanding liability of Rs.19904.08 lakh as on 21.10.2009 would however, be considered at the time of truing up, based on the amounts discharged for the purpose of tariff.

31. Taking into consideration the above, the capital cost for the purpose of tariff as on the date of commercial operation of the Units I and II of the generating station, is worked out as under:

(Rs in lakh)

Particulars	Date of commercial operation of Unit-I (22.4.2009)	Date of commercial operation of Unit-II (21.10.2009)
Capital cost claimed	166079.39	244397.90
Less: IDC included	15711.77	26779.13
Less: Liabilities included	13869.69	19904.08
	136497.93	**197714.69**
Add: IDC allowed	15711.77	26779.13
Adjustment towards sale of infirm power (certified by SLDC on provisional)	-	118.85
Capital cost allowed	**152209.70**	**224612.67**

Projected Additional Capital Expenditure:

32. The estimated additional capital expenditure claimed by the petitioner is as under:

(Rs. in lakh)

2009-10 (21.10.2009 to 31.3.2010)	2010-11	2011-12	2012-13	2013-14	Total
10665.12	15681.85	14613.03	-	-	40960.00

33. The claim of the petitioner as estimated additional capital expenditure is Rs. 40960 lakh for the period 2009-12 i.e. up to the cut-off date of the generating station. The additional capitalization relate mainly to the works of main plant package of Rs.18240.00 lakh deferred for execution, initial spares for Rs. 7000.00 lakh, switchyard work of Rs. 1500.00 lakh, coal handling plant including MGR for Rs. 2600.00 lakh, ash related works for Rs. 607.00 lakh, township expenditure for Rs. 8187 lakh, works relating to other packages for Rs.5199 lakh and land cost for Rs. 1720 lakh within the original scope of work.

34. The deferred works are the left over works of the different packages within the original scope of approved project cost and which are to be completed within the cut-off-date. It is observed that these works are essential for the generating station and hence allowed. The petitioner has not capitalized any

amount of initial spares up to the date of commercial operation of the generating station and is hence expected to capitalize initial spares to the tune of Rs. 7000 lakh. This amount is within the ceiling limit of 2.5 % of the capital cost upto the cut-off date of the generating station and hence allowed. It is of normal practice to undertake the work relating to ash dykes in stages. The township expenditure of Rs. 8187 lakh which has been projected to be incurred during the year 2011-12, would lessen the burden on the beneficiaries during the initial tariff period and hence allowed to be capitalized. The expenditure of Rs.5199 lakh claimed in respect of other packages for the generating station is found to be in order, for a new station. Accordingly, the estimated additional capitalization of Rs.40960 lakh claimed by the petitioner, for the period 2009-12 is allowed for completion of the balance works of the generating station and would be subject to truing-up at the end of the tariff period (2012-13) with respect to the expenditure actually incurred.

35. Based on above, the capital cost approved for the purpose of tariff for the period 2009-14, is as under:

(Rs. in lakh)

Particulars	22.4.2009 to 20.10.2009	21.10.2009 to 31.3.2010	2010-11	2011-12	2012-13	2013-14
Opening capital cost	152209.70	224612.67	235277.79	250959.63	265572.67	265572.67
Add: Projected additional capital expenditure	0.00	10665.12	15681.85	14613.03	0.00	0.00
Closing capital cost	**152209.70**	**235277.79**	**250959.63**	**265572.67**	**265572.67**	**265572.67**
Average capital cost	**152209.70**	**229945.23**	**243118.71**	**258266.15**	**265572.67**	**265572.67**

Debt-Equity Ratio

36. Regulation 12 of the 2009 Regulations provides that*:*

" (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."

37. The actual equity deployed by the petitioner as on the date of commercial operation of each unit is marginally more than 30%. As such, tariff has been computed considering the debt equity ratio of 70:30. In addition, the debt-equity ratio of 70:30 has been considered towards the financing of the projected additional capital expenditure, which would be trued-up based on actual funding.

Return on Equity

38. Regulation 15 of the 2009 Regulations provides that:

(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.

39. Return on equity has been worked out @17.481% per annum on the normative equity after accounting for the additional capital expenditure, considering the base rate of 15.5% and MAT rate of 11.33%. Return on equity has been worked out as under:

(Rs in lakh)

	22.4.2009 to 20.10.2009	**21.10.2009 to 31.3.2010**	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Gross Notional Equity	45662.91	67383.80	70583.34	75287.89	79671.80	79671.80
Addition due to Additional Capitalization	-	3199.54	4704.55	4383.91	-	-
Closing Equity	45662.91	70583.34	75287.89	79671.80	79671.80	79671.80
Average Equity	45662.91	68983.57	72935.61	77479.84	79671.80	79671.80
Return on Equity (Base Rate)	15.500%	15.500%	15.500%	15.500%	15.500%	15.500%
Tax rate for the year 2008-09 (MAT)	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%
Return on Equity (Pre Tax)- *Annualized*	**7982.13**	**12058.70**	**12749.54**	**13543.90**	**13927.07**	**13927.07**

Interest on loan

40. Regulation 16 of the 2009 Regulations provides that:

"(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.

41. The interest on loan has been computed as under:

(a) The gross normative loan corresponding to 70% of the admitted capital cost works out to Rs.106546.79 lakh as on 22.4.2009 (date of commercial operation of Unit-I and Rs.157228.87 lakh as on 21.10.2009 (date of commercial operation of Unit-II and generating station)

(b) The net loan opening as on 22.4.2009 is same as the gross loan as cumulative repayment of loan up to this date is' nil'.

(c) The rate of interest considered in case of all loans is on annual rest basis.

(d) Actual loan portfolio considering actual repayments and additions has been taken into consideration to arrive at the weighted average rate of interest to be applied on the average normative loan during the each year of the tariff period. As the drawl for financing the additional capital expenditure is to be made at a later stage, the same would be considered at the time of truing-up.

(e) Depreciation allowed for the period has been considered as repayment.

42. The necessary calculations in support of weighted average rate of interest are appended below:

(Rs in lakh)

Sl. no.	Name of Bank	Particulars	22.4.2009 to 20.10.2009	21.10.2009 to 31.3.2010	1.4.2010 to 31.3.2011	1.4.2011 to 31.3.2012	1.4.2012 to 31.3.2013	1.4.2013 to 31.3.2014
1	**Union Bank**	Gross Loan - Opening	44500.00	44500.00	44500.00	44500.00	44500.00	44500.00
		Cumulative repayment of loan upto Previous Qtr	0.00	2022.73	4045.45	8090.91	12136.36	16181.82
		Net Loan - Opening	44500.00	42477.27	40454.55	36409.09	32363.64	28318.18
		Add: Drawl during the period	0.00	0.00				
		Less: Repayment during the period	2022.73	2022.73	4045.45	4045.45	4045.45	4045.45
		Net Loan - Closing	42477.27	40454.55	36409.09	32363.64	28318.18	24272.73
		Average Loan	43488.64	41465.91	38431.82	34386.36	30340.91	26295.46
		Rate of Interest on Loan	7.0200%	7.0200%	9.1000%	9.1000%	9.1000%	9.1000%
		Interest on Loan	3052.90	2910.91	3497.30	3129.16	2761.02	2392.89
2	**Central Bank**	Gross Loan - Opening	10000.00	10000.00	10000.00	10000.00	10000.00	10000.00
		Cumulative repayment of loan upto Previous Qtr	0.00	0.00	0.00	454.00	1362.00	2270.00
		Net Loan - Opening	10000.00	10000.00	10000.00	9546.00	8638.00	7730.00
		Add: Drawl during the period	0.00	0.00				
		Less: Repayment during the period	0.00	0.00	454.00	908.00	908.00	908.00
		Net Loan - Closing	10000.00	10000.00	9546.00	8638.00	7730.00	6822.00
		Average Loan	10000.00	10000.00	9773.00	9092.00	8184.00	7276.00
		Rate of Interest on Loan	7.0200%	7.0200%	7.0200%	9.1000%	9.1000%	9.1000%
		Interest on Loan	702.00	702.00	686.06	827.37	744.74	662.12
3	**REC-I**	Gross Loan - Opening	21500.00	21500.00	21500.00	21500.00	21500.00	21500.00
		Cumulative	0.00	0.00	2150.00	4300.00	6450.00	8600.00

		repayment of loan upto Previous Qtr						
		Net Loan - Opening	21500.00	21500.00	19350.00	17200.00	15050.00	12900.00
		Add: Drawl during the period	0.00	0.00				
		Less: Repayment du ring the period	0.00	2150.00	2150.00	2150.00	2150.00	2150.00
		Net Loan - Closing	21500.00	19350.00	17200.00	15050.00	12900.00	10750.00
		Average Loan	21500.00	20425.00	18275.00	16125.00	13975.00	11825.00
		Rate of Interest on Loan	8.0000%	8.0000%	8.0000%	8.0000%	8.0000%	8.0000%
		Interest on Loan	1720.00	1634.00	1462.00	1290.00	1118.00	946.00
4	**REC-II**	Gross Loan - Opening	97000.00	97000.00	107000.00	107000.00	107000.00	107000.00
		Cumulative repayment of loan upto Previous Qtr	0.00	0.00	10700.00	21400.00	32100.00	42800.00
		Net Loan - Opening	97000.00	97000.00	96300.00	85600.00	74900.00	64200.00
		Add: Drawl during the period	0.00	10000.00				
		Less: Repayment during the period	0.00	10700.00	10700.00	10700.00	10700.00	10700.00
		Net Loan - Closing	97000.00	96300.00	85600.00	74900.00	64200.00	53500.00
		Average Loan	97000.00	96650.00	90950.00	80250.00	69550.00	58850.00
		Rate of Interest on Loan	9.0000%	9.0000%	9.0000%	9.0000%	9.0000%	9.0000%
		Interest on Loan	8730.00	8698.50	8185.50	7222.50	6259.50	5296.50
5	**UBI-II (Unsecured Loan)**	Gross Loan - Opening	0.00	11000.00	11000.00	11000.00	11000.00	11000.00
		Cumulative repayment of loan upto Previous Qtr	0.00	0.00	0.00	825.00	1925.00	3025.00
		Net Loan - Opening	0.00	11000.00	11000.00	10175.00	9075.00	7975.00
		Add: Drawl during the period	11000.00	0.00				
		Less: Repayment during the period	0.00	0.00	825.00	1100.00	1100.00	1100.00
		Net Loan - Closing	11000.00	11000.00	10175.00	9075.00	7975.00	6875.00
		Average Loan	5500.00	11000.00	10587.50	9625.00	8525.00	7425.00
		Rate of Interest on Loan	11.0000%	11.0000%	11.0000%	11.0000%	11.0000%	11.0000%
		Interest on Loan	605.00	1210.00	1164.63	1058.75	937.75	816.75
6	**G. Total**	Gross Loan - Opening	173000.00	184000.00	194000.00	194000.00	194000.00	194000.00
		Cumulative repayment of loan upto Previous Qtr	0.00	2022.73	16895.45	35069.91	53973.36	72876.82
		Net Loan - Opening	173000.00	181977.27	177104.55	158930.09	140026.64	121123.18
		Add: Drawl during the period	11000.00	10000.00	0.00	0.00	0.00	0.00
		Less: Repayment during the period	2022.73	14872.73	18174.45	18903.45	18903.45	18903.45
		Net Loan - Closing	181977.27	177104.55	158930.09	140026.64	121123.18	102219.73
		Average Loan	177488.64	179540.91	168017.32	149478.36	130574.91	111671.46
		Weighted Average Rate of Interest	8.3441%	8.4412%	8.9250%	9.0500%	9.0531%	9.0572%
		Interest on Loan	14809.90	15155.41	14995.49	13527.78	11821.02	10114.25

43. The computation of interest on loan by applying weighted average

interest rate is appended herein below:

COMPUTATION OF INTEREST ON LOAN

(Rs in lakh)

Interest on loan	**22.4.2009 to 20.10.2009**	**21.10.2009 to 31.3.2010**	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Gross Notional Loan	106546.79	157228.87	64694.45	175671.74	185900.87	185900.87
Cumulative Repayment of Loan upto previous year	-	4139.80	9534.93	22387.03	36039.87	50078.96
Net Opening Loan	106546.79	153089.07	155159.52	153284.71	149861.00	135821.91
Addition due to Additional Capitalization	-	7465.58	10977.29	10229.12	-	-
Repayment of Loan during the period	4139.80	5395.13	12,852.09	13652.84	14039.09	14039.09
Net Closing Loan	102406.99	155159.52	153284.71	149861.00	135821.91	121782.82
Average Loan	104476.89	154124.29	154222.12	151572.86	142841.45	128802.37
Weighted Average Rate of Interest on Loan	8.3441%	8.4412%	8.9250%	9.0500%	9.0531%	9.0572%
Interest on Loan	**8717.70**	**13009.94**	**13764.27**	**13717.33**	**12931.51**	**11665.82**

Depreciation

44. Regulation 17 of the 2009 regulations provides that*:*

(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.

Provided that in case of hydro generating stations, the salvage value shall be as provided in the agreement signed by the developers with the State Government for creation of the site.

Provided further that the capital cost of the assets of the hydro generating station for the purpose of computation of depreciable value shall correspond to the percentage of sale of electricity under long-term power purchase agreement at regulated tariff.

(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 3[the cumulative depreciation including

Advance against Depreciation] as admitted by the Commission upto 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.

45. In terms of the above, depreciation has been calculated considering the weighted average rate of depreciation of 5.4545% for the period upto 20.10.2009 and the weighted average rate of depreciation of 5.2863% from the date of commercial operation, on the admitted average capital cost during the respective years of the tariff period. The rate of depreciation used for individual assets has been considered as per appendix-III of the 2009 regulations based on the information furnished in respect of the individual assets, in the petition. Accordingly, depreciation has been worked out as under:

(Rs in lakh)

	22.4.2009 to 20.10.2009	**21.10.2009 to 31.3.2010**	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Opening capital cost	152209.70	224612.67	235277.79	250959.63	265572.67	265572.67
Add: Projected additional capital expenditure	0.00	10665.12	15681.85	14613.03	0.00	0.00
Closing capital cost	152209.70	235277.79	250959.63	265572.67	265572.67	265572.67
Average capital cost	152209.70	229945.23	243118.71	258266.15	265572.67	265572.67
Rate of Depreciation	5.4545%	5.2863%	5.2863%	5.2863%	5.2863%	5.2863%
Depreciable value @ 90% including amortization of lease land in 25 yrs.	136988.73	206950.70	218806.84	232439.53	239015.40	239015.40
Remaining Depreciable Value	136988.73	202810.90	209271.91	210052.51	202975.53	188936.44
Depreciation (for the period)	4139.80	5395.13	12852.09	13652.84	14039.09	14039.09
Depreciation (Annualized)	**8302.35**	**12155.70**	**12852.09**	**13652.84**	**14039.09**	**14039.09**

O&M Expenses

46. The 2009 regulations lay down the following O&M expense norms for 250 MW units:

(Rs. lakh/ MW)

Year	2009-10	2010-11	2011-12	2012-13	2013-14
O&M expenses	18.20	19.24	20.34	21.51	22.74

47. Based on above table, the year wise O&M expenses for the generating station of 500 MW capacity (2 x 250 MW) as claimed by the petitioner is as under:

(Rs. in lakh)

Year	22.4.2009 to 20.10.2009	21.10.2009 to 31.3.2010	2010-11	2011-12	2012-13	2013-14
O&M expenses	4550 (Annualised)	9100 (Annualised)	9620	10170	10755	11370

48. The normalized O&M expenses as specified in the 2009 regulations include water charges also. As stated earlier, the petitioner has been allowed to capitalize for the purpose of tariff, the amount of Rs.110 crore paid as advance to the Water Resources Department, State Govt. of Chhattisgarh. The petitioner has submitted that considering the prevailing rate for industrial water, the amount of Rs. 110 crore should be adjusted against the annual water charges for a period of about 18-19 years, by the State Govt. of Chhattisgarh, which works out to Rs.5.78 crore/year (Rs.110 crore/19 yrs.). The petitioner has also clarified that the standard rate of water charges claimed by the Water Resources Department, State Govt. of Chhattisgarh was Rs.3.60 / cubic meter, effective from 1.4.2006. The water requirement for the generating station was 0.6 TMC/year which works out to 16.2 million cubic meters. Water charges at the rate of Rs.3.60/cubic meter works out to Rs. 5.80 crore/year which is similar to the rate worked out on the basis of adjustment of the advance payment of Rs.110 crore for 19 years. The petitioner has further clarified that the Water Resources Department has not granted any concession in the water charges, despite the advance deposit of Rs. 110 crore.

49. Considering the fact that the deposit of Rs. 110 crore was to be adjusted against the water charges payable by the petitioner, the water charges per MW/year considering the adjustment of Rs.110 crore for a period of 19 years, works out to Rs.1.16 lakh/MW. Hence, it is proposed to deduct the amount of Rs.

1.16 lakh /MW from the O&M expense norms specified for the period 2009-10 to 2013-14 for arriving at the O&M expenses for the generating station. Accordingly, the O&M expense norms applicable for the generating station is as under:

(Rs lakh/MW)

Year	2009-10	2010-11	2011-12	2012-13	2013-14
O&M expenses	17.04	18.08	19.18	20.35	21.58

50. In view of the above, the O&M expenses allowed for the generating station for the period 2009-14 is as under:

(Rs. in lakh)

Year	**22.4.2009 to 20.10.2009**	**21.10.2009 to 31.3.2010**	**2010-11**	**2011-12**	**2012-13**	**2013-14**
O&M expenses	4260 (Annualised)	8520 (Annualised)	9040	9590	10175	10790

51. The petitioner has submitted that O&M charges for dedicated transmission lines and sub-stations /bays for captive power generating station has not been provided in the O&M expenses for thermal power generating stations under the 2009 regulations specified by the Commission. Hence, the petitioner has claimed the following O&M expenses for the dedicated transmission line:

(Rs in lakh)

Particulars	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**
No. of km. of double circuit line	13.794	13.794	13.794	13.794	13.794
Norms/km for transmission line	0.627	0.663	0.701	0.741	0.783
O&M expenses for Transmission line (Rs in lakh)	8.60	9.10	9.70	10.20	10.80
No. of Bays	7	7	7	7	7
Norms/bay	52.40	55.40	58.57	61.92	65.46
O&M expenses for Bays	**367**	**388**	**410**	**433**	**458**

52. The petitioner has submitted that out of the 7 no. of bays for associated transmission system, 3 no. of bays fall within the side of the petitioner and the rest 4 no. of bays fall within the Raipur sub-station of Power Grid Corporation of India (PGCIL) for connection to the double bus scheme. The petitioner has also submitted that the assets included in the 4 bays at Raipur sub-station belonged to the petitioner and it has awarded the O&M contract to PGCIL for O&M of these 4 bays. The submission of the petitioner is found to be in order and the O&M

expenses claimed is allowed. Accordingly, the total O&M expenses allowed for the generating station and transmission system is as under :

(Rs in lakh)

Particulars/Year	22.4.2009 to 20.10.2009	21.10.2009 to 31.3.2010	2010-11	2011-12	2012-13	2013-14
Generating station	4260 (annualized)	8520 (annualized)	9040	9590	10175	10790
Sub-station (400 kV)	366.80	366.80	387.80	409.99	433.44	458.22
AC lines D/C (Twin Conductor)	8.65	8.65	9.15	9.67	10.22	10.80
Annualized O&M expenses	**4635**	**8895**	**9437**	**10010**	**10619**	**11259**

Interest on Working Capital

53. In accordance with sub-clause (a) of clause(1) of Regulation 18 of the 2009 regulations, working capital in case of Coal based/Lignite fired generating stations shall cover:

(i) Cost of coal or lignite and limestone, if applicable for one and half months for pit-head generating stations and two months for non pit-head generating stations, for generation corresponding to the normative annual plant availability factor;

(ii) Cost of secondary fuel oil for two months for generation corresponding to the normative annual plant availability factor, and in case of use of more than one secondary fuel oil, cost of fuel oil stock for the main secondary fuel oil;

(iii) Maintenance spares @ 20% of operation and maintenance expenses specified in regulation 19;

(iv) Receivables equivalent to two months of capacity charges and energy charges for sale of electricity calculated on the normative annual plant availability factor, and

(v) Operation and maintenance expenses for one month.

54. Clause (2) of Regulation 18 of the 2009 regulations provides that the cost of fuel covered under sub-clause (a) of clause (1) above shall be based on the

landed cost incurred (taking into account the normative transit and handling losses) by the generating company and gross calorific value of the fuel as per actual for the three months preceding the first month for which tariff is to be determined and no fuel price escalation shall be provided during the tariff period.

55. Clauses (3) and (4) of Regulation 18 of the 2009 regulations, the rate of interest on working capital 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 generating station or a unit thereof is declared under commercial operation, whichever is later. Interest on working capital shall be payable on normative basis notwithstanding that the generating company has not taken working capital loan from any outside agency.

56. Working capital has been calculated considering the following elements:

(a) Fuel component in working capital

57. The petitioner has claimed the cost for fuel component in working capital, based on the Price and GCV of coal and secondary fuel oil (HFO & LDO) procured and burnt for preceding three months from the date of commercial operation of the generating station (21.10.2009) i.e. July, 2009 August, 2009 and September, 2009, as under:

(Rs.in lakh)

Description/ Year	**22.4.2009 to 20.10.2009**	**21.10.2009 to 31.3.2010**	**2010-11**	**2011-12 (leap year)**	**2012-13**	**2013-14**
Cost of coal for 2 months	2682	7534	7534	7555	7534	7534
Cost of secondary fuel oil for 2 months	62	165	165	165	165	165

58. The fuel component of the working capital claimed for the period from 22.4.2009 to 20.10.2009 for Unit –I of the generating station is based on the Price and GCV of fuels for the succeeding three months i.e. April, 2009 to June, 2009.

The petitioner was directed to furnish the Price and GCV of fuels for the preceding three months i.e. from February 2009 to April, 2009. The petitioner by its affidavit dated 15.2.2009 has submitted that the actual measurement of GCV of fuels for the generating station has been effected only from April, 2009.

59. Clause (2) of Regulation 20 of the 2009 regulations provides as under:

> "Initially, the landed cost incurred by the generating company on secondary fuel oil shall be taken based on actuals of the weighted average price of the three preceding months and in the absence of landed costs for the three preceding months, latest procurement price for the generating station, before the start of the year.
>
> The secondary fuel oil expenses shall be subject to fuel price adjustment at the end of the each year of tariff period as per following formula:
>
> SFC x NAPAF x 24 x NDY x IC x 10 x (LPSFy – LPSFi)
>
> Where,
>
> LPSFy = The weighted average landed price of secondary fuel oil for the year in Rs. /ml

60. In the absence of the details of the landed cost of secondary fuel oil for the preceding three months in the present case, the latest procurement price as on April 2009, (the date of commercial operation of the generating station) has been considered for computing the liquid fuel and for calculating the expenses on Secondary oil. Though the petitioner has not specified the GCV of oil (HFO) for the month of April, 2009 in the petition, it has subsequently, by letter dated 12.7.2010 clarified that the GCV of oil (HFO) was 10700 Kcal/ litre.

61. Similarly, in the absence of details of the Price and GCV of coal for the preceding three months, the price and GCV of coal for the month of April, 2009 has been considered for computing the coal component in the working capital. In terms of the 2009 regulations, the provisional energy charges are to be calculated monthly as per the formula for Energy Charge Rate (ECR) provided

under sub-clause (a) of clause (6) of Regulation 21, based on the weighted landed cost and GCV of coal during the month. Hence, Energy Charge Rate is not dependant on the weighted Price and GCV of coal for the preceding three months, either from 1.4.2009 or from the date of commercial operation of the generating unit/station.

62. The petitioner has considered the cost of secondary fuel oil based on HFO and LDO stock. HSD/LDO is used only during cold boiler start up. Hot start ups and flame stability during low load conditions are taken care of by HFO which is the main secondary fuel oil. Since HFO is the main secondary fuel oil, it should only be considered for the computation of working capital requirement and base rate of energy charge. Therefore, HFO has been allowed as secondary fuel oil for the purpose of base rate of energy charge.

63. Accordingly, the weighted average prices and GCVs of fuels adopted in our calculations for the fuel component of working capital and energy charges is as under:

Description	**22.4.2009 to 20.10.2009**	**21.10.2009 to 31.3.2010**
Coal Price (Rs./MT)	1165.158	1775.740
Coal GCV (Kcal/kg.)	2986.89	3566.50
Price of Secondary fuel oil (Rs./KL)	18105.48 (HFO only)	26453.30 (HFO only)
GCV of Secondary fuel oil (Kcal./KL)	10700 (HFO)	10713 (HFO)

64. The design heat rate submitted by the petitioner in Form-2 of the petition is 2300 kCal/kWh. Considering this, the Station Heat Rate has been worked out to 2449.50kCal/kWh, in terms of sub-clause (b) of clause (ii) of the 2009 regulations.

65. Based on the weighted average of GCV as above and Station Heat Rate (SHR) of 2449.50 kCal/kWh, the cost of coal and secondary fuel oil for two months works out as under:

(Rs. in lakh)

Particulars	22.4.2009	21.10.2009	2010-11	2011-12	2012-13	2013-14
Cost of coal for 2 months	2952.43	7534.47	7534.47	7555.11	7534.47	7534.47
Cost of secondary fuel oil for 2 months	56.17	164.14	164.14	164.59	164.14	164.14

(b) Maintenance Spares

(i) **Generating Station**:

66. In terms of Regulation 18(1)(a)(iii), working capital shall cover maintenance spares @ 20% of the operation & maintenance expenses specified in regulation 19. Accordingly, the maintenance spares is worked out as under:

(Rs in lakh)

Year	22.4.2009 to 20.10.2009	21.10.2009 to 31.3.2010	2010-11	2011-12	2012-13	2013-14
Maintenance spares	852	1704	1808	1918	2035	2158

(ii) **Transmission system**:

67. In terms of Regulation 18(1)(c)(ii), working capital shall cover maintenance spares @ 15% of the operation and maintenance expenses specified in Regulation 19. Accordingly, the maintenance spare for transmission system is worked out as under:

(Rs in lakh)

Year	22.4.2009 to 20.10.2009	21.10.2009 to 31.3.2010	2010-11	2011-12	2012-13	2013-14
Maintenance spares	56.32	56.32	59.54	62.95	66.55	70.35

68. Based on the above, the total maintenance spares allowed is as under:

(Rs in lakh)

Year	22.4.2009 to 20.10.2009	21.10.2009 to 31.3.2010	2010-11	2011-12	2012-13	2013-14
Total maintenance spares	908	1760	1868	1981	2102	2228

(c) Receivables: Receivables equivalent to two months of capacity charge and energy charge for sale of electricity has been calculated on normative plant availability factor. Accordingly, receivables on the basis of two months of fixed and energy charges (based on primary fuel only) are worked out as under:

(Rs in lakh)

Receivables	22.4.2009 to 20.10.2009	21.10.2009 to 31.3.2010	2010-11	2011-12	2012-13	2013-14
Variable Charges -2 months	2952.43	7534.47	7534.47	7555.11	7534.47	7534.47
Fixed Charges - 2 months	5251.12	8384.03	8843.70	9209.24	9312.31	9209.67
Total	**8203.55**	**15918.50**	**16378.18**	**16764.35**	**16846.78**	**16744.14**

(d) **O&M Expenses:** Regulation 18(1)(a)(v) and Regulation 18(1)(c)(iii) of the 2009 regulations provides for Operation & Maintenance expenses for 1 month as part of working capital for coal based generating station and transmission system respectively. Accordingly, the operation & maintenance expenses for 1 month in respect of the generating station and the transmission system, works out as under:

(Rs in lakh)

Year	22.4.2009 to 20.10.2009	21.10.2009 to 31.3.2010	2010-11	2011-12	2012-13	2013-14
O & M expenses	386	741	786	834	885	938

69. SBI PLR of 12.25% has been considered in the computation of the interest on working capital.

70. Necessary computations in support of calculation of interest on working capital is as under:

(Rs. in lakh)

	22.4.2009 to 20.10.2009	21.10.2009 to 31.3.2010	2010-11	2011-12	2012-13	2013-14
Coal Stock- 2 months	2952.43	7534.47	7534.47	7555.11	7534.47	7534.47
Oil stock -2 months	56.17	164.14	164.14	164.59	164.14	164.14
O & M expenses	386.29	741.29	786.41	834.14	884.89	938.25
Spares	927.09	1779.09	1887.39	2001.93	2123.73	2251.80
Receivables	8203.55	15918.50	16378.18	16764.35	16846.78	16744.14
Total Working Capital	12506.76	26118.72	26730.74	27299.15	27531.83	27609.36
Rate of Interest	12.2500%	12.2500%	12.2500%	12.2500%	12.2500%	12.2500%
Total Interest on Working capital	**1532.08**	**3199.54**	**3274.52**	**3344.15**	**3372.65**	**3382.15**

Cost of secondary fuel oil

71. Clause (1) of Regulation 20 of the 2009 regulations provides as under:

"20. Expenses on secondary fuel oil consumption for coal-based and lignite-fired generating station. (1) Expenses on secondary fuel oil in Rupees shall be computed corresponding to normative secondary fuel oil consumption (SFC) specified in clause (iii) of regulation 26, in accordance with the following formula:

SFC – Normative Specific Fuel Oil consumption in ml/kWh

= SFC x LPSFi x NAPAF x 24 x NDY x IC x 10

Where,

LPSFi – Weighted Average Landed Price of Secondary Fuel in Rs/ml considered initially.

NAPAF – Normative Annual Plant Availability Factor in percentage

NDY – Number of days in a year

IC - Installed Capacity in MW.

72. Accordingly, the cost of secondary fuel oil has been calculated on the normative specific fuel oil consumption, the weighted average landed price of secondary fuel oil price and NAPF of 85% (in terms of Regulation 26) as under:

(Rs in lakh)

Year	22.4.2009 to 20.10.2009	21.10.2009 to 31.3.2010	2010-11	2011-12	2012-13	2013-14
Cost of secondary fuel oil (coal-based generating stations)	337.03	984.86	984.86	987.55	984.86	984.86

73. The cost of secondary fuel oil arrived at as above shall be subject to fuel price adjustment at the end of each year of tariff period in terms of the proviso to Regulation 20(2) as per the following formula:

SFC x NAPAF x 24 x NDY x IC x 10 x (LPSFy – LPSFi)

Where,

LPSFy = The weighted average landed price of secondary fuel oil for the year in Rs. /ml

Compensation Allowance

74. In terms of Regulation 19 (e) of the 2009 regulations, no compensation allowance is admissible, as the generating station has come into operation during April 2009.

Target Availability

75. The Target Availability of the generating station, considered for the period 1.4.2009 to 31.3.2014 is 85%.

Annual fixed charges

76. The annual fixed charges approved in respect of the generating station for the period 2009-14, is as under:

(Rs. in lakh)

Particulars	2009-10		2010-11	2011-12	2012-13	2013-14
	22.4.2009 to 20.10.2009	21.10.2009 to 31.3.2010				
Return on Equity	7982.13	12058.70	12749.54	13543.90	13927.07	13927.07
Interest on Loan	8717.70	13009.94	13764.27	13717.33	12931.51	11665.82
Depreciation	8302.35	12155.70	12852.09	13652.84	14039.09	14039.09
O&M Expenses	4635.45	8895.45	9436.95	10009.66	10618.66	11259.02
Interest on Working Capital	1532.08	3199.54	3274.52	3344.15	3372.65	3382.15
Cost of secondary fuel oil	337.03	984.86	984.86	987.55	984.86	984.86
Compensation allowance	0.00	0.00	0.00	0.00	0.00	0.00
Total	**31506.73**	**50304.19**	**53062.22**	**55255.43**	**55873.83**	**55258.00**

Note: (1) All figures are on annualized basis.
(2) All the figures under each and the figure in total column in each year has been rounded.

77. Annual fixed charges as calculated above shall be trued up at the end of the tariff period as per the provisions of Regulation 6 of the 2009 regulations.

Energy /Variable Charge

78. Sub-clause (a) of clause (6) of Regulation 21of the 2009 regulations provides that the Energy Charge rate (ECR) in Rupees per kWh on ex-power plant basis shall be determined to three decimal places in accordance with the formulae as under:

(a) For coal based and lignite fired stations

ECR = {(GHR – SFC x CVSF) x LPPF / CVPF + LC x LPL} x 100 **/** (100 – AUX)

Where,

AUX = Normative auxiliary energy consumption in percentage.

CVPF = Gross calorific value of primary fuel as fired, in kCal per kg, per litre or per standard cubic metre, as applicable.

CVSF = Calorific value of secondary fuel, in kCal per ml.

ECR = Energy charge rate, in Rupees per kWh sent out.

GHR = Gross station heat rate, in kCal per kWh.

LC = Normative limestone consumption in kg per kWh.

LPL = Weighted average landed price of limestone in Rupees per kg.

LPPF = Weighted average landed price of primary fuel, in Rupees per kg, per litre or per standard cubic metre, as applicable, during the month.

SFC = Specific fuel oil consumption, in ml per kWh.

79. For calculating the Energy Charge Rate, the following norms are approved and applied:

Description	Unit	Norm
Gross Station Heat Rate of the generating station	Kcal/kWh	**2450**
Auxiliary Energy Consumption	**%**	**9**

Base Rate of Energy Charge

80. The base rate of energy charge for the generating station for the period from 22.4.2009 to 31.3.2014, has been worked out based on the following computations:

Description	Unit	**2009-10 (from 22.4.2009 to 20.10.2009)**	**2009-10 to 2014 (21.10.2009 to 31.3.2014)**
Capacity	MW	250	500
Gross Station Heat Rate	kCal/kWh	2450.00	2450.00
Aux. Energy Consumption	%	9.00	9.00
Weighted Average GCV of Oil	kCal/l	10700	10713
Weighted Average GCV of Coal	kCal/Kg	2986.89	3567
Weighted Average Price of Oil	Rs./KL	18105.48	26453.30
Weighted Average Price of Coal	Rs./MT	1165.158	1775.74
Rate of Energy Charge ex-bus per kWh Sent	Paise/kWh	104.566	133.444

81. However, energy charge on month to month basis will be billed by the petitioner as per Regulation 21 (5) of the 2009 regulations which is extracted below:

> *"21 (5) The energy charge shall cover the primary fuel cost and limestone consumption cost (where applicable), and shall be payable by every beneficiary for the total energy scheduled to be supplied to such beneficiary during the calendar month on ex-power plant basis, at the energy charge rate of the month (with fuel and limestone price adjustment). Total Energy charge payable to the generating company for a month shall be:*
>
> *(Energy charge rate in Rs /kWh) x {Scheduled energy (ex-bus) for the month in kWh.}"*

82. The petitioner shall be entitled to compute and recover the annual fixed charges and energy charges in accordance with Regulation 21 of the 2009 regulations.

Application fee and the publication expenses

83. The petitioner has sought approval for the reimbursement of fee paid by it for filing the petition and for the expenses incurred for publication of notices in connection with the petition.

84. Regulation 42 of the 2009 regulations provides as under:

> *"The application filing fee and the expenses incurred on publication of notices in the application for approval of tariff, may in the discretion of the Commission, be allowed to be recovered by the generating company or the transmission licensee, as the case may be, directly from the beneficiaries or the transmission customers, as the case may be."*

85. The Commission in its order dated 11.1.2010 in Petition No.109/2009 (pertaining to approval of tariff for SUGEN power plant for the period from DOCO to 31.3.2014) had decided that filing fees in respect of main petitions for determination of tariff and the expenses on publication of notices are to be reimbursed.

86. Accordingly, the expenses incurred by the petitioner on application filing fees for the years 2009-10 and 2010-11 and publication of notices in connection with the present petition shall be directly recovered from the beneficiaries, on pro rata basis, on production of documentary proof.

87. This order disposes of Petition No.308/2009.

Sd/-	sd/-	sd/-	sd/-
(M. DEENA DAYALAN)	**(V.S.VERMA)**	**(S.JAYARAMAN)**	**(DR.PRAMOD DEO)**
MEMBER	**MEMBER**	**MEMBER**	**CHAIRPERSON**