

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 23/GT/2013**

**Coram:  
Shri V.S.Verma, Chairperson  
Shri M.Deena Dayalan, Member**

**Date of Hearing: 4.7.2013  
Date of Order: 11.9.2013**

**In the matter of**

Revision of tariff of Jhanor Gandhar Gas Power Station (657.39 MW) for the period from 1.4.2009 to 31.3.2014-Truing up of tariff determined by order dated 30.12.2011 in Petition No. 226/2009.

**And**

**IN THE MATTER OF**

NTPC Ltd, New Delhi

**...Petitioner**

Vs

1. Madhya Pradesh Power Management Company Ltd., Jabalpur
2. Maharashtra State Electricity Distribution Co. Ltd, Mumbai
3. Gujarat Urja Vikas Nigam Ltd, Vadodara
4. Chhattisgarh State Power Distribution Company Ltd, Raipur
5. Electricity Department, Govt. of Goa, Panaji, Goa
6. Electricity Department, Administration of Daman & Diu, Daman
7. Electricity Department, Administration of Dadra and Nagar Haveli, Silvassa

**.....Respondents**

**Parties present:**

Shri Ajay Dua, NTPC  
Shri A.S.Pandey, NTPC  
Shri Y.R.Dhingra, NTPC  
Shri Rajesh Jain, NTPC  
Shri Rohit Chhabra, NTPC  
Shri M.K.V.Rama Rao, NTPC  
Shri Guryog Singh, NTPC  
Shri Rajnish Bhagat, NTPC  
Shri S.K.Sharma, NTPC  
Shri A.Gupta, MPPMCL

**ORDER**

This petition has been filed by the petitioner, NTPC, for revision of tariff of Jhanor Gandhar Gas Power Station (657.39 MW) (hereinafter referred to as "the generating station") for the period from 1.4.2009 to 31.3.2014, in terms of the proviso to Regulation 6 (1) of the Central



Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 (hereinafter referred to as “the 2009 Tariff Regulations”).

2. The generating station with a capacity of 657.39 MW comprises of three Gas Turbine units of 144.3 MW each and one Steam Turbine unit of 224.49 MW. The dates of commercial operation of different units of the generating station are as under:

	<b>Date of Commercial operation (COD)</b>
Unit-I (GT)	1.3.1995
Unit-II (GT)	1.7.1995
Unit-III (GT)	1.3.1995
Unit-IV (ST) / Generating station	1.11.1995

3. Petition No. 226/2009 was filed by the petitioner for determination of tariff of the generating station for the period from 1.4.2009 to 31.3.2014 and the Commission by its order dated 30.12.2011 determined the annual fixed charges for the generating station. The capital cost considered by the Commission for the purpose of determination of annual fixed charges tariff for 2009-14 by order dated 30.12.2011 are as under:

	( in lakh)				
	<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>
Opening Capital cost	239679.86	239860.96	246346.96	256327.45	259293.61
Additional capital expenditure	181.10	6486.00	9980.49	2966.16	1268.50
<b>Closing Capital cost</b>	<b>239860.96</b>	<b>246346.96</b>	<b>256327.45</b>	<b>259293.61</b>	<b>260562.11</b>
<b>Average Capital cost</b>	<b>239770.41</b>	<b>243103.96</b>	<b>251337.21</b>	<b>257810.53</b>	<b>259927.86</b>

4. Based on the above, the annual fixed charges for the generating station for 2009-14 determined by order dated 30.12.2011 in Petition No. 226/2009 are as under:

	( in lakh)				
	<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>
Depreciation	940.35	1161.42	2120.57	3418.02	3896.83
Interest on Loan	488.35	846.17	1867.43	2579.05	2572.82
Return on Equity	28145.99	28380.82	28960.79	29416.79	29565.94
Interest on Working Capital	5164.72	5220.12	5324.35	5408.05	5466.23
O&M Expenses	9729.37	10288.15	10873.23	11497.75	12155.14
<b>Total</b>	<b>44468.78</b>	<b>45896.68</b>	<b>49146.37</b>	<b>52319.66</b>	<b>53656.96</b>

5. Reply to the petition has been filed by the respondent no.1, MPPMCL and the petitioner has filed its rejoinder to the said reply of the respondent.

6. The matter was heard on 11.4.2013 and orders were reserved by the Commission. However, as one of the Members of this Commission had demitted office before passing orders in the matter, the petition was again listed for hearing on 4.7.2013 and orders reserved. Accordingly, the tariff of the generating station is determined by this order based on the submissions of the parties and the documents available on record.

7. The first proviso to Regulation 6 of the 2009 Tariff Regulations provides as under:

*"6. Truing up of Capital Expenditure and Tariff*

*(1) The Commission shall carry out truing up exercise along with the tariff petition filed for the next tariff period, with respect to the capital expenditure including additional capital expenditure incurred up to 31.3.2014, as admitted by the Commission after prudence check at the time of truing up.*

*Provided that the generating company or the transmission licensee, as the case may be, may in its discretion make an application before the Commission one more time prior to 2013-14 for revision of tariff."*

8. The annual fixed charges claimed by the petitioner for the period 2009-14 in this petition are as under:

	<i>( in lakh)</i>				
	<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>
Depreciation	1332	1348	1861	2545	3560
Interest on Loan	464	348	546	847	1298
Return on Equity	28152	27839	27881	28311	28678
Interest on Working Capital	5172	5202	5269	5331	5414
O&M Expenses	9729	10288	10873	11498	12155
<b>Total</b>	<b>44849</b>	<b>45025</b>	<b>46429</b>	<b>48531</b>	<b>51106</b>

**Capital cost**

9. Regulation 7(1) (a) of the 2009 Tariff Regulations provides as under:

*"7. Capital Cost. (1) Capital cost for a project shall include: (a) the expenditure incurred or projected to be incurred, including interest during construction and financing charges, any gain or loss on account of foreign exchange risk variation during construction on the loan - (i) being equal to 70% of the funds deployed, in the event of the actual equity in excess of 30% of the funds deployed, by treating the excess equity as normative loan, or (ii) being equal to the actual amount of loan in the event of the actual equity less than 30% of the funds deployed, up to the date of commercial operation of the project, as admitted by the Commission, after prudence check;"*

10. The tariff for the period 1.4.2009 to 31.3.2014 was determined by the Commission vide order dated 30.12.2011 in Petition No.226/2009 considering the capital cost of `239679.86 lakh as on 1.4.2009. The approved capital cost as on 1.4.2009 has been worked out as `239679.86 lakh on cash basis, after removal of un-discharged liabilities of `781.17 lakh. The discharge of

liabilities, if any, made by the petitioner will be considered as additional capital expenditure in the year of discharge. The petitioner vide its affidavit dated 25.10.2012 has furnished the details of discharges made during the period 2009-12. Out of the un-discharged liabilities deducted as on 1.4.2009, the petitioner has discharged an amount of ₹ 0.35 lakh during the year 2009-10. Accordingly, this discharge of liabilities has been allowed during the year 2009-10 in addition to the admitted additional capital expenditure.

### **Actual/ Projected Additional Capital Expenditure**

11. Regulation 9 of the 2009 Tariff Regulations, as amended on 21.6.2011, provides as under:

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

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

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

(2) *The capital expenditure incurred or projected to be 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 year 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 expenses 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-materialisation of full coal linkage in respect of thermal generating station as result of circumstances not within the control of the generating station.

- (viii) Any un-discharged 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.

- (ix) Expenditure on account of creation of infrastructure for supply of reliable power to rural households within a radius of five kilometres of the power station if, the generating company does not intend to meet such expenditure as part of its Corporate Social Responsibility.”

12. The additional capital expenditure allowed for the generating station during the period 2009-14 by order dated 30.12.2011 in Petition No. 226/2009 is summarized as under:

(` in lakh)

Head of Work/ Equipments	Actual/Projected additional capital expenditure allowed					Total package justified for consideration
	2009-10	2010-11	2011-12	2012-13	2013-14	
						After adjustment of capital spares of Rs. 5877 lakh. from the expenditure claimed on R&M of GT during 2010-11 & 2011-12 included in the normative O&M
R&M of Gas Turbine	0.00	8256.00	13705.00	2897.00	0.00	24858.00
Combustion Chamber	0.00	1095.00	1818.00	303.00	0.00	3216.00
GT Rotor Refurbishment	500.00	0.00	3000.00	3180.00	2870.00	9550.00
Procurement of HP/LP Rotors of Steam Turbine.	0.00	0.00	0.00	0	0.00	0.00
Replacement of Stud of Parting Plane of HP Module of Steam Turbine	0.00	0.00	0.00	148.00	0.00	148.00
Air Inlet Cooling System for Gas Turbines.	0.00	0.00	0.00	0.00	0.00	0.00
Renovation of battery Bank for main plant and PLCC	0.00	13.00	120.00	67.00	0.00	200.00
Upgrading of line protection system by replacing existing RAZFE & LZ96 with numerical control relays.	0.00	100.00	0.00	0.00	0.00	100.00

Upgrading of Generation Relay Panel	0.00	23.00	195.00	0.00	0.00	218.00
Generator Excitation System	0.00	50.00	150.00	0.00	0.00	200.00
Replacement of EA Bus I/o & Control Module in GT	0.00	475.00	0.00	0.00	0.00	475.00
Replacement of vibration monitoring, speed measuring & turbine supervisory instt. System for GT's, ST & Aux equipment	0.00	60.00	806.00	0.00	0.00	866.00
Replacement of PLC of DM Plant & Offsite Systems.	0.00	0.00	215.00	0.00	0.00	215.00
LP inner casing	0.00	2000.00	0.00	0.00	0.00	2000.00
<b>Total Additional capital expenditure allowed</b>	<b>500.00</b>	<b>12071.69</b>	<b>20009.31</b>	<b>6595.00</b>	<b>2870.00</b>	<b>42046.00</b>
<b>Less: De-capitalisation allowed</b>	319.25	6688.23	11991.97	4196.84	1832.50	25028.80
<b>Total Additional capital expenditure allowed after de-capitalisation</b>	<b>108.75</b>	<b>5383.46</b>	<b>8017.34</b>	<b>2398.16</b>	<b>1037.50</b>	<b>17017.20</b>

13. Further, considering the discharge of liabilities as additional capital expenditure, the revised additional capital expenditure allowed for the purpose of tariff is as under:

	(` in lakh)					
	2009-10	2010-11	2011-12	2012-13	2013-14	Total
Additional capital expenditure allowed	500.0	12071.69	20009.31	6595.00	2870.00	42046.00
Less: De-capitalization allowed	319.25	6688.23	11991.97	4196.84	1832.50	25028.80
Projected Additional capital expenditure allowed (Prior to IDC,FC etc.	180.75	5383.46	8017.34	2398.16	1037.50	17017.20
Add: IDC, FC & contingencies.	0.00	1102.54	1963.16	568.00	231.00	3864.70
Net Additional capital expenditure before discharge of liabilities.	180.75	6486.00	9980.49	2966.16	1268.50	20881.90
Add: discharge of liabilities.	0.35	0.00	0.00	0.00	0.00	0.35
Net Additional capital expenditure allowed	<b>181.10</b>	<b>6486.00</b>	<b>9980.49</b>	<b>2966.16</b>	<b>1268.50</b>	<b>20882.25</b>

14. The actual/projected additional capital expenditure claimed by the petitioner in the instant petition for the period 2009-14 is as under:

		(` in lakh)					
Head of Work/Equipment	Regulation	2009-10 (actual)	2010-11 (actual)	2011-12 (actual)	2012-13	2013-14	2014-15
Total R&M Package		0.00	0.00	0.00	4378.30	15851.94	22610.70
IDC+ FC+ Contingency not Included in the above	9(2)(ii)	0.00	0.00	0.00	404.21	1463.47	2087.45
<b>Total R&amp;M package (including IDC)</b>		0.00	0.00	0.00	4782.51	17315.41	24698.15
New claims (Total)		328.45	34.30	10456.36	43.00	33.00	0.00
<b>Grand Total</b>		<b>328.45</b>	<b>34.30</b>	<b>10456.36</b>	<b>4825.51</b>	<b>17348.51</b>	<b>24698.15</b>

15. In addition to the above, the additional capital expenditure claimed in respect of new items is as under:

(` in lakh)

Head of Work/Equipment	Regulation	2009-10 (actual)	2010-11 (actual)	2011-12 (actual)	2012-13	2013-14	Total
Land compensation claim deposit in court	9(2)(i)	0.00	0.00	10394.42	0.00	0.00	10394.42
Safety Centre	9(2)(ii)	0.00	0.00	0.00	19.00	1.00	20.00
AAQMS		111.30	4.00	0.00	0.00	0.00	115.30
Energy Management system		11.40	0.35	0.00	24.00	9.00	44.75
CCTV Camera		0.00	30.00	0.00	0.00	23.00	53.00
Mixed Bed Polishing Unit		205.40	0.00	0.00	0.00	0.00	205.40
Replacement of Fire Tender (Water/Foam)		0.00	0.00	56.94	0.00	0.00	56.94
Total Capital Addition		328.10	34.30	10451.36	43.00	33.00	10889.30
Discharge of liability		0.35	0.00	5.00	0.00	0.00	5.35
<b>Total</b>		<b>328.45</b>	<b>34.30</b>	<b>10456.36</b>	<b>43.00</b>	<b>33.00</b>	<b>10894.65</b>

16. The petitioner has claimed expenditure of ` 576.852 crore (including IDC, FC etc.) on the R&M package which includes R&M of GTs, Generator Rotor Refurbishment, up-gradation of Generator Relay Panel, Replacement of EA Bus I/O & control Module in GT, Replacement of supervisory instrument, Generator excitation system etc. along with claims on new assets for ` 108.947 crore, as against the expenditure of ` 545.56 crore claimed in the original petition (Petition No. 226/2009). We now consider the claim on R&M package as under:

### **R&M package**

17. The petitioner has claimed the total additional capital expenditure of ` 428.41 crore towards R&M package. Out of this, the claim for ` 420.46 crore relate to the expenditure allowed by the Commission towards R&M of GTs. In addition to this, the petitioner has also claimed an expenditure of ` 7.95 crore towards Air Inlet Cooling System for Gas Turbines which was disallowed by the Commission in the Order dated 30.12.2011.

18. In response to the directions of the Commission vide letter dated 22.8.2012, the petitioner by its affidavit dated 7.9.2012 has submitted as under:

*"As regards to Para (2) (i) and (iii), the petitioner respectfully submits that the expenditure projected in the original Petition No. 226/2009 was based on tentative estimates of cost included in the CEA approval for R&M activities for life extension from 15 to 25 years and the expected schedule of implementation without having gone through the process of negotiations and bidding.*

*At the time of filing the above tariff petition the major R&M of gas turbines was planned during 2010-2013. It is submitted that after the NTPC board approval, the process of tendering and procurement activities were initiated and only OEM namely M/s Alstom shown their interest for participation in response to NTPC proposal for capital addition scheme of Jhanor Gandhar Gas turbines. In all, total 14 nos. leading gas turbines manufacturers/gas turbine components manufactures (other than OEM) were contacted but all of them expressed their regret stating that components of 13 E/13 E1 model gas turbines machines do not fall in their product line manufacturing. Finally after concluding the techno commercial negotiations and price negotiations the main package of GT renovation was awarded on 16.5.2012 to the said OEM M/s Alstom*

*It is submitted that based on the latest assessment of time schedule of supplies for the main plant (GT renovation) and other packages by the contractor, planned shutdown of GT's 1, 2 and 3, R&M implementation and subsequent capitalization, the major R&M of gas turbine is now expected during 2012-2015 as indicated in the instant petition. Accordingly, the petitioner has projected an expenditure of ` 17315.42 lakhs and `24698.15 lakhs in FY 2012-2013, FY 2013-2014 respectively under the head of R&M of gas turbines. It is humbly clarified that since the remaining expenditure of ` 24698 lakhs (including IDC, FC and contingency charges) is proposed to be incurred in the year 2014-15 beyond this tariff period 2009-2014, the same has been shown in the FY 2014-2015 only for the purpose of re-conciliation of Form-9 with the original petition."*

19. The respondent, MPPMCL in its reply has submitted that the projected additional capitalization claimed earlier for the years 2010-11 and 2011-12 were ` 177.92 and ` 260.00 lakh and in the revised Form-9 submitted in this petition, the actual capitalization for the said years is shown as 'nil'. It has also submitted that the projected expenditure for the years 2012-13 and 2013-14 may not be allowed as no cogent reason has been submitted as to why the said expenditure not been incurred. During the hearing, the respondent also submitted that there has been delay in the implementation of the R&M schemes by the petitioner and the respondents should not be made to suffer on account of the wrongful projection of R&M work. It was also submitted that the cash flow problems faced by the respondents unduly get aggravated due to higher tariff being claimed and tariff being revised due to delay in implementation of schemes. The respondent further submitted that the proposed additional capitalization for Air Inlet Cooling system for ` 7.95 crore during 2013-14 and 2014-15 may not be allowed as the same is not covered under Regulation 9(2)(vi) of the 2009 Tariff Regulations. In response, the petitioner in its rejoinder has reiterated its submissions made earlier, as regards shifting of R&M work from 2010-13 to 2012-15. The petitioner has also submitted that the scheme of the 2009 Tariff Regulations provide for claiming projected additional capital expenditure, subject to truing up and any under recovery/ excess tariff claimed is reimbursed /recovered with interest, as per regulations specified by the Commission. As regards Air inlet cooling system for GTs, the



petitioner has submitted that the same is necessary for maintaining the output of GT and hence the system is essential for successful and efficient operation of the generating station. We have examined the matter. It is observed from the revised phasing of expenditure as projected by the petitioner, the expenditure towards R&M of GTs are to be incurred from 2012-13 onwards only and the major expenditure on R&M, which constitute to 54% (approx) of the total expenditure, is to be incurred during the year 2014-15. Since the complete benefit of R&M in the form of life extension, improvement in operational performance would only be passed to the respondents after the completion of major R&M works during 2014-15, we are of the view that the expenditure on R&M package could only be considered during the next tariff period. We direct accordingly. In view of this, the total net additional capital expenditure of ₹ 170.17 crore towards R&M package as allowed by the Commission by order dated 30.12.2011 for the period 2009-14 has not been considered in this order. However, the expenditure claimed on this count would only be considered during the next tariff period for the reasons stated above.

#### **Other claims**

20. The expenditure on new assets claimed by the petitioner are under Regulation 9 (2) (i)- Liabilities to meet award arbitration or for compliance of order or decree of court and under Regulation 9(2)(ii) of the 2009 Tariff Regulations. We now examine the same as under:

#### **Liabilities to meet award arbitration or for compliance of order or decree of court Regulation 9(2)(i)**

21. The petitioner has claimed expenditure of ₹ 10394.42 lakh during 2011-12 towards Land Compensation claim deposited in Civil Court, Bharuch as per order of the High Court of Gujarat dated 18.3.2011 read with the order of the Civil court, Bharuch, whereby the petitioner had deposited the balance land compensation @ ₹ 125/sq.m, with interest. It has been submitted that the petitioner acquired land in village Jhanor in Bharuch district, in the State of Gujarat for setting up of JGGPL in the year 1990-91 and the total area of private land acquired was 469.77 acres and the total amount of compensation paid at that time was ₹ 1.26 crore. The land oustees filed application before 'Land Acquisition Officer (LAO) against the awarded compensation

ranging between ₹ 3.60 to ₹ 5.00 per sq.m. However, LAO referred the objections to the Civil Court, Bharuch and later the enhanced compensation was awarded @ ₹ 125.00 per sq.m by the Civil Court, Bharuch in the month of June, 2010. Against the said order the petitioner approached the High Court of Gujarat and the High Court vide its orders dated 9.3.2011 and 18.3.2011 stayed the operation of the Judgment and decree of the Civil Court, Bharuch subject to the petitioner depositing the required amount. Thereafter, the petitioner filed SLP before the Hon'ble Supreme Court which was dismissed. Subsequently, the petitioner as per order of the High Court of Gjarat deposited the total amount in the Civil court, Bharuch, in the name of the Principle Senior Civil judge, Bharuch, on 7.6.2011. In the above background, the expenditure claimed for ₹ 10394.42 lakh under this head has been allowed under Regulation 9(2)(i) of the 2009 Tariff Regulations.

#### **Change in law-Regulation 9(2) (ii)**

22. We examine the claim of the petitioner under this head as follows:

(a) **Safety Centre:** The petitioner has claimed projected expenditure of ₹ 19.00 lakh in 2012-13 and ₹ 1.00 lakh in 2013-14 towards Safety Centre. The petitioner has submitted that as per Factories Act, 1948 it is mandatory to have Disaster Management plan and as part of the Disaster management plan, Emergency Control Centre (ECC) was being set up by the petitioner. It has also been proposed that the said centre would also work as Safety control room which would monitor the ongoing works in the generating station through CCTV cameras and display the same in the control room. It has further been submitted that the said centre would help in controlling and analyzing the accidents in the generating station. From the submissions of the petitioner it could not be ascertained as to whether any 'change in law' had occurred which necessitated the creation of an Emergency Control Centre in the generating station. However, we are of the considered view that for a thermal power generating station Disaster Management System should be equipped with all facilities and may also require the addition of new facilities to keep pace with emerging requirements to make Disaster Management System fool proof. Based on this consideration and in exercise of the 'Power to Relax' under Regulation

44 of the 2009 Tariff Regulations, we relax the provision of Regulation 9(2)(ii) to include the expenditure under this head and allow the same for capitalization.

(b) **Ambient Air Quality Measurement System (AAQMS):** The petitioner has claimed expenditure of ₹111.30 lakh in 2009-10 and ₹4.00 lakh in 2010-11 towards AAQMS for monitoring and maintaining air quality parameters in terms of the directions of the State Pollution Control Board. Being a statutory requirement, the expenditure claimed is allowed under this head.

(c) **Energy Management System:** The petitioner has claimed expenditure of ₹11.40 lakh in 2009-10, ₹0.35 lakh in 2010-11, ₹24.00 lakh in 2012-13 and ₹9.00 lakh in 2013-14 towards Energy Management System for the generating station as per CEA notification dated 17.3.2006 read with CEA (Installation and operation of Meters), Regulation 2006. As per provision of Energy Conservation Act, 2001 the designated consumers of energy are required to carry out Energy audit of generating station. Considering the fact that the benefit of reduction in auxiliary power consumption is not passed on to the beneficiaries during the period 2009-14, we are of the view that said expenditure should be borne by the petitioner, Hence, the expenditure claimed is not allowed on this count.

(d) **CCTV Camera:** The petitioner has claimed expenditure of ₹30.00 lakh during 2010-11 and ₹23.00 lakh during 2013-14 towards Installation of CCTV cameras at sensitive points in the plant and on the plant premises boundary. The petitioner has submitted that as an outcome of the meeting held on 9.5.2011 and 10.5.2011 with the officials of the Intelligence Bureau and CISF in view of the enhanced security requirements and perceived security threat to central establishments, the petitioner has incurred/projected the expenditure for installation of CCTV cameras. Considering the submissions of the petitioner and the requirement to maintain the security of the generating station, we allow the expenditure claimed by the petitioner under this head.

(e) **Mixed Bed Polishing Unit:** The petitioner has claimed expenditure of ₹ 205.40 lakh during 2009-10 towards installation of Mixed Bed Polishing Unit to control the NOx emission from the GTs, huge quantities of water at the rate of 150 tonnes/hr was required to be injected in combustion chamber of GTs. This huge quantity of water is withdrawn from the steam cycle affecting the conductivity of steam cycle DM water. The conductivity of steam cycle DM water was deteriorating to as high as 0.45 mho/cm against the design limit of OEM of 0.2mho/cm. To reduce the conductivity of water and to bring it within limit as prescribed by OEM, Mixed Bed Polishing Unit was installed. The claim of the petitioner and the justification furnished has been examined. It is observed that as per statutory requirement under the directions of the State/Central Pollution Control Board, it is mandatory to control NOx emission to a certain specified limit and for this water from steam cycle is to be injected in the combustion chamber regularly to keep the emission of NOx under control. Consequent upon this, the water in the steam cycle which has higher conductivity necessitates the installation of Mixed Bed Polishing Unit. Since continuous injection of water from the steam cycle is necessary to maintain the specified NOx emission level, the expenditure of ₹ 205.40 lakh towards Mixed Bed Polishing Unit as claimed by the petitioner is allowed under this head.

(f) **Replacement of Fire tenders (Water/Foam):** The petitioner has claimed expenditure of ₹ 56.94 lakh during 2011-12 for replacement of Fire tenders (one no. of Water Tender and one no. of Foam Tender). It has been submitted that these Fire tenders were part of original equipments of the generating station and were supplied during the year 1992 along with the main plant package. As these Fire Tenders have outlived their lives and for safe operation of the generating station, the replacement of these tenders has become necessary. The petitioner has sought the capitalization of these tenders after considering the estimated de-capitalization value of ₹ 10.95 lakh for old fire tenders. From the submissions of the petitioner it is observed that the old Fire Tenders which were procured along with the main plant equipment in 1992 have outlived their useful life. Considering the fact that adequate fire safety measures to protect the lives of the personnel against any fire accidents are a statutory requirement under the Factories

Act, 1948, we allow the additional expenditure of ` 56.94 lakh along with the corresponding de-capitalization of ` 10.95 lakh, under this head.

**Reconciliation of actual additional capital expenditure for the period 2009-10 to 2011-12 vis-a vis Books of Account.**

23. The additional capital expenditure claimed for the period 2009-10 to 2011-12 as per books of account for the purpose of tariff is as under:

(` in lakh)				
S.No.		2009-10	2010-11	2011-12
1	Opening Gross Block of the year	247846.46	246431.67	251652.44
2	Closing Gross Block of the year	246431.67	251652.44	253947.25
3	Additional Capitalization as per the books (2-1)	(-) 1414.78	5220.77	2294.80
4	Exclusions for Additional Capitalization as per the books of Accounts.	(-) 1752.01	1239.33	2188.49
5	Additional Capital Expenditure claimed including liability	337.23	3981.43	106.31
6	Un-discharge liability in SI.No.-5	9.17	3951.25	3.06
7	Additional Capital Expenditure Claim on cash basis for the purpose of tariff.	328.06	30.18	103.25
8	Discharge of Un-discharge liability	0.35	4.17	3955.93
9	Interest on enhanced land compensation as per the court order that needs to be considered in capital base for tariff purpose (amount charged to Revenue Account in the year 2010-11 & 2011-12 due to accounting guide lines )	0.00	0.00	6397.18
10	<b>Total Additional Capital Expenditure Claimed</b>	<b>328.41</b>	<b>34.35</b>	<b>10456.36</b>

24. The summary of exclusions claimed as per books of accounts is as under

(` in lakh)					
		2009-10	2010-11	2011-12	Total
1	Inter-Unit transfer	0.73	(-) 13.00	(-) 0.84	(-) 13.11
2	Capitalization of spares	601.36	1650.86	3550.64	5802.85
3	De-capitalization of spares	(-) 813.83	(-) 604.80	(-) 413.70	(-) 1832.32
4	De-capitalization due to R&M of Gas Turbine (Hot Gas Path Components)	(-) 1584.70	0.00	(-) 157.02	(-) 1741.71
5	De-capitalization of spares(capitalized before cut-off date)	0.00	0.00	(-) 53.18	(-) 53.18
6	De-capitalization of MBOA items prior to 31.3.2004	(-) 3.69	(-) 7.36	(-) 14.35	(-) 25.40
7	Capitalization of MBOA items	47.19	83.45	70.47	201.11
8	De-capitalization of MBOA items after 1.4.2004	0.00	(-) 8.91	(-) 12.72	(-) 21.63
9	Township Metering system	0.94	0.00	0.00	0.94
10	Reversal of liability	0.00	0.00	(-) 780.82	(-) 780.82
11	Other Miscellaneous Work	0.00	139.09	0.00	139.09
12	<b>Total Exclusions</b>	<b>(-) 1752.01</b>	<b>1239.33</b>	<b>2188.49</b>	<b>1675.82</b>

25. The exclusions of capitalization and de-capitalization claimed for the purpose of tariff are examined as under:

(a) **Inter-Unit Transfers-** An expenditure of ₹ 0.73 lakh during 2009-10, (-) ₹ 13.00 lakh during 2010-11 and (-) ₹ 0.84 lakh during 2011-12 has been excluded under this head on account of inter-unit transfer of certain assets. These inter-unit transfers are indicated to be of temporary nature. The Commission while dealing with the applications for additional capitalization in respect of other generating stations of the petitioner, had decided in its various orders that both positive and negative entries arising out of inter-unit transfers of temporary nature shall be ignored for the purpose of tariff. In consideration of the same, the exclusions of ₹ 0.73 lakh during 2009-10, (-) ₹ 13.00 lakh during 2010-11 and (-) ₹ 0.84 lakh during 2011-12 on account of inter-unit transfer of equipment on temporary basis is in order and has been allowed.

(b) **Capitalization of spares:** The petitioner has procured spares amounting to ₹ 601.36 lakh during 2009-10, ₹ 1650.86 lakh during 2010-11 and ₹ 3550.64 lakh during 2011-12 for maintaining stock of necessary spares. Since capitalization of spares over and above initial spares procured after cut-off date are not allowed for the purpose of tariff, and they form part of O&M expenses when consumed, the petitioner has excluded the said amount. In view of this, the exclusion of the said amount under this head is in order and has been allowed.

(c) **De-capitalization of spares:** The petitioner has de-capitalized capital spares amounting to (-) ₹ 813.83 lakh during 2009-10, (-) ₹ 604.80 lakh during 2010-11 and (-) ₹ 413.70 lakh during 2011-12 in books of accounts on these spares becoming unserviceable. After examining the exclusions sought on de-capitalization of capital spares, it is noticed that amounts capitalized in the books of accounts during 2007-10 does not pertain to spares which are part of the capital cost of the generating station for the purpose of tariff. Hence, exclusion on account of de-capitalization of these spares is not justified and has not been allowed for the purpose of tariff.

(d) **De-capitalization due to R&M of Gas Turbine (Hot Gas Path Components):** The petitioner has de-capitalized (-) ₹ 1584.70 lakh during 2009-10 and (-) ₹ 157.02 lakh during 2011-12 in books of accounts in respect of GT components that have outlived their useful lives. The petitioner has submitted that these C&I system were to be replaced during the R&M of GTs and

since the R&M has been delayed, these assets may be kept as a part of capital cost till the time the corresponding capitalization of these assets are made during R&M and has sought exclusion of these de-capitalized amounts for purpose of tariff. The submission of the petitioner is not acceptable as these de-capitalized assets of C&I system were part of the capital cost which was allowed in tariff. Since, these assets have now become un-serviceable and do not render any useful service the same cannot remain part of the capital cost and should be taken out for purpose of tariff. Hence, exclusion of (-) ` 1584.70 lakh during 2009-10 and (-) ` 157.02 lakh during has not been allowed.

(e) **De-Capitalization of spares (capitalized before cut-off date):** The petitioner has de-capitalized capital spares amounting to (-) ` 53.18 lakh during 2011-12 in books of accounts on these spares becoming un-serviceable. The petitioner has submitted that the Commission does not allow capitalization of these spares after cut-off date which was part of the capital cost of the generating station for the purpose of tariff. In view of this, the exclusion on this count has not been allowed.

(f) **De-capitalization of Miscellaneous Bought Out Assets (MBOA) items prior to 31.3.2004:** The petitioner has excluded de-capitalized MBOAs in books of accounts amounting to (-) ` 3.69 lakh during 2009-10, (-) ` 7.36 lakh during 2010-11 and (-) ` 14.35 lakh during 2011-12 on the same being rendered un-serviceable. These MBOAs pertains mainly to IT & Communication instruments which were capitalized prior to 31.3.2004 and which were part of the capital cost of the generating station for the purpose of tariff. Hence, exclusions on account of de-capitalization of these spares is not justifiable and accordingly, exclusion of these de-capitalization of these spares is not in order and has not been allowed.

(g) **Capitalization of Miscellaneous Bought Out Assets (MBOA):** The petitioner has capitalized ` 47.19 lakh during 2009-10, ` 83.45 lakh during 2010-11 and ` 70.47 lakh during 2011-12 towards MBOA items in books of accounts. Since capitalization of minor assets after cut-off date is not allowed, the exclusions of the said amount is in order and has been allowed.

(h) **De-capitalization of Miscellaneous Bought Out Assets (MBOA) items after 1.4.2004:** The petitioner has excluded de-capitalized (-) `8.91 lakh during 2010-11 and (-) `12.72 lakh during 2011-12 towards MBOA items in books of accounts on it being rendered unserviceable. These MBOAs were capitalized after 1.4.2004 and do not form part of the capital cost for the purpose of tariff. Hence, exclusions on account of de-capitalization of these spares are justifiable and has been allowed.

(i) **Township Metering System:** The petitioner has excluded `0.94 lakh on account of works not claimed. This expenditure pertains to balance payment towards township metering system installed during the period 2004-09 and which had not been claimed. As such, exclusion on this count is in order and has been allowed.

(j) **Liability Reversal:** The petitioner has excluded an amount of (-) `780.82 lakh during 2011.12, on account of reversal of liability. This pertains to the reversal of Minimum Guaranteed Off take (MGO) liabilities created for M/s GAIL. As per provisions of the 2009 Tariff Regulations, the same has been excluded and as such the exclusion of reversal of liability is in order and is allowed.

(k) **Other Miscellaneous work:** The petitioner has excluded `139.09 lakh during 2010-11 towards purchase of land for Vadodara office which was not claimed. As such, the exclusion on this count is in order and has been allowed.

26. The summary of exclusions allowed and disallowed is as under:

	(` in lakh)			
	2009-10	2010-11	2011-12	Total
<b>(A) Exclusions allowed under different heads</b>				
Inter-Unit transfer	0.73	(-) 13.00	(-) 0.84	(-) 13.11
Capitalization of spares	601.36	1650.86	3550.64	5802.85
De-Capitalization of spares	(-) 813.83	(-) 604.80	(-) 413.70	(-) 1832.32
Capitalization of MBOA items	47.19	83.45	70.47	201.11
De-Capitalization of MBOA items after 1.4.2004		(-) 8.91	(-) 12.72	(-) 21.63
Township Metering	0.94	0.00	0.00	0.94
Reversal of liability	0.00	0.00	(-) 780.82	(-) 780.82
Other Miscellaneous Work	0.00	139.09	0.00	139.09
<b>Total items allowed</b>	<b>(-) 163.61</b>	<b>1246.69</b>	<b>2413.03</b>	<b>3496.11</b>



<b>(B) Exclusions not allowed under different heads</b>				
De-capitalization of spares(capitalized before cut-off date)	0.00	0.00	(-) 53.18	(-) 53.18
De-capitalization due to R&M of Gas Turbine (Hot Gas Path Components)	(-) 1584.70	0.00	(-) 157.02	(-) 1741.72
De-capitalization of MBOA items prior to 31.3.2004	(-)3.69	(-) 7.36	(-) 14.35	(-) 25.40
<b>Total items not allowed</b>	<b>(-) 1588.39</b>	<b>(-) 7.36</b>	<b>(-) 224.55</b>	<b>(-) 1820.3</b>
<b>Grand Total exclusion (A+B)</b>	<b>(-) 1752.01</b>	<b>1239.33</b>	<b>2188.48</b>	<b>1675.8</b>

27. Based on the above discussions, the additional capital expenditure allowed for the generating station for the period 2009-14 is as under:

Head of Work/Equipment	(` in lakh)				
	2009-10 actual	2010-11 actual	2011-12 actual	2012-13	2013-14
R&M Package	0.00	0.00	0.00	0.00	0.00
Land compensation claim deposit in court	0.00	0.00	10394.42	00.0	0.00
Safety Centre	0.00	0.00	0.00	19.00	1.00
AAQMS	111.30	4.00	0.00	00.0	0.00
Energy Management sys.	0.00	0.00	0.00	00.0	0.00
CCTV Camera	0.00	30.0	0.00	0.00	23.00
Mixed Bed Polishing Unit	205.40	0.00	0.00	0.00	0.00
Replacement of Fire Tender (Water/Foam)	0.00	0.00	45.99	0.00	0.00
<b>Total (on actual values)</b>	<b>316.69</b>	<b>34.00</b>	<b>10440.41</b>	<b>19.00</b>	<b>24.00</b>
Add : Exclusion not allowed	(-)1588.39	(-) 7.36	(-) 224.54	0.00	0.00
<b>Net Additional Capital Expenditure allowed</b>	<b>(-) 1271.70</b>	<b>26.64</b>	<b>10215.86</b>	<b>19.00</b>	<b>24.00</b>

28. The additional capital expenditure allowed after adjustment of liabilities discharged is as under:

	(` in lakh)				
	2009-10	2010-11	2011-12	2012-13	2013-14
Additional capitalization allowed before discharges of liabilities	(-) 1271.70	26.64	10215.86	19.00	24.00
Add: Discharges of liabilities	0.35	0.00	5.00	0.00	0.00
<b>Total Additional Capital Expenditure allowed</b>	<b>(-) 1271.35</b>	<b>26.64</b>	<b>10220.86</b>	<b>19.00</b>	<b>24.00</b>

### Capital Cost

29. The capital cost considered for the purpose of tariff for the period 2009-14 is as under:

	(` in lakh)				
	2009-10	2010-11	2011-12	2012-13	2013-14
Opening Capital cost	239679.86	238408.51	238435.15	248656.02	248675.02
Additional capital expenditure	(-) 1271.35	26.64	10220.86	19.00	24.00
<b>Closing Capital cost</b>	<b>238408.51</b>	<b>238435.15</b>	<b>248656.02</b>	<b>248675.02</b>	<b>248699.02</b>
<b>Average Capital cost</b>	<b>239044.18</b>	<b>238421.83</b>	<b>243545.58</b>	<b>248665.52</b>	<b>248687.02</b>

## Debt-Equity Ratio

30. Regulation 12 of the 2009 Tariff Regulations provides that:

*(a) 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.*

31. Accordingly, gross loan and equity amounting to ` 120230.51 lakh each as on 1.4.2009, as considered in order dated 21.7.2011 in Petition No. 80/2005 has been considered as gross loan and equity as on 1.4.2009. However, un-discharged liabilities amounting to ` 781.17 lakh included in the capital cost as on 1.4.2004 has been adjusted to debt and equity in the ratio of 50:50 as these liabilities pertain to the period prior to 1.4.2004. As such, the gross normative loan and equity as on 1.4.2009 is revised to ` 119839.93 lakh each. Further, the additional expenditure approved as above has been allocated in debt-equity ratio 70:30. This is subject to truing-up in terms of Regulation 6 of the 2009 Tariff Regulations.

## Return on Equity

32. Regulation 15 of the 2009 Tariff Regulations, as amended on 21.6.2011, 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 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:

$$\text{Rate of pre-tax return on equity} = \text{Base rate} / (1-t)$$

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 charges 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 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.”

33. Accordingly, return on equity has been worked out after accounting for the admitted additional capital expenditure as under:

	(` in lakh)				
	2009-10	2010-11	2011-12	2012-13	2013-14
Notional Equity- Opening	119839.93	119458.52	119466.52	122532.78	122538.48
Addition of Equity due to additional capital expenditure	(-)381.40	7.99	3066.26	5.70	7.20
Normative Equity-Closing	119458.52	119466.52	122532.78	122538.48	122545.68
Average Normative Equity	<b>119649.23</b>	<b>119462.52</b>	<b>120999.65</b>	<b>122535.63</b>	<b>122542.08</b>
Return on Equity (Base Rate)	15.500%	15.500%	15.500%	15.500%	15.500%
Tax Rate for the year 2008-09	33.990%	33.218%	32.445%	32.445%	32.445%
Rate of Return on Equity (Pre Tax)	23.481%	23.210%	22.944%	22.944%	22.944%
<b>Return on Equity (Pre Tax)- (annualised)</b>	<b>28094.84</b>	<b>27727.25</b>	<b>27762.16</b>	<b>28114.57</b>	<b>28116.05</b>

### Interest on loan

34. Regulation 16 of the 2009 Tariff 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.*

35. Interest on loan has been worked out as under:

(a) The gross normative loan of ` 119839.93 lakh as on 1.4.2009 has been considered.

(b) Cumulative repayment as on 31.3.2009 amounting to ` 114820.25 lakh as considered in order dated 21.7.2011 in Petition No. 80/2005 has been considered as cumulative repayment as on 1.4.2009. However, taking into account proportionate adjustment on account of undischarged liabilities deducted from the capital cost as on 1.4.2009, the cumulative repayment as on 1.4.2009 is revised to ` 114447.25 lakh.

(c) Accordingly, the net normative opening loan as on 1.4.2009 works out to ` 5392.68 lakh.

(d) Addition to normative loan to the tune of 70% of additional capital expenditure approved above has been considered on year to year basis.

(e) Depreciation allowed, has been considered as repayment of normative loan during the respective year of the period 2009-14. Further proportionate adjustment has been made to the repayments corresponding to discharges of liabilities considered during the respective years on account of cumulative repayment adjusted as on 1.4.2009. As also, proportionate adjustment has been made to the repayments on account of de-capitalization considered in the additional capital expenditure approved above.

(f) The Weighted Average Rate of Interest has been calculated considering the actual loan portfolio during respective years

36. The necessary calculation for interest on loan is as under:

	( ` in lakh)				
	2009-10	2010-11	2011-12	2012-13	2013-14
Gross opening loan	119839.93	118949.99	118968.63	126123.24	126136.54
Cumulative repayment of loan upto previous year	114447.25	114602.22	115948.62	117501.66	118783.24
Net Loan Opening	5392.68	4347.76	3020.01	8621.58	7353.30
Addition due to Additional capitalisation	(-) 889.94	18.65	7154.61	13.30	16.80
Repayment of loan during the year	1266.68	1351.55	1345.04	1281.59	1284.27
Less: Repayment adjustment on account of de-capitalization	1111.88	5.15	164.85	0.00	0.00
Add: Repayment adjustment on account of discharges / reversals corresponding to un-discharged liabilities deducted as on 1.4.2009	0.17	0.00	372.84	0.00	0.00
Net Repayment	154.98	1346.40	1553.03	1281.59	1284.27
Net Loan Closing	4347.76	3020.01	8621.58	7353.30	6085.83
Average Loan	4870.22	3683.89	5820.80	7987.44	6719.57
Weighted Average Rate of Interest on Loan	9.5800%	9.5800%	9.5800%	9.5800%	9.5800%
<b>Interest on Loan</b>	<b>466.57</b>	<b>352.92</b>	<b>557.63</b>	<b>765.20</b>	<b>643.73</b>

## Depreciation

37. Regulation 17 of the 2009 Tariff 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.”

**Balance useful life of the generating station**

38. The Commission in paragraph 61 and 62 of the order dated 30.12.2011 in Petition No. 226/2009 had decided as under:

**"Balance useful life of the generating station as on 1.4.2009 after R&M for the purpose of Depreciation**

61. The details of the date of commercial operation of the different units of the generating station, the period of operation up to 1.4.2009 and 1.4.2012 (completion of major R&M works) and the extended life after R&M of Gas Turbine and their weighted average period of operation on above dates and weighted average life are as under:

Description	Capacity MW	COD	Elapsed life up to 1.4.2009	Elapsed life as on 1.4.2012	Useful life after extension of life by 15 years for GTs
GT-I	144.30	1.3.1995	14.08	17.08	32.08
GT-II	144.30	1.7.1995	13.75	16.75	31.75
GT-III	144.30	1.3.1995	14.08	17.08	32.08
ST-I	224.49	1.11.1995	13.42	16.42	25.00
<b>Total</b>	<b>657.39</b>		<b>13.78</b>	<b>16.78</b>	<b>29.59</b>

56. The weighted average of the elapsed life (period of operation) of the generating station, as on 1.4.2009 works out to 13.78 years. The major part of R&M works would be completed by 31.3.2012. The weighted average of the period of operation of the generating station as on 1.4.2012 works out to 16.78 years. After the completion of R&M, the life of the Gas Turbine shall be extended by 15 years (approx) from the date of completion of major R&M i.e from 1.4.2012. However, the useful life of the Steam Turbine shall remain as 25 years from the date of commercial operation of the Steam Turbine unit”

39. Thus, the weighted average life of the generating station after R&M from the date of commercial operation (COD) of the generating station was calculated on the premise that the major part of R&M works would be completed by 31.3.2012 and considering the life extension of GTs by 15 years from 1.4.2012. The weighted average life of the generating station after R&M from the date of commercial operation (COD) was worked out to 29.59 years. The weighted average elapsed life of gas station was 13.78 years as on 31.3.2009 and 29.59 years as on 31.3.2012. Accordingly, the balance useful life gas based generating station after R&M was worked out to 15.59 years (29.59-13.78 years) as on 1.4.2009 and 10.59 years (29.59-16.78 years) as on 1.4.2012 respectively.

40. As stated in para 18 of this order, the petitioner in its additional submissions vide affidavit dated 7.9.2012 has submitted that major part of R&M on GTs would be completed beyond 31.3.2014 i.e. in the next tariff period by revised phasing of expenditure. Based on this, it has been concluded that the projected additional capital expenditure claimed for R&M of GTs could be considered only during the next tariff period (2014-19), since the complete benefits of R&M in the form of life extension and improvement in operational performance would be passed on to the respondents/ beneficiaries only after the completion of R&M of all the three GTs in 2014-15. In this background and since major part of R&M on GTs would be undertaken and completed during the next tariff period by revising the phasing of expenditure, the issue of calculation of balance useful life of the generating station for the purpose of depreciation no longer survives. Hence, considering the weighted average of elapsed life of 13.78 years as on 31.3.2009 and life of the generating station as 25 years as per the 2009 Tariff Regulations, the residual life of the generating station as on 31.3.2009 works out to 11.22 years (25-13.78 years). Accordingly, the balance life of the generating station at the beginning of each year of the tariff period 2009-14 is worked out as under:

<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>
11.22 years	10.22 years	9.22 years	8.22 years	7.22 years

41. The cumulative depreciation amounting to `201352.18 lakh as on 31.3.2009 as considered in order dated 21.7.2011 in Petition No. 80/2005 has been considered. Further, proportionate adjustment has been made to the cumulative depreciation on account of un-discharged liabilities deducted as on 1.4.2009. Accordingly, the revised cumulative depreciation as on 1.4.2009 works out to `200698.06 lakh. Hence, the balance depreciable value (before providing depreciation) for the year 2009-10 works out to `14212.20 lakh.

As mentioned, the elapsed life of the generating station is 13.78 years as on 31.3.2009 and the residual life of the generating station as on 31.3.2009 is 11.22 years considering a total life of 25 years for the generating station. Since the elapsed life of the generating station i.e., 13.78 years is more than the ceiling limit of 12 years (for normal depreciation) as on 1.4.2009, the balance depreciable value for each year has been spread over the remaining useful life for

the purpose of calculating depreciation for the respective years. The depreciable value has been calculated considering freehold land amounting to ₹ 255.00 lakh till 31.3.2011. From 2011-12, the land value is ₹ 10649.42 lakh after accounting for additions as allowed above. The necessary calculations in support of depreciation are as under:

	( ₹ in lakh)				
	2009-10	2010-11	2011-12	2012-13	2013-14
Opening capital cost	239679.86	238408.51	238435.15	248656.02	248675.02
Closing capital cost	238408.51	238435.15	248656.02	248675.02	248699.02
Average capital cost	<b>239044.18</b>	<b>238421.83</b>	<b>243545.58</b>	<b>248665.52</b>	<b>248687.02</b>
Depreciable value @ 90%	214910.27	214350.15	214284.04	214214.49	214233.84
Remaining useful life at the beginning of the year	11.22	10.22	9.22	8.22	7.22
Balance depreciable value	14212.20	13812.83	12401.30	10534.63	9272.40
<b>Depreciation (annualized)</b>	<b>1266.68</b>	<b>1351.55</b>	<b>1345.04</b>	<b>1281.59</b>	<b>1284.27</b>
Cumulative depreciation at the end	201964.75	201888.87	203227.78	204961.44	206245.71
Less: Cumulative depreciation adjustment on account of discharges / reversal of liabilities out of liabilities deducted as on 1.4.2009	(-)0.29	0.00	(-)653.82	0.00	0.00
Less: Cumulative depreciation reduction due to de-capitalization	1427.73	6.13	201.75	0.00	0.00
Cumulative depreciation after adjustment due to de-capitalization (at the end of the period)	200537.32	201882.74	203679.86	204961.44	206245.71

### O&M Expenses

42. The Operation & Maintenance expenses allowed in order dated 30.12.2011 in Petition No. 226/2009 has been considered.

### Interest on Working Capital

43. The fuel cost for one month and liquid fuel stock for 1/2 months as worked out in order dated 30.12.2011 in Petition No. 226/2009 has been considered.

44. Maintenance spares as allowed in order dated 30.12.2011 in Petition No. 226/2009 has been considered for the purpose of tariff.

45. Receivables have been worked out on the basis of two months of fixed and energy charges as shown below:

	( ₹ in lakh)				
	2009-10	2010-11	2011-12	2012-13	2013-14
Variable Charges-2 months	20679.97	20679.97	20736.63	20679.97	20679.97
Fixed Charges- 2 months	7454.58	7486.67	7632.33	7826.28	7923.42
<b>Total</b>	<b>28134.55</b>	<b>28166.65</b>	<b>28368.96</b>	<b>28506.26</b>	<b>28603.40</b>



## O&M Expenses

46. O&M expenses for 1 month for the purpose of working capital are allowed as under:

	<i>(` in lakh)</i>				
	2009-10	2010-11	2011-12	2012-13	2013-14
O& M for 1 month	810.78	857.35	906.10	958.15	1012.93

47. SBI PLR of 12.25% has been considered in the computation of the interest on working capital. Necessary computations in support of calculation of interest on working capital are given as under:

	<i>(` in lakh)</i>				
	2009-10	2010-11	2011-12	2012-13	2013-14
Fuel stock– 1 month	10339.99	10339.99	10368.32	10339.99	10339.99
Liquid fuel stock – 1/2 month	0.00	0.00	0.00	0.00	0.00
Maintenance Spares	2918.81	3086.45	3261.97	3449.33	3646.54
O&M expenses – 1 month	810.78	857.35	906.10	958.15	1012.93
Receivables – 2 months	28134.55	28166.65	28368.96	28506.26	28603.40
<b>Total working capital</b>	<b>42204.13</b>	<b>42450.43</b>	<b>42905.35</b>	<b>43253.71</b>	<b>43602.86</b>
Rate of interest	12.2500%	12.2500%	12.2500%	12.2500%	12.2500%
<b>Interest on working capital</b>	<b>5170.01</b>	<b>5200.18</b>	<b>5255.91</b>	<b>5298.58</b>	<b>5341.35</b>

## Annual Fixed charges for 2009-14

48. The annual fixed charges for the period 2009-14 in respect of the generating station are summarized as under:

	<i>(` in lakh)</i>				
	2009-10	2010-11	2011-12	2012-13	2013-14
Depreciation	1266.68	1351.55	1345.04	1281.59	1284.27
Interest on Loan	466.57	352.92	557.63	765.20	643.73
Return on Equity	28094.84	27727.25	27762.16	28114.57	28116.05
Interest on Working Capital	5170.01	5200.18	5255.91	5298.58	5341.35
O&M Expenses	9729.37	10288.15	10873.23	11497.75	12155.14
<b>Total</b>	<b>44727.47</b>	<b>44920.05</b>	<b>45793.97</b>	<b>46957.69</b>	<b>47540.54</b>

49. The annual fixed charges allowed as above are subject to truing up as per Regulation 6 of the 2009 Tariff Regulations.

50. The Energy Charge Rate as worked out in order dated 30.12.2011 in Petition No. 226/2009 shall remain unchanged.

51. The difference in the annual fixed charges determined by order dated 30.12.2011 and those determined by this order shall be adjusted in accordance with the proviso to Regulation 5 (3) of the 2009 Tariff Regulations.

52. The annual fixed charges determined above is subject to the final outcome of appeal pending before the Appellate Tribunal for Electricity.

53. This order disposes of Petition No. 23/GT/2013.

*Sd/-*  
**[M.Deena Dayalan]**  
**Member**

*Sd/-*  
**[V. S. Verma]**  
**Member**