CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No. 28/GT/2013

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

Date of Hearing: 11.6.2013
Date of Order: 06.8.2013

In the matter of

Revision of tariff of Auraiya Gas Power Station (663.36 MW) for the period from 1.4.2009 to 31.3.2014-Truing up of tariff determined by order dated 23.5.2012 in Petition No. 270/2009.

And

IN THE MATTER OF

NTPC Ltd, New Delhi **…Petitioner**

Vs

1. Uttar Pradesh Power Corporation Ltd., Lucknow
2. Jaipur Vidyut Vitran Nigam Ltd., Jaipur
3. Ajmer Vidyut Vitran Nigam Ltd., Ajmer
4. Jodhpur Vidyut Vitran Nigam Ltd., Jodhpur
5. Tata Power Delhi Distribution Ltd., Delhi
6. BSES Rajdhani Power Ltd., New Delhi
7. BSES Yamuna Power Ltd., Delhi
8. Haryana Power Purchase Centre, Haryana
9. Punjab State Power Corporation Ltd, Patiala
10. Himachal Pradesh State Electricity Board, Shimla
11. Power Development Department (J&K), Government of J&K, Srinagar
12. Power Department, Union Territory of Chandigarh, Chandigarh
13. Uttaranchal Power Corporation Ltd., Dehradun **……Respondents**

Parties present:

Shri Ajay Dua, NTPC
Shri S. Saran, NTPC
Shri K. K. Narang, NTPC
Shri Bhupinder Kumar, NTPC
Shri Sameer Aggarwal, NTPC
Shri S.K.Jain, NTPC
Shri Rohit Chhabra, NTPC
Shri Vivek Kumar, NTPC
Shri R.B.Sharma, Advocate, BRPL
Shri Manish Garg, Advocate, UPPCL
Shri Aman Avinav, Advocate, TPDDL
Shri Ankur Sood, Advocate, TPDDL
Shri Padamjit Singh, PSPCL

ORDER

This petition has been filed by the petitioner, NTPC, for revision of tariff of Auraiya Gas Power Station (663.36 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 663.36 MW comprises of four Gas Turbine (GT) units of 111.19 MW each and two Steam Turbine (ST) units of 109.30 MW each. The dates of commercial operation of different units of the generating station are as under:

Units	**Date of commercial operation (COD)**
Unit-I (GT)	1.10.1990
Unit-II (GT)	1.10.1990
Unit-III (GT)	1.11.1990
Unit-IV (GT)	1.11.1990
Unit-V (ST)	1.11.1990
Unit-VI (ST) /Generating Station	**1.12.1990**

3. Petition No. 270/2009 was filed by the petitioner for determination of tariff in respect of the generating station for the period from 1.4.2009 to 31.3.2014 and the Commission by its order dated 23.5.2012 had 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 for 2009-14 by order dated 23.5.2012 are as under:

(₹ in lakh)

	2009-10	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Opening Capital cost	74427.23	74449.81	74568.56	75326.56	81989.98
Additional capital expenditure	22.58	118.75	758.00	6663.42	19989.58
Closing Capital cost	**74449.81**	**74568.56**	**75326.56**	**81989.98**	**101979.56**
Average Capital cost	**74438.52**	**74509.19**	**74947.56**	**78658.27**	**91984.77**

4. Based on the above, the annual fixed charges for the generating station for 2009-14 determined by order dated 23.5.2012 in Petition No. 270/2009 are given overleaf:

(₹ in lakh)

	2009-10	2010-11	2011-12	2012-13	2013-14
Depreciation	12.69	15.81	45.20	313.04	1460.18
Interest on Loan	87.05	89.65	113.22	350.54	1196.22
Return on Equity	8718.39	8723.37	8754.25	9015.64	9954.40
Interest on Working Capital	4152.15	4191.15	4242.53	4292.83	4399.55
O&M Expenses	9817.73	10381.58	10971.97	11602.17	12265.53
Total	**22788.01**	**23401.56**	**24127.17**	**25574.22**	**29275.88**

5. Aggrieved by the said order, the petitioner filed Review Petition No.15/2012 on the issue of 'wrong consideration of balance life of 15.59 years as on 1.4.2009 instead of 6.57 years' and the Commission by its order dated 29.4.2013 disposed of the said review petition with the following observations:

> "*The question of calculation of the balance useful life of the generating station based on the revised phasing of expenditure would however be considered by the Commission at the time of disposal of the True-up Petition No.28/GT/2013, based on the submissions of the parties there under*"

6. Reply to the petition has been filed by the respondent no.1, MPPMCL, respondent no.5, TPDDL, respondent no.6, BRPL and respondent no.7, BYPL.The petitioner has filed its rejoinder to the replies of the respondents.

7. The matter was heard on 19.3.2013 and orders were reserved by the Commission. However, as one of the Members of the Commission had demitted office before passing orders in the matter, the petition was again listed for hearing on 11.6.2013 and orders were 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.

8. 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."*

9. The annual fixed charges claimed by the petitioner for the period 2009-14 in this petition are given overleaf:

(₹ in lakh)

	2009-10	2010-11	2011-12	2012-13	2013-14
Depreciation	30.14	38.57	94.42	187.25	443.54
Interest on Loan	86.35	87.18	98.19	107.35	123.10
Return on Equity	8718.38	8622.76	8543.58	8568.27	8618.45
Interest on Working Capital	4152.50	4189.48	4238.85	4275.81	4328.15
O&M Expenses	9817.73	10381.58	10971.97	11602.17	12265.53
Total	**22805.09**	**23319.57**	**23947.02**	**24740.86**	**25778.77**

Capital cost

10. 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;"*

11. The approved capital cost as on 1.4.2009 has been worked out as ₹74427.23 lakh after removal of un-discharged liabilities of ₹53.39 lakh (₹6.52 lakh pertaining to period prior to 1.4.2004 and ₹46.87 lakh pertaining to period 2004-09). Further, out of the un-discharged liabilities deducted as on 1.4.2009, the petitioner has discharged ₹27.58 lakh in 2009-10 (all liabilities corresponding to assets capitalized during the period 2004-09), ₹11.75 lakh in 2010-11 (₹5.40 lakh pertaining to assets /works capitalized during the period prior to 1.4.2004 and ₹6.35 lakh pertaining to assets/works capitalized during 2004-09) and ₹4.34 lakh in 2011-12 (₹0.92 lakh pertaining to assets/works capitalized during the period prior to 1.4.2004 and ₹3.43 lakh pertaining to assets/works capitalized during the period 2004-09). Further, an amount of ₹3.40 lakh has been discharged during 2010-11 corresponding to the disallowed assets. The discharge of liabilities has been allowed during the years 2009-10, 2010-11 and 2011-12 in addition to the admitted additional capital expenditure.

Actual/ Projected Additional Capital Expenditure

12. Regulation 9 of the 2009 Tariff Regulations, as amended on 21.6.2011 and 31.12.2012, provides as under:

"9. *Additional Capitalization. (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;

(iv) Liabilities to meet award of arbitration or for compliance of the order or decree of a court; and

(v) Change in law:

Provided that the details of works included in the original scope of work along with estimates of expenditure, 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 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-materialization 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 kilometers of the power station if, the generating company does not intend to meet such expenditure as part of its Corporate Social Responsibility"

13. The additional capital expenditure allowed for the generating station during the period 2009-14 by order dated 23.5.2012 in Petition No. 270/2009 is summarized as under:

(₹ in lakh)

Sl. No.		**Regulation**	**Actual/Projected additional expenditure allowed**				
			2009-10	**2010-11**	**2011-12**	**2012-13**	**2013-14**
1	Replacement of Hot gas path components with upgraded and advanced design material, installation of on line blade surface temp, monitoring system and up gradation of the existing dynamic balancing machine.	9(2)(vi)	0.00	0.00	0.00	6025.92	18077.08
2	Installation of evaporative type of inlet air cooling system	9(2)(ii)	0.00	0.00	0.00	0.00	0.00
3	Installation of on line wet washing system and on line compressor efficiency monitoring system	9(2)(ii)	0.00	0.00	0.00	0.00	0.00
4	Refurbishment of GT Rotor	9(2)(vi)	0.00	0.00	503.00	0.00	0.00
5	Replacement of obsolete DDC and MIS system	9(2)(vi)	0.00	0.00	0.00	637.50	1912.50
6	Up-gradation of the fire fighting communication system	9(2)(vi)	0.00	0.00	50.00	0.00	0.00
7	Laying of rails in transformer yard	9(2)(ii)	0.00	0.00	0.00	0.00	0.00
8	Procurement of additional Excitation Transformer	9(2)(ii)	0.00	0.00	0.00	0.00	0.00
9	Procurement of one Generator Rotor for Gas Turbine and One Generator Rotor for Steam Turbine		0.00	0.00	0.00	0.00	0.00
10	Renovation of GT cooling towers	9(2)(vi)	0.00	0.00	0.00	0.00	0.00
11	Phasing out of Halon fire fighting system from GT enclosure and central control room	9(2)(ii)	0.00	0.00	204.85	0.00	0.00
12	Procurement of predictive and diagnostic maintenance equipments	9(2)(ii)	0.00	0.00	0.00	0.00	0.00
13	Expenditure on 5 Km scheme as notified by MOP	9(2)(ii)	0.00	0.00	0.00	0.00	0.00

	Sub-total		**0.00**	**0.00**	**758.00**	**6663.42**	**19989.58**
14	Crane Discarded		(-) 7.00	0.00	0.00	0.00	0.00
15	AAQMS (Ambient Air Quality Monitoring System)	9(2)(ii)	2.00	0.00	0.00	0.00	0.00
16	Energy management system	9(2)(ii)	0.00	12.00	0.00	0.00	0.00
17	Direct chemical power (DCP) fire tenders	9(2)(vi)	0.00	29.00	0.00	0.00	0.00
18	De-capitalization of fire tenders		0.00	(-) 8.00	0.00	0.00	0.00
19	Boring of Tube well	9(2)(ii)	0.00	72.00	0.00	0.00	0.00
20	Hydra mobile crane of 12 tons capacity		0.00	11.00	0.00	0.00	0.00
21	Old vehicles discarded		0.00	(-) 9.00	0.00	0.00	0.00
	Sub-Total		**(-) 5.00**	**107.00**	**0.00**	**0.00**	**0.00**
	Grand Total		**(-) 5.00**	**107.00**	**758.00**	**6663.42**	**19989.58**

14. The details of the actual additional capital expenditure for the period from 2009-10 to 2011-12 and the projected additional capital expenditure for the years 2012-13 and 2013-14 claimed by the petitioner in the instant petition is as under;

(₹in lakh)

Sl. No.		2009-10 (actual)	2010-11 (actual)	2011-12 (actual)	2012-13 (Projected)	2013-14 (Projected)	Total
1	Ambient Air Quality monitoring System	2.17	0.00	0.00	0.00	0.00	**2.17**
2	Energy Management System	0.00	8.74	2.10	0.00	0.00	**10.84**
3	Boring of Tube well	0.00	71.84	11.82	0.00	0.00	**83.66**
4	DCP Fire Tender	0.00	27.24	10.39	0.00	0.00	**37.63**
5	Hydra mobile crane of 12T capacity	0.00	10.87	0.00	0.00	0.00	**10.87**
6	Refurbishment of GT Rotor	0.00	0.00	377.89	0.00	0.00	**377.89**
7	Up-gradations of Fire Fighting Communication System	0.00	0.00	48.91	0.00	0.00	**48.91**
8	Phasing out of Halon Fire Fighting system	0.00	0.00	0.00	241.00	0.00	**241.00**
9	Expenditure on 5 Km scheme as notified by MOP	0.00	0.00	0.00	0.00	1190.00	**1190.00**
10	Procurement of remaining fire tender	0.00	0.00	0.00	27.00	0.00	**27.00**
11	**Total**	**2.17**	**118.69**	**451.11**	**268.00**	**1190.00**	**2029.97**
12	De-capitalization	(-) 7.48	(-) 9.19	(-) 9.32	0.00	0.00	(-) **25.99**
13	**Net Additional Capital Expenditure claimed**	**(-) 5.31**	**109.50**	**441.79**	**268.00**	**1190.00**	**2003.98**

15. It is noticed from the submissions of the petitioner in Form-9 of the petition filed on 27.7.2012, that major part of R&M on GTs have been postponed based on the actual progress/award position of various schemes and these works are expected to be capitalized

beyond March, 2014. In other words, the expenditure on R&M of GTs has been revised and is likely to materialize during the next tariff period i.e 2014-19.

16. The petitioner in its additional submissions filed vide Annexure-A of its affidavit dated 31.1.2013 has submitted as under:

> "As brought out in detail in the original petition, the R&M of gas plant is carried out based on the recommendation of OEM and accordingly, CEA approved R&M schemes were included for capitalization during 2009-14 in the original petition. After the CEA approval, NTPC explored around 10-12 vendors for R&M at Auraiya so that there would be adequate competition during bidding. However, other than OEM, other parties expressed their inability to take up the job.
>
> Even though, NTPC was exploring several routes to get the R&M executed by 3rd party for cost reduction but ultimately had to approach the OEM (M/s Mitsubishi Heavy Industries Ltd. i.e. MHI) due to no response from the other vendors. NTPC Board accorded investment approval for award of the GTs Renovation and C&I R&M packages to the OEM, MHI on single tender basis on 25.7.2011.
>
> Bid for the combined (GT Renovation + C&I R&M) packages was opened on 7.1.2012 and after extensive negotiations with the OEM, the package was finally awarded on 27.11.2012 for approx. ₹ 780 cores. The completion schedule for R&M of all 4 GTs given in the Letter of Award is 28.8 months from date of LOA i.e R&M of the last GT will be completed in April 2015.
>
> With the schedule in place, capitalization of expenditure on GT R&M will take place beyond March 2014 and accordingly, 'Nil' projections were given for 2012-13 and 2013-14 in the true up petition filed on 27.7.2012.
>
> For the reasons detailed above, the Hon'ble Commission may therefore, be pleased to permit the deviation and allow the same."

17. In view of the above submissions of the petitioner that capitalization of expenditure on R&M of GT will be completed beyond March, 2014, the additional capital expenditure claimed by the petitioner on this count in Petition No.270/2009 could be considered during the next tariff period as the benefit of R&M and the consequent extension of life of the generating station could be passed on to the beneficiaries only after completion of R&M.

18. The additional capital expenditure as per books of accounts vis-à-vis the tariff claimed for the years 2009-10, 2010-11 and 2011-12 are given overleaf:

(₹in lakh)

	2009-10	2010-11	2011-12
Opening Gross block as per audited balance sheet as on 1.4.2009 (A)	85311.43	89272.49	90199.99
Closing Gross Block as per audited balance sheet as on 31.3.2010 (B)	89272.49	90199.99	91817.96
Addition during the year 2009-10 C=(B-A) (as per books)	3961.06	927.50	1617.96
Exclusions (D)	3966.37	811.17	878.52
Additional capital expenditure claimed E=(C-D) (for tariff purpose)	(-) 5.31	116.33	739.44
Liability included (F)	-	6.83	297.65
Net Additional capital expenditure claimed (**E-F**)	(-) 5.31	109.50	441.79

<u>Exclusions</u>

19. In the first instance, we consider the exclusions for the years 2009-10, 2010-11 and 2011-12 under the different heads of the claim as under:

<u>2009-10</u>

20. The summary of exclusions from books of accounts claimed for the purpose of tariff is as under:

(₹in lakh)

Name of work	Capitalization / De-capitalized amount	Liabilities in Additional capitalization and outstanding at end of year
Online wash system	177.71	-
Complete fan assembly for GT cooling tower	23.62	-
Infra red Thermograph camera	14.29	-
Capital spares	3851.01	18.17
De-capitalization of spares	(-)152.53	-
MBOA	46.12	2.33
De-capitalization of MBOA	(-) 4.59	-
Wooden flooring	10.74	-
Total Exclusions	**3966.37**	**20.50**

On line wash system

21. The petitioner has excluded an amount of ₹177.71 lakh on account of works not admitted by the Commission in order dated 23.5.2012. As such, exclusion on this count is in order and is allowed.

Complete fan assembly for GT cooling tower

22. The petitioner has excluded an amount of ₹23.62 lakh on account of works not admitted by the Commission in the order dated 23.5.2012. As such, exclusion on this count is in order and is allowed.

Infra red thermograph camera

23. The petitioner has excluded an amount of ₹14.29 lakh on account of works not admitted by the Commission in the order dated 23.5.2012. As such, exclusion on this count is in order and is allowed.

Capital spares

24. The petitioner has procured spares amounting to ₹3851.01 lakh during 2009-10 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, as they form part of O&M expenses when consumed, the petitioner has excluded the said amount. The exclusion of the said amount under this head is in order and is allowed.

De-capitalization of spares

25**.** The petitioner has de-capitalized capital spares amounting to ₹152.53 lakh in books of accounts during 2009-10 on these spares becoming unserviceable. The prayer of the petitioner for exclusion of de-capitalized spares is justifiable if the petitioner could confirm/certify that these de-capitalized spares were the ones which were disallowed by the Commission for the purpose of tariff. However, as per affidavit of the petitioner dated 11.10.2012, these spares were part of the capital cost of the generating station for the purpose of tariff. Hence, exclusion of negative entries on account of de-capitalization of these spares which are rendered unserviceable is not justifiable and has not been allowed for the purpose of tariff.

Capitalization of Miscellaneous Bought Out Assets (MBOA)

26. The petitioner has capitalized MBOA assets amounting to ₹46.12 lakh during the year 2009-10 in books of accounts. Since capitalization of minor assets after cut-off-date is not allowed, the exclusions for ₹46.12 lakh are in order and is allowed.

De-capitalization of Miscellaneous Bought Out Assets (MBOA) items

27. The petitioner has also excluded de-capitalized MBOA assets in books of accounts amounting to ₹4.59 lakh during the year 2009-10 on the same being rendered unserviceable. The prayer of the petitioner for exclusion of de-capitalized MBOA is justified if these de-capitalized spares were the ones which were disallowed by the Commission for the purpose of tariff. However, as per affidavit of the petitioner dated 11.10.2012, these spares were part of the capital cost of the generating station for the purpose of tariff. Hence, exclusion of negative entries on account of de-capitalization of these MBOA items rendered unserviceable is not justifiable and has not been allowed for the purpose of tariff.

28. The details of exclusions claimed and allowed for the year 2009-10 is summarized as under:

(₹ in lakh)

Exclusions claimed (B)	3966.37
Exclusions Allowed (A)	4123.49
Exclusions not allowed (A-B)	**157.12**

2010-11

29. The summary of exclusions from the books of accounts claimed for the purpose of tariff is as under:

(₹ in lakh)

Name of work	Capitalization / De-capitalized amount	Liabilities in Additional capitalization and outstanding at end of year
Online wash system	8.33	-
Transformer Turn Ratio	4.79	4.79
Braker Analyser	14.08	0.10
Capital spares	920.60	5.80
De-capitalization of spares	(129.82)	-
MBOA	55.15	4.57
De-capitalization of MBOA	(61.97)	-
Total Exclusions	**811.17**	**15.26**

On line wash system

30. The petitioner has excluded an amount of ₹8.33 lakh on account of works not admitted by the Commission in the order dated 23.5.2012. As such, exclusion on this count is in order and is allowed.

Transformer Turn Ratio

31. The petitioner has excluded an amount of ₹4.79 lakh on account of works not admitted by the Commission in the order dated 23.5.2012. As such, exclusion on this count is in order and is allowed.

Breaker analyzer

32. The petitioner has excluded an amount of Rs. 14.08 lakh on account of works not admitted by the Commission in the order dated 23.5.2012. As such, exclusion on this count is in order and is allowed.

Capital spares

33. The petitioner has procured spares amounting to ₹920.60 lakh during the year 2010-11 for maintaining stock of necessary spares. Since capitalization of spares over and above the initial spares procured after cut-off date are not allowed for the purpose of tariff, as they form part of O&M expenses when consumed, the petitioner has excluded the said amount. The exclusion of the said amount under this head is allowed.

De-capitalization of spares

34. The petitioner has de-capitalized capital spares amounting to ₹129.82 lakh in books of accounts during the year 2010-11 on these spares becoming unserviceable. The prayer of the petitioner for exclusion of de-capitalized spares is justified if these de-capitalized spares were the ones which were disallowed for the purpose of tariff. However, as per affidavit of the petitioner dated 11.10.2012, these spares were part of the capital cost of the generating station

for the purpose of tariff. Hence, exclusion of negative entries on account of de-capitalization of these spares rendered unserviceable is not justified and not allowed for the purpose of tariff.

Capitalization of Miscellaneous Bought Out Assets (MBOA)

35. The petitioner has capitalized MBOA assets in books of accounts amounting to Rs. 55.15 lakh during the year 2010-11. Since capitalization of minor assets is not allowed, the exclusion of ₹55.15 lakh is in order and is allowed.

De-capitalization of Miscellaneous Bought Out Assets (MBOA) assets

36. The petitioner has excluded de-capitalized MBOA assets amounting to ₹61.97 lakh in books of accounts during the year 2010-11 on the same being rendered unserviceable. The prayer of the petitioner for exclusion of de-capitalized MBOA items is justified if the de-capitalized MBOA assets were the ones which were disallowed for the purpose of tariff. However, as per affidavit of the petitioner dated 11.10.2012, these MBOA items were part of the capital cost of the generating station for the purpose of tariff. Hence, exclusion of negative entries on account of de-capitalization of these MBOA items rendered unserviceable is not justified and not allowed for the purpose of tariff.

37. The details of exclusions claimed and allowed for 2010-11 is summarized as under:

(₹ in lakh)

Exclusions claimed (B)	811.17
Exclusions allowed (A)	1002.96
Exclusions not Allowed (A-B)	**191.79**

2011-12

38. The summary of exclusions from the books of accounts claimed for the purpose of tariff is as under:

(₹ in lakh)

Sl. No.	Name of work	Capitalization / De-capitalized amount	Liabilities in Additional capitalization and outstanding at end of year
1	200 kV CVT	14.63	-
2	Circuit breaker timing kit	1.30	-
3	Portable AC high voltage test kit, 50 kVAC	5.84	-
4	Contact resistance measurement kit.	2.22	-
5	Transformer winding resistance meter	7.45	-
6	Digital storage oscilloscope	3.25	-
7	Motor Current Analyzer	10.19	1.00
8	Partial Discharge Test Kit	9.40	-
9	Capital spares Transfer from Dadri Gas Power station	100.40	-
10	Capital spares	799.83	-
11	De-capitalization of spares	(-) 100.30	-
12	Transformer oil filtration machine (capital spares)	(-) 2.49	
13	MBOA	52.70	-
14	Providing wooden floor in community center EWA, USTAS club, and Administration Building	0.29	-
15	De-capitalization of MBOA	(-) 26.19	-
	Exclusions Total	**878.52**	**1.00**

Works not allowed by the Commission

39. The petitioner has excluded an amount of ₹54.28 lakh on account of works in respect of Sl. Nos. 1 to 8 of the table above, which had not been admitted by the Commission in its order dated 23.5.2012. As such, the exclusion on this count is in order and is allowed.

Capital spares

40. The petitioner has procured spares amounting to ₹799.83 lakh during the year 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, as 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 allowed.

De-capitalization of spares

41. The petitioner has de-capitalized capital spares amounting to ₹100.30 lakh in books during the year 2011-12 on these becoming unserviceable. The prayer of the petitioner for exclusion of de-capitalized spares is justified if the de-capitalized spares are the ones which were disallowed for the purpose of tariff. However, as per affidavit dated 11.10.2012 of the petitioner, these spares were part of the capital cost of the generating station for the purpose of tariff. Hence, exclusion of negative entries on account of de-capitalization of these spares rendered unserviceable is not justified and not allowed for the purpose of tariff.

Reversal of liability

42. The petitioner has excluded an amount of ₹2.49 lakh in the year 2011-12 as reversal of liability for transformer oil filtration machine (capital spares). Since capital spares are not allowed after the cut-off date, the exclusion of reversal of liability is in order and is allowed under exclusion.

Capitalization of Miscellaneous Bought Out Assets (MBOA)

43. The petitioner has capitalized MBOA items in books of accounts for ₹52.70 lakh during the year 2011-12. Since the capitalization of minor assets is not allowed, the exclusion of ₹52.70 lakh is in order and is allowed.

De-capitalization of Miscellaneous Bought Out Assets (MBOA) items

44. The petitioner has excluded de-capitalized MBOA items in books of accounts for ₹26.19 lakh during the year 2011-12 on the same becoming unserviceable. The prayer of the petitioner

for exclusion of de-capitalized MBOA items is justified if the de-capitalized MBOA items are the ones which were disallowed for the purpose of tariff. However, as per affidavit of the petitioner dated 11.10.2012, these MBOA items were part of the capital cost of the generating station for the purpose of tariff. Hence, exclusion of negative entries on account of de-capitalization of these MBOA items rendered unserviceable is not justified and has not been allowed for the purpose of tariff. However, as assets amounting to ₹2.11 lakh were transferred to Tanda TPS, the exclusion of ₹2.11 lakh has been allowed. Hence, on net basis an amount of ₹24.08 lakh (26.19-2.11) is disallowed.

Adjustments

45. The petitioner has excluded an amount of ₹0.29 lakh towards adjustment for work of providing wooden floor. Since the expenditure incurred on this count was not admitted by the Commission, the exclusion on this count is in order and has been allowed to be excluded.

46. The details of exclusions claimed and allowed for 2011-12 is summarized as under:

(₹in lakh)

Exclusions claimed (B)	878.52
Exclusions allowed (A)	1002.90
Exclusions not allowed (A-B)	**124.38**

Actual additional capital expenditure for 2009-10, 2010-11 and 2011-12

47. The claim of the petitioner for actual additional capital expenditure incurred for the years 2009-10 to 2011-12 are discussed in the subsequent paragraphs:

Ambient Air Quality Monitoring System (AAQMS)

48. The petitioner in this petition has claimed actual expenditure of ₹2.17 lakh during 2009-10 towards Ambient Air Quality Monitoring System (AAQMS) under Regulation 9(2)(ii) i.e. change-in-law. The capitalization of this expenditure was allowed in order dated 23.5.2012 in Petition no. 270/2009 on the ground that the same is required in statutory compliance with the directions of the Pollution Control Board. In view of this, the expenditure of ₹ 2.17 lakh is allowed.

De-capitalization

49. The petitioner has de-capitalized an amount of ₹7.48 lakh towards cranes in the year 2009-10 on the same becoming un-serviceable. Since the asset does not render any useful service to the generating station, the de-capitalization of ₹7.48 lakh has been allowed.

Energy Management System (EMS)

50. The petitioner has claimed actual expenditure of ₹10.84 lakh (₹8.74 lakh during 2010-11, and ₹2.10 lakh during 2011-12) towards Energy Management System in order to monitor the auxiliary power consumption of the generating station and a liability of ₹3.40 lakh has been discharged during 2011-12, thereby arriving at a total capital expenditure of ₹14.24 lakh. 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.

Boring of Tube well

51. The petitioner has claimed expenditure of ₹83.66 lakh (₹71.84 lakh during 2010-11 and ₹11.82 lakh during 2011-12 on cash basis) excluding un-discharged liability, against the allowed expenditure of ₹ 72.00 lakh under Regulation 9(2)(ii) in our order dated 23.5.2012 in Petition No. 270/2009. The petitioner has submitted that the initial estimates were for the bore well only and the deviation of ₹11.82 lakh is due to construction of 2 nos. of tube well rooms which are required for protection of tube wells and other electrical equipments. We are convinced with the justification submitted by the petitioner. In view of this, the expenditure of ₹83.66 lakh claimed as above is allowed under Regulation 9(2)(ii).

Direct Chemical Powder (DCP) Fire Tenders

52. The petitioner has claimed actual additional capital expenditure of ₹ 27.24 lakh during 2010-11 excluding un-discharged liability of ₹1.86 lakh and Rs. 10.39 lakh during 2011-12 on cash basis towards the capitalization of Direct Chemical Powder against the expenditure of ₹29.00 lakh allowed in order dated 23.5.2012 in Petition No. 270/2009. The petitioner has

justified the reasons for the variation in expenditure by submitting that during safety review at site, it was found that another old fire tender started giving teething troubles and therefore another fire tender was required to be procured on urgent basis. Keeping in view the safety and security of the generating station and the personnel employed there, the capital expenditure of ₹27.24 lakh during 2010-11 and ₹10.39 lakh with corresponding de-capitalization of ₹9.32 lakh during 2011-12 has been allowed under Regulation 9(2)(vi).

Hydra Mobile Crane of 12T capacity

53. The petitioner has claimed actual expenditure of ₹10.87 lakh during 2010-11 towards procurement of Hydra mobile crane of 12T capacity. It is observed that the installation of this crane would form part of R&M activity of GTs, as the same would facilitate lifting of equipments and heavy materials for their movements during R&M of GTs. Since the R&M activities of GTs would be completed only during the next tariff period i.e. in the next tariff period (2014-19), the expenditure on this count could be considered only in the next tariff period along with the R&M of GTs. Hence, expenditure not allowed during this tariff period.

Refurbishment on Gas Turbine Rotor

54. The petitioner has claimed actual expenditure of Rs.377.89 lakh during 2011-12 towards Refurbishment of GT Rotor. The capital expenditure incurred form part of the R&M activity of Gas Turbine. Since the R&M of Hot Gas Path components would be completed only during the next tariff period, (2014-19), the capital expenditure on this count could be considered only in the next tariff period as the benefit of full R&M and consequent extension of life of the generating station could be passed on to the beneficiaries after completion of R&M.

Expenditure on up-gradation of Fire Fighting Communication System

55. The petitioner has claimed actual additional capital expenditure of ₹48.91 lakh during 2011-12 on cash basis, towards up-gradation of the fire fighting communication system. This capital expenditure also form part of the approved R&M activity. In view of this, the expenditure of ₹48.91 lakh could only be considered in the next tariff period (2014-19).

De-capitalization of vehicles

56. The petitioner has de-capitalized an amount of ₹9.19 lakh during 2010-11 towards vehicles on the same becoming unserviceable. Since the asset does not render useful service to the generating station, the de-capitalization for ₹9.19 lakh has been allowed.

De-capitalization of Fire Tenders

57. The petitioner has de-capitalized ₹9.32 lakh during 2011-12 towards vehicles on the same becoming unserviceable. Since the asset does not render any useful service to the generating station, the de-capitalization for ₹9.32 lakh has been allowed.

58. Based on the above discussions, the additional capital expenditure allowed for the years 2009-10, 2010-11 and 2011-12 is summarized as under:

(₹ in lakh)

	2009-10	**2010-11**	**2011-12**
Ambient Air Quality Monitoring System	2.17	-	-
Energy Management system	-	0.00	0.00
Boring of tube well	-	71.84	11.82
DCP fire tender	-	27.24	10.39
Hydra Mobile Crane 12T capacity	-	0.00	-
Refurbishment of Gas Turbine	-	-	0.00
Up-gradation of fire fighting system	-	-	0.00
De-capitalization of cranes	7.48	-	-
De-capitalization of vehicles	-	9.19	-
De-Capitalization for fire tender	-	-	9.32
Net Additional capital Expenditure allowed	**(-) 5.31**	**98.63**	**14.99**

Projected additional capital expenditure for 2012-13 and 2013-14

59. The projected additional capital expenditure for the period 2012-14 claimed by the petitioner is discussed as under:

DCP fire tender

60**.** The petitioner has claimed projected additional capital expenditure of ₹27.00 lakh during 2012-13 towards 'new fire tenders' as replacement of old fire tenders which have become unserviceable and had outlived its useful life. The petitioner vide its affidavit dated 8.6.2010 has furnished the estimated de-capitalization value of 12.79% of the replacement cost which works out to ₹3.45 lakh (i.e 27.00 x 12.79%). Accordingly, on net basis, the actual additional capital expenditure of ₹23.55 lakh (27.00-3.45) during 2012-13 for existing fire tenders has been allowed.

Phasing out of Halon system fire fighting system

61. The petitioner has claimed projected expenditure of ₹241.00 lakh during 2012-13 towards the replacement of Halon system for protection of Ozone layer. Since the asset is required for statutory compliance in terms of the National Fire Protection Association Standard on Clean Agent Fire Extinguishing system (NFPA-2001), the claim for ₹241.00 lakh has been allowed along with the estimated corresponding de-capitalization@15% which works out to ₹36.15 lakh as allowed in our order dated 23.5.2012. Accordingly, on net basis, the expenditure of ₹204.85 lakh (241.00-36.15) has been allowed for capitalization.

Expenditure on 5 KM scheme as notified by MOP, GOI

62. The petitioner has claimed projected expenditure of ₹1190.00 lakh during the year 2013-14 towards expenditure on 5 KM scheme. However, it is noticed that the scheme for provision of supply of electricity within 5 KM radius around Central Power Plants has been withdrawn by the Ministry of Power, Govt. of India, vide its notification dated 25.3.2013. In view of the said notification, the projected additional capital expenditure claimed by the petitioner on has not been allowed on this count.

63. Based on the above discussions, the additional capital expenditure allowed for the period 2009-10 to 2011-12 and the projected additional capital expenditure for the period 2012-13 and 2013-14 is summarized overleaf:

(₹ in lakh)

Sl. No.		2009-10 (actual)	2010-11 (actual)	2011-12 (actual)	2012-13 (Projected)	2013-14 (Projected)	Total
1	Ambient Air Quality monitoring System	2.17	0.00	0.00	0.00	0.00	**2.17**
2	Energy Management System	0.00	0.00	0.00	0.00	0.00	**0.00**
3	Boring of Tube well	0.00	71.84	11.82	0.00	0.00	**83.66**
4	DCP Fire Tender	0.00	27.24	10.39	0.00	0.00	**37.63**
5	Hydra mobile crane of 12T capacity	0.00	0.00	0.00	0.00	0.00	**0.00**
6	Refurbishment of GT Rotor	0.00	0.00	0.00	0.00	0.00	**0.00**
7	Up-gradations of Fire Fighting Communication System	0.00	0.00	0.00	0.00	0.00	**0.00**
8	Phasing out of Halon Fire Fighting system	0.00	0.00	0.00	204.85	0.00	**204.85**
9	Expenditure on 5 Km scheme as notified by MOP, GOI	0.00	0.00	0.00	0.00	0.00	**0.00**
10	Procurement of remaining fire tender	0.00	0.00	0.00	23.55	0.00	**23.55**
11	**Total Capitalization**	**2.17**	**99.08**	**22.21**	**228.40**	**0.00**	**351.86**
12	De-Capitalization	(-) 7.48	(-) 9.19	(-) 9.32	0.00	0.00	**(-) 25.99**
13	**Additional Capitalization allowed**	**(-) 5.31**	**89.89**	**12.89**	**228.40**	**0.00**	**325.87**
14	**Exclusions not allowed**	**157.12**	**191.79**	**124.38**	**0.00**	**0.00**	**473.29**
15	**Net Additional Capitalization allowed (13-14)**	**(-) 162.43**	**(-) 101.90**	**(-) 111.49**	**228.40**	**0.00**	**(-) 147.42**

64. Considering the actual liabilities discharged, the projected/actual additional capital expenditure allowed for the purpose of tariff is as under:

(₹ in lakh)

	2009-10	2010-11	2011-12	2012-13	2013-14
Additional Capital Expenditure allowed prior to considering discharges of liabilities	(-) 162.43	(-) 101.90	(-) 111.49	228.40	0.00
Discharges of liabilities	27.58	11.75	4.34	0.00	0.00
Net Additional Capital Expenditure allowed	**(-) 134.85**	**(-) 90.15**	**(-) 107.15**	**228.40**	**0.00**

65. Based on the above, the capital cost considered for the purpose of tariff for the period 2009-14 is given overleaf:

(₹ in lakh)

	2009-10	2010-11	2011-12	2012-13	2013-14
Opening Capital cost	74427.23	74292.38	74202.23	74095.09	74323.49
Projected additional capital expenditure	(-) 134.85	(-) 90.15	(-) 107.15	228.40	0.00
Closing Capital cost	**74292.38**	**74202.23**	**74095.09**	**74323.49**	**74323.49**
Average Capital cost	**74359.81**	**74247.31**	**74148.66**	**74209.29**	**74323.49**

Debt-Equity Ratio

66. 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.

67. Accordingly, gross loan and equity amounting to ₹37301.06 lakh and ₹37126.17 lakh respectively as on 1.4.2009, as considered in order dated 23.5.2012 in Petition No. 270/2009 has been considered as gross loan and equity as on 1.4.2009. Further, the admitted actual/ projected additional expenditure as above has been allocated in debt-equity ratio of 70:30. This is subject to truing-up in terms of Regulation 6 of the 2009 Tariff Regulations.

Return on Equity

68. 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:

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

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

(5) The generating company or the transmission licensee, as the case may be, shall recover the shortfall or refund the excess Annual Fixed 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."

69. Accordingly, return on equity has been worked out based on the grossing up of the base rate with respect to actual tax rate applicable to the petitioner, NTPC as a generating company for the years 2009-10, 2010-11 and 2011-12 and for the rest of the years, the rate of grossing up as applicable for the year 2011-12 has been considered on the normative equity after accounting for the admitted additional capital expenditure.

(₹in lakh)

	2009-10	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Notional Equity- Opening	37126.17	37085.72	37058.67	37026.53	37095.05
Addition of Equity due to additional capital expenditure	(-) 40.45	(-) 27.04	(-) 32.14	68.52	0.00
Normative Equity-Closing	37085.72	37058.67	37026.53	37095.05	37095.05
Average Normative Equity	37105.94	37072.19	37042.60	37060.79	37095.05
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%
Return on Equity (Pre Tax)-(annualised)	**8712.85**	**8604.46**	**8499.05**	**8503.23**	**8511.09**

Interest on loan

70. 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 <u>actual loan portfolio</u> 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.

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

(a) The gross normative loan of ₹37301.06 lakh as on 1.4.2009 has been considered.

(b) Cumulative repayment as on 31.3.2009 amounting to ₹36129.42 lakh as considered in order dated 23.5.2012 in Petition No. 270/2009 has been considered as cumulative repayment as on 1.4.2009.

(c) Accordingly, the net normative opening loan as on 1.4.2009 works out to ₹1081.64 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) The actual loan portfolio (represented by bonds) for the generating station had been repaid during 2007-08. Accordingly, the actual loan at the beginning of the year 2009-10 is 'nil'. In line with the first proviso of Regulation 16 (5) as stated above, the last available weighted average rate of interest (which in this case is for 2007-08) of actual loan portfolio represented by Bonds has been considered for calculating the interest on normative loan. No additional actual loan has been raised by the petitioner for incurring actual additional capital expenditure for the period 2009-12 (as per affidavit dated 11.10.2012).

(f) The cumulative repayment has been adjusted @70% due to de-capitalization of assets/works.

72. 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	37301.06	37206.67	37143.56	37068.56	37228.44
Cumulative repayment of loan upto previous year	36219.42	36140.07	36029.17	35973.90	36022.62
Net Loan Opening	1081.64	1066.60	1114.39	1094.66	1205.82
Addition due to Additional capitalisation	(-) 94.39	(-) 63.10	(-) 75.00	159.88	0.00
Repayment of loan during the year	19.33	23.36	37.87	76.45	130.32
Less: Repayment adjustment on account of de-capitalization	115.22	140.69	93.59	27.72	0.00
Add: Repayment adjustment on account of discharges / reversals corresponding to un-discharged liabilities deducted as on 1.4.2009	16.53	6.43	0.45	0.00	0.00
Net Repayment	(-) 79.35	(-) 110.89	(-) 55.28	48.73	130.32
Net Loan Closing	1066.60	1114.39	1094.66	1205.82	1075.49
Average Loan	1074.12	1090.49	1104.53	1150.24	1140.66
Weighted Average Rate of Interest on Loan	8.0800%	8.0800%	8.0800%	8.0800%	8.0800%
Interest on Loan	**86.79**	**88.11**	**89.25**	**92.94**	**92.16**

Depreciation

73. 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."

<u>Balance useful life of the generating station</u>

74. The Commission in paragraph 48 and 49 of the order dated 23.5.2012 in Petition No. 270/2009 had decided as under:

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

48. 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 1.4.2014 (completion of major R&M works) and the extended life after R&M of GT 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 31.3.2009	Extension of life of 15 years for GTs	Balance life as on	
					1.4.2009	1.4.2014
GT-I	111.19	1.10.1990	18.50	23.50		
GT-II	111.19	1.10.1990	18.50	23.50		
GT-III	111.19	1.11.1990	18.42	23.42		
GT-IV	111.19	1.11.1990	18.42	23.42		
ST-I	109.3	1.11.1990	18.42	23.42		
ST-II	109.3	1.12.1990	18.33	23.33		
Total	**663.36**		**18.43**	**23.43**	**15.59**	**10.59**

49. The weighted average of the elapsed life (period of operation) of the generating station, as on 1.4.2009 works out to 18.43 years. The major expenditure on R&M of the GTs are allowed for enhancing the life of the generating station by 1,00,000 Equivalent Operating Hours (EOH) which translates into 15 years, considering the low PLF of the generating station. The major part of R&M works would be completed by 31.3.2014. The weighted average of the period of operation of the generating station as on 31.3.2014 works out to 23.43 years. Considering the life extension of GTs by 15 years from 1.4.2014, the weighted average life of the generating station after R&M of GTs works out to 34.02 years in relation to the date of commercial operation of the respective units of the generating station, as stated above. Accordingly, the balance useful life of the generating station works out to15.59 years as on 1.4.2009 and 10.59 years as on 1.4.2014**."**

75. 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 31.3.2014 and considering the life extension of GTs by 15 years from 1.4.2014, the weighted average life of the generating station after R&M from the date of commercial operation (COD) was worked out to 34.02 years. The weighted average elapsed life of gas station was 18.43 years as on 31.3.2009 and 23.43 years as on

31.3.2014. Accordingly, the balance useful life gas based generating station after R&M was worked out to 15.59 years as on 1.4.2009 and 10.59 years as on 1.4.2014 respectively.

76. The petitioner in Review Petition No. 15/2012 had by affidavit dated 9.4.2013 submitted that the R&M expenditure on GTs had been revised and the same was likely to materialize during the tariff period 2014-19. It had also submitted that the issue of applying post R&M life to pre-R&M period for the purpose of calculation of depreciation no longer survives in case of this generating station during the current tariff period. Accordingly, the Commission by its order dated 29.4.2013 concluded that the question of calculation of the balance useful life of the generating station based on the revised phasing of expenditure would be considered at the time of disposal of this petition.

77. As stated, major part of R&M on GTs would be undertaken and completed during the next tariff period by revising the phasing of expenditure and the benefit of R&M could only be passed on to the beneficiaries during the next tariff period. On account of this, the issue of calculation of balance useful life of the generating station for the purpose of depreciation no longer survives. Considering the weighted average of elapsed life of 18.43 years as on 31.3.2009 and the 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 is worked out as 6.57 years (25-18.43 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:

2009-10	**2010-11**	**2011-12**	**2012-13**	**2013-14**
6.57 years	5.57 years	4.57	3.57	2.57

78. The cumulative depreciation amounting to ₹65957.35 lakh as on 1.4.2009 as considered in order dated 23.5.2012, in Petition No. 270/2009, has been considered. Further, the value of freehold land as considered as on 31.3.2009 is ₹932.76 lakh. After considering the admitted additional capital expenditure for the year 2009-10 above, the balance depreciable value before providing depreciation for the year 2009-10 works out to ₹126.99 lakh as against ₹197.84 lakh

as considered in order dated 23.5.2012. The depreciation has been calculated by spreading over the balance depreciable value. The balance useful life of the generating station as on 1.4.2009 is considered as 6.57 years which is considered for calculation of depreciation. Further, proportionate adjustment has been made to the cumulative depreciation on account of de-capitalization of assets till 2011-12. For 2012-13, adjustment is on projected basis which is subject to truing-up. Also, proportionate adjustment has been made on account of discharges/reversal of liabilities out of un-discharged liabilities deducted from capital cost as on 1.4.2009. 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	74427.23	74292.38	74202.23	74095.09	74323.49
Closing capital cost	74292.38	74202.23	74095.09	74323.49	74323.49
Average capital cost	74359.81	74247.31	74148.66	74209.29	74323.49
Depreciable value @ 90%	66084.34	65983.10	65894.31	65948.88	66051.66
Remaining useful life at the beginning of the year	6.57	5.57	4.57	3.57	2.57
Balance depreciable value	126.99	130.10	173.02	272.85	334.82
Depreciation (annualized)	**19.33**	**23.36**	**37.87**	**76.45**	**130.32**
Cumulative depreciation at the end	65976.68	65876.35	65759.16	65752.48	65847.16
Less: Cumulative depreciation reduction due to de-capitalization	148.13	165.48	83.94	35.64	0.00
Less: Cumulative depreciation adjustment on account of discharges / reversal of liabilities out of liabilities deducted as on 1.4.2009	24.44	10.41	6.86	0.00	0.00
Cumulative depreciation after adjustment due to de-capitalization (at the end of the period)	65852.99	65721.29	65676.03	65716.84	65847.16

O&M Expenses

79. The Operation & Maintenance expenses allowed in order dated 23.5.2012 in Petition No. 270/2009 have been considered.

Interest on Working Capital

80. The fuel cost for one month and liquid fuel stock for 1/2 months as worked out in order dated 23.5.2012 in Petition No. 270/2009 have been considered.

81. Maintenance spares as allowed in order dated 23.5.2012 in Petition No. 270/2009 have been considered for the purpose of tariff.

82. 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	16506.31	16506.31	16551.53	16506.31	16506.31
Fixed Charges- 2 months	3798.14	3881.05	3972.45	4091.10	4219.64
Total	**20304.45**	**20387.36**	**20523.98**	**20597.41**	**20725.95**

83. O&M expenses for 1 month for the purpose of working capital as allowed in order dated 23.5.2012 in Petition No. 270/2009 has been considered.

84. SBI PLR of 12.25% as on 1.4.2009 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:

(₹ in lakh)

	2009-10	2010-11	2011-12	2012-13	2013-14
Fuel stock (APM & RLNG) – 1 month	8253.15	8253.15	8275.77	8253.15	8253.15
Liquid fuel stock – 1/2 month	1574.15	1574.15	1578.47	1574.15	1574.15
Maintenance Spares	2945.32	3114.48	3291.59	3480.65	3679.66
O&M expenses – 1 month	818.14	865.13	914.33	966.85	1022.13
Receivables – 2 months	20304.45	20387.36	20523.98	20597.41	20725.95
Total working capital	**33895.22**	**34194.28**	**34584.14**	**34872.22**	**35255.04**
Rate of interest	12.2500%	12.2500%	12.2500%	12.2500%	12.2500%
Interest on working capital	**4152.16**	**4188.80**	**4236.56**	**4271.85**	**4318.74**

Annual Fixed charges for 2009-14

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

(₹in lakh)

	2009-10	2010-11	2011-12	2012-13	2013-14
Depreciation	19.33	23.36	37.87	76.45	130.32
Interest on Loan	86.79	88.11	89.25	92.94	92.16
Return on Equity	8712.85	8604.46	8499.05	8503.23	8511.09
Interest on Working Capital	4152.16	4188.80	4236.56	4271.85	4318.74
O&M Expenses	9817.73	10381.58	10971.97	11602.17	12265.53
Total	**22788.86**	**23286.31**	**23834.70**	**24546.63**	**25317.85**

Note: *(i) All figures are on annualized basis.(ii) All the figures under each head have been rounded.*
(ii) The figure in total column in each year is also rounded. Because of rounding of each figure the total may not be arithmetic sum of individual items in columns.

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

87. The Energy Charge Rate as worked out in order dated 23.5.2012 in Petition No. 270/2009 remain unchanged.

88. The difference in the annual fixed charges determined by order dated 23.5.2012 and those determined by this order shall be adjusted in accordance with the proviso to Regulation 5 (3) of the 2009 Tariff Regulations.

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

90. This order disposes of Petition No. 28/GT/2013.

Sd/-	Sd/-
[M. Deena Dayalan]	**[V. S. Verma]**
Member	**Member**