

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 212/2010**

**Coram:**

**Dr. Pramod Deo, Chairperson**

**Shri V. S. Verma, Member**

**Shri M. Deena Dayalan, Member**

**Date of Hearing: 19.2.2013**

**Date of Order: 7.6.2013**

**IN THE MATTER OF**

Petition for approval of proposal for Renovation & Modernization of Talcher Thermal Power Station (460 MW) of NTPC Ltd.

**AND**

**IN THE MATTER OF**

NTPC Ltd, New Delhi

**.....Petitioner**

Vs

Grid Corporation of Orissa Ltd, Bhubaneswar

**....Respondent**

**Parties present:**

Shri Ajay Dua, NTPC

Shri Rohit Chabra, NTPC

Shri Guryog Singh, NTPC

Shri Ishpal Uppal, NTPC

Shri Shyam kumar, NTPC

Shri V.Ramesh, NTPC

Shri A.K.Bishoi, NTPC

Shri R.B.Sharma, Advocate, GRIDCO

Shri S R.Sarangji, GRIDCO

**ORDER**

This petition has been filed by the petitioner, NTPC in terms of the provisions of Section 62 and 79 of the Electricity Act, 2003 and Regulation 10 (1) of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 (hereinafter 'the 2009 Tariff Regulations') with specific prayers as under:

- (a) Grant the approval to the schemes as indicated at Annexure I and II of this petition;
- (b) Allow revision of the tariff of instant station on account of approved R&M cost;
- (c) Pass any other order as the Hon'ble Commission deems fit in the circumstances pleaded above.

2. The generating station, was initially owned and operated by the erstwhile Orissa State Electricity Board (OSEB) and due to the inability of OSEB to continuously operate the generating station at its optimum capacity, the same was transferred to the petitioner on 3.6.1995 in terms of the Talcher Thermal Power Station (Acquisition and Transfer), Act, 1994. The generating station comprises four units of 60 MW capacity each and two units with capacity of 110 MW each. The Unit-wise date of commercial operation (COD) of the generating station is as follows:

Units	COD
Unit-I	17.12.1967
Unit-II	28.3.1968
Unit-III	11.7.1968
Unit-IV	11.4.1969
Unit-V	24.3.1982
Unit-VI	24.3.1983

3. The entire power generated from the station is being supplied to the respondent GRIDCO Ltd based on the Power Purchase Agreement (PPA) signed on 8.3.1995. In the Transfer Agreement, the PPA and the MOU dated 11.10.1994 entered into between the petitioner, the State Govt. of Orissa and OSEB, it was agreed that the capital cost for tariff shall be ₹356 crore plus the actual cost incurred on Renovation and Modernization (R&M) on year to year basis as per actual capitalization in the audited accounts. It was also agreed that the petitioner would be free to carry out R&M of the generating station based on their technical assessment. The said PPA dated 8.3.1995 was valid for a period of 5 years from the date of takeover of the generating station by the petitioner, that is upto 2.6.2000. The capitalized amount of ₹327.67 crore was agreed as the gross block as on 3.6.1995 i.e. on the date of transfer. Similarly, the capitalized amount of ₹328.68 crore as on 31.3.1996 was

also agreed as the base for calculation of fixed charges. At the time of takeover, the operating performance of the generating station was as under:

PLF	29.02%
Generation	1169.697 MU
Outages	581 nos.

4. The Commission vide its order dated 19.6.2002 in Petition No.62/2000, determined the tariff of the generating station for the period from 1.4.2000 to 31.3.2004 based on the capital cost of ₹431.83 crore as on 31.3.2000 which included capitalization of initial spares of ₹11.50 crore and additional capital expenditure of ₹91.65 crore for the period from 3.6.1995 to 31.3.2000 and considering ₹132 crore towards R&M Stage-I. By this order, the life of the generating station was extended by 20 years with effect from 1.4.2001. Thereafter, the Commission vide its order dated 25.9.2006 in Petition No.35/2004 revised the annual fixed charges of the generating station for the period 2000-04 after considering additional capital expenditure of ₹264.18 crore, for the period from 1.4.2000 to 31.3.2004 and considering ₹305 crore towards R&M Stage-II. While the total additional capital expenditure allowed by the Commission during 2004-09 was ₹175.98 crore, an expenditure of ₹543.32 crore had been allowed as additional capital expenditure from 3.6.1995 (i.e. from the date of transfer) to 31.3.2009 as a part of R&M of Stage-I and Stage -II units of the generating station. The Closing capital cost as on 31.3.2009 as approved by the Commission vide its order dated 2.4.2013 in Petition No.184/2009 is ₹87243.78 lakh.

5. The petitioner has submitted that based upon the necessity arising out of the prevailing operating conditions of the units of the generating station at the time of take over and their long period of operation, phase-wise renovation and modernization plan was worked out which was aimed at accomplishing revival of generation, enhancing availability, improving efficiency & performance parameters, achieving sustained performance and high reliability of units for entire enhanced life and to meet the environmental emission norms in a phased manner. Accordingly, the phase-wise R&M planned and approved by the beneficiary and

implemented by the petitioner is as under:

- (a) Phase-I R&M: For restoration and refurbishment of defective equipments of the station and renovation of Steam Generator and C&I of one unit (60 MW) of Stage-I (₹132 crore)
- (b) Phase-II R&M: For renovation of Steam Generator and C&I of three units (60 MW) of Stage-I and up-gradation of coal carrying facility (₹305 crore)
- (c) Phase-III R&M: For renovation of Steam Generator and C&I of two units (110 MW) of Stage-II and R&M of TG and auxiliaries of Stage-I and II (₹229 crore)
- (d) Switch yard R&M: For renovation of the Switchyard, as agreed to by the respondent after transfer to the petitioner (₹18.25 crore)

6. In the above background, the petitioner has filed this petition under Regulation 10(1) of the 2009 Tariff Regulations and has submitted that it has planned Phase-IV R&M schemes (18 nos) covering the balance area i.e Renovation of Stage-I & II Electrical system (Generators, GTs, UATs) and balance Turbine auxiliaries, Stage-II ESPs, Cooling Tower, balance C&I system and Station Fire protection system. The petitioner has also submitted that besides the benefit of more power due to improved PLF and Availability, the benefits of efficiency and performance improvement due to R&M has also been passed over to the beneficiary by enhancement of operational norms for the generating station by the Commission with effect from 1.10.2007. The detail in respect of the proposed R&M schemes under Phase-IV for implementation along with detailed justification, estimated cost, phasing of expenditure and cost benefit analysis has been submitted by the petitioner in Annexure-I to the petition. Accordingly, the estimated expenditure for implementation of these 18 nos of R&M schemes (Phase-IV) is ₹13590.24 lakh (including contingency, IDC &FC). The petitioner has also submitted the Detailed Project Report (DPR) covering the individual R&M schemes which are planned during 2009-14 in a phased manner during planned shutdown of the units.

7. The petitioner has also submitted that the projected additional capital expenditure on account of these works which have been agreed to by the respondent has been claimed by the petitioner in its tariff petition (Petition No. 304/2009) for approval of the Commission.

8. The petitioner has further submitted that in addition to the R&M schemes envisaged in DPR as above, need was felt for up-gradation of associated sub-systems and accordingly, it has proposed to undertake the following renovation works which are necessarily required for safe and effective operation of the generating station through efficient maintenance and overhaul management of the generating units;

- (a) Stage-I boiler goods cum passenger elevator
- (b) Stage-II Boiler Goods cum passenger elevator
- (c) Passenger elevator

9. The petitioner has further submitted that being a takeover generating station certain new facilities/assets and Tools and Plants, commensurate with other generating stations of the petitioner are required for the purpose of downtime optimization and increasing maneuverability and quality maintenance and safety. Accordingly, the petitioner has proposed to augment these facilities at an estimated expenditure of ₹380.60 lakh during the period 2010-13 as per details given in Annexure-II of the petition. Thus, the total expenditure of ₹13970.84 lakh for implementation of R&M (Phase-IV) and other associated subsystems up-gradation has been planned by the petitioner.

10. Based on the directions of the Commission in its letters dated 15.11.2010 and 7.12.2010 respectively, the petitioner vide its affidavit dated 24.1.2011 filed additional information in the matter and has submitted that R&M schemes are mainly towards enhancing reliability of unit operation for designated life of the generating station and the improvement of performance would be ascertained based on performance after implementation of R&M. Accordingly, the petitioner has submitted the status of the implementation of R&M works in Phase-I, II & III as under:

(₹ in crore)

Detail of R&M work	Estimated expenditure (approved proposal)	Estimated expenditure (current status)	Amount spent till September, 2010	Amount capitalized in Books of Accounts	Whether activity completed	Balance to be executed	Expected completion date
Phase-I	132.00	135.02	135.02	135.02	Yes	-	-
Phase-II	305.00	312.40	307.12	281.73	No	5.28	2013-14
Phase-III	208.06	241.71	172.59	99.82	No	69.12	2013-14
Switchyard	18.25	32.84	27.64	24.04	No	5.20	June,2011

11. Thereafter, the petitioner vide its affidavit dated 9.2.2011, filed Interlocutory Application (I.A.No.3/2011) praying for consideration of the proposed expenditure under R&M (Phase-IV) schemes in tariff for recovery of fixed charges for the generating station in Petition No. 304/2009 for 2009-14 which is pending for consideration of the Commission.

12. Subsequently, the petitioner vide its affidavit dated 20.11.2012 submitted additional information reassessing/updating the status of R&M schemes in respect of their implementation, updated cost along with revised phasing as per amended Annexures-I and II of the said affidavit. It has also submitted that during the pendency of the petition, some of the proposed schemes (scheme nos. E-01, E-02 & E-04) had to be implemented due to urgent requirement considering the prevailing operating condition of equipment to ensure reliability of units and sustained performance of the plant and postponing the execution of these schemes would have serious implication on safe and reliable operation of the generating station. Accordingly, the petitioner has prayed that the Commission may consider these as capital work under R&M as these are not routine maintenance/repair work. The petitioner has further submitted that since Redesigning/Retrofitting of Stage-II ESP (Scheme No. OS-02) proposed under Phase-IV R&M was being done based on the CEPI action plan as per the Odisha State Pollution Control Board directive, the scheme is covered under Regulation 9(2)(ii) of the 2009 Tariff Regulations i.e Change in law. Accordingly, this scheme has been taken out of the revised R&M Phase-IV as proposed by the petitioner. The petitioner has also submitted that in addition to the above R&M schemes, some new additional R&M works which are necessary for efficient and reliable operation of the generating station has been proposed to be undertaken, namely:

- (a) Retrofitting of 110 MW units (Unit-V & VI), HP Heaters 1 & 2
- (b) Retrofitting of new modified BFP cartridges of 110 MW (Units V & VI)
- (c) DCS up-gradation of Stage-I (4 x 60 MW)
- (d) Replacement of switchgear of CHP Mine end.

13. Based on the above, the revised detail of the schemes required to be implemented

under R&M Phase-IV upto 31.3.2014 in respect of the generating station as submitted by the petitioner in its affidavit dated 20.11.2012 are as under:

<i>(₹ in crore)</i>	
	NET Capitalization amount
R&M schemes (excluding IDC, FC & contingency) Annexure-I	94.48
Other renovation, new facilities and T&Ps Annexure-II	45.70
<b>Total R&amp;M Phase-IV</b>	<b>140.18</b>

14. In the said affidavit, the petitioner has also submitted that since the tariff Petition No. 304/2009 for the period 2009-14 has not been decided, the year wise capitalization in respect of implementation of R&M schemes as approved by the Commission may be considered for inclusion in capital cost for recovery in tariff. It has also submitted that the actual expenditure details will be submitted at the time of truing up exercise to be undertaken in Petition No. 304/2009 for the period 2009-14.

15. The Commission after hearing the parties on 22.11.2012 admitted the petition. The petitioner during the hearing on 15.1.2013 submitted that the expenditure of ₹35 crore was to be incurred during the period 2009-14 and the balance work was to be taken up during the next tariff period. As the time left for completion of the existing tariff period 2009-14 is only 15 months and the process of tendering etc could be taken up after in-principle approval only, thereby extending the works to the next tariff period (2014-19), the Commission directed the petitioner vide its record of proceedings dated 15.1.2013 to submit the '*revised year wise phasing of expenditure indicating clearly the time frame for completion of each activity/work of R&M Phase-IV*'. In response, the petitioner vide its affidavit dated 6.2.2013 has submitted the revised phasing of expenditure including the time frame for completion of R&M Phase-IV scheme beyond 31.3.2014 as per Annexure-A (R&M schemes under consideration) and Annexure-B (Other renovation, new plant facilities and T&P). Accordingly, the revised phasing of expenditure in respect of implementation of 11 nos. of R&M schemes and 6 nos. of Other new schemes (totaling 17 schemes) amounting to ₹10535.96 lakh has

been sought for capitalization beyond 31.3.2014. The petitioner has also submitted that the work towards implementation of all the schemes is planned to be taken up immediately after approval of the Commission and any further splitting/deferment of approval of these schemes will extend the timeline for implementation and will put the reliability and safety of the plant in danger. Accordingly, the year-wise R&M expenditure beyond 31.3.2014 as submitted by the petitioner is as under:

	(₹ in lakh)				
	2013-14	2014-15	2015-16	2016-17	Beyond 31.3.2014
Original Estimated expenditure (excluding IDC, FC & contingency)	<b>12189.00</b>	-	-	-	-
R&M schemes (11 Nos)		4316.56	2433.89	312.50	7062.96
New Schemes (6 Nos)		0.00	1789.10	1683.90	3473.00
<b>Total</b>					<b>10535.96</b>

16. The respondent, GRIDCO in its reply while praying for the rejection of the proposal of the petitioner, has mainly submitted as under:

(a) Even though the works of Phase-III R&M are yet to be completed during the period 2009-14 and evaluation of its efficacy is yet to be identified by the Commission, a new R&M Phase-IV has been proposed by the petitioner. Hence, the proposal is premature. The petitioner was expected to file the record of consultation with the beneficiary but the same has not been filed inspite of statutory requirements. The respondent being the sole beneficiary of the generating station has a statutory right to share the benefits of efficiency improvements.

(b) The petitioner is required to seek the approval of expenditure on R&M for extension of life beyond the useful life of the generating station as per provisions of Regulation 10 of the 2009 Tariff Regulations. The DPR of Phase-IV R&M clearly show that the life of the generating station will not be extended beyond March, 2021. Thus, the request of the petitioner for approval of R&M expense is liable to be rejected.

(c) The approval of the expenditure on R&M under Regulation 10(2) of the 2009 Tariff Regulations may be granted by the Commission after consideration of the following factors namely, (i) reasonableness of cost estimates (ii) financing plan (iii) schedule of completion (iv) IDC (v) use of efficient technology (vi) cost-benefit analysis and (vii) factors considered relevant by the Commission.

(e) Since the amount of ₹170.67 crore for balance works under Phase-III & Switchyard is an approved scheme by the beneficiary which is expected to be incurred during 2009-14 and recovered through tariff in Petition No. 304/2009, it is incumbent upon the petitioner to seek the approval of the Commission under Regulation 10 of the 2009 Tariff Regulations.

(f) The Commission may consider as to whether there is any need to undertake further R&M works especially when all the six units of the generating station are functioning in an



improved manner. The investment made till 2008-09 by the petitioner is optimum investment and no further investment is needed for the generating station.

(g) Out of the 18 schemes, only 9 R&M schemes amounting to ₹23.86 crore will be taken for implementation during 2009-14 tariff period. In respect of other 8 schemes amounting to ₹70.62 crore, the entire expenditure is proposed beyond the 2009-14 tariff period. Seeking in-principle approval of the schemes for investment especially when the schemes are not needed for 2009-14 tariff period amounts to binding the Commission in decision making as well as framing regulatory regime for the next tariff period. The petitioner cannot extend the applicability of the 2009 Tariff Regulations for the period 2014-19 as prayed for.

(h) The petitioner has not provided the cost benefit analysis by clearly projecting the year wise tariff for period 2009-14 consequent upon the R&M expenditure which is estimated to cost a whopping sum of ₹310.38 crore which include ₹139.70 crore for R&M Phase-IV and ₹170.67 crore for balance work under Phase-III and Switchyard. The benefit in terms of increase in PLF, increase in efficiency, reduction in auxiliary consumption and fuel consumption, improvement in plant safety and environmental up-gradation expected to be achieved after implementation of R&M/LE scheme should be clearly brought out.

(i) The Residual Life Assessment (RLA) was undertaken during 2002-03 when PLF was 55.93% and since then huge R&M works have been carried out and till 2008-09 an amount of ₹560 crore have been incurred which is being serviced through tariff. As a result of such R&M expenditure, the PLF of all the six units during 2008-09 was ranging from 90% to 95%

(j) The R&M expenditure may be allowed to the generating station only if the benefits arising out of such investments are shared with the respondent and not otherwise.

(k) The data regarding forced outages of the entire generating station for 2004-09 furnished by the petitioner in affidavit dated 24.1.2011 does not help in identifying the problems in various units for undertaking R&M works unless information on individual units of the generating station is submitted. As per information from CEA website on performance indices, this generating station was operating without any problems as seen from the following table:

Period of report	Yearly generation (Gwh)	Yearly PLF (%)
2007-08	3487.48	84.47
2008-09	3734.70	90.71
2009-10	3661.76	88.94

The above performance indices would show that the generating station has shown a sustained generation with excellent PLF, inspite of the fact that the petitioner is yet to complete the investment under R&M Phase-III. Thus, the Commission may reject the prayer of the petitioner on this ground alone.

17. In response, the petitioner while objecting to the above submissions of the respondent has mainly clarified as under:

(a) This petition has been filed for approval of R&M Phase-IV works by the Commission in accordance with the 2009 Tariff Regulations prior to implementation which is a new requirement unlike the earlier implementation of R&M phases. Hence, the contention of respondent that R&M Phase-IV proposal is premature is not correct. The requirement of R&M Phase-IV works further beyond R&M Phase-III was presented to the respondent in August, 2004 and had been acknowledged while according clearance for R&M Phase-III by the respondent. R&M Phase-IV schemes are being undertaken with interaction with the respondent, on an ongoing basis.

(b) The respondent as a beneficiary has availed the full benefit of improved generation and has enjoyed the benefits of upgraded efficiency norms as decided by the Commission from time to time.

(c) The projected tariff detail in respect of balance Phase-III and Switchyard works for approval of the Commission had already been submitted in Petition No. 304/2009. I.A to the instant petition has been filed with detail of year-wise tariff for the period 2009-14 for servicing of R&M Phase-IV expenditure for consideration of the Commission. The R&M Phase-IV works for the generating station are essentially required for ensuring reliable and sustained operation at the existing performance level during its designated life.

(d) The requirement for taking-up R&M works in various systems /sub-systems has been based upon the RLA/diagnostic tests' results and recommendations and discussed with the respondent. Further, R&M works upto Phase-III, part of which has already been implemented and taken up for approval by Commission under applicable regulation has been identified after its approval by the respondent subsequent to assessment by their expert committee.

(e) In-principle requirement of R&M Phase-IV schemes (for initial 8 nos. with estimated cost ₹ 62.39 crores) was presented to the respondent at the time of Phase-III works approval and same was agreed to vide their clearance dated 1.9.2004 for R&M Phase-III. However, after final consideration based upon further units' operational experience and environmental and safety considerations, total 18 nos. R&M Phase-IV schemes have been identified which has been first presented and discussed with the beneficiary on 10.10.2009 and subsequently acknowledged by the respondent vide their letter dated 7.11.2009. The petitioner has also submitted the copy of R&M petition along with DPR to the respondent at the time of its filing with Commission. The respondent's contention that Phase-IV R&M was discussed just before a day prior to its filing and that the consultation exercise was a formality and without any sincere effort is not correct and liable to be rejected.

(f) The R&M Phase-IV works are identified based upon the RLA and various diagnostic test findings for sustenance of operating performance of the station in line with the norms as specified by the Commission during its designated life span. The respondent's contention that no further R&M work is required at the generating station is without any basis.

(g) Higher O&M expense in case of generating station is on account of high employee cost as the employees transferred from erstwhile OSEB at the time of take-over continue to get earlier benefits as per the terms and conditions of Transfer Agreement. Moreover, the actual O&M expenses for generating station are much higher than the O&M expense provided in the 2009 Tariff Regulations.

(h) The respondent is further trying to unsettle the already settled issue of Stage-I

units' rated capacity. The matter of rated capacity has been already decided by the Commission vide its order dated 4.3.2008 in a review filed by respondent Gridco in Petition No. 35/2004 and same has also been upheld by the Appellate Tribunal in its Judgment dated 8.11.2011 in Appeal No. 86/2006 and Appeal No. 227 of 2006 filed by Gridco.

(i) Since the generating station is an old station (more than 25 years) and operating with relaxed norms, it is not entitled for any compensation allowance and special allowance. Being a takeover generating station, the new facilities/assets and Tools and Plant as required for the purpose of downtime optimization and increasing maneuverability in quality maintenance and safety are required to be created through R&M. The expenditure involved in these schemes and other schemes cannot be covered under O&M expenses, as these schemes e.g. R&M/Retrofitting of elevators, HP Heaters, Stage-I DCS, BFP cartridges etc. are not routine O&M expenditure. The norms of O&M expenditure allowed in tariff does not include the work required to be undertaken in the proposed R&M works.

(j) The petitioner is furnishing all information to the respondent as required under the 2009 Tariff Regulations. Besides the information sought by the respondent, information is also being filed under Section 62(5) of the Electricity Act which is available in public domain. The benefits of higher availability and PLF achieved by generating station has been reaped by respondent in the form of more electricity at a cheaper rate as the power from the generating station is among the cheapest thermal power.

18. Before we proceed, it is necessary to examine the submission of the respondent that seeking in-principle approval for investment on R&M schemes which are proposed to be implemented beyond the tariff period 2009-14 amounts to binding the Commission in decision making and also extending the applicability of the 2009 Tariff Regulations and hence cannot be permissible. As stated, the petitioner in its affidavit dated 6.2.2013 has revised the phasing of expenditure on R&M Phase-IV works wherein 17 no of schemes totaling ₹10535.96 lakh are to be implemented during the next tariff period i.e 2014-19. The details of R&M Phase-IV scheme as amended and furnished by the petitioner under Annexure-A (11 nos. original scheme) and Annexure-B (6 nos. new scheme) are as under:

**Annexure-A (11 Nos. Original Scheme)**

<i>(₹ in lakh)</i>					
Sl. No.	Description of work	2014-15	2015-16	2016-17	Beyond 31.3.2014 (projected capitalization)
1	Complete rewinding of 125MVA, 11/240 kV Generator Transformer (GT) of Stage-II Unit-6 including charge of bushings.	253.80	44.23	-	398.03

2	Retrofitting of Turbine Stub shaft in Unit-1 & 2 (60 MW) Stage-1	162.5	162.5	-	325
3	Procurement & replacement of AOP-2 nos. and Booster pumps for MOP-2 nos. in TG Lub oil system, Unit-1 & 4 (60MW), Stage-1	406.35	-	-	406.35
4	Gland Steam Exhaust Blowers (04 Nos.) for (60 MW) Stage-1 Units	34.85	-	-	34.85
5	Replacement of Seal Steam Regulators in Stage-1 units.	59.01	59.01	-	118.02
6	Refurbishment of Turbine rotors of Stage-II HP, IP & LP Rotor, 01 no. each (Being carried through O&M budget for HP in 2012-13)	-	406.25	312.50	718.75
7	Electro Hydraulic Converter (EHC) for Stage-II/2x110 MW Turbines	707.23	707.23	-	1414.46
8	Motorized actuators (64 Nos.) for Stage-II 2x110 MW Units	85	85	-	170
9	Replacement of Stage-II Cooling tower internals	469.11	469.11	-	938.22
10	Stage I & II fire detection & protection system for UCBs & other areas	197.31	295.96	-	493.27
11	Rewinding & Recoring of 60 MW Generator Stator of Unit # 3, Stage-I	1814.4	204.6	-	2046
		<b>4316.56</b>	<b>2433.89</b>	<b>312.50</b>	<b>7062.396</b>

#### **Annexure-B (6 Nos. New Scheme)**

(₹ in lakh)

Sl. No.	Description of work	Amount approved	Amount capitalized/current	Year/projected year of capitalization
1	Replacement of existing passenger elevator	35.00	35.00	2014-15
2	Re-routing of raw (River) water pipe lines	New Item	500.00	2015-16
3	Retrofitting of 110 MW units (units # 5, 6) HP Heaters 1,2	New Item	735.00	2014-15
			735.00	2015-16
4	Retrofitting of new modified BFP cartridges of 110 MW (Unit# 5, 6)	New Item	500.00	2014-15
5	DCS Up-gradation of stage-I (4x60 MW)	New Item	425.50	2014-15
			425.50	2015-16
6	Replacement of switchgear of CHPMINE End	New Item	93.60	2014-15
			23.40	2015-16
7	Total for year 2014-15		1789.10	
8	Total for year 2015-16		1683.90	
9	<b>Total for year (beyond 2014) A+B</b>		<b>3473.00</b>	

19. The respondent has submitted that out of the 17 schemes, 8 R&M schemes amounting to ₹7062.39 lakh are proposed to be implemented by the petitioner during the next tariff period and hence consideration of the same would amount to extending the applicability of the 2009 Tariff Regulations to the next tariff period.

20. We have considered the submissions of the parties and examined the documents on record. The generating station is an old station taken over by the petitioner wherein R&M works have been implemented in various phases (Phase-I, II, III and Switchyard). It is noticed that after considering the units' operational experience and environmental & safety considerations, a total of 18 nos of R&M Phase-IV schemes identified by the petitioner were presented and discussed with the respondent on 10.10.2009 and its has been intimated by the respondent that these schemes under R&M could be taken up as per approval of the Commission. These R&M schemes which are implemented / planned for implementation during the period 2009-14 are mainly towards enhancing the reliability of the unit operation for the designated life of the generating station and improvement of performance of the generating station after R&M to ensure power supply to the consumers. Moreover, comprehensive R&M works required for the generating station have been identified for implementation in phases after prioritization considering the respondents' requirement for carrying out these works during overhaul of units with minimal impact on energy supply from the generating station and Phase-IV R&M works form part of the same. The R&M works in earlier phases have been spread over a span of time depending upon the quantum that could be completed during individual units overhaul. It is noticed that the R&M schemes under Phase-IV have been identified in advance by the petitioner and discussed with the beneficiary for implementation during the period 2009-14. Till the year 2012-13, many of the schemes have already been implemented by the petitioner. Also, these R&M schemes have been planned during scheduled shut down. At the time of filing the petition, the petitioner had planned for implementation of these 18 schemes by 2013-14 after approval of the Commission. However, due to implementation of these works during maintenance overhaul as emphasized by the beneficiary and to have minimum impact on station availability, part of these works (17 schemes) proposed now by the petitioner under R&M Phase-IV are to be continued beyond the tariff period 2009-14, based on which revised phasing of expenditure has been submitted by the petitioner. The petitioner has also submitted that some of the

systems have become obsolete due to which availability of spares is difficult and there are frequent failures in some systems /components affecting the unit availability warranting replacement of systems to improve efficiency. In the above background and taking into consideration that the implementation of these schemes requires sufficient lead time for planning, ordering, manufacturing, and execution, etc., the proposal of the petitioner seeking in-principle approval of these works is justified. The grant of in-principle approval for the reasons mentioned above would not in our view amount to extension of the provisions of Regulation 10 of the 2009 Tariff Regulations. Moreover, the expenditure on R&M works beyond 2009-14 could be treated as committed liabilities, to be considered in accordance with the relevant regulations during the next tariff period. Thus, the objection of the respondent is disposed of in terms of the above.

21. Having concluded that the grant of in-principle approval would not amount to extension of the applicability of Regulation 10 of the 2009 Tariff Regulations for the next tariff period for the reasons stated above, we proceed to examine on merit, the details of the R&M schemes and other new schemes proposed by the petitioner for implementation during the next tariff period. It is observed from details of the original 11 nos. R&M schemes that five schemes specifically belong to R&M of Stage-I (4x60 MW) units and one scheme is common to both the stages (Stage- I and II). The remaining five schemes are in respect of Stage-II of the generating station. Out of the new six schemes, one scheme namely, DCS up-gradation is specific for Stage-I units. Two schemes namely, re-routing of raw water pipelines and the Replacement of Switchyard of CHP mine end are common to both the Stages (Stages-I & II) of the generating station. As stated, the petitioner has submitted that some of the systems have become obsolete due to which availability of spares is difficult, and there are frequent failures in some systems /components affecting the unit availability warranting replacement of systems to improve efficiency. However, from the performance data of Stage-I, Stage-II and the generating station for the period 2004-09 and also

performance data of the generating station for the period 2009-12, it is observed that the availability and PLF of Stage-I and Stage-II separately, and the generating station as a whole are significantly higher, as indicated in the table given under:

**Plant Performance during 2004-05 to 2008-09**

**Stage-I (4x60 MW)**

	(₹ in lakh)				
	2004-05	2005-06	2006-07	2007-08	2008-09
PLF (%)	82.21	94.15	93.66	84.20	92.24
Average availability factor	84.87	93.47	93.08	84.38	94.26

**Stage-II (2x110 MW)**

	(₹ in lakh)				
	2004-05	2005-06	2006-07	2007-08	2008-09
PLF (%)	76.17	80.44	82.04	88.69	92.40
Average availability factor	86.37	89.78	86.58	89.11	92.17

**Generating Station**

	(₹ in lakh)							
	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
PLF (%)	79.32	87.60	88.10	86.35	92.68	90.87	94.20	92.56
Average availability factor	85.59	91.70	89.97	86.64	93.23			

22. It is observed from the above table that the availability / PLF of the generating station during 2008-12 varied between 91% to 94%. Under such improved actual operating performance, it can be concluded that in absence of the R&M Phase-IV works, the Stage-I, Stage-II and the generating station has not suffered any serious break-down or generation loss on account of non-reliability or obsolescence of some of the existing components. It appears that the petitioner by undertaking R&M Phase-IV has intended to provide for any exigencies/failure in future. However, it is noted that the extended life of the units are to expire during the year 2021 and the generating station has attained a saturated level of its performance due to extensive additional capitalization of ₹ 543.32 cores allowed by the Commission in the form of R&M, thereby keeping very little room for further efficiency improvement. Under these circumstances, the consideration of R&M Phase-IV could only be on the premise that the life of the individual units/generating station would be extended beyond the year 2021.

23. The Commission in its order dated 19.6.2002 in Petition No. 62/2000 had extended the life of the generating station by 20 years with effect from 1.4.2001 i.e upto 31.3.2021 based on the agreed expenditure of ₹436.5 crores under R&M Phase-I & Phase-II. The petitioner had formulated R&M Phase-I, Phase-II and Phase-III and Switchyard scheme in consultation with the respondent, the expenditure of which was allowed by the Commission during 2001-04 and 2004-09 tariff periods. The benefit of life extension and improved operational performance has been passed on to the respondent in the form of sustained generation and improved operational norms, in consideration of which, the operational norms had been revised twice by the Commission based on actual performance during the implementation of R&M. As stated, some of the works under Phase-III are still under implementation. While considering the extension of life of the generating station earlier, the petitioner had also not indicated that without the implementation of the works under Phase-IV, it would not be possible to extend the life of the units by 20 years or to sustain generation with improved performance. The Stage-I units of the generating are very old and is are in operation for more than 41 to 42 years. Accordingly, there is no justification for the petitioner to take up further R&M in Stage-I units. Instead, the petitioner is well advised to file a phasing out scheme for Stage-I units in line with policy decision of the CEA with regard to old units sizes of 110 MW and below. Any requirement for replacement of any components/system on need basis during the normal operation during the remaining life of these units could be booked under O&M expenses rather than capitalization of the expenditure considering the fact that increase in tariff particularly when the units are to be phased out in next 6-7 years period, would not be desirable.

24. In so far as R&M Phase-IV works proposed for Stage-II, the petitioner has not indicated any linkage with further extension of life. The Stage-II units are also in operation for more than 30 years and its extended life would expire in 6-7 years (approx). However, the Stage-II units are relatively new and are of higher capacity as compared to Stage-I units. In this background, we are of the considered view that R&M Phase-IV schemes which



pertain to Stage-II of the generating station could only be considered, subject to the condition that the petitioner would recover the cost of R&M Phase-IV in 15 years from the date of completion of the said R&M. The present tariff period 2009-14 is nearing completion and hence these schemes in all likelihood would be implemented only during the next tariff period as stated by the petitioner. However, keeping in view that in-principle approval would facilitate the process of tendering, issuance of work order, execution, etc., these schemes in all probability would materialize during the initial years of the next tariff period. The original R&M schemes and other new schemes of ₹64.97 crore (₹38.75 crore for original schemes and ₹26.22 crore for new schemes) could be considered as Stage-II schemes and these include ₹58.45 crore specifically envisaged for Stage-II units (including the apportionment amount of ₹2.36 crore for Fire detection and protection system for Stage-II) and ₹6.52 crore towards cost of common facilities such as rerouting of raw water pipelines, replacement of switchyard of CHP mine and passenger lift). Based on the above discussions, the in-principle approval for R&M Phase-IV schemes for Stage-II beyond 31.3.2014 is accorded as follows:

<i>(₹ in lakh)</i>					
Sl. No.	Description of works	2014-15	2015-16	2016-17	Total projected capitalization
1	Complete rewinding of 125MVA, 11/240kV Generator Transformer (GT) of Stage-II Unit-6 including charge of bushings	253.80	44.23	-	398.03
2	Refurbishment of turbine rotors of Stage-II HP, IP & LP rotor, 01 no. each (being carried through O&M budget for HP in 2012-13)	-	406.25	312.50	718.75
3	Electro Hydraulic Converter (EHC) for Stage-II/2x110 MW turbines	707.23	707.23	-	1414.46
4	Motorized actuators (64 nos.) for Stage-II 2x110 MW units	85.00	85.00	-	170.00
5	Replacement of Stage-II cooling tower internals	469.11	469.11	-	938.22
6	Stage-I & II fire detection and protection system for UCBs and other areas	197.31	295.96	-	235.91 (apportioned value to Stage-II)
	<b>Total (beyond 31.3.2014)</b>				<b>3875.37</b>

**(New Schemes)**

(₹ in lakh)

Sl. No.	Description	2014-15	2015-16	Total projected capitalization
1	Replacement of existing passenger elevator	35.00	-	35.00
2	Re-routing of raw (River) water pipe lines		500.00	500.00
3	Retrofitting of 110 MW (Units V & VI) HP Heaters 1,2	735.00	735.00	1470.00
4	Retrofitting of new modified BFP cartridges of 110 MW (Units V & VI)	500.00	-	500.00
5	Replacement of switchgear of CHP Mine end	93.60	23.40	117.00
6	<b>Total (beyond 31.3.2014)</b>			<b>2622.00</b>

25. The petitioner has furnished the estimated gross value of replaced assets as 1/8th of current value of new assets for de-capitalization wherever replacement has been proposed. The petitioner is directed to furnish the actual value of old assets as when it approaches the Commission with a petition for approval of tariff on the basis of actual capital expenditure incurred against the in-principle approval granted by this order.

26. As regards the schemes which have already been initiated and planned to be capitalized by the petitioner during the period 2009-14, in respect of this generating station, the same would be considered for recovery in tariff in Petition No. 304/2009 which is pending before the Commission.

27. Petition No. 212/2010 is disposed of in terms of the above.

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

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

Sd/-  
**[Dr. Pramod Deo]**  
Chairperson