

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 127/2009 with Interlocutory Application No. 40/2009

**Coram
Shri S.Jayaraman, Member
Shri M.Deena Dayalan, Member**

DATE OF HEARING: 13.5.2010

DATE OF ORDER: 21.1.2011

IN THE MATTER OF

Determination of impact of additional capital expenditure incurred during the year 2008-09 for Anta GPS (419.33 MW).

AND IN THE MATTER OF

NTPC Ltd, New Delhi

.....**Petitioner**

Vs

1. Uttar Pradesh Power Corporation Limited, Lucknow
2. Jaipur Vidyut Vitran Nigam Ltd, Jaipur
3. Ajmer Vidyut Vitran Nigam Ltd, Ajmer
4. Jodhpur Vidyut Vitran Nigam Ltd, Jodhpur
5. North Delhi Power Ltd, Delhi
7. BSES-Rajdhani Power Ltd, New Delhi
8. BSES-Yamuna Power Ltd, Delhi
9. Haryana Power Purchase Centre, Panchkula
10. Punjab State Electricity Board, Patiala
11. Himachal Pradesh State Electricity Board, Shimla
12. Power Development Department, Govt.of J&K, Jammu
13. Power Department, Union Territory of Chandigarh
14. Uttarakhand Power Corporation Ltd, Dehradun**Respondents**

The following were present

1. Shri V.K.Padha, NTPC
2. Shri R.Srinivasan, NTPC
3. Shri R.A.Goyal, NTPC
4. Shri D.G.Salpekar, NTPC
5. Shri V.Ramesh, NTPC
6. Shri G.K.Dua, NTPC
7. Shri Ajay Dua, NTPC
8. Shri D.Nandi, NTPC
9. Shri H.S.Bawa, NTPC
10. Shri S.K.Singh, NTPC
11. Shri Manish Garg, UPPCL



ORDER

The petitioner has made this application for approval of the revised fixed charges for the period 2004-09, after considering the impact of additional capital expenditure incurred during the year 2008-09 for Anta GPS (419.33 MW), (hereinafter referred to as “the generating station”) based on the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2004 (hereinafter referred to as “the 2004 regulations”). The petitioner has made the following specific prayers:

- (i) *Approve the impact of revised fixed charges after considering the impact of additional capital expenditure as per details given in Annexure-I for the period 01.04.2008 to 31.03.2009.*
- (ii) *Allow reimbursement of income tax on additional billing as per 2004, Regulations.*
- (iii) *Allow reimbursement of filing fee by the respondents.*
- (iv) *Pass any other order in this regard as the Hon’ble Commission may find appropriate in the circumstances pleaded above.*

2. The generating station with a capacity of 419.33 MW comprises of three gas turbine units of 88.71 MW each and one steam turbine units of 153.20 MW. The date of commercial of the generating station is 1.8.1990. The tariff of the generating station for the period 1.4.2004 to 31.3.2009 was approved by the Commission vide its order dated 9.5.2006 in Petition No. 160/2004. Subsequently, the Commission vide its order dated 31.12.2007 revised the tariff determined vide order dated 1.11.2002 in Petition No.36/2002 due to change in repayment methodology based on the judgment of the Appellate Tribunal for Electricity (the Tribunal) dated 14.11.2006 in Appeal No. 96 of 2005. Subsequently, the Commission vide its order dated 3.2.2009 in Petition No.160/2004 with I.A No.52/2006, revised the tariff determined vide order dated 9.5.2006, after accounting for revised O&M norm for the tariff period 2004-09. The above tariff was again revised vide order dated 18.12.2009 in Petition No. 32/2009 due to additional capital expenditure incurred

during the years 2004-05, 2005-06, 2006-07 and 2007-08. Accordingly, the Commission approved the capital cost amounting to ₹49123.53 lakh (after deducting un-discharged liabilities amounting to ₹1.91 lakh for the year 2007-08) as on 31.3.2008, for the generating station. Subsequently, the Commission vide order dated 23.9.2010 in Review Petition No.25/2010 (in Petition No. 32/2009) revised the tariff of the generating station after allowing the capitalization of ₹18.49 lakh during the year 2007-08 on replacement of battery bank. Accordingly, the capital cost approved as on 31.3.2008 was ₹49137.69 lakh (after deducting un-discharged liabilities amounting to ₹1.91 lakh for the year 2007-08). The capital cost approved by the Commission by order dated 23.9.2010 is as under:

Particulars	(₹ in lakh)				
	2004-05	2005-06	2006-07	2007-08	2008-09
Opening Capital Cost	45937.81	46110.19	46161.10	47935.96	49137.69
Additional capital expenditure	172.38	50.91	1774.86	1201.73	-
Closing Capital Cost	46110.19	46161.10	47935.96	49137.69	49137.69

3. The annual fixed charges allowed vide order dated 23.9.2010, is as under:

Particulars	(₹ in lakh)				
	2004-05	2005-06	2006-07	2007-08	2008-09
Interest on Loan	15.56	0.00	12.87	9.21	0.00
Interest on Working Capital	1319.64	1327.32	1339.20	1359.47	1370.31
Depreciation	735.70	754.06	924.87	1382.93	1657.73
Advance Against Depreciation	0.00	0.00	0.00	0.00	0.00
Return on Equity	3219.27	3223.96	3262.30	3324.81	3350.04
O & M Expenses	3270.77	3400.77	3539.15	3677.52	3824.29
TOTAL	8560.94	8706.11	9078.39	9753.94	10202.37

4. Against the Commission's order dated 18.12.2009 in Petition No.32/2009 revising the tariff of the generating station for 2004-09 after considering the additional capital expenditure incurred during the years 2004-05, 2005-06, 2006-07 and 2007-08, the petitioner has filed appeal (Appeal No.62/2010) before the Tribunal and the said appeal is still pending.

INTERLOCUTORY APPLICATION

5. The petitioner has filed Interlocutory Application (I.A.No.40/2009) for amendment of Annexure-I to the petition taking into account the revised calculations for fixed charges based on the principles laid down in the tariff orders of the Commission and the judgment dated 13.6.2007 of the Tribunal in Appeal Nos.139 to142 etc of 2006, 10, 11 and 23/2007 and the judgment dated 16.3.2009 in Appeal Nos.133,135 etc of 2008 of the Tribunal passed against the various tariff orders of the Commission for the period 2004-09 in respect of the generating stations of the petitioner.

6. We now proceed to examine as to whether the prayer of the petitioner for determination of tariff based on the revised calculations on the principles laid down in the judgments of the Tribunal dated 13.6.2007 in Appeal Nos.139 to142 etc of 2006, 10, 11 and 23/2007 and the judgment dated 16.3.2009 in Appeal Nos.133, 135 etc of 2008 could be considered for revision of tariff in this order.

7. The petitioner filed Appeal No.139/2006 before the Tribunal challenging the order of the Commission dated 9.5.2006 determining tariff for the generating stations during the period 2004-09 in Petition No. 160/2004. Similar appeals (Appeal Nos.140 to142 etc of 2006, 10, 11 and 23/2007) were also filed by the petitioner challenging the various orders of the Commission determining the tariff for other generating stations of the petitioner. Appeal No.139/2006 was clubbed with the said appeals and the Tribunal by its common judgment dated 13.6.2007 in Appeal Nos. 139 to 142 etc of 2006 and 10, 11, 23 of 2007) allowed the prayers of the petitioner and remanded the matters for re-determination by the Commission. Against the judgment dated 13.6.2007, the Commission filed 20 Civil Appeals before the Hon'ble

Supreme Court (C.A. Nos. 5434/2007 to 5452/2007 and 5622/2007) including Civil Appeal No.5442/2007 pertaining to this generating station, on issues such as:

- (a) Consequences of refinancing of loan;
- (b) Treating of depreciation as deemed repayment of loan;
- (c) Cost of maintenance spares related to additional capitalization;
- (d) Depreciation availability up to 90% in the event of disincentive; and
- (e) Impact of de-capitalization of assets on cumulative repayment of loan

8. The Hon'ble Supreme Court on 26.11.2007 granted an interim order of stay of the operation of the order dated 13.6.2007 of the Tribunal. However, on 10.12.2007, the Hon'ble Supreme Court passed interim order as under:

"Learned Solicitor General appearing on behalf of the National Thermal Power Corporation stated that pursuant to the remand order, following five issues shall not be pressed for fresh determination:

- (a) Consequences of refinancing of loan;
- (b) Treating of depreciation as deemed repayment of loan;
- (c) Cost of maintenance spares related to additional capitalization;
- (d) Depreciation availability up to 90% in the event of disincentive; and
- (e) Impact of de-capitalization of assets on cumulative repayment of loan

The Commission may, however, proceed to determine other issues.

It is clarified that this order shall apply to other cases also.

In view of this, the interim order passed by the Court on 26th November, 2007, is vacated. The interlocutory applications are, accordingly, disposed of."

9. The petitioner has submitted that it has been advised that the statement of the Solicitor General of India (SGI) before the Hon'ble Supreme Court resulting in the interim order dated 10.12.2007 does not restrict it from claiming additional capitalization based on the principles laid down by the Tribunal in its judgment dated 13.6.2007 and that the effect of the statement of SGI was that it would not seek fresh determination pursuant to the remand order. The petitioner has also submitted that the Hon'ble Supreme Court has not stayed further proceedings before the Commission for determination of additional capitalization and even if it was construed as stay, the decision of the court (the Tribunal) does not become *non est*.

10. The first respondent, UPPCL has submitted that the prayer of the petitioner in the said I.A. should not be considered till the issues on which the Commission has filed Civil Appeals are decided by the Hon'ble Supreme Court.

11. As stated above, the Hon'ble Supreme Court in its interim order dated 26.11.2007 had granted stay of the operation of the judgment dated 13.6.2007 of the Tribunal. In view of the undertaking given by the Solicitor General of India on behalf of the petitioner that "the five issues shall not be pressed for fresh determination", the Hon'ble Supreme Court vacated the interim order dated 26.11.2007 and directed that "the Commission may proceed to determine the other issues". It was clarified that "this order shall apply to other cases also". It is the contention of the petitioner that the undertaking before the Hon'ble Supreme Court does not restrict it from claiming additional capitalization based on the principle laid down by the Tribunal. In our view, the petitioner has give an undertaking in the Civil Appeals pertaining to the tariff in the original petition before the Hon'ble Supreme Court that "the five issues shall not be pressed for fresh determination" .It is logical that original tariff as well as revision of tariff for the generating station on the basis of additional capital expenditure are decided on the basis of the same principles. Accepting the contention of the petitioner would mean that additional capitalization should be determined on the principles different from those which have fallen for consideration while determining the tariff for the generating station in the original petition. The tariff for the period 2004-09 is a composite package which needs to be determined on the same principle. From the point of view of regulatory uniformity and continuity and also in line with the spirit of the interim order of the Hon'ble Supreme Court, we are of the view that the extension of the impact of the judgment of the Tribunal on the five issues should be deferred till the final disposal of the said Civil Appeals by the Hon'ble Supreme Court.

12. One more aspect for consideration is the claim of the petitioner for considering the inclusion of un-discharged liabilities in terms of the judgment of the Tribunal dated 16.3.2009 in Appeal Nos.133,135,136 and 148/2008 decided in the light of the judgment dated 10.12.2008 in Appeal Nos 151 & 152/2007.

13. The Tribunal in its judgment dated 10.12.2008 Appeal Nos 151 & 152/2007 observed as under:

“25. Accordingly, we allow both the appeals in part. We direct that the appellant be allowed to recover capital cost incurred including the portion of such cost which has been retained or has not yet been paid for. We also direct that in case the Commission attributes any loan taken at the corporate level to a particular project under construction and considers any repayment out of it before the date of commercial operation the sum deployed for such repayment would earn interest as pass through in tariff.

26. The Commission is directed to give effect to the directions given herein in the truing up exercise and consequent subsequent tariff orders.”

14. Against the judgments of the Tribunal dated 10.12.2008 and 16.3.2009 above, the Commission has filed Civil Appeal Nos. 4112-4113/2009 and Civil Appeal Nos. 6286 to 6289/2009 before the Hon’ble Supreme Court. These Civil Appeals are pending and there is no stay of the operation of the judgments of the Tribunal. Consequently, it has been decided to implement the judgment of the Tribunal dated 16.3.2009 subject to the final outcome of the Civil Appeals pending before the Hon’ble Supreme Court.

15. The Interlocutory Application No. 40/2009 is disposed of in terms of the above. We proceed to consider the petition on merits.

16. The petitioner has claimed the revised fixed charges based on additional expenditure as under:

<i>(₹ in lakh)</i>	
Particulars	2008-09
Additional capital expenditure	25385.23

17. Reply to the petition has been filed by the respondents, UPPCL and HPPC.

Additional Capitalization

18. Regulation 18 of the 2004 regulations provides for considering the additional capital expenditure for tariff as under:

“18. (1) The following capital expenditure within the original scope of work actually incurred after the date of commercial operation and up to the cut off date may be admitted by the Commission, subject to prudence check:

- (i) Deferred liabilities;*
- (ii) Works deferred for execution;*
- (iii) Procurement of initial capital spares in the original scope of work, subject to ceiling specified in regulation 17;*
- (iv) Liabilities to meet award of arbitration or for compliance of the order or decree of a court; and*
- (v) On account of change in law.*

Provided that original scope of work along with estimates of expenditure shall be submitted along with the application for provisional tariff.

Provided further that a list of the deferred liabilities and works deferred for execution shall be submitted along with the application for final tariff after the date of commercial operation of the generating station.

(2) Subject to the provisions of clause (3) of this regulation, the capital expenditure of the following nature actually incurred after cut off date may be admitted by the commission, subject to prudence check:

- (i) Deferred liabilities relating to works/services within the original scope of work;*
- (ii) Liabilities to meet award of arbitration or for compliance of the order or decree of a court;*
- (iii) On account of change in law;*
- (iv) Any additional works/services which have become necessary for efficient and successful operation of the generating station, but not included in the original project cost; and*
- (v) Deferred works relating to ash pond or ash handling system in the original scope of work.*

(3) Any expenditure on minor items/assets like normal tools and tackles, personal computers, furniture, air-conditioners, voltage stabilizers, refrigerators, fans, coolers, TV, washing machine, heat-convector, carpets, mattresses etc. brought after the cut off date shall not be considered for additional capitalization for determination of tariff with effect from 1.4.2004.

(4) Impact of additional capitalization in tariff revision may be considered by the Commission twice in a tariff period, including revision of tariff after the cut off date.

Note 2

Any expenditure on replacement of old assets shall be considered after writing off the gross value of the original assets from the original project cost, except such items as are listed in clause (3) of this regulation.”

Note 3

Any expenditure admitted by the Commission for determination of tariff on account of new works not in the original scope of work shall be serviced in the normative debt-equity ratio specified in regulation 36.

Note 4

Any expenditure admitted on renovation and modernization and life extension shall be serviced on normative debt-equity ratio specified in regulation 36 after writing off the original amount of the replaced assets from the original capital cost.”

19. The additional capital expenditure claimed as per books of accounts is as under:

<i>(₹ in lakh)</i>	
Particulars	2008-09
Total additional expenditure as per books of accounts (A)	25325.25
Additional capital expenditure pertaining to Stage-II (B)	22.58
Net additional capital expenditure for the instant generating station as per books (C = A-B)	25302.67
Exclusions for additional capitalization vis-à-vis books of accounts (D)	(-) 82.56
Total additional capitalization (C-D)	25385.23

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

<i>(₹ in lakh)</i>	
Description	2008-09
Capital spares (de-capitalized)	(-) 1628.25
FERV	1545.69
Total Exclusions	(-) 82.56

Renovation and Modernization (R&M)

21. The petitioner in its claim for capitalization has justified the need for R &M of the Gas Turbines (GTs) for life extension and has submitted as under:

“The equipments installed at the station have already served a life of more than 15 years and some of the equipments have outlived its useful life as prescribed by OEMs. Further the Hon’ble Commission vide CERC (Terms and Conditions of Tariff), Regulations 2009, has increased the useful life of Gas/Liquid Fuel based Thermal Generating Stations from 15 years to 25 years.

Further, among all the equipments used at Gas Based Combined Cycle Power Plant, Gas Turbine has useful life of only 15 years and the useful life of Control System may be even lesser due to fast obsolescence. Thus to comply with the CERC Regulation 2009, it became

necessary to increase the life of Gas Turbines from 15 years to 25 years. The works further include those that are required for addressing the issue of obsolescence viz. the control system of Gas Turbines.

The petitioner further submits that, in view of above it took up R&M Programme for Anta GPS with the purpose of:

- a) Life extension from 15 years to 25 years/ 100000 operating hours.
- b) Overcome obsolescence particularly in the area of Gas Turbine Control System ;
- c) To ensure safety of operating personnel and plant/equipment etc.

Thus the petitioner prays before the Hon'ble Commission to allow the same especially in the view of Tariff Regulations for 2009-14, wherein the life of Gas Turbines has been increased from 15 years to 25 years."

22. Note-4 under Regulation 18 of the 2004 regulations provide for R&M expenditure for the purpose of tariff as under:

"Any expenditure admitted by the Commission for determination of tariff on renovation and modernization and life extension shall be serviced on normative debt-equity ratio specified in Regulation after writing off the original amount of the replaced assets from the original project cost."

23. The petitioner has furnished the de-capitalization amount in lieu of the replaced assets under R&M. The expenditure for R&M provide for a life extension of 100000 operating hours (around 13 years). The project cost after considering the expenditure of ₹476.20 crore would be ₹929 crore (approx) which is reasonable in comparison to a new generating station of 419.33 MW at a cost of ₹3 crore/MW. (approx). In terms of the above provision, the petitioner is entitled for R&M expenditure and the same is allowed after prudence check and after adjustment of the cost of hot gas path components/other expenditure allowed in O&M expenses during the year 2008-09.

Exclusions

24. In the first instance, we consider the exclusions under different heads in the claim.

- (a) **De-capitalization of capital spares:** The petitioner has excluded an amount of (-) ₹1628.25 lakh for the 2008-09 on account of de-capitalization of capital spares in books of accounts on the ground that it has become

unserviceable. The petitioner has submitted that the spares have been de-capitalized for accounting purposes only and are not to be de-capitalized for the purpose of tariff. The ground on which the exclusion has been sought by the petitioner is as under:

“Capital spares were de-capitalized from the account books as they were declared unserviceable. Capitalization of capital spares amounting to Rs.20.73 crore in 2001-04 and Rs.18.03 cr. in 1997-2001 was not permitted by the Hon’ble Commission for tariff purposes earlier; therefore, de-capitalization of the same may be excluded for the revision of tariff due to additional capitalization”

The prayer of the petitioner for exclusion of de-capitalized spares would be justified only if these de-capitalized spares are the ones which have been disallowed for the purpose of tariff during the previous tariff period.

In order to consider the prayer of the petitioner on this count, the Commission during the hearing held on 27.10.2009 directed the petitioner to furnish the information as under:

“Certificate to the effect that the de-capitalised spares for which exclusion has been sought are the ones which were disallowed for the purpose of tariff during the previous tariff period”.

In response, the petitioner vide affidavit dated 15.3.2010 has clarified as under:

“In reply to item at Sl. No.7(I), the petitioner certifies that the amount of de-capitalized spares indicated in the exclusions for the year 2008-09, in petition no 127/2009 are on account of those spares which were previously not allowed in tariff. The Hon’ble Commission has disallowed Rs.18.034 Cr. in 1997-01 and Rs.13.20 crore. in 2001-04.”

In view of the above statement of the petitioner, the exclusion (ignoring the (-) entries) of de-capitalized spares for the purpose of tariff is allowed since de-capitalization is on account of unserviceable spares which do not form part of capital cost for the purpose of tariff.

(b) **FERV**: The claim for exclusion of an amount of ₹1545.69 lakh for the year 2008-09 on account of impact of FERV is allowed, as the petitioner has billed the said amount directly to the beneficiaries in accordance with the 2004 regulations.

25. In view of the above discussions, the amounts allowed under exclusions is as follows:

<i>(₹ in lakh)</i>	
Description	2008-09
Capital spares (de-capitalized)	(-) 1628.25
FERV	1545.69
Total Exclusions	(-) 82.56

26. The year-wise and category-wise break-up of the additional expenditure claimed by petitioner is as under:

<i>(₹ in lakh)</i>	
Nature of capitalization	2008-09
For efficient and successful operation of generation station, but not included in original project cost [Regulation -18(2)(iv)]	25385.23
Total	25385.23

27. After applying prudence check on the asset-wise details and justification of additional capitalization claimed by the petitioner for the year 2008-09, the admissibility of additional capitalization is discussed in the succeeding paragraphs:

Additional works/services necessary for efficient and successful operation of the generating station, but not included in the original project cost {Regulation 18 (2)(iv)}

28. The claim of the petitioner in respect of the assets/works under this head is summarized as under:

<i>(₹ in lakh)</i>		
Sl No	Assets/works	Amount claimed
1	Expansion joint for boiler (along with de-capitalization of ₹0.64 lakh)	1.12
2	Up-gradation of band screen – C.W system(along with de-capitalization of ₹21.64 lakh)	118.79

3	Position controller-spare cards of GT/ST control system	11.97
4	Battery bank (along with de-capitalization of ₹69.72 lakh)	76.90
5	Air meter velocity probe	1.60
6	Energy management system	34.12
7	GT rotor (for custom duty for rotor claimed during 2006-07)	13.91
8	Renovation of GT-1	10539.01
9	Renovation of GT-3	14074.39
10	Replacement of Vane- carrier of GT-1	1117.21
11	Combined de-capitalization for claims at 8,9,10 above	2119.21
12	Rotor of GT-3 (along with de-capitalization of ₹133.03 lakh)	1617.69
13	Replacement of C&I system GT-1&3(along with de-capitalization of ₹594.98 lakh)	724.23
14	Advanced Dual CPU LAN server & Microsoft Windows	3.93
15	Laser 3 Ethernet switch Net	2.27
16	Video conferencing equipment with camera	3.46
17	Redundant Lan Back bone	6.79
18	Telephone exchange De-capitalization of ₹22.93 lakh against capitalization claim in the year 2005-06	0.00

(a) **Expenditure on expansion joint for boiler:** The petitioner has claimed an amount of ₹1.12 lakh along with de-capitalization of ₹0.64 lakh for this asset. As the cost of replacement of expansion joints is covered under O&M expenses allowed to the generating station, the claim for the amount is not allowed for the purpose of tariff and the corresponding de-capitalization has also been ignored for the purpose of tariff.

(b) **Expenditure on up-gradation of band screen (C.W system ABB):** The petitioner has claimed an amount of ₹118.79 lakh along with de-capitalization of ₹21.64 lakh for this asset. The justification submitted by the petitioner in the petition is as under:

“Cooling water system at Steam Turbine: There are three Nos. of Band screen installed at Up stream of Main cooling water Pumps of 2* 50% capacity. The Raw water after having undergone preliminary cleaning in the Bar Screens passes through the inlet opening into the interior of the travelling band screen. It flows outwards through the mesh covering the screen penal (buckets), impurities in the water being

retained on the inside of the buckets and carried upwards by the screen travel. Cleaning of the buckets takes place at the top of the travel. During operation of the cooling water system, lots of impurities like leafs, algae etc comes along with raw water which is used as main cooling water leading to frequent chocking of bar as well as band screen . Tripping of band screen leads to partial loading or tripping of steam turbine. The subject package is covered under Renovation and Modernization scheme of Anta GPS as mentioned at Sl. No.16 of the R&M Scheme. The existing band screen has run life of almost 19 years and was in very bad condition, hence replaced during the year. The old one has been decapitalised as given below.”

The generating station is sought to be given a new lease of life for another 100000 equivalent operating hours (EOHs). In view of this, the expenditure incurred by the petitioner on replacement of important auxiliaries/systems facing operational difficulties has been allowed along with the corresponding de-capitalization in line with the Note-4 under Regulation 18 of the 2004 regulations.

(c) **Expenditure on position controller-spare cards of GT/ST control system:**

The petitioner has claimed an amount of ₹11.97 lakh for this asset. The justification submitted by the petitioner in the petition is as under:

“Gas Turbine Control System: These are cards of GT / ST control system and not of repetitive or consumptive nature. These items are required for safety against break down. If not available in time would lead to loss of generation and would further aggravate power deficit condition. Since these critical items are required to be procured from the Original Equipment Manufacturer, Lead time itself could be one to one & half years. To avoid long outage of units, it is necessary to maintain stock of these items. These Spares are required for the Life Extension of Gas Turbines”.

The expenditure on this asset is covered under O&M expenses allowed to the generating station. Further, the annual fixed charges allowed provide for interest on the cost of maintenance spares stocked at the generating station, In view of this, the expenditure on spare cards has not been allowed.

(d) **Expenditure on Battery bank:** The petitioner has claimed an amount of ₹76.90 lakh along with de-capitalization of ₹69.72 lakh for this asset. The justification submitted by the petitioner in the petition is as under:

“The DC system in a plant plays a very vital role in maintaining, aspects like safety, reliability and availability. The estimated life of a battery bank is around 15 years. The battery banks installed at Anta have already completed almost 15 years of service. As reduction in the capacity of battery bank, the reliability of control and emergency power supply will reduce; therefore, replacement of total battery banks at Anta in

phased manner has been taken up under R&M. The original Equipments were installed & capitalized along with main plant in the years 1989-90-91. The equipments had outlived their life hence replaced with new one. The subject package is covered under Renovation & Modernization scheme of Anta GPS mentioned at Sl.No.10 of the R&M Scheme. The old one has been de-capitalized as given below.”

The cost of battery replacement is partly covered in O&M expenses allowed to the generating station. Since the replacement of this asset is for sustaining availability of the generating station for another 100000 EOHs, the expenditure incurred is allowed for the purpose of tariff. Hence, capitalization of ₹76.90 lakh along with de-capitalization of ₹69.72 lakh has been considered.

(e) **Expenditure on Air meter velocity probe:** The petitioner has claimed an amount of ₹1.60 lakh for this asset. The justification submitted by the petitioner for incurring such expenditure has been considered. However, considering the fact that the cost of probes for measuring instruments is covered in O&M expenses allowed to the generating station, the expenditure on this asset has not been allowed.

(f) **Expenditure on energy management system:** The petitioner has claimed an amount of ₹34.12 lakh for this asset. The justification submitted by the petitioner in the petition is as under:

“The Energy Management System will help in monitoring of "Schedule Generation" on line to boost up / back down generation as provided in CERC regulation & Grid code”

The expenditure on new energy management system after 7 years of introduction of Availability Based Tariff (ABT) mechanism, which is still in vogue cannot be allowed. However, the asset could be considered only under replacement along with the corresponding de-capitalization of old energy management system. Hence, the expenditure has not been allowed in the absence of corresponding de-capitalization.

(g) **Expenditure on Gas Turbine (GT) rotor:** The petitioner has claimed an amount of ₹13.91 lakh for this asset. The justification submitted by the petitioner in the petition is as under:

“The item was claimed in the ADD cap for the years 2006-07 vide Sl No.27. This amount is claimed on account of enhancement of custom duty by the Customs appellate authorities on the subject item. The custom duty was paid during the year 2006-07 itself under protest and not capitalized and booked to claims with Customs.”

It is observed that the Commission while dealing with Petition No. 32/2009 for additional capital expenditure for the period 2004-08, had allowed the expenditure incurred by the petitioner on GT rotor after prudence check. As such, the expenditure of ₹13.91 lakh on account of enhancement of custom duty on GT rotor has been allowed.

(h) **Expenditure on renovation of GT-1, GT-3 and Replacement of vane-carrier of GT-1:** The petitioner has claimed amount of ₹10539.01 lakh, ₹14074.39 lakh and ₹1117.21 lakh on renovation of GT-1, GT-3 and replacement of vane-carrier of GT-1 respectively. The petitioner has also claimed an amount of ₹ 2119.21 lakh towards combined de-capitalization for the said three assets. The justification submitted by the petitioner is as under:

“Life Extension of Gas Turbines: The Gas Turbines have completed around 19 years of Operation since Commissioning in the year 1989. The design life of Gas Turbines is 15 years or 100,000 EOH, as such these GTs have exceeded their design life. Renovation of Gas Turbine consists mainly replacement/ reconditioning of hot gas path components such as Blades, Vanes, GT Vane Carrier, and part of combustor along with compressor diffuser etc. All the hot gas path components of Gas turbine are having fixed life, beyond which running of these components may be highly risky due to the very high operating temperature of these components. Moreover there is frequent load fluctuation on machine to maintain generation schedule therefore hot gas path components are exposed to thermal influences during operation. As per O&M manual the expected life of most of the GT hot gas path components are given as approx 1,00,000 EOH. As such Life of Hot Gas Path components are over. Hence after replacement of all Hot Gas Path components life of Gas Turbine will be extended by life of New Hot Gas Path components, which is around 10 years. The subject packages are covered under Renovation & Modernization scheme of Anta GPS as mentioned at Sl. No. 11 of the proposed R&M Scheme. The old parts have been decapitalised as given below. The detailed justification is placed at Annexure-5.”

29. The Commission during the proceedings held on 27.10.2009 directed the petitioner to furnish the cost-element wise break-up of the expenditure of ₹10539.01 lakh and ₹14074.39 lakh incurred towards renovation of the GT-1 and GT-3. The break-up of the claim as furnished by the petitioner is as under:

Item	Description	GT-1 (₹ in lakh)	GT-3 (₹ in lakh)
A COMPRESSOR COMPONENTS			
A1	Compressor Vanes	0.00	503.82
A2	Compressor Diffuser complete	0.00	364.27
Sub Total (A): Compressor Components		0.00	868.09
B COMBUSTOR COMPONENTS			
B1	Inner Liner Set	367.61	371.80
B2	Dual Burner Set	234.64	237.31
B3	Upper Combustion chamber	0.00	127.13
Sub Total (B): Combustor Component		602.25	736.25
C GAS TURBINE COMPONENTS			
C1	Vane Carrier Complete	0.00	1036.86
C2	Gas Turbine Stator Blading	4293.53	4437.78
C3	Stator HSS	666.94	674.54
C4	Inlet Segment (ELS)	190.43	192.60
C5	Entry Segment (ETS)	66.11	66.86
C6	Tip Sealing Segment (KDS)	12.44	12.58
C7	Gas Turbine Rotor Blading	3816.87	5148.23
Sub Total (C) : Gas Turbine Components		9046.32	11569.46
D ASSEMBLY MATERIAL			
D1	Assembly material for blades	68.19	68.97
D2	Assembly material for Stator HSS	19.43	19.65
D3	Assembly Materials For Compressor Vanes	234.83	237.51
D4	Assembly material for TIP sealing	0.62	0.63
D5	Assembly material for entry segment	1.05	1.06
D6	Assembly material for Inlet segment	1.41	1.42
Sub Total (D): Assembly material		325.53	329.24
E DETAILS OF INSPECTION CONSUMABLES			
E1	Assembly Material for HGC	53.63	54.24
E2	Assembly Material for Combustion Chamber	41.90	42.38
Sub Total (E): Details of inspection consumables		95.53	96.62
F BOLTING PACKAGE			
F1	Bolting for Couch Bottom Flange	57.09	57.74
F2	Bolting for Burner Cover	13.55	13.71
F3	GT Casing + Exhaust Diffuser	42.40	42.88
F4	GT Horizontal Split Casing	83.79	84.75
F5	Compressor Horizontal Split Casing	55.71	56.35

F6	GT Compressor Casing (Round Flang)	26.62	26.92
Sub Total (F): Bolting Package		279.16	282.35
G COUPLING BOLT SET			
G1	Coupling Bolt	25.75	26.04
G2	Coupling Screw	15.79	15.97
G3	Countersunk Nut	16.81	17.00
G4	Retaining Pin	0.24	0.24
G5	Securing ring	1.75	1.77
G6	Locking pin	1.12	1.13
Sub Total (G): Coupling Bolt set		61.45	62.15
H ANY OTHER ITEMS NOT COVERED ABOVE		0.00	0.00
H1	Insulation	128.77	130.24
Sub Total (H): Items not covered above		128.77	130.24
Total (A+B+C+D+E+F+G+H)		10539.01	14074.39

30. The claim of the petitioner is examined as under:

(i) It is observed that the R&M expenditure includes expenditure on compressor components, combustion chamber components, Gas turbine components, assembly materials, consumables, fasteners and coupling materials, insulation etc. Some of the expenditure on consumables, insulation and part expenditure on assembly materials, fasteners and couplings, part of combustion chambers, and gas turbine initial stage blades etc are covered in O&M expenses as part of major overhauls. In view of this, the expenditure on consumables and insulation has not been allowed for capitalization.

(ii) As regards the cost for replacement of hot gas path components like vanes, gas turbine stator and rotor blades, inlet segment, entry segment, tip sealing segment etc, the expenditure is partly covered in O&M expenditure allowed to the generating station. Hence, capitalization of the expenditure on replacement of hot gas path components under R&M would require adjustment of capitalization to the extent of the cost of hot gas path components covered in O&M expenses allowed to the generating station. In order to arrive at the cost of hot gas path components covered in O&M expenses allowed to the generating station during 2008-09, the 2004

regulations provide for O&M expense norms for the instant gas generating station without warrantee spares, as under:

Year	(₹ in lakh/MW)				
	2004-05	2005-06	2006-07	2007-08	2008-09
Norms for gas stations with warranty spares	5.20	5.41	5.62	5.85	6.08

(iii) The above said norms were considered in Petition No.160/2004 by the Commission in the determination of tariff for the period 2004-09. However, on consideration of the prayer in the interlocutory application that the warranty period had expired prior to 2004-05, the Commission by its order dated 3.2.2009 allowed enhanced O&M including warranty/ capital spares to the generating station as under:

Year	(₹ in lakh/MW)				
	2004-05	2005-06	2006-07	2007-08	2008-09
Norms for gas stations without warranty spares	7.8	8.11	8.44	8.77	9.12

(iv) The difference between O&M norms above during a year represented the cost of warranty spares which in turn represent the yearly average cost of hot gas path components to the tune of ₹3 lakh/MW covered in O&M expense norms which includes one major inspection, one hot gas path inspection and three combustion inspections for each gas turbine. This translates into the cost of capital spares in the major inspection/overhaul as about ₹4.5 lakh/MW. As such, the cost of hot gas path components for the two gas turbines of the generating station included in the O&M expenses is worked out on pro-rata basis as under:

$$= (4.5 \times 419.33 \times 2/3) = ₹1258 \text{ lakh}$$

(v) This amount of ₹1258 lakh is to be deducted from the additional capital expenditure for 2008-09.

31. As regards the claim of ₹127.13 lakh on “upper combustion chamber”, it is observed from the “Description of works” (Para 3.1, page 22 of the petition) that all

tiles & tiles carrier have been replaced with new spring loaded tiles in last "B" inspection of the machine on 9.11.2007. The complete assembly was inspected & was found to be in good condition. As such, the claim has not been considered for capitalization during 2008-09.

32. Based on the above, the detail of the expenditure which has not been considered for the assets is as under:

(₹ in lakh)

Particulars of asset	Amount
Expenditure on hot gas path components included in the O&M expenditure allowed to the station	1258.00
Expenditure on inspection consumables	192.15
Expenditure on insulation	259.01
Expenditure on upper combustion chamber	127.13
Total amount disallowed	1836.29

33. After adjustment of the amount disallowed for the purpose of tariff, the amount allowed on renovation of the GT-1, GT-3 and replacement of vane- carrier of GT-1 respectively, works out to ₹23894.32 lakh.

34. The petitioner has submitted the de-capitalization amount of ₹2119.21 lakh against the additional capitalization claim of ₹25730.61 lakh and the details are as under:

Particulars	GT - 1	GT - 3
	Amount (in ₹)	
Opening gross block as on 1-4-2006 (A)	338860544	312651183
Percentage covered in R&M & to be de-capitalized (B)	41.10%	41.10%
Total Amount to be de-capitalized (AXB)	139302175	128524733
Amount already de-capitalized		
Rotor in 2006-07	31075739	0
Tiles in 2007-08	11916493	12913359
Amount to be de-capitalized during 2008-09	96309943	115611374.50

35. The petitioner vide affidavit dated 15.3.2010 has submitted the "procedure adopted for calculation of de-capitalization amount for R&M" which states briefly as follows:

(i) The percentage of components covered under R&M is 41.10% which is to be applied on the gross block as on 1-4-2006 for de-capitalization as the R&M was started during 2006-07.

(ii) Rotor reconditioning & spring loaded tiles have already been de-capitalized during the previous periods. The percentage (41.10%) comprises of R&M for GT-1 replacement of vane carrier, rotor reconditioning & replacement of tiles.

(iii) To arrive at the amount to be de-capitalized during the year 2008-09, the amount already de-capitalized in 2006-07 and 2007-08 has been deducted.

(iv) The hot gas casing & casing of thermal block (part of thermal block) & casing of combustor chamber are not covered under R&M. In view of above the value covered under R&M against item thermal block and combustor chamber is 90% of the original work.

36. The gross block values of the gas turbines as on date of commercial operation of the generating station is not available and hence the gross block values as on 1.4.2004 submitted by the petitioner has been considered for the purpose of verification of de-capitalization. The gross block of the three gas turbines as per books of accounts as on 1.4.2004 for the years 2003-04 and 2004-05 are as follows:

(Amount in ₹)		
Particulars	2003-04	2004-05
GT-1	715873974	496626932
GT-2	574098093	521914570
GT-3	562741354	511373244
Initial Spares included in above	-	322798675

37. It is observed that the gross block of the GTs-1 and 3, as on 1.4.2004 is higher than the gross block considered by the petitioner for these gas turbines as on 1.4.2006 for working out the de-capitalization amount for the assets replaced. This appears to be incorrect. In view of this, the de-capitalization amount worked out by the petitioner is not acceptable.

38. Based on the gross block as on 1.4.2004, the de-capitalization amount is worked out as under as per the methodology adopted by the petitioner:

(Amount in ₹)		
Particulars	GT - 1	GT - 3
Opening gross block as on 1-4-2004 (A)	496626932	511373244
Percentage covered in R&M and to be de-capitalized (B)	41.10%	41.10%
Total amount to be de-capitalized (AXB)	204113669	210174403

Amount already de-capitalized:		
Rotor in 2006-07	31075739	0
Tiles in 2007-08	11916493	12913359
Amount to be de-capitalized in 2008-09	161121437	197261044
Total		358382481

De-capitalization

39. In view of the fact that an amount of ₹23894.32 lakh has been allowed for capitalization against the claim of ₹25730.61 lakh, the corresponding de-capitalization value of ₹3328.06 lakh ($3583.82 \times 23894.32 \div 25730.61$) has been allowed for the purpose of tariff.

(i) **Expenditure on Rotor of GT-3:** The petitioner has claimed an expenditure of ₹1617.69 lakh on the asset along with the de-capitalization of ₹133.03 lakh. The justification submitted by the petitioner is as under:

“Life Extension of Rotors of Gas Turbines: The Rotor of the Gas Turbine is a single shaft combined compressor & turbine rotor. The combined compressor-turbine rotor is a welded disc construction, comprises of total eleven discs welded together. The complete shaft comprises of 7 compressor discs, 1 center drum and 03 turbine discs of ferritic forged steel alloy. As per OEM, the expected life of the rotor 1,00,000 operation hours. All 3 rotors of the Gas Turbines have already exceeded that life. As per the experience of OEM, after 1,00,000 operating hours of running life of rotors there is chance of failures of welding joints of the welded discs and if this welding defect originates, due to high speed of running etc., the same may lead to catastrophic failure of the rotor and thus the turbine as a whole. To avoid this, OEM have recommended to recondition these GT rotors at 1,00,000 operating hrs so as to further enhance their operation life to 1,00,000 operating hrs each. Under Reconditioning work, the Turbine portion of the Rotor is cut and removed as this portion cannot be reconditioned due to continuous operation at high temperatures. The compressor portion is reconditioned and a new Turbine portion is attached to form the complete Rotor. The subject package is covered under Renovation & Modernisation scheme of Anta GPS as mentioned at Sl. No. 2 of the proposed R&M Scheme. The removed part of the rotor has been de-capitalized as given below.”

In view of the above justification, the expenditure along with the de-capitalization has been allowed in terms of Note-4 under Regulation-18 of the 2004 regulations.

(j) **Expenditure on replacement of C&I system of GT-1&3:** The petitioner has claimed an amount of ₹724.23 lakh along with de-capitalization of ₹594.98 lakh for this asset. The justification submitted by the petitioner is as under:

“Gas Turbine Control System: Earlier the Gas Turbine analog control (EGATROL), Binary Logic was based on M/s ABB Decontik K and the Gas Turbine Protection was ABB Decontik S based. The WHRB protection part was of ABB Decontik S. Steam turbine analog control (Turbotrol) was ABB PC100/Decontik k and the protection part was ABB Decontik S. These systems were installed and commissioned as part of original main plant C&I package. M/s ABB has declared all these systems as obsolete modules and these are no more available. Plant can't operate without these systems. Accordingly, all the above systems are being under replacement with ABB's ADVANT control system. The subject package is covered under Renovation & Modernization scheme of Anta GPS as mentioned at Sl. No. 11& 14 of the R&M Scheme. The old one has been de-capitalized as given below.”

The generating station is sought to be given a new lease of life for another 100000 EOHs. As such, the expenditure incurred by the petitioner on replacement of important auxiliaries/systems which were facing operational difficulties have been allowed along with the corresponding de-capitalization in terms of Note-4 under Regulation 18 of 2004 regulations.

(k) **Expenditure on Advanced dual CPU LAN server & Microsoft windows:** The petitioner has claimed an amount of ₹3.93 lakh for this asset. The justification submitted by the petitioner is as under:

“Dual CPU LAN server has been deployed at station to serve as "Plant Information" Server wherein all the critical data of the generating units and its subsystem will be captured on real time basis in server on selective basis. Such data capturing will enable us to analyze the data through proper and advanced tools and get the information out of the data based on data trends and history. Information retrieved from this process will be utilized to enhance the productivity and efficiency of the generating units and will also help us in taking critical operational decisions based on real time information.”

Since expenditure on LAN had already been allowed by the Commission after implementation of ABT in the generating station, the expenditure on this count has not been allowed.

(l) **Expenditure on Laser 3 ethernet switch net:** The petitioner has claimed an amount of ₹2.27 lakh for this asset. The justification submitted by the petitioner is as under:

“Layer three Ethernet switch has been deployed on the Local Area Network to cater to increased user base on the network and also for proper segmenting of the network for better management of the LAN. This has enabled in creation of VLANS for different segments resulting in proper traffic management.”

The above asset being minor in nature, the expenditure has not been allowed in terms of Regulation 18(3) of the 2004 regulations.

(m) **Expenditure on Video conferencing equipment with camera** - Petitioner has claimed an amount of ₹3.46 lakh for this asset. The justification submitted by the petitioner is as under:

“For speedy and informed decision making and also to save on the resources, video conferencing equipment has been deployed at station through which meetings with regional head office and corporate head office are being arranged on regular basis by different functional heads and higher management for timely review and effective monitoring of various station related issues including review of overall plant performance. Creation of this facility would not only result in saving of travelling time & cost but also has facilitated management in being in regular touch with the station to ensure improved productivity and performance of the station.”

The above asset being minor in nature, the expenditure has not been allowed in terms of Regulation 18(3) of the 2004 regulations.

(n) **Expenditure on redundant LAN back bone:** The petitioner has claimed an amount of ₹ 6.79 lakh for this asset. The justification submitted by the petitioner is as under:

“Redundant LAN backbone has been deployed for enhancement of network speed and also to cater to enhanced traffic requirement of the network particularly in view of the PI traffic. This is also acting as a backup to the old LAN to avoid disruption of the critical services including SAP, e-mail, Internet, generation data transfer services in case anything goes wrong with the existing old low speed LAN. Commissioning of the Redundant LAN BB has ensured high uptime of the network services and thereby to add to overall productivity of the station.”

Since expenditure on LAN had already been allowed by the Commission after implementation of ABT in the generating station, the expenditure on this count has not been allowed.

(o) **De-capitalization of telephone exchange:** The petitioner has de-capitalized an amount of ₹22.93 lakh against capitalization of new telephone exchange during the year 2005-06 in Petition No. 32/2009. In the said petition, the petitioner had submitted that the old telephone exchange at the estimated gross value of ₹20.00 lakh would be de-capitalized from books of accounts during 2008-09. However, the

Commission in its order reduced the gross value of de-capitalization in the year of capitalization and the claim on new telephone exchange was allowed on net basis after deduction of an amount of ₹20.00 lakh during 2005-06. Since an amount of ₹20.00 lakh have been already de-capitalized during the year 2005-06, de-capitalization of balance amount of ₹2.93 lakh during 2005-06 is allowed. Accordingly, during 2008-09, the amount to be de-capitalized is “nil” as against the de-capitalization of ₹22.93 lakh.

40. Based on the above discussions, the additional capital expenditure allowed for the year 2008-09 for the purpose of tariff is as under:

(₹ in lakh)		
Nature of capitalization	2005-06	2008-09
For efficient and successful operation of generation station, but not included in original project cost [18(2)(iv)]	(-)2.93	22298.41
Total before adjustments of exclusions (A)	(-) 2.93	22298.41
Exclusions not allowed (B)	0.00	0.00
Additional capital expenditure allowed (C=A+B)	(-) 2.93	22298.41

Extension in life of the generating station after R&M:

41. The R&M activities of the generating station began during 2006-07. The expenditure during the years 2006-07 and 2007-08 on R&M activities was ₹37 crore (approx) out of estimated expenditure of ₹476.20 crore. The major expenditure of ₹253.85 crore (net) envisaged towards R&M was incurred by the petitioner during 2008-09 out of which an amount of ₹222.98 crore (net) was allowed for the purpose of tariff.

42. The petitioner has submitted that on completion of R&M, the life of the gas turbines was likely to increase by 100000 equivalent operating hours, which translates into an increased life of around 13 years based on the ratio of operating hours and EOH logged by GT-1 and GT-3 till 14.5.2008 and 8.12.2008 i.e. the date of “9th C inspection”. It has been submitted that for the period 2009-14, the major

portion of R&M of gas turbines including the left over GT-2, would be completed by 2009-10. For the purpose of recovery of depreciation, the increased life of 13 years is to be considered from the middle of the R&M period of 2006-10 i.e. from 1.4.2008. However, for operational purpose the life of the GTs may be considered as 100000 EOH or 13 years whichever is earlier starting from the completion of major R&M on respective GTs i.e from 1.4.2009 for GT-1 & GT-3 and from 1.4.2010 for GT-2.

43. The Commission in its 2009 Tariff regulations for the period 2009 -14, has increased the life of gas turbines from 15 years to 25 years. Accordingly, the life of the generating station would expire on 31.7.2015 i.e. 25 years from date of commercial operation i.e. 1.8.1990. However, based on the above, the life of the generating station would end on 31.3.2021 i.e 13 years from 1.4.2008, provided the expenditure on renovation of left over GT-2 is allowed during 2009-10.

FERV (2001-04)

44. The Commission vide its order dated 9.5.2006 in Petition No.160/2004 had allowed capitalization of FERV as on 1.4.2004 on normative basis, amounting to ₹667.95 lakh for the period 2001-04, as under:

<i>(₹ in lakh)</i>				
Particulars	2001-02	2002-03	2003-04	Total
Net opening loan (actual) - A	25644	22175	4232	-
Net opening loan (normative) - B	14340	10870	0	-
Actual FERV as considered in order dated 9.5.2006 - C	(-) 320.33	1728.05	0.00	1407.72
FERV allowable on normative basis vide order dated 9.5.2006 (D = C x B ÷ A)	(-) 179.13	847.08	0.00	667.95

45. In its interlocutory application, the petitioner has prayed that FERV amounting to ₹880 lakh corresponding to the revised normative loan (for the period 2001-04) should be added to the capital cost as on 1.4.2004, in line with methodology adopted by the Commission in the petitions for the period 2004-09,

instead of an amount of ₹667.95 lakh, which was allowed (on normative basis) vide order dated 9.5.2006.

46. The petitioner's claim for FERV (on normative basis) has been examined. Based on the normative loan outstanding, FERV works out to ₹791.52 lakh, which has been admitted for the purpose of tariff. The necessary calculation is as under:

Particulars	(₹ in lakh)			Total
	2001-02	2002-03	2003-04	
Net opening loan (actual) - A	25644	22175	4232	-
Net opening loan (normative) - B	16228	12758	0	-
Actual FERV as considered in order dated 09.05.2006 - C	(-) 320.33	1728.05	0.00	1407.72
FERV allowable on normative basis (D = C x B ÷ A)	(-) 202.71	994.23	0.00	791.52

47. Thus the differential FERV considered for the tariff period 2001-04 works out to ₹123.57 lakh.

Capital cost

48. As stated above, the Commission had admitted the capital cost of ₹45937.81 lakh (inclusive of FERV amounting to ₹667.95 lakh, on normative basis, for the tariff period 2001-04) as on 1.4.2004 and ₹49137.69 lakh as on 1.4.2008 for determination of tariff for the period 2004-09.

49. Taking into account the capital cost of the generating station as on 1.4.2004, the additional FERV allowed for tariff period 2001-04, the additional capital expenditure approved and allowed for the years 2004-05, 2005-06, 2006-07 and 2007-08 together with the additional capital expenditure approved for the year 2008-09, the capital cost for the period 2004-09 is worked out as under:

Year	(₹ in lakh)				
	2004-05	2005-06	2006-07	2007-08	2008-09
Opening Capital cost	46061.38	46233.76	46281.74	48056.60	49260.24
Additional capital expenditure allowed for the 2004-08	172.38	50.91	1774.86	1203.64*	-
Additional capital expenditure	-	(-) 2.93	-	-	22298.41
Closing Capital cost	46233.76	46281.74	48056.60	49260.24	71558.65
Average Capital cost	46147.57	46257.75	47169.17	48658.42	60409.45

Debt-Equity ratio

50. Regulation 20 of the 2004 Regulations provides that:

“(1) In case of the existing project, debt-equity ratio Considered by the Commission for the period ending 31.3.2004 shall be considered for determination of tariff with effect from 1.4.2004.

Provided that in cases where the tariff for the period ending 31.03.2004 has not been determined by the Commission, debt equity ratio shall be as may be decided by the Commission:

Provided further that in case of the existing generating stations where additional capitalization has been completed on or after 1.4.2004 and admitted by the Commission under regulation 18, equity in the additional capitalization to be considered shall be:-,

- (a) 30% of the additional capital expenditure admitted by the Commission; or*
- (b) Equity approved by the competent authority in the financial package, for additional capitalization; or*
- (c) Actual equity employed,*

Whichever is the least:

Provided further that in case of additional capital expenditure admitted under the second proviso, the Commission may consider equity of more than 30% if the generating company is able to satisfy the Commission that deployment of such equity of more than 30% was in the interest of general public.”

51. The debt-equity ratio of 50:50 was considered by the Commission in respect of FERV (on normative basis amounting to ₹667.95 lakh) for the period 1.4.2001 to 31.3.2004 vide order dated 9.5.2006. The differential FERV amounting to ₹123.57 lakh allowed for the period from 1.4.2001 to 31.3.2004 has been apportioned in the debt - equity ratio of 50:50.

52. As a result, the gross opening loan (normative) as on 1.4.2004 has been revised to ₹23030.69 lakh (from ₹22968.91 lakh as considered in order dated

23.9.2010) and the normative equity as on 1.4.2004 has been revised to ₹.23030.69 lakh (from ₹22968.91 lakh as considered in order dated 23.9.2010).

53. Further, the petitioner has stated that the additional capital expenditure claimed has been financed through internal accruals/ own funds. Hence, the debt-equity ratio of 70:30 has been considered for the additional capital expenditure approved in terms of sub-clause (a) of clause (1) of Regulation 20 of 2004 regulations. Accordingly, additional notional equity of the generating station on account of capitalization approved, works out as under:

(₹.in lakh)	
2008-09	
Additional Notional Equity	6689.52

Return on Equity

54. Return on equity is allowed @ 14% on the average normative equity, as under:

(₹.in lakh)					
	2004-05	2005-06	2006-07	2007-08	2008-09
Equity – Opening	23030.69	23082.40	23096.40	23629.26	23990.35
Addition of Equity due to additional capital expenditure allowed vide - order dated 18.12.2009 /23.9.2010	51.71	14.39	532.46	361.09	-
Addition of Equity due to additional capital expenditure approved	-	-	-	-	6689.52
Equity-Closing	23082.40	23096.80	23629.26	23990.35	30679.87
Average equity	23056.55	23089.60	23363.03	23809.80	27335.11
Return on Equity @ 14%	3227.92	3232.54	3270.82	3333.37	3826.92

Interest on loan

55. Interest on loan has been worked out as mentioned below:

- (a) Revised gross opening loan on normative basis on 1.4.2004 is ₹23030.69 lakh.
- (b) Cumulative repayment of loan on normative basis amounting to ₹22583.66 lakh on 1.4.2004 as considered in order dated 18.12.2009 / 23.9.2010 has been considered for the purpose of tariff.
- (c) Thus, the revised net opening normative loan as on 1.4.2004 is ₹447.03 lakh.

(d) There is addition of notional loan to the tune of ₹15608.89 lakh for the year 2008-09 on account of additional capital expenditure approved above.

(e) Weighted average rate of interest as considered in order dated 18.12.2009 is considered for calculation of interest on loan.

(f) Normative repayment = $\frac{\text{Actual Repayment}}{\text{Actual Loan}} \times \text{Normative Loan}$

(g) Normative repayment of loan considered is equal to the admissible depreciation for the year or normative repayment whichever is higher, as considered in the determination of the tariff for other generating stations of the petitioner for the period 2004-09. This is however subject to the final decision of the Hon'ble Supreme Court in Civil Appeal No. 5434/2007 and other related appeals.

56. Interest on loan has been computed as under:

	(₹. in lakh)				
	2004-05	2005-06	2006-07	2007-08	2008-09
Gross Opening Loan – Considered now	23030.69	23151.35	23184.94	24427.34	25269.89
Cumulative Repayment of loan upto previous year	22583.66	23151.35	23184.94	24127.61	25269.89
Net Loan Opening	447.03	0.00	0.00	299.73	0.00
Addition of loan due to additional capital expenditure allowed vide order dated 18.12.2009 / 23.9.2010	120.66	33.58	1242.40	842.55	-
Addition of loan due to additional capital expenditure approved above in the instant petition	-	-	-	-	15608.89
Repayment of loan during the year	567.69	33.58	942.67	1142.28	1134.16
Net Loan closing	0.00	0.00	299.73	0.00	14474.73
Average Loan	223.52	0.00	149.87	149.87	7237.37
Weighted Average Rate of Interest on Loan	8.0800%	8.0584%	8.1047%	5.7992%	4.0363%
Interest on Loan	18.06	0.00	12.15	8.69	292.12

Depreciation

57. In Commission's order dated 18.12.2009/23.9.2010, the balance depreciation recoverable as on 1.4.2004 was considered as ₹4932.55 lakh. This value was arrived at after considering the gross depreciable value and cumulative depreciation &

advance against Depreciation (AAD) recovered in tariff as on 31.3.2004 amounting to ₹36309.63 lakh.

58. However, on account of additional FERV on normative basis amounting to ₹123.57 lakh, the balance depreciation recoverable has been revised to ₹.5027.98 lakh after adjustment of ₹15.78 lakh in respect of depreciation recovered on account of additional FERV for the period 1.4.2001 to 31.3.2004. Thus, the cumulative depreciation as on 01.04.2004 is revised to ₹36325.42 lakh.

59. As the original normative loans have been fully repaid during the tariff period 2001-04, the depreciation spread over from 2004-05 has been considered as per order dated 9.5.2006. Further, the balance useful life as on 1.4.2008 has been revised from 2.81 years to 13 years. Adjustment of cumulative depreciation on account of de-capitalization of assets has been considered in the calculations as carried out in the tariff orders for the period 2004-09 for other generating stations of the petitioner. Further, adjustment of cumulative depreciation corresponding to de-capitalization of telephone exchange for the year 2005-06 which was not considered inadvertently in order dated 18.12.2009, has been rectified now. Accordingly, depreciation has been worked out as under:

(₹ in lakh)

Particulars	2004-05	2005-06	2006-07	2007-08	2008-09
Opening capital cost	46061.38	46233.76	46281.74	48056.60	49260.24
Closing capital cost	46233.76	46281.74	48056.60	49260.24	71558.65
Average capital cost	46147.57	46257.75	47169.17	48658.42	60409.45
Depreciable value @ 90%	41430.96	41530.12	42350.40	43690.73	54266.65
Balance depreciable value	5105.55	4461.18	4534.25	5337.66	14744.03
Balance useful life	6.81	5.81	4.81	3.81	13.00
Depreciation	749.71	767.85	942.67	1400.96	1134.16

Advance Against Depreciation

60. The petitioner has not claimed Advance Against Depreciation. Hence, the petitioner's entitlement to Advance Against Depreciation is "nil".

O&M expenses

61. The O&M Expenses as considered in order dated 18.12.2009/23.9.2010 has been considered for revision of tariff.

Interest on Working capital

62. For the purpose of calculation of working capital the operating parameters including the price of fuel components as considered in the order dated 18.12.2009/23.9.2010 have been kept unchanged. The “receivables” component of the working capital has been revised for the reason of revision of return on equity interest on loan etc. The necessary details in support of calculation of interest on working capital are as under:

(₹ in lakh)

Particulars	2004-05	2005-06	2006-07	2007-08	2008-09
Fuel Cost (Gas) – 1 month	3266.62	3266.62	3266.62	3275.57	3266.62
Liquid Fuel Cost (Naptha) – ½ month	710.06	710.06	710.06	712.01	710.06
O&M expenses	272.56	283.40	294.93	306.46	318.69
Maintenance Spares	665.24	705.15	747.46	792.31	839.84
Receivables	7964.33	7988.05	8050.64	8181.21	8275.25
Total Working Capital	12878.81	12953.27	13069.71	13267.55	13410.46
Rate of interest	10.2500%	10.2500%	10.2500%	10.2500%	10.2500%
Interest on working capital	1320.08	1327.71	1339.65	1359.92	1374.57

63. The revised annual fixed charges for the period from 1.4.2004 to 31.03.2009 are summarized as under:

(₹ in lakh)

Particulars	2004-05	2005-06	2006-07	2007-08	2008-09
Interest on loan	18.06	0.00	12.15	8.69	292.12
Interest on Working Capital	1320.08	1327.71	1339.65	1359.92	1374.57
Depreciation	749.71	767.85	942.67	1400.96	1134.16
Advance Against Depreciation	0.00	0.00	0.00	0.00	0.00
Return on Equity	3227.92	3232.54	3270.82	3333.37	3826.92
O & M Expenses	3270.77	3400.77	3539.15	3677.52	3824.29
Total	8586.54	8728.87	9104.44	9780.46	10452.06

64. The target availability of 80% considered by the Commission in order dated 18.12.2009/23.9.2010) remains unchanged. Similarly other parameters viz. specific

fuel consumption Auxiliary Power consumption and Station Heat Rate etc considered in the order dated 18.12.2009/23.9.2010) have been retained for the purpose of calculation of the revised fixed charges.

65. The reimbursement of the filing fee is not being allowed in view of the Commission's general order dated 11.9.2008 in Petition No.129/2005 wherein it was concluded by the Commission that the application filing fees was part of the allowable O&M expenses

66. The petitioner shall claim the difference between the fixed charges approved vide order dated 18.12.2009/23.9.2010 and those approved now, from the beneficiaries in three equal monthly installments.

67. The tariff determined by this order is subject to the final decision in Civil Appeal No.5442/2007 pending before the Hon'ble Supreme Court and Appeal No.62/2010 pending before the Tribunal.

68. Petition No.127/2009 along with I.A.40/2009 stands disposed of in terms of the above.

Sd/-
(M.DEENA DAYALAN)
MEMBER

Sd/-
(S.JAYARAMAN)
MEMBER