

Before the
MAHARASHTRA ELECTRICITY REGULATORY COMMISSION

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Case No. 95 of 2008

In the matter of
**Maharashtra State Power Generation Company Limited's (MSPGCL) Petition for
determination of tariff for Paras Unit No. 3**

**Shri V.P. Raja, Chairman
Shri S.B. Kulkarni, Member**

ORDER

Dated: December 15, 2009

The Maharashtra State Power Generation Company Limited (MSPGCL) submitted a Petition under affidavit before the Maharashtra Electricity Regulatory Commission (hereinafter referred to as 'MERC' or 'the Commission') on October 27, 2008, for determination of generation tariff for its Paras Thermal Power Station Unit No. 3.

2. MSPGCL under its Petition has prayed as under:

“

- a. *Condone the delay in submission and admit this petition*
- b. *Approve the tariff of Paras Unit-3 for the years 2008-09 and 2009-10.*
- c. *Approve the fuel cost of Paras Unit-3 on actual operating parameters till the stabilization of unit i.e. till end of December 2008.*
- d. *Allow MSPGCL to recover the differential tariff to be recovered from MSEDCL for units supplied to it based on the final tariff determined by the Hon'ble Commission*
- e. *Provide the Petitioner with the workable excel model used to determine the final tariff for the unit...*”

3. MSPGCL submitted that it owns eight Thermal Power Generating Stations including a Gas based Power Plant and it also operates and maintains Hydro Power Stations in the State of Maharashtra. MSPGCL submitted that it has recently commissioned Parli Unit No. 6 on November 1, 2007 and Paras Unit No. 3 in March 31, 2008, with an installed capacity of 250 MW each.
4. MSPGCL submitted that it was in the process of signing the Power Purchase Agreement (PPA) with Maharashtra State Electricity Distribution Company Limited (MSEDCL) for the power generated from Paras Unit No. 3 (250 MW).
5. MSPGCL submitted that it has filed this Petition under Section 62 of the Electricity Act, 2003 (EA 2003), which provides for determination of tariff by the Appropriate Commission for supply of electricity by a Generating Company. MSPGCL added that the Commission has the jurisdiction to regulate the tariff of Generating Companies owned or controlled by a State Government and other Generating Companies as envisaged under Section 86 (1) (a) and (b) of the EA, 2003. MSPGCL further submitted that it has filed the Petition for the determination of tariff for Paras Unit No. 3 for the period from April 1, 2008 to March 31, 2010 in accordance with the provisions stipulated in the MERC (Terms and Conditions of Tariff) Regulations, 2005.
6. The Commission scheduled a Technical Validation Session (TVS) in the matter on December 11, 2008 in the presence of Consumer Representatives authorised on a standing basis under Section 94(3) of the EA 2003. Notices were issued accordingly.
7. During the TVS, MSPGCL made a presentation on the salient features of the Petition for approval of tariff for New Paras Unit No. 3 and accordingly requested the Commission to approve the tariff for New Paras Unit No. 3. MSPGCL also submitted during the presentation that as against stabilisation period of 180 days specified in the MERC (Terms and Conditions of Tariff) Regulations, 2005, MSPGCL envisages a period of 275 days, as it is still facing the problem of stabilisation on account of collapse of Electro Static Precipitator (ESP) D1, D2 field, hoppers H1, H2, H3 and H4 and Re-Heater Section (RHS) of flue gas duct from Boiler Outlet to ESP inlet and accordingly requested the Commission to consider the revised expected period of stabilisation.
8. The Commission identified the data gaps/ discrepancies/additional information requirement based on the Petition submitted by MSPGCL.



9. MSPGCL was directed to submit a detailed Note on the impact of the time and cost overruns on the project cost and also submit the reasons for including the same as a part of the project cost. A similar query was raised by the Commission in the matter of MSPGCL's Petition for Tariff determination of Parli Unit No. 6 for the Multi Year Tariff (MYT) Control Period from FY 2007-08 to FY 2009-10 (Case No. 26 of 2008). In that matter, MSPGCL submitted that all the components of increase in project cost fall under cost-overrun and there is no implication of time overrun on project cost, as all the contracts for packages had a provision that in case the contract period is required to be extended beyond the cut-off dates for reasons not attributable to the owner, payment on account of price variation shall be made on the basis of indices in Price Variation formula by restricting their value to the contractual cut-off date or the actual indices prevailing at that time, whichever is lower.
10. MSPGCL clarified that the said justification was only for variation in the contractual price, which was in accordance with the price variation formula, and does not factor in the impact of Interest during Construction that has been paid due to delay in commissioning of Paras Unit No. 3. MSPGCL submitted that in case the new Paras Unit No. 3 had achieved the Commercial Operation Date (COD) on time, the additional Interest During Construction (IDC) of Rs 136.17 Crore paid for FY 2007-08 would have been saved.
11. The Commission further enquired of MSPGCL about the reasons for the significant increase in the completion cost of new Paras Unit No. 3. MSPGCL submitted that apart from the delay by BHEL, the increase in cost was due to other reasons as this Unit has a barrage and some common facilities for the other Unit was yet to be commissioned. The Commission directed MSPGCL to segregate such costs for each shared facility between Paras Unit No.3 and other Units.
12. MSPGCL submitted the revised Petition along with the additional information on January 6, 2009, for determination of tariff for Paras Unit No. 3. The summary of MSPGCL's submissions in the revised Petition are as under:

13. Components of tariff

MSPGCL submitted that in accordance with the MERC (Terms and Conditions of Tariff) Regulations, 2005, the tariff for Paras Unit No. 3 should consist of two parts, namely, Annual Fixed Charge and Energy Charge.



14. Annual Fixed Charge

MSPGCL submitted that Annual Fixed Charge consists of recovery of the following elements:

- a) Return on Equity capital;
- b) Interest on loan capital;
- c) Depreciation including Advance Against Depreciation (AAD)
- d) O&M expenses and;
- e) Interest on Working Capital;
- f) Income Tax.

15. MSPGCL submitted that it has computed the fixed charge under various heads of expenditure as under:

i. Capital Cost of Project

MSPGCL submitted that the Board of MSPGCL (erstwhile Maharashtra State Electricity Board (MSEB)) approved the proposal for development of 250 MW Paras Unit No.3 on March 29, 1997. MSPGCL submitted that subsequently, the Central Electricity Authority (CEA) also accorded the Techno Economic Clearance (TEC) to this project vide letter dated June 13, 2003. The Project Cost approved in the TEC is Rs. 1026.7 Crore, consisting of hard cost of Rs. 923 Crore and Interest during Construction (IDC) and financing charges of Rs. 103.7 Crore. Subsequently, the Planning Commission, vide its letter dated October 9, 2003, also accorded the investment approval for implementation of the project at the cost estimated in the TEC. MSPGCL submitted the financial plan based on project cost approved by CEA as under:

Source of finance	Amount including IDC (Rs. Crore)
Through Govt. Loan	190.24
Power Finance Corporation	822.17
Internal Accruals	14.29
Total	1026.70

MSPGCL submitted that water requirement for the project was planned to be met by constructing a barrage of 10 MM³ capacity at downstream of the existing barrage on river Mun. The estimated cost of the Unit, including barrage cost as on September 2003 was Rs. 1121.97 Crore, consisting of the capital cost of Rs. 1022.53 Crore and IDC of Rs. 99.44 Crore.

MSPGCL further submitted that the project implementation commenced with placement of order for main plant equipment on May 25, 2004 (zero date). Regarding the cost of the orders placed on M/s Bharat Heavy Electricals Limited (BHEL) and M/s Elecon Engineering Company Limited (Elecon), there was price increase of about 14% to 16% as compared to the cost approved by the Board/TEC. This price escalation was mainly on account of price rise in steel, copper and aluminium. Further, considering such variance in prices, the revised estimated cost of Rs 1468.40 Crore was considered in FY 2004-05 and the same was apprised to the Board.

ii. Estimation of Gross Fixed Assets (GFA)

MSPGCL submitted that the capital cost of the Station incurred up to the date of commissioning has been computed in accordance with Regulation 30.1 of the MERC (Terms and Conditions of Tariff) Regulations, 2005, as under:

- a. The Audited Accounts of Paras Unit No. 3 till March 31, 2008 does not include all the capitalised cost incurred till commissioning of the Unit. However, the actual capitalization till March 31, 2008 is reflected in the Accounts of first quarter (April to June) of FY 2008-09, which indicates that the capital cost was Rs. 1508.24 Crore on March 31, 2008. MSPGCL submitted that this cost includes IDC of Rs. 181.04 Crore.
- b. In the Audited Accounts of Paras Unit No. 3, the IDC for the period FY 2003-04 to FY 2006-07 is computed based on the principles of Electricity (Supply) (Annual Accounts) Rules (ESAAR), whereas for the period from April 1, 2007 to March 31, 2008, actual interest on loans had been capitalised.
- c. The actual IDC for the period from FY 2003-04 to FY 2007-08 incurred on loans including finance charges amounted to Rs. 216.06 Crore.
- d. MSPGCL submitted that there was a difference between the IDC in accordance with ESAAR vis-à-vis actual interest on the loans taken for Paras Unit No. 3. Further, MSPGCL submitted the details of IDC based on the above two approaches as under:

(Rs. Crore)



Year	Interest Expenses capitalised in accordance with the accounts for Paras	Actual Interest Paid	Differential IDC to be capitalised
FY 2003-04	4.25	0.00	-4.25
FY 2004-05	9.29	2.26	-7.03
FY 2005-06	13.69	12.59	-1.10
FY 2006-07	32.41	65.04	32.63
FY 2007-08	121.39	136.17	14.78
Total	181.03	216.06	35.03

- e. MSPGCL submitted that it has identified all the loans specifically taken for Paras Unit No. 3 and has been submitting data of such loan segregation since FY 2005-06 in MYT Petition for FY 2007-08 to FY 2009-10 and APR Petitions for FY 2007-08 and FY 2008-09. MSPGCL submitted that in the above mentioned Petitions, the actual IDC based on the identified loans for Paras Unit No.3 had been capitalised and were hence, not considered in the revenue expenses.
- f. MSPGCL submitted that the differential IDC of Rs. 35.05 Crore should be added to the capital cost of the project based on the above rationale. MSPGCL has accordingly considered the actual capital cost on March 31, 2008 as the sum of capital cost in accordance with accounts and the differential IDC of Rs. 35.05 Crore.
- g. MSPGCL submitted that IDC is inclusive of the Commitment Charges paid to Power Finance Corporation (PFC) and there is no Guarantee Fee paid to Government of Maharashtra (GoM), as security offered by MSPGCL for financing Paras Unit No. 3 is mortgage/hypothecation of future assets to be created for the Project together with land.
- h. MSPGCL considered the total capital cost of the project as on March 31, 2008 as Rs. 1543.28 Crore in its Petition.

The Commission expressed concern about the capital cost of Paras Unit No. 3 during the TVS, as the completed Project Cost of Paras Unit No. 3 works out to Rs. 6.17 Crore/MW (Rs. 1543.28 Crore) as against the industry norm of Rs 4 to 4.5 Crore/MW. In response, MSPGCL submitted that it has carried out an internal



exercise to analyze the reasons for the higher capital cost. MSPGCL also submitted the following justification for the higher capital cost:

- a. CEA had accorded the TEC to the project on June 13, 2003 at an estimated cost of Rs. 1026.70 Crore (Rs. 4.11 Crore/MW). The project cost involved construction of barrage/storage dam on river Mun, which is unique for this kind of projects. The estimated cost of construction of barrage/storage dam was envisaged to be around Rs. 83 Crore.
- b. MSEB accordingly submitted a cost of Rs 1121.97 Crore for the Board's approval considering construction of the aforementioned barrage. The Board thus, initially approved a cost of Rs 4.49 Crore/MW for the construction of the Unit in its Resolution dated February 9, 2004.
- c. MSPGCL mentioned that even after following the competitive bidding process to award various contracts, the cost at the time of awarding the works had been Rs 1330.10 Crore (Rs 5.32 Crore/MW). MSPGCL submitted the comparison of cost approved by the Board vis-à-vis the ordering cost for some of the key project components as under:

Package	Initial cost Approved by Board (Rs Crore)	Ordering Cost after ICB (Rs Crore)	% variation
BTG	599.00	647.13	8%
Water Treatment Plant	13.06	21.47	64%
Coal handling Plant	60.00	95.28	59%
Ash handling Plant	30.90	36.87	19%
LD piping/LP Piping	7.00	12.17	74%
Ozonization Plant	0.65	9.00	1285%
Civil Foundation & super structure	20.50	40.11	96%
Structural steel work	32.00	40.06	25%
Cooling Tower	12.00	19.97	66%
RW reservoir	4.00	10.38	159%
Total Cost	1121.97	1330.10	19%
Cost per MW	4.49	5.32	

- d. As the cost had increased substantially at the time of Order, MSPGCL further apprised the Board regarding such increase in cost after considering suitable Price/Quantity variations. It apprised a cost of Rs 1468.40 Crore to the Board, which was considered as the original cost of the project for the purpose of comparison with cost as on COD.



- e. Though the completed cost at COD was submitted as Rs. 1543.28 Crore (i.e., Rs 6.17 Crore/MW); however, it also included the cost of certain redundancies, which could support an additional Unit at Paras. Therefore, the cost of additional Unit at Paras (currently under construction) would be on the lower side. MSPGCL has submitted that the cost of such infrastructure is around Rs. 78.30 Crore.
- f. MSPGCL submitted that it has levied Liquidated Damages (LD) on M/s BHEL for causing delay in commissioning of the Unit, and an amount of Rs. 25.66 Crore has already been recovered. Considering the aforementioned cost, the net capital cost would be around Rs 1439.32 Crore (Rs 5.77 Crore/MW), as shown in the Table below:

	Rs. Crore	Rs. Crore/MW
Cost as per Original Submission	1543.28	6.17
Less : Shared facilities with additional unit	78.30	
Less: LD recovered	25.66	
Net Capital Cost	1439.32	5.77

MSPGCL requested the Commission to consider the above mentioned aspects and approve the capital cost of the project as Rs. 1439.32 Crore for the purpose of determination of tariff.

iii. Debt: Equity Ratio for funding the Project

MSPGCL submitted that in accordance with Regulation 31.2.1 of the MERC (Terms and Conditions of Tariff) Regulations, 2005, any new Generating Station commissioned on or after the date of notification of these Regulations, shall be assumed to be financed at a normative debt:equity ratio of 70:30. Further, MSPGCL submitted the actual financing plan of Paras Unit No. 3 as on the date of COD as under:

Debt:Equity ratio of Paras Unit No. 3 without considering LD and allocation of cost to the additional Unit

Parameter	Amount (Rs. Crore)	% of Total Capital Cost (as on COD)
Debt	1091.03	71
Equity	452.25	29
Total (as on COD)	1543.28	100



MSPGCL submitted it has allocated part of the capital cost to the additional Unit under construction at Paras and also considered reduction in capital cost on account of recovery of LD from M/s BHEL, as mentioned in the above paragraphs. Further, such reduction in capital cost by around Rs. 101.96 Crore would reduce the internal accruals already deployed in the project. The final debt:equity ratio of the project is accordingly projected as under:

Table: Debt:Equity ratio of Paras Unit No. 3, after considering LD and allocation of cost to the additional Unit

Particular	Amount (Rs. Crore)	%
Debt	1091.03	76
Equity	348.29	24
Total (as on COD)	1439.32	100

iv. Reasons for Delay in Commissioning

MSPGCL submitted that it had considered an optimistic target of commissioning the Unit in 32 months from date of award of contract to M/s BHEL; however, besides the other factors, delay in sequential supplies of material by M/s BHEL served as a major cause for the delay. This led to delay in commissioning of the Unit from its earlier envisaged target of January 2007. MSPGCL therefore, imposed LD of Rs. 67.91 Crore on M/s BHEL and recovered an amount of Rs. 25.66 Crore, for causing the delay of 20 Weeks in commissioning of the Unit.

MSPGCL submitted that as M/s. BHEL is yet to complete the project works in all respects, the final amount to be levied as LD would be computed based on the claims raised by M/s BHEL after completion of the Project.

v. Additional capitalisation

MSPGCL submitted that it has computed additional capitalisation prior to cut off date i.e., March 31, 2009, in accordance with Regulation 30.2 of the MERC (Terms and Conditions of Tariff) Regulations, 2005. In addition to the above additional capitalisation, MSPGCL has also considered capitalisation of initial spares, i.e., 2.5% of the original cost in accordance with Regulation 30.1 of the MERC (Terms and Conditions of Tariff) Regulations, 2005.

vi. Depreciation

For the purpose of depreciation, MSPGCL has considered the opening GFA as the original cost of the assets. MSPGCL has classified its assets in accordance with the

depreciation schedule of the MERC (Terms and Conditions of Tariff) Regulations, 2005, and considered the rates prescribed therein to work out the depreciation.

vii. Advance Against Depreciation (AAD)

MSPGCL submitted that it has clearly segregated the loans specifically taken for commissioning of Paras Unit No. 3, in accordance with Regulation 32.3 of the MERC (Terms and Conditions of Tariff) Regulations, 2005, which stipulates as under:

“Where, in respect of a generating station, the actual amount of loan repayment in any financial year exceeds the amount of depreciation allowable under Regulation 34.4.1, the Generating Company shall be allowed an advance against depreciation for the difference between the actual amount of such repayment and the allowable depreciation in respect of such generating station, for such financial year:

Provided also that such advance against depreciation shall be restricted to 1/10th of the principal amount of loans minus the amount of depreciation”.

Considering that the amount of loan repayment for such loans is higher than the allowable depreciation, MSPGCL has considered AAD in accordance with Regulation 32.3 of the MERC (Terms and Conditions of Tariff) Regulations, 2005.

viii. Operations and Maintenance (O&M) Expenses

MSPGCL submitted that the normative O&M expenses for FY 2005-06 for a new generating station as specified in Regulation 34.6.2 of the MERC (Terms and Conditions of Tariff) Regulations, 2005 is Rs. 10.82 Lakh/MW. These expenses were to be escalated at the rate of 4% per annum to arrive at O&M expenses for any relevant year of the tariff period. MSPGCL accordingly escalated the normative O&M expense of FY 2005-06 at the rate of 4% per annum to derive the O&M expenses for FY 2006-07. However, to compute normative O&M expenses for FY 2007-08, FY 2008-09 and FY 2009-10, MSPGCL has escalated the allowable O&M expenses for FY 2006-07 at the rate of 5.38%, as determined by the Commission in the MYT Order (Case No. 68 of 2006) dated April 25, 2007 based on Consumer Price Index (CPI) and Wholesale Price Index (WPI) ratio.



The summary of O&M expenses considered by MSPGCL is given in the Table below:

Particulars	2005-06	2006-07	2007-08	2008-09	2009-10
Rs. Lakh/MW	10.82	11.25	11.86	12.50	13.17
Escalation rate over previous year		4%	5.38%	5.38%	5.38%
O&M Expenses (Rs. Crore)	-	-	-	31.24	32.92

ix. Interest on Long Term Loans

MSPGCL submitted that it has availed long-term loans from Power Finance Corporation (PFC) and Government of Maharashtra (GoM) for funding the capital expenditure for Paras Unit No. 3. MSPGCL has considered the interest on these loans as part of Annual Fixed Charges. MSPGCL also submitted that it has capitalised all interest and finance charges upto March 31, 2008.

x. Interest on working capital

MSPGCL submitted that it has computed working capital in accordance with Regulation 34.5 of the MERC (Terms and Conditions of Tariff) Regulations, 2005, considering the following:

- a. Cost of coal for two months;
- b. Cost of secondary fuel oil for two months;
- c. Operation and Maintenance expenses for one month;
- d. Maintenance spares @ 1 per cent of the historical cost; and
- e. Receivables for sale of electricity equivalent to two months of the sum of annual fixed charges and energy charges calculated on target availability; minus
- f. Payables for fuel (including secondary fuel oil) to the extent of one month of the cost of fuel calculated on target availability.

MSPGCL considered the short-term Prime Lending Rate (PLR) of State Bank of India

(SBI) as on the date of filing this Petition, i.e., 13.75%, for computing the interest on working capital.



xi. Return on Equity

MSPGCL submitted that it has computed Return on Equity (RoE) at the rate of 14% on the equity capital, in accordance with Regulation 34.1 of the MERC (Terms and Conditions of Tariff) Regulations, 2005. MSPGCL further submitted that Regulation 31.2 stipulates that any generating station commissioned on or after the date of notification of the said Regulations shall be assumed to be financed at a normative debt: equity ratio of 70:30. However, the Commission in its Order dated September 7, 2006, in the matter of Petition filed by MSPGCL for approval of Annual Revenue Requirement (ARR) for FY 2005-06 and FY 2006-07 clarified that RoE shall be on the actual equity limited to 30% of the capitalized investments and cannot be on a normative basis. MSPGCL submitted that the amount of equity investment has been lower than the normative equity of 30% and accordingly RoE has been computed on the actual equity investment of Rs. 348.29 Crore as on the date of COD.

xii. Income Tax

MSPGCL submitted that it has computed the income tax considering the approved return on equity for each financial year at the rate of Minimum Alternative Tax (MAT), i.e., 11.33%, based on the fact that it has to pay income tax on its consolidated income from all its stations.

16. MSPGCL submitted that it has computed the energy charge under various heads of expenditure as follows:

i. Fuel Supply Arrangement

MSPGCL submitted that it has envisaged the utilisation of domestic coal and washed coal as the primary fuel for generation of power in the ratio of 40: 60. The summary of the price and calorific value of primary and secondary fuels as submitted by MSPGCL is shown in the Table below:

Table: Calorific Value of fuels

Fuel	Unit	FY 2008-09	FY 2009-10
Domestic Raw Coal	kcal/kg	3705	3705
Washed Coal	kcal/kg	3784	3784
FO	kcal/kl	10137	10137
LDO	kcal/kl	10427	10427



Table: Landed Price of fuels

Fuel	Unit	FY 2008-09	FY 2009-10
Domestic Raw Coal	Rs./MT	1735	1821
Washed Coal	Rs./MT	1768	1856
FO	Rs./kl	28254	29667
LDO	Rs./kl	35195	36955

MSPGCL submitted that the landed price of fuels has increased substantially, especially in case of Fuel Oil (FO) and Light Diesel Oil (LDO). The landed price of FO and LDO in the month of May 2008 was Rs. 28254 and Rs. 35195, respectively. MSPGCL has submitted that it has considered an increase of 9% and 19% for FO and LDO, respectively, for FY 2008-09 over the prices in FY 2007-08 based on the trends.

ii. Performance of Paras Unit No. 3

MSPGCL submitted that the stabilization period for a new Unit is 180 days from the date of commissioning for coal based stations in accordance with Regulation 33.1.5 of the MERC (Terms and Conditions of Tariff) Regulations, 2005. MSPGCL further submitted that the said Regulations also stipulate relaxed norms for operations during such stabilization period as compared to the norms applicable after the stabilization of the Unit.

MSPGCL submitted that although Paras Unit No. 3 was commissioned on March 31, 2008, however, the Unit has not stabilized in the 180 days period, as stipulated in Regulation 33.1.5 of the MERC (Terms and Conditions of Tariff) Regulations, 2005. MSPGCL added that ESP D1, D2 field, hoppers H1, H2, H3 & H4 and RHS of flue gas duct from Boiler Outlet to ESP inlet had collapsed and the Unit has not yet been stabilised. MSPGCL submitted that together with M/s BHEL, it has taken necessary measures for restoration along with strengthening of the affected parts of Paras Unit No. 3. The work of RHS duct has been completed on October 8, 2008 and Paras Unit No.3 has been restored to its full capacity.

MSPGCL submitted that it has also carried out the following works, in addition to the above mentioned work, for achieving sustained 250 MW load:

- a. Commissioning of balance 27 out of 89 Nos. Control & Instrumentation (C&I) auto loops;
- b. Commissioning of SMART soot blowing system;



- c. Commissioning of LRSB;
- d. Erection of ESP washing arrangement;
- e. Commissioning of Generator Protection data communication system;
- f. Commissioning of UAT-1A/1B summation energy meter at ECP;
- g. Re-erection of D1, D2 ESP fields and H1- H4 hoppers.

MSPGCL submitted that it is yet to receive the Performance Guarantee (PG) Test and Trial Operation Report from M/s BHEL and has plans to undertake detailed investigations to rectify the causes of such collapses of hoppers and RHS duct. MSPGCL submitted that based on the above mentioned factors, it is expected that the Unit will achieve the normative parameters of the Unit has been expected to be achieved by the end of December 2008 and hence, MSPGCL has considered 275 days as the stabilization period in its Petition.

iii. Availability Factor

MSPGCL submitted that in accordance with Regulation 33.1.1 of the MERC (Terms and Conditions of Tariff) Regulations, 2005, the target availability for full recovery of annual fixed charges shall be 80%. However, MSPGCL envisaged that the Paras Unit No. 3 would be available to achieve the normative levels only by the end of December 2008 and requested the Commission to approve the recovery of full fixed charges for FY 2008-09 despite target availability not being achieved till the end of December 2008.

iv. Plant Load Factor

MSPGCL submitted that it envisaged a PLF of 49.37% for FY 2008-09 and 80% for FY 2009-10.

v. Auxiliary Consumption

MSPGCL submitted that Paras Unit No. 3 is provided with motor driven Boiler Feed Pumps (BFPs) and cooling towers. MSPGCL submitted that in accordance with Regulation 33.1.2 of the MERC (Terms and Conditions of Tariff) Regulations, 2005, auxiliary consumption for coal-based Generating Stations with cooling tower is 9.0%. However, during the stabilization period, Regulations provide for auxiliary consumption of 0.5% more than the norm of 9%. MSPGCL further submitted that during the period from April 2008 to December 2008, the actual auxiliary consumption had been 12.15%, which is higher than the norms specified for the stabilization period.



vi. Units generated

MSPGCL submitted the expected generation from the Unit, based on the envisaged availability and PLF, as shown in the Table below.

Parameter	FY 2007-08 (October 21 to March 31)	FY 2008-09	FY 2009-10
Gross Generation (MU)	252.95	1081.31	1752
Auxiliary Consumption (%)	12.05	10.89	9.00
Net Generation (MU)	220.42	963.58	1594.32

vii. Station Heat Rate

MSPGCL submitted that Regulation 33.1.3 of the MERC (Terms and Conditions of Tariff) Regulations, 2005 stipulates the gross station heat rate for coal-based generating stations of 200/210/250 MW during stabilization period as 2600 kcal/kWh and for the subsequent period as 2500 kcal/kWh; however, MSPGCL has considered the actual station heat rate during the stabilization period, i.e., till the end of December 2008. Further, for the period beyond stabilization period, MSPGCL has considered the normative station heat rate of 2500 kcal/kWh.

viii. Transit Losses

MSPGCL submitted that in accordance with Regulation 33.1.6 of the MERC (Terms and Conditions of Tariff) Regulations, 2005, allowable transit losses for coal based generating stations, as a percentage of quantity of coal dispatched by the coal supply company during the month, shall be 0.8% for non-pit head generating stations. MSPGCL submitted that it has accordingly considered the same in its tariff computations.

ix. Secondary fuel oil consumption

MSPGCL submitted that in accordance with Regulation 33.1.4 of the MERC (Terms and Conditions of Tariff) Regulations, 2005, allowable secondary fuel oil consumption for coal-based generating stations is 4.5 ml/kWh during the stabilization period and 2.0 ml/kWh for subsequent period. MSPGCL submitted that during the initial months during the stabilization period (i.e., upto December 31, 2008), the secondary fuel oil consumption was 31.95 ml/kWh and accordingly, MSPGCL considered secondary fuel oil consumption of 31.95 ml/kWh till December 2008 and 2 ml/kWh from January to March 2009 for tariff



computations. Further, for FY 2009-10, MSPGCL has considered the normative secondary fuel oil consumption in tariff computations.

x. Water, Chemical and Lubricant Charges

MSPGCL submitted that the charges for water, chemicals and lubricants have been added to the variable cost in a similar manner as considered by the Commission for the existing Stations of MSPGCL in the MYT Order dated April 25, 2007.

- xi. MSPGCL submitted the overall summary of technical performance parameters considered for determination of tariff of Paras Unit No. 3 after stabilisation as provided in the Table given below:

Parameter	Unit	Normative value
Availability Factor	%	80
PLF	%	80
Station Heat Rate	kcal/kWh	2500
Auxiliary Consumption	%	9
Transit Losses	%	0.8
Secondary oil consumption	ml/kWh	2

xii. Impact of increase in stabilisation period

MSPGCL submitted that in accordance with the MERC (Terms and Conditions of Tariff) Regulations, 2005, the stabilisation period for a thermal Unit is 180 days. However, it has envisaged a higher number of days for stabilisation of the Unit. The Table given below provides the impact of such increase in stabilisation period of the Unit with respect to the normative parameters.

Parameter	Unit	MERC Tariff Regulations	Submitted for approval by the Commission
Stabilisation Period	Days	180	275
SHR	Kcal/kWh	2600	3168
Sec. oil consumption	ml/kWh	4.5	31.95
Auxiliary consumption	%	9.50	12.15
Fuel cost (2008-09)	Rs. Crore	169.07	204.24



MSPGCL requested the Commission to consider the technical problems of the Unit and approve the increase in the fuel cost during the stabilisation period.

17. MSPGCL summarized the cost of generation for Paras Unit No. 3, based on the normative parameters stipulated in the MERC (Terms and Conditions of Tariff) Regulation, 2005, for FY 2008-09 and FY 2009-10 as under:

Particulars	Unit	FY 2008-09	FY 2009-10
Depreciation	Rs. Crore	51.61	51.96
Advance Against Depreciation	Rs. Crore	51.69	51.35
Operations & Maintenance Expenses	Rs. Crore	31.24	32.92
Interest on Long Term Loan	Rs. Crore	121.71	112.65
Interest on Working Capital	Rs. Crore	16.81	17.52
Return on Equity Capital	Rs. Crore	48.76	48.76
Income Tax	Rs. Crore	5.52	5.52
Total Fixed Charges	Rs. Crore	327.35	320.69
Total Variable Charges	Rs. Crore	204.24	228.79
Total charges	Rs. Crore	531.59	549.48
Net Generation	MU	963.58	1594.32
Variable Cost	Rs./kWh	1.82	1.47
Total Cost	Rs./kWh	5.52	3.45

18. Treatment of Infirm Power

MSPGCL submitted that the entire cost of generation of infirm power (i.e., Rs. 75.12 Crore) has been capitalised and the revenue earned from sale of such power (i.e., Rs. 27.72 Crore) has also been reduced from the project cost.

19. The Commission admitted the revised Petition on January 28, 2009 and directed MSPGCL to publish the Public Notice for inviting suggestions and objections on the Petition from the stakeholders. The Public Notice inviting comments and suggestions was issued in Sakal (Marathi), Loksatta (Marathi), The Times of India (Mumbai Edition), and Free Press Journal (Mumbai Edition) on February 2, 2009.



Public Hearing

20. The Public Hearing in the matter was held on Friday, March 6, 2008 at 11:00 hours at the Commission's Office at 13th Floor, Centre No. 1, World Trade Centre, Cuffe Parade, Mumbai-400 005.
21. During the hearing, Shri. Shrikant Dudhane (Chairman, Kolhapur Engineer Association) submitted that the Commission should reject the Petition as the Petition is filed for increase in tariff.
22. MSPGCL submitted that Paras Unit achieved commercial operation on March 31, 2008 and the Petition has been filed for determination of tariff for newly commissioned unit and not for increase in tariff.
23. As regards the acceptance of the Petition, it is clarified that the present Petition has been submitted for determination of tariff for the new Unit and has been filed in accordance with the applicable Regulations; hence, the Commission has accepted the Petition filed by MSPGCL in this regard.
24. Shri. Shrikant Dudhane submitted that the main reason for delay in commissioning of Unit is on account of delayed supply of equipments from M/s BHEL. In January 2009, MSPGCL has levied Rs. 67.91 Crore as liquidated damages on M/s BHEL. The same amount should be recovered from M/s BHEL with interest and should not be passed on to MSEDCL because MSEDCL will recover this amount from their consumers.
25. MSPGCL submitted that liquidated damages are being recovered in accordance with the terms and conditions of the contract.
26. As regards the treatment of the liquidated damages, the Commission has deliberated on this issue in detail in the Commission's ruling.
27. Shri. Shrikant Dudhane submitted that the cost of the project as on March 30, 2008 for the purpose of determination of tariff has been considered as Rs. 1439.32 Crore including IDC of Rs. 216.06 Crore. Shri. Shrikant Dudhane submitted that the Table No.5 shows that against 234 MU approved in APR Order for FY 2007-08, actual generation is only 220.42 MU. Similarly, for FY 2008-09, against the approved generation 1592 MU in APR Order, actual generation was 963.57 MU, which is almost 40% lower. Shri. Shrikant Dudhane submitted that since these targets approved in the Order have not been met, any increase in the tariff should not be permitted.
28. MSPGCL, in its reply, submitted that the Commission's APR Order dated March 31, 2008 was based on the estimated information submitted at that time for FY 2007-08 and FY 2008-09. MSPGCL submitted that it has been always trying to generate in

accordance with the Commission's Order but on account of some unexpected difficulties/faults at the initial stage, it was not possible for MSPGCL to achieve the targets. MSPGCL submitted that after overcoming the difficulties faced during the initial stage, generation has been increasing as per expectations. MSPGCL submitted that the details of faults in Electrostatic Precipitator and accident of Hoppers and Flue gas duct have already been submitted in the main Petition.

29. As regards the concern raised regarding the low generation and performance of the Unit, the Commission agrees with the concerns and has accordingly ruled on this issue in subsequent paragraphs.
30. Shri. Shrikant Dudhane submitted that MSEDCL has already increased its tariff in June 2008 and now due to this Petition of MSPGCL, there will be additional increase in tariff of MSEDCL and consumers will not be able to bear the additional increase in tariff and hence, this Petition should be rejected, and in any case MSPGCL should not be allowed to recover the difference amount.
31. MSPGCL submitted that on June 06, 2005, erstwhile MSEB has been trifurcated into three independent Companies and since then operations and tariff fixation of these three Companies is being done separately. MSPGCL submitted that tariff of MSPGCL and other Companies depends on the fuel cost and other expenses of that particular year, which is approved by the Commission after detailed scrutiny.
32. Shri. Shrikant Dudhane submitted that the cost of the project as approved by CEA is Rs. 1026.70 Crore, while the order placement cost of the Project is Rs. 1468.04 Crore. Further, the cost of the completed project is Rs. 1439.32 Crore, which is higher by Rs. 412.62 Crore as compared to CEA approved cost. M/s BHEL, as well as MSPGCL, are responsible for this increase in cost. Therefore, this difference amount should be recovered from M/s BHEL with interest.
33. MSPGCL submitted that the detailed reasons for variation (i.e., increase) in the cost of the Project have been submitted in the Petition. The main reasons for increase in Project cost are increase in equipment cost while placing the orders and delay by M/s BHEL in supply of sequential equipments.
34. Shri. Shrikant Dudhane submitted that MSPGCL has not considered the recent reduction in the cost of coal, diesel, petrol and gas, while estimating the generation cost, which should have reduced.
35. As regards the generation cost, the Commission has deliberated on this issue in detail in the Commission's ruling.

Additional Submissions

36. The Commission enquired from MSPGCL regarding the details of the month-wise revenue billed to MSEDCL for the actual generation prior to COD and month-wise actual fuel cost incurred. MSPGCL responded that it has raised three bills for infirm power, with total amount of Rs. 27.72 Crore. MSPGCL further added that it has not raised any monthly bill prior to COD. MSPGCL added that this amount of Rs. 27.72 Crore has already been deducted from the capital cost of the project. MSPGCL further submitted that all generation expenses incurred during the trial period have already been capitalised in the books of accounts and have been audited by the statutory auditors of the Company.
37. The Commission asked MSPGCL to submit a detailed Note on the impact of the time and cost overrun on the project cost and submit the reasons for including the same as a part of the project cost. MSPGCL, in its reply, submitted that there has been no change in hard cost of the project due to time overrun, since the order placed for various packages were either firm price or with price variation.
38. MSPGCL further submitted that as far as soft cost is concerned, as the project has been delayed for more than a year, therefore, IDC for FY 2007-08 (i.e., Rs. 136.17 Crore), which would have otherwise been a part of the revenue expenses, has now been capitalised. MSPGCL submitted that the same can be considered as the cost of time overrun for the project.
39. The Commission asked MSPGCL to submit the basis and assumptions for considering the Commitment Charges as a part of the project cost. MSPGCL replied that the Commitment Charges are a small amount (Rs. 75 Lakh) payable to PFC, in case the loan drawal is lower than the initial drawal schedule. MSPGCL further submitted that for a project of this magnitude, there are bound to be deviations from the initial schedule. Further, loan drawal, when it is actually not required would unnecessarily lead to increase in IDC. Hence, MSPGCL considered it desirable to pay the Commitment Charges rather than increasing IDC, and considered such Charges as a part of project cost.
40. The Commission observed that MSPGCL, in its Petition, submitted that it has imposed Liquidated Damages of Rs. 56.81 Crore on M/s BHEL in October 2007, for causing delay of 20 weeks in commissioning of the Unit. In this context, the Commission asked MSPGCL to submit the reasons for imposing Liquidated Damages for only delay of 20 weeks, when the actual delay in commissioning of the Unit is of 14 months, i.e., approximately 61 weeks.



41. MSPGCL submitted that Liquidated Damages have been levied in accordance with the relevant Sections of the Contract Documents. Further, MSPGCL submitted the basis for computation of Liquidated Damages as under:

“If the contractor fails to achieve trial operation of the unit by 32 months from the Zero date due to reasons attributable to him then the owner shall levy liquidated damages on the contractor @ 1/2 % of the contract price (excluding taxes and duties) alongwith applicable price variation per week of delay or part thereof subject to the maximum 10% of the contract price (excluding taxes and duties) along with applicable price variation.”

MSPGCL submitted that as may be observed from the above conditions of the contract, even though the Liquidated Damages that could be levied is 0.5% of the contract price per week, the maximum Liquidated Damages applicable is only 10% of the contract price.

42. The Commission further asked MSPGCL to confirm whether the amount of Liquidated Damages have been finalised and asked MSPGCL to submit the details of amount recovered out of the Liquidated Damages levied. MSPGCL, in its reply, submitted that M/s. BHEL is yet to complete the project works in all respects and the Liquidated Damages would be levied on the claims that would be raised by M/s BHEL, hence, the amount to be recovered could not be finalised at this stage. Further, MSPGCL submitted the details of the maximum applicable and recovered Liquidated Damages as provided in the Table below:

<i>Supply of Main Equipment</i>	Rupees
Contract Price	4,56,49,93,200
Estimated Taxes and Duties	72,29,24,200
Contract Price including taxes and duties	5,28,79,17,400
Maximum Applicable Price Variation on Equipment Price (20% of 456,49,93,200)	91,29,98,640
Maximum LD Applicable on Supply of the Equipments @ 10% of (456,49,93,200+ 91,29,98,640)	54,77,99,184
Liquidated Damage Amount Recovered on Supply of Equipments and Mandatory Spares	26,06,72,702
<i>Supply of Mandatory Spares</i>	
Contract Price	363227604
Contract Price for Mandatory Spares(including taxes and duties, Freight and Insurance etc)	44,00,00,000



Supply of Main Equipment	Rupees
Maximum Applicable Price Variation on Contract Price of Mandatory Spares (20% of 36,32,27,604)	7,26,45,521
Maximum Liquidated Damage amount levied on (Contract price including Price Variation) on Mandatory Spares @ 10% of (37,41,24,467 + 7,26,45,521)	4,46,76,999
Liquidated Damage amount recovered on contract price of Mandatory Spares	Included in LD recovered on supply of equipments and mandatory spares (Since this is a single contract)
Total Liquidated Damage amount recovered on Supply of Main Plant and Mandatory Spares	26,06,72,702
Erection, Testing and Commissioning	
Contract Price	61,59,47,000
Taxes and Duties	At actual
Contract Price (including price variation) and excluding taxes and duties (Considering Max. Price Variation @ 20% of Erection Price)	73,91,36,400
Liquidated Damage amount levied on Contract Price excluding taxes and duties	7,39,13,640
Liquidated Damage amount recovered on Contract Price excluding taxes and duties	5,18,06,031
Total Liquidated Damage amount recovered as on 11.11.09	31,24,78,733

43. The Commission observed that there has been a delay in almost all the contracts and Liquidated Damages can also be levied on other contracts based on the contract conditions, apart from Main Plant Contract. The Commission asked MSPGCL to clarify whether it has levied Liquidated Damages for delay in other contracts.

44. MSPGCL, in its reply, submitted the detailed list of the contracts where, Liquidated Damages can be levied in accordance with the contract conditions as shown below:

Sr. No.	Agency Name Package	Order Value	LD retained (by H. O. + Site)	Remarks
	BOILER			
1)	M/s Sunil Hitech Oil Handling Plan	5,68,00,000/-	56,80,000/-	Contract closing not yet completed and LD value not finalized.
2)	M/s Kirloskar Pneumatic SA & IA Compressor	5,95,00,000/-	59,50,000/-	
3)	M/s Shree Engineers Misc. Cranes	1,11,45,291/-	11,14,529/-	
4)	M/s Balaji Associates Sump Pumps	25,00,417/-	2,50,041/-	



Sr. No.	Agency Name Package	Order Value	LD retained (by H. O. + Site)	Remarks
	TG & CHP			
1)	M/s Anupam EOT Cranes – 2 Nos	2,95,31,520/-	Not applicable	Contract closed.
2)	M/s Elecon Coal Handling Plant.	95,28,00,000/-	9,52,80,000/-	Work not yet completed.
	ELECTRICAL			
1)	M/s Kanka (Formerly M/s Jaykrishna Ind. Ltd.) Electrical Installation Work	6,38,31,150/-	63,83,115/-	Contract closing not yet completed and LD value not finalized.
2)	Station area lighting M/s Spaceage Switchgear Ltd.	2,97,90,505/-	29,79,050/-	Contract closing not yet completed and LD value not finalized.
3)	M/s Exide Industries Ltd. DC System	1,85,62,985/-	18,56,298/-	
4)	M/s Hyderabad Pollution Control Ltd. Ventilation System	3,40,72,200/-	34,07,220/-	
5)	M/s Anklesaria DG Sets	76,33,117/-	7,63,311/-	
6)	M/s City Lifts Passenger Cum Goods Elevators	1,01,30,000/-	10,13,000/-	
7)	M/s Signum Protection Fire Stop Mortar Seal	1,47,57,000/-	14,75,700/-	
8)	M/s Control & Schematic LT Switchgear BDs & DBs	9,16,90,000/-	91,69,000/-	
9)	M/s Blue Star AC Plant	2,86,38,000/-	28,63,800/-	
	ODP			
1)	M/s Driplex. W. T. Plant (Post)	15,75,00,000/-	1,57,50,000/-	Contract closing not yet completed and LD value not finalized.
2)	M/s Sheth & Sura L. D. Piping	10,86,58,000/-	1,08,65,800/-	Contract closed on 18.08.08
3)	M/s Zuberi LP Piping	1,30,69,000/-	13,06,900/-	Contract closing not yet completed and LD value not finalized.
4)	M/s Tecpro Ash Tech (MATL) Ash Handling Plant	3687,00,000/-	3,68,70,000/-	Work not yet completed.
5)	M/s Flowmore Misc. Pumps	136.80 Lakh	13,68,000/-	Contract closing not yet completed and LD value not finalized.
6)	M/s Unitech Machines Ltd. Fire Detection & Protection	450.45 Lakh	45,04,500/-	Contract closing not yet completed and LD value not finalized.



45. The Commission asked MSPGCL to submit the details of total costs apportioned for shared facilities amongst various Units, which was submitted by MSPGCL as under:

Sr. No	Package	Cost (Rs. Crore) submitted for Paras Unit 3	Apportioned cost (Rs. Crore)	
			Paras Unit 3	Paras Unit 4
1	Land & Site development	2.93	1.46	1.46
2	Fuel Handling and storage system	5.22	3.11	2.11
3	Ash Handling System	29.11	21.30	7.81
4	Coal Handling Plant	96.96	53.30	43.67
5	Rolling Stock and Locomotives	6.12	5.82	0.30
6	Fire fighting System	6.59	5.06	1.53
7	Main plant/Adm. Building	33.16	17.58	15.58
8	Construction of chimney	14.18	9.42	4.77
9	Compound wall	2.15	1.08	1.08
	Total	196.41	118.12	78.30

46. The Commission further asked MSPGCL to clarify whether the Barrage is part of the shared facilities with upcoming thermal Unit. MSPGCL, in its reply, submitted that the barrage has been constructed solely to serve the needs of Paras Unit 3.

47. The Commission further observed that the Contract Order Cost (excluding Overheads and Taxes) is higher by almost 40% with respect to Central Electricity Authority (CEA) approved cost and asked MSPGCL to submit the reasons for the same.

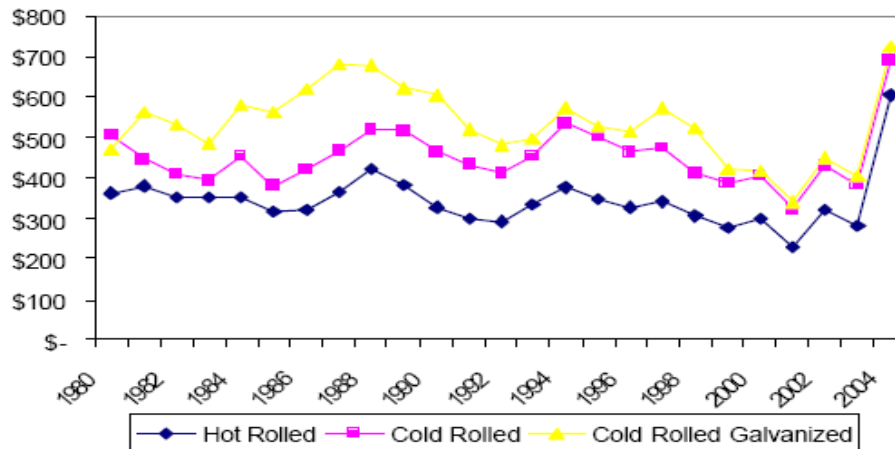
48. MSPGCL, in its reply, submitted that TEC was accorded by CEA on June 13, 2003 for implementation of the project Paras Unit 3 at an estimated cost of Rs. 1026.7 Crore. Subsequently, the Planning Commission has also accorded the investment approval to Paras Unit 3 in September 2003. This estimated cost was based on price of Parli Unit no.6 for Main Plant Package as in September 2003, with 32 months trial operation (*to be read as 'construction period'*).

49. MSPGCL submitted that it had analysed the market conditions and identified the following reasons for such increase:

- a. Market Steel Prices have increased significantly in this phase as compared to the past trend as shown in the Figure below:



Sheet Steel Prices, 1980 - 2004
(Dollars Per Ton)



Source: REASONS AND IMPACT OF STEEL PRICE INCREASES ON THE AGRICULTURAL MACHINERY INDUSTRY by Robert Adams CNH Agricultural Product Development Sourcing

- b. There was an unprecedented increase in the market prices for steel from September 2003 to March 2004, registering a growth of 17.5%.
 - c. Market price of copper increased significantly during the said period and registered a rise of 23.22% up to January 2004, due to increase in global demand for Copper on account of sudden upsurge in the Infrastructure and Auto segment. The Indian economy has also shown a growth rate of 7-8%, which has increased the copper demand.
 - d. Labour index increased by 1% over the said period.
50. MSPGCL submitted that in view of the increase in global demand for steel, copper and other material, the prices have increased, hence, MSPGCL had revised the estimated cost with IDC as Rs. 1121.97 Crore. Contract order for the supply of main plant equipments and other mandatory spares were placed in May 2004.
51. MSPGCL further submitted that International Competitive Bids were invited on February 10, 2004, for the supply of main plant equipments for Paras Unit 3. Initially, three bidders viz. M/s BHEL, New Delhi; M/s ALSTOM, New Delhi and M/s SKODA, Czech Republic, had shown interest to participate in the bid process; however, MSPGCL received only one offer from M/s BHEL. MSPGCL submitted that since the bid prices were determined through open and transparent process, MSPGCL had no control over the prices discovered.
52. The Commission asked MSPGCL to submit the comparison of the actual and order placement cost values of Parli Unit No. 6 and Paras Unit No.3 and to submit the reasons for variation in cost.

53. MSPGCL submitted the details of the actual and order placement cost for Parli Unit No. 6 and Paras Unit No. 3 as shown in the Table below:

Particulars	Parli Unit No. 6		Paras Unit No.6		% increase in Paras Unit-3 w.r.t. Parli U-6 (Order Cost)	% increase in Paras Unit-3 w.r.t. Parli U-6 (Actual Cost)
	Supply contract cost	Actual cost	Supply contract cost	Actual cost		
Order Date	January 14, 2004	----	May 25, 2004	-----	-----	-----
Ex-works Price	426.00	464.37	456.50	486.45	7.16%	4.75%
Taxes & Duties	65.91	75.32	72.29	81.58	9.68%	8.31%
Freight & Insurance	6.39	5.46	At actual but limited to 12.75	4.22*	99.51%	(-) 22.71%
Spares	40.00	34.55	44.00	41.01	10.00%	18.70%
Total Supply Price	538.30	579.70	585.54	613.25	8.78%	5.787%
Erection & Commissioning Contract Cost (Rs. Cr.)						
Basic Price	60.70	65.48	61.59	63.93	1.47%	(-) 2.41%
Taxes & Duties	At actuals	7.45	At actuals	7.72	----	3.62%
Total E&C Contract	60.70	72.93	61.59	71.65	1.47%	(-) 1.75%
Total EPC Contract	599.00	652.63	647.14	684.90	8.04%	4.95%

54. Further, MSPGCL submitted the following justification for increase in the work order cost for Paras Unit No. 3 as compared to Parli Unit No. 6:

A. Justification for ex-works supply price:

Ex-works supply price for Paras	:	Rs.456.50 Cr.
Less –		
Cost of Addl. Items over Parli scope	:	
(i) 2 Nos. LT – MCC for ESP	:	Rs. 34.00 lakh
(ii) Addition of condensate Storage tanks, make-up Control valves, flow elements etc.	:	Rs. 30.00 lakh
(iii) Addition of inter connecting Cables for Generator	:	Rs.10.00 lakh
(iv) Provision of emergency Seal oil supply for Generator Seals	:	Rs.16.00 lakh
(v) HP governing for LP Bypass	:	Rs.178.00 lakh

Sub-total (i to v) : Rs.246.00 lakh

Ex-works price excluding additional Scope (456.50 – 2.46= Rs.454.04 crore) : Rs.454.04 Cr.

Percentage increase in Paras cost = $(454.04-426)/426 \times 100$
= 6.5%



MSPGCL submitted that the above increase of 6.5% over Parli project cost appears to be reasonable on the basis of the following facts:-

- i. Unprecedented increase of 17.5% in the market prices for steel from Sept.2003 to March 2004.
- ii. Increase of 23.22% in the market price of copper for the said period.
- iii. Increase in the labour index by 1% over the period.

Hence, the increase in the ex-works price for supply by 6.5% over the price for Parli Project is justified.

B. Justification for Taxes & Duties:-

i) Price quoted by BHEL in Parli	:	Rs.65.91 Cr.
ii) Additional Taxes/duties due to increase in supply price of Rs.33.19 Cr. at 16% excise Duty & 4% Sales Tax	:	Rs. 6.85 Cr.

Total price as derived from Parli	:	Rs. 72.76 Cr.
Price quoted by BHEL in Paras	:	Rs. 72.29 Cr.

Hence, the price quoted by M/s. BHEL towards taxes & duties is reasonable taking into consideration the increase in the ex-works price for supply.

C. Justification for the price for erection, testing & commissioning:

i) Price accepted for Parli	:	Rs.60.70 Cr.
ii) Addl. Liability due to Maharashtra Insurance (Ref.MOM dtd.8.5.04 - Paras 3.0)	:	Rs. 4.00 Cr.
iii) Price for comprehensive insurance for addl. Scope	:	Rs. 0.39 Cr.
iv) Increase in labour component by 1% based on indices for labour extrapolated upto March 2004	:	Rs. 0.65 Cr.

Total derived price from Parli	:	Rs.65.74 Cr.
Price accepted for Paras	:	Rs.61.59 Cr.



Hence, the price accepted for Paras for erection, testing and commissioning is also reasonable taking into account the additions in the Parli price due to Maharashtra Insurance and increase in the labour index.

D. Justification for the freight & insurance charges:

- | | | | |
|-----|--------------------------------|---|-------------------------|
| i) | Price quoted for Parli Project | : | Rs.6.39 Cr. |
| | | | (1.5% of supply price) |
| ii) | Price quoted for Paras Project | : | Rs.12.75 Cr. |
| | | | (2.78% of supply price) |

As compared to the Parli price for freight & insurance charges, there is 100% increase in the freight & insurance charges for Paras Project. However, the component of freight and insurance charges is 2.78% of the ex-works price for supply, which is justified. Normally, freight and insurance at 2.5-3% of the ex works supply price is accepted.

E. Justification for the price of Spares

- | | | | |
|------|---|---|--------------|
| i) | Price of Spares accepted for Parli Project | : | Rs.40.00 Cr. |
| ii) | Price of Spares accepted for Paras Project
(Par-A portion) | : | Rs.44.00 Cr. |
| iii) | Difference in the accepted price | : | Rs. 4.00 Cr. |

MSEDCL submitted that the quantum of mandatory spares for Parli Project and Paras Project is varying due to additional items required at Paras, hence, the price difference is justified.

55. The Commission asked MSPGCL to clarify whether Paras Unit No. 3 was eligible for availing benefits of Accelerated Generation & Supply Programme (AG & SP) initiated by Government of India and whether it has availed such benefit, and asked MSPGCL to submit the details of the interest subsidy received till date.



56. MSPGCL submitted that initially Paras Unit 3 had envisaged its debt funding from PFC under AG&SP of Ministry of Power. The guidelines issued under this programme were that the project should be completed/commissioned within the X Five Year Plan. MSPGCL submitted that PFC has sanctioned loan of Rs. 1174 Crore for Paras Unit No 3. MSPGCL further submitted that this loan was initially covered under AG&SP scheme of MoP, GOI, whereby the borrower is entitled to get subsidy in interest. MSPGCL submitted that since Paras Unit 3 was not able to achieve its commissioning up to the end of Xth Five Year Plan, MSPGCL had to refund the entire amount of AG & SP subsidy passed on for Paras Unit No. 3 to PFC.
57. The Commission asked MSPGCL to confirm the actual stabilisation period as against the estimated period of 275 days in the Petition. MSPGCL submitted that Paras Unit No. 3 stabilised on December 7, 2008 i.e., in 275 days as estimated in the Petition.
58. The Commission asked MSPGCL to submit the failure report with detailed actions taken by it to restore the failed equipments like ESP, hoppers and RHS of flue gas duct, which were submitted as under:

Sr. No.	Details of Failure	Cause of Failure	Corrective Action Taken	Time taken in restoration	Cost of Restoration	The party to be levied with such damages
1.	ESP hopper D1, D2 collapsed with internals	<ul style="list-style-type: none"> Field loading was high at front fields compared to rear fields. Uneven gas distribution of flue gas in four passes. High accumulation of ash in C and D passes due to above reasons. 	<ul style="list-style-type: none"> Field loading adjusted at the front field. Gas distribution measured after adjusting deflector plates at secondary screen by M/s BHEL. Gap between collecting plate and its guide corrected. Damage hoppers, support columns & all ESP internal replaced. 	6 months (21-05-2008 to 18.11.08)	Rs. 3,01,00,604	Total risk and cost to be borne by M/s. BHEL and works carried by MSPGCL
2.	RHS gas duct Boiler Outlet Funnel to ESP inlet	<ul style="list-style-type: none"> Duct failure because of contingent structural deficiency. 	<ul style="list-style-type: none"> Strengthening of the support as per drawing modified and suggested by M/s. BHEL. Duct & duct hopper replaced by M/s BHEL. 	3 months (8-07-2008 to 08.10.08)	Nil	Total risk and cost to be borne by M/s. BHEL



59. Further, MSPGCL also submitted the detailed cost of restoration of collapsed equipment as under:

Particulars	Amount in Rupees
1) Supply order for ESP D1, D2 spares	22724200.00
2) Work order for ESP D1, D2 restoration	6700000.00
3) Supply order for Nut & bolt for ESP D1, D2 restoration	45050.00
4) Supply order for Channels for ESP D1, D2 restoration	187938.00
5) Work order for Ash removal for ESP D1, D2	443416.00
Total Rs.	3,01,00,604.00

60. The Commission enquired of MSPGCL regarding the actual dates of the various activities related to Paras Unit No. 3. MSPGCL submitted the required details in the Table given below:

S. No	Activity	Purpose	Start Date	End Date
1	Synchronising and Initial Operation	To achieve integrated operation of all systems after completion of commissioning checks and fine tuning on individual systems and control loops	31-05-07	24-11-08
2	Trial Operation	Trial operation <u>on bars</u> for 24 days, out of which 72 Hrs shall be at Full load	25-11-08	26-12-08
3	Commercial Operation of Unit		31-03-08	
4	Stabilisation of Unit	Fine tuning of all control loops, eliminating of all teething problem and stabilise unit for continuous operation at Maximum Continuous Rating (MCR)	180 days from COD i.e. 31-03-2008	31.12.08 MSPGCL requested 275 days as period of stabilisation
5	Performance Guarantee tests			
5.1	Turbo generator	To prove guaranteed parameters of Turbo-generator set	12-04-09	15-04-09
5.2	Boiler	To prove guaranteed parameters of Boiler	20-04-09	22-04-09
6	Issue of Acceptance certificate from MSPGCL to BHEL	To accept the Performance of the unit and take over for commercial operations	31.03.08	As PG test for ESP, Coal Mill and Auxiliary consumption are still to be completed by M/s BHEL. MSPGCL will issue the acceptability report after satisfactory completion of all required tests at the project site of Paras Unit 3

61. MSPGCL submitted the details of the various activities related to the Boiler and Turbine Generation PG Test in following Table, in response to the Commission's query in this regard:

	Operation /Test	Date / Period	Guaranteed Specified Values or Results as per Contract	Observations / Result	Acceptability/Certification by MSPGCL
1	TG PG Tests				
1.a	Turbine cycle Heat Rate at 100% and 80% MCR	12.04.09 To 14.04.09	1936.3 KU/KW hr. & 100% 1984.5 KU/KW hr. & 80%	1934.5 KU/KW Hr. (100%) 1983.5 KU/KW Hr. (50%)	Test report has been received by MSPGCL. However some corrective actions have been recommended to be done by M/s BHEL based on the analysis of the said report.
1.b	Capability Test	15.04.09	250 MW	254.8 MW	
2	Boiler PG Tests				
2.a	Boiler Efficiency Test	20.04.09	86.25	87.1432	Test report has been received by MSPGCL. However test parameters are deviating from the designed values and M/s BHEL has been asked to provide clarifications for the same.
2.b	SH, RH Temperature Control from 100% to 80% B MCR	21.04.09	540.50C	Achieved	
2.c	Steam generating capacity (BMCR)	20.04.09	810 TPH	814.31 TPH	
2.d	Steam Generator Auxiliary consumption	20.04.09	8720 KW	7736.12 KW	ESP PG Test is yet to be completed. MSPGCL had already notified M/s BHEL for the same

MSPGCL submitted that the final acceptability report for the complete PG Test report will be submitted to Commission as and when the activities and analysis of the report is complete.

62. MSPGCL submitted that PG test for steam and turbine have been completed, however the PG test for ESP is yet to be completed and after completion of ESP PG test, Liquidated Damages would be levied if any shortfall is found in the performance parameters in accordance with contract conditions.

63. As regards the capitalisation of revenue earned before COD, the Commission observed that though MSPGCL claimed that it has capitalised the revenue earned before COD, however, Statement-1 (i.e., Revenue Account) of the Audited Accounts for Paras Unit No. 3 does not specify any amount towards the revenue earned. The Commission asked MSPGCL to provide documentary evidence (i.e., JV, ledger copy, etc.) to prove that the revenue has been reduced from the capital cost. In reply, MSPGCL submitted that the revenue received from sale of infirm power during trial run to the extent of Rs. 27.72 Crore has been reduced from the Capital cost of Paras Unit No 3 and provided the JVs and Ledger details in this regard, which are found to be in order.



64. As regards the capitalized cost incurred till commissioning, the Commission observed that the actual capitalization till March 31, 2008 is however, reflected in the accounts of first quarter (April to June 2008) of FY 2008-09. The Commission has analysed the details of the accounts as submitted by MSPGCL:

Rs. Crore

Particulars		at the end of previous years (i.e., opening balance of this year)	Addition	Transfer to other accounting units	Deductions on account of sale of assets/becoming obsolete/loss of assets	Balance at the end of period
Project	Fixed Assets for the period ending March 2008	0.307	0.000	0.092		0.214
Project	Fixed Assets for the period ending June 2008	0.214	1171.340	1171.340		0.214
Civil	Fixed Assets for the period ending March 2008	1.296	0.004	0.845	0.056	0.399
Civil	Fixed Assets for the period ending June 2008	0.399	336.308	336.308		0.399
Total				1508.586		

As observed from the above Table, majority of the capitalization has been booked in the quarter from April to June 2008 of FY 2008-09. In this regard, the Commission asked MSPGCL to submit the reasons for not booking actual capitalization till March 31, 2008 in the accounts of FY 2007-08 and to confirm whether expenses of revenue nature for the period from April to June 2008 have also been considered as a part of the capitalisation.

65. MSPGCL submitted that all the expenditure in respect of Paras Unit 3 that had to be capitalized has been computed up to March 31, 2008, and the same has been converted from capital Work in Progress (WIP) to Fixed Assets on the next working day in the books of accounts. However, the next day being the 1st day of the next financial year, i.e., FY 2008-09, the assets have been appearing in the books of accounts in the first quarter, i.e., April to June 2009.

66. MSPGCL further submitted that since the project has been commissioned/capitalized on March 31, 2008, no expenses of revenue nature have been considered as part of capitalization for the period from April to June 2008. MSPGCL submitted that Schedule 19(A) of the Balance Sheet of Paras Unit No. 3 substantiates that no revenue expenditure for the period from April to June 2008 has been included or considered for

capitalization. The transfer-in column of Schedule 19(A) shows that Paras Project has transferred assets of Rs. 1507.648 Crore to Paras TPS (O&M).

67. The Commission enquired of MSPGCL regarding the reasons for considering the initial spares as 2.5% of the original cost of the Paras Unit No. 3 as the equipment supply contract includes the mandatory spares and asked MSPGCL to submit the details of the mandatory spares. In response, MSPGCL submitted that the mandatory spares were a part of the contract document and have been capitalized. Based on the terms of the contract, MSPGCL was to further ask BHEL to provide initial spares as considered necessary for the operations of the Unit. Procurement of such initial spares have been considered by MSPGCL in accordance with the provisions of the MERC (Terms and Conditions of Tariff) Regulations, 2005 and accordingly, MSPGCL has capitalized such spares at 2.5% of the capital cost as on the cut off date.

Sr. No.	Particular	Order Value	Cost as on COD
		(Rs. Crore)	(Rs. Crore)
A	Mandatory Spares included in Equipment Supply Contract		
1	Main Plant Equipment Order placed on M/s. BHEL	44.00	44.00
2	Post water treatment plant. Order placed on M/s. Driplex.	0.15	0.15
3	Coal Handling Plant. Order placed on M/s. Elecon	4.27	4.27
4	Ash Handling plant. Order placed on M/s. Mahindra Ash Tech	3.10	3.10
5	Misc. Pumps. Order placed on M/s. Flowmore	0.12	0.12
6	Compressed Air System. Order placed on M/s. Kirloskar	0.31	0.31
7	Fire Protection System. Order placed on M/s. Unitech Machines.	0.45	0.45
8	Oil unloading and storage system. Order placed on M/s Sunil Hi-Tech.	0.06	0.06
9	EOT crane. Order placed on M/s. Anupam	0.06	0.06
10	Misc. cranes. Order placed on M/s. Shree Engineers	0.02	0.02
11	L.T. switchgears. Order placed on M/s. Control and schematics.	0.39	0.39
12	NGRs. Order placed on M/s. Urja Equipments	0.00	0.00
13	24V & 220V batteries & their charges including their distribution system. Order placed on M/s. Exide Industries	0.12	0.12
14	Air conditioning system. Order placed on M/s. Blue Star	0.04	0.04
15	Ventilation system. Order place on M/s. Hyderabad Pollution Control	0.09	0.09
16	Sump pumps. Order placed on M/s. Balaji.	0.06	0.06
17	Lifts. Order placed on M/s. City Lifts	0.07	0.07
18	Ozonisation. Order placed on M/s. Ozone Research	0.33	0.33
19	Dry Type LT Transformers. Order placed on M/s. Vijay Electricals/AMES Impex	0.02	0.02
20	Lighting. Order placed on M/s. Spaceage Switchgear.	0.03	0.03
21	WTP Lab. Equipments Order placed on M/s. Sawant Instruments Pvt. Ltd.	0.07	0.07
22	LD Piping Order placed on M/s. Seth & Sura	0.03	0.03
23	DG Set Order placed on M/s. Anklesaria & Co.	0.04	0.04
	Total	53.84	53.84

68. The Commission enquired of MSPGCL about the details of increase in cost on account of change in scope of work, if any, and also to explain the reasons for such change in the scope of the work, which was submitted by MSPGCL as under:

Particulars	Agency	Reason for change in Scope
CW Ozonisation	M/s ORAIPL, Nagpur	RW Ozonisation included in this scope.
Ventilation system	M/s Hyderabad Pollution Controls Ltd.	Provision of FRP lining in place of spray galvanizing for air washer unitary air filters and centrifugal fans with two coats of epoxy smoke gray paint
LD piping system	M/s. Sheth & Sura Engineers Pvt. Ltd. Pune	1) Extra work of excavation due to the change in Unit rate since quantity is increased more than 20% 2) Increase in contract value due to additional work 3) Final additional / deletion work after completion of work
L.P.Piping system	M/s. Zuberi Engg. Co. Jaipur	Due to addition/deletion after completion of work
River Water pumps	M/s.Flowmore Pvt. Ltd., New Delhi	3 Nos. each 600 mm size butterfly valves, NRVs, and Rubber Expansion Joints of River Water Pumps are deleted and 3 Nos. each 450 mm size butterfly valves, NRVs REJs are added.
Sump Pumps	M/s. Balaji Associates, Nagpur	Shaft length of transformer oil pumps increased
Fire detection & protection system	M/s. Unitech Mechines Ltd, New Delhi	Quantity variation due to site condition and requirement.
Misc. cranes & hoist	M/s. Shree Engineers, Baroda	Provision of additional gantry crane and 3T Electrical Hoist at River water intake pump house

69. MSPGCL further submitted that there had been a few expenses, which would be capitalized in FY 2008-09 and in FY 2009-10 and had inadvertently not been mentioned in the Petition. The details of the same are shown in the Table below:

Rs. Crore

Sl.No.	Year	Proposed to be capitalised in the Petition	Amount actually capitalised till October 2009
A.	Up to Cut off date (2008-09)		
	Main Plant and Building(Mandatory Spares)	38.24	71.12
	Land and Land development	0.44	2.01
	Structure steel	1.71	1.71
	Construction of chimney	0.04	1.00
	Water treatment plant	0.11	11.34
	Coal handling plant	2.92	6.14



Sl.No.	Year	Proposed to be capitalised in the Petition	Amount actually capitalised till October 2009
	Ash handling plant	0.60	0.24
	Batteries	0.24	0.00
	LD/LP Pipng	0.19	2.07
	LT switchgear LT Xmer,Lighting system	1.52	0.57
	Service instrument and air compressor	0.58	0.00
	Fire fighting system	0.94	1.55
	Lab equipment	1.19	1.19
	CW System	0.81	1.42
	Cooling Tower	0.70	0.70
	Ozonization/Chlorination plant	4.08	4.74
	Township and Colony	0.46	0.89
	Railway siding	0.47	2.84
	Barrage work	2.81	3.54
	Water supply in power house	0.03	0.03
	Road and drainage	0.47	0.52
	Construction of minor bridge	1.04	1.04
	Ancillary building chimney	0.14	0.49
	Compound wall	0.18	0.35
	Misc civil work	0.24	0.69
	Contingency and OSL of various work	6.65	6.65
	Preliminary investigation of site development and consultancy	3.20	0.00
	Consultancy for civil package	0.10	0.10
	Others		4.08
	sub total 2008-09	70.11	127.05
B.	Beyond Cut Off Date(2009-10)		
	Mandatory spare(BHEL)	8.00	6.00
	Ash handling plant	0.25	0.25
	Coal Handling plant	0.73	0.73
	contingency work	2.30	1.00
	City Lift		0.13
	Batteries		0.07
	Capitalisation of Initial spares @ 2.5 % of capital cost	37.82	37.82
	sub total 2009-10	49.10	46.00
	Total	119.21	173.04

70. MSPGCL submitted that all additional activities as specified in the earlier submission in the Petition have been completed. However, the contract closure is still in process, and any incidental contractual cost paid to the contractors will be submitted to the Commission as and when finalised. MSPGCL further submitted that the financing of such additional capitalisation will be done as per the norm specified by the



Commission in MERC (Terms and Conditions of Tariff) Regulations, 2005, through combination of Debt and Equity subject to approval by MSPGCL Board.

71. Further, MSPGCL submitted the various milestones along with the project cost envisaged at each milestone till final commissioning of Paras Unit No. 3, as shown in the Table below:

S. No.	Particular	Date of Approval	Project Cost (in Rs Crore)		
			Hard Cost	IDC	Total Capital Cost
1	Administrative approval by erstwhile MSEB Board for Paras Unit 3	29.03.1997			
2	Techno economic clearance from CEA	13.06.2003	923.0	103.70	1026.70
3	Investment Approval from Planning Commission	9.10.2003	923.0	103.70	1026.70
4	Energy Department, Government of Maharashtra approval for Project Implementation	27.06.2003			
5	Engagement of Consultancy for civil, mechanical and electrical works	04.07.2003			
6	Erstwhile MSEB Board approval for the revised Project Cost	09.02.2004	1022.53	99.44	1121.97
7	MSPGCL Board approval for the revised Project Cost	25.04.2006			1468.40
8	Issuance of NIT	10.02.2004			
9	Order placement for main plant equipment supply	24.05.2004			
10	Synchronization of the Unit	31.05.2007(actual)			
11	Full load achieved on	10.03.2008			
12	COD of the Unit	31.03.2008			
13	Cut off date	31.03.2009			
14	Project Cost submitted to MERC	02.05.2009			1543.28

72. MSPGCL submitted the actual performance details for FY 2008-09 and for the period April to September 2009 as shown in the Table below:

Particulars	Unit	FY 2008-09	Apr-Sept. 2009
Availability	%	41.96	68.53
PLF	%	41.96	68.53
Gross Generation	MU	946.76	767.34
Auxiliary Energy Consumption	%	11.68%	10.76%
Net Generation	MU	836.20	684.73
Heat Rate	kcal/kWh	3160.37	2993.90
Fuel Parameters (for each primary and secondary fuel)			
Calorific Value			
Fuel 1 (Indian Coal)	Kcal/Kg	3633	3404
Fuel 1 (Washed Coal)	Kcal/Kg	3812	3869



Particulars	Unit	FY 2008-09	Apr-Sept. 2009
Fuel 2 (F. O.)	Kcal/Kg	10143	10241
Fuel 3 (L. D. O.)	Kcal/Kg	10424	10450
Landed Fuel Price per unit			
Fuel 1 (Indian Coal)	Rs/MT	1625.48	1685.06
Fuel 1 (Washed Coal)	Rs/MT	1713.13	1923.75
Fuel 2 (F. O.)	Rs/KL	30204.03	21707.92
Fuel 3 (L. D. O.)	Rs/KL	35620.15	35605.86
Total Fuel Cost	Rs Crore	194.21	122.97
Other Variable Charges	Rs Crore	5.80	1.69
Total Cost	Rs Crore	200.01	124.66
Cost of Generation per unit (at Generation Terminal)	Rs/kWh	2.11	1.62
Energy Charge per unit (ex-bus)	Rs/kWh	2.39	1.82

Commission's Analysis and Ruling

73. Having heard MSPGCL and other stakeholders, and after considering the materials placed on record, the Commission is of the view as under.

I. Capital Cost (Hard Cost excluding Interest during Construction and Financing Charges)

74. As regards the capital cost for computation for tariff, Regulation 30.1 of the MERC Tariff Regulations stipulates as under:

“Subject to prudence check by the Commission, the actual expenditure incurred on completion of the project shall form the basis for determination of the original cost of project. The original cost of project shall be determined based on the approved capital expenditure actually incurred up to the date of commissioning of the generating station and shall include capitalised initial spares subject to following ceiling norms as a percentage of the original cost as on the cut-off date:

1. *Coal-based/lignite-fired generating stations - 2.5%*
2. *Gas Turbine/Combined Cycle generating stations - 4.0%*
3. *Hydro power generating stations - 1.5%*

Provided that where the power purchase agreement entered into between the Generating Company and the Distribution Licensee provides a ceiling of actual expenditure, the original cost of project shall not exceed such ceiling for the purpose of these Regulations:

Provided further that in case of the existing generating stations, the actual original cost of project recorded in the books of account of the Generating Company,



subject to prudence check by the Commission, shall be considered as the original cost of project for the purpose of these Regulations.”

i) Base Hard Costs

75. The CEA, in its Techno Economic Clearance (TEC) approved the project cost for Paras Unit No. 3 as under:

Sr. No.	Description	CEA Approved Cost (Rs Cr)
1	Land & Land development	3.50
2.	Work Cost (Including Taxes & Duties)	856.30
3	Overheads	63.20
4	Contingencies	
5	Project Cost (Excluding IDC & FC)	923.00
6	IDC	103.70
7	Total Project Cost	1026.70

76. The Commission observed that the CEA, in its TEC issued on June 13, 2003 for Paras Unit No. 3 stipulated as under regarding the completed cost for the Project:

“(i) The Completed cost of the scheme shall not exceed the above cost except on account of the following:

- a) Change in rates of Indian taxes and Duties such as excise duty, Sales tax, Custom duty, Works tax and additional taxes and duties levied subsequent to the issue of TEC*
- b) Change in Indian Law resulting in change in cost”*

(II) Interest During Construction and the Financing Charges as per actual but not exceeding the amount as indicated in Annex-I of this Office Memorandum”



77. The dates on which various approvals from different authorities were obtained before the placement of order for the main plant equipment are as follows:

S No.	Particulars	Approval Date	Project Cost (Rs crore)
1.	Board of erstwhile MSEB	March 29, 1997	-
2.	TEC from CEA	June 13, 2003	923.00
3.	Approval from Planning Commission	October 9, 2003	923.00
4.	GoM decision for approval of implementation of the Project	June 27, 2003	
5.	Approval of Board of MSEB for revised cost of the Project	February 9, 2004	1022.53
6.	NIT for main plant equipment	February 10, 2004	
7.	Placement of Order for main equipment	May 25, 2004	1293.62
8.	Approval of MSPGCL Board for the revised Cost	April 24, 2006	1368.66

Note: above cost excludes IDC and Financing cost

78. The Commission observes that as against Rs. 923 Crore approved by CEA in the TEC, the actual cost as on COD has been Rs. 1327.21 Crore, excluding IDC and Financing Charges (FC).

79. The Commission has analysed the variation between the capital cost excluding IDC and Financing Charges as approved by CEA, Order placement cost and actual cost under major sub-heads as under:



Sl. No.	Particulars	Order Placement Cost			Actual Cost as on COD			Additional Capitalisation			Variation		
		Base Cost	Taxes & Duties	Total Cost	Base Cost	Taxes & Duties	Total Cost	Base Cost	Taxes & Duties	Total Cost	Price variation	increase on account of change in tax	Total Variation
		1	2	3=1+2	4	5	6=4+5	7	8	9			10=(6+9)-3
1	Cost of Land & Site Development	2.64	0.00	2.64	2.93	0.00	2.93			2.01	2.29	0.00	2.29
2	Plant & Equipment	570.43	79.35	649.78	567.26	79.67	646.93			6.00	2.76	0.39	3.15
3	BOP Mechanical												
3.1	External Water Supply System	1.52	0.06	1.59	1.33	0.06	1.39			1.42	1.18	0.05	1.23
3.2	DM water Plant	17.23	0.52	17.75	17.19	0.52	17.71			11.34	10.97	0.33	11.30
3.3	Ash Handling System	35.64	1.23	36.87	28.14	0.97	29.11			0.49	0.00	0.00	0.00
3.4	Coal Handling Plant	87.68	11.66	99.34	85.58	11.38	96.96			6.87	3.97	0.53	4.49
3.5	Rolling Stock and Locomotives	6.39	0.25	6.64	5.89	0.23	6.12						
3.6	Other BOP Mech	43.29	2.10	45.40	41.15	2.00	43.15			5.96	3.54	0.17	3.71
	Total BOP Mechanical	191.75	15.83	207.58	179.29	15.16	194.44	0.00	0.00	26.08	11.94	1.01	12.95
4	BOP Electrical												
4.1	Switch Yard Package	10.00	0.00	10.00	0.00	0.00	0.00				0.00	0.00	0.00
4.2	Transformers Package	3.57	0.13	3.70	3.18	0.11	3.29				0.00	0.00	0.00
4.3	Switch gear Package	8.78	0.35	9.13	8.01	0.32	8.33			0.57	0.00	0.00	0.00
4.4	Cables, Cable facilities & grounding	14.56	2.11	16.67	10.21	1.48	11.69						
4.5	Electrical Other	5.40	0.20	5.60	4.66	0.17	4.84			0.07	0.00	0.00	0.00
	Total BOP Electrical	42.31	2.79	45.10	26.06	2.09	28.15	0.00	0.00	0.64	0.00	0.00	0.00
5	Total C & I Package	807.13	97.97	905.10	775.54	96.91	872.45	0.00	0.00	34.73	1.85	0.23	2.08
6	Civil Works												
6.1	Main plant/Adm. Building	40.11	1.60	41.71	32.02	1.14	33.16			71.12	60.42	2.15	62.57
6.2	Cooling Towers	19.97	0.80	20.77	22.24	0.71	22.95			0.70	2.79	0.09	2.88
6.3	Structural steel	44.66	1.79	46.45	62.05	1.91	63.96			1.71	18.65	0.57	19.22
6.4	barrage	74.13	0.00	74.13	74.85	0.00	74.85			3.54	4.26	0.00	4.26



Sl. No.	Particulars	Order Placement Cost			Actual Cost as on COD			Additional Capitalisation			Variation		
		Base Cost	Taxes & Duties	Total Cost	Base Cost	Taxes & Duties	Total Cost	Base Cost	Taxes & Duties	Total Cost	Price variation	increase on account of change in tax	Total Variation
6.5	Pipe Line Civil Misc.	106.29	3.49	109.78	107.07	3.47	110.54			25.42	25.36	0.82	26.18
	Total Civil works	285.16	7.68	292.84	298.23	7.23	305.46	0.00	0.00	102.49	112.39	2.72	115.11
7	Construction & Precommissioning Expenses	12.95	0.00	12.95	12.95	0.00	12.95	0.00	0.00	0.00	0.00	0.00	0.00
8	Total Overheads	94.26	1.42	95.68	137.86	1.42	139.28	0.00	0.00	0.00	43.15	0.44	43.59
9	Capital cost Excluding IDC & FC	1186.55	107.06	1293.62	1224.58	105.56	1327.21	0.00	0.00	135.22	155.39	13.43	168.81



80. The actual completed capital cost as submitted by MSPGCL works out to Rs. 6.17 crore per MW, as compared to the capital cost of Rs 4.52 Crore per MW approved by the CEA and duly escalated till the date of placement of the Order by MSPGCL. The Commission observes that considering the fact that Paras Unit No. 3 is a brown-field expansion project, the per MW cost is significantly high in absolute terms.
81. The Commission is of the view that though the CEA approved hard cost is Rs 923 Crore, it will not be appropriate to consider the CEA approved hard cost as there was significant difference in the cost of actual order placement. As observed from the above Table, as on COD, the actual cost of most of the items appears to be lower than the order placement cost, except in case of civil works. The Commission subsequently obtained the details of the additional capitalisation and observed that most of the additional capitalisation is part of the existing schemes. The Commission has added the cost of additional capitalisation against each scheme (as may be observed from the above Table) and observed that the main variation between the order placement cost and the actual cost is on account of variation in cost for plant and equipment for steam and turbine generator, coal handling plant, DM water plant, chlorination plant, fire fighting system and other civil works on main plant/administration building, cooling towers, and structural steel. Since the increase in order placement cost could be justified on account of the increase in the cost of steel, copper and change in the scope of work, the Commission has considered the Order placement cost as the base hard cost, for the purpose of arriving at capital cost of the project.

ii) Increase in Hard Costs (Cost Overrun)

82. For analysis of increase in hard cost with respect to the Order placement cost, the Commission obtained the details of contract order value and actual cost till COD for various equipment/packages and also asked MSPGCL to submit the reason for increase in actual cost with respect to contract order value. MSPGCL submitted that increase in costs is due to contract price variation, change in scope of work and increase in overheads. MSPGCL submitted Contract-wise details of increase in cost, and the overall summary of the same is shown in the Table below:

Sr. No.	Description	Contract Order Cost (Rs Crore)	Cost as on Commissioning (Rs Crore)	% Increase
1	Land & Land development	2.64	2.93	10.68%
2	Work Cost (Including Taxes & Duties)	1197.94	1187.93	-0.86%
3	Overheads	95.68	139.28	45.56%
Project Cost (Excluding IDC & FC)		1293.62	1327.21	2.60%



83. The Commission obtained the detailed break-up of the cost shown under 'Overheads', which is reproduced as under:

S. No.	Overheads	Amount (Rs Crore)
1.	Head Office Supervision (H.O.S.) Charges excluding Civil Expenditure	80.17
2.	General Establishment Charges (G.E.C.)	29.84
3.	H.O.S. Charges pertaining to Contingency	0.34
4.	H.O.S. and G.E.C. pertaining to Civil Expenditure	28.92
	Total	139.28

84. Further, the Commission asked MSPGCL to submit the nature of expenses covered under each sub-head of 'Overheads' i.e., H.O., GEC, Energy charges, E&M, etc. MSPGCL, in its reply, submitted that Head Office Supervision (H.O.S.) Charges includes the Salary and Other establishment expenses of Head Office charged to Capital Works of the Project. General Establishment Charges (G.E.C.) includes the Salary and Other establishment expenses of Project Site Office only. Energy Charges includes construction supply charges for the construction power supplied by MSEDCL. E&M includes laying of cables, extending of water supply, lighting arrangements for project site, etc.

85. As regards the contract price variation, the Commission observes that the same is within the 20% price variation cap stipulated in the contract. However, the price variation could have been lower, had the project been completed on time. The main reason for increase in completed cost with respect to contract order value is on account of increase of overheads.

86. As regards the Overheads, if the Commission strictly considers the terms of approval of TEC by CEA, then the overheads should have been limited to Rs. 63.20 Crore as against Rs 139.28 Crore considered by MSPGCL. As the Commission has considered the contract order value as base hard cost and also considered the contract price variation for arriving at Project Cost, it would be more appropriate to consider the overheads with respect to the hard cost considered by the Commission rather than limiting the overheads to the CEA approved value. The comparison of overheads excluding IDC and FC as considered by CEA and booked by MSPGCL, is given below:

Particulars	Unit	CEA	MSPGCL
Overheads	Rs. Crore	63.20	139.28
Capital Cost excluding IDC & FC	Rs. Crore	923.00	1327.21
Overhead as % of capital cost	%	6.85%	10.49%



As observed from the above Table, overheads considered by CEA amounts to 6.85% of the capital cost, excluding IDC and FC. Accordingly, for the purpose of computing the capital cost for the Project, the Commission has considered overheads as 6.85% of the allowed capital cost, excluding IDC and FC, which amounts to Rs. 82.23 Crore as against Rs. 139.28 Crore considered by MSPGCL.

iii) Cost of Spares

87. As regards the cost of spares, Regulation 30.1 of the MERC Tariff Regulations, 2005 stipulates as under:

“Subject to prudence check by the Commission, the actual expenditure incurred on completion of the project shall form the basis for determination of the original cost of project. The original cost of project shall be determined based on the approved capital expenditure actually incurred up to the date of commissioning of the generating station and shall include capitalised initial spares subject to following ceiling norms as a percentage of the original cost as on the cut-off date:

a. Coal-based/lignite-fired generating stations - 2.5%

...”

88. The Commission observed that the cost of spares procured till COD is higher than the norm of 2.5% of project cost as stipulated in Regulation 30.1 of the MERC (Terms and Conditions of Tariff) Regulations, 2005. Further, the Central Electricity Regulatory Commission has also specified a ceiling norm of 2.5% of the capital cost for capitalisation of spares. Though, the MERC Tariff Regulations, 2005, were not notified when the erstwhile MSEB placed the Order, the industry norm for spares is 2.5% of the capital cost, and accordingly, the Commission has restricted the cost of spares to 2.5% of the approved project cost accordingly. The summary of the cost of spares as considered by MSPGCL and as approved by the Commission is shown in the Table below:

Rs. Crore

Particulars	MSPGCL	Approved
Spares	53.84	32.00

89. MSPGCL has further considered the capitalisation of additional spares of Rs 37.82 Crore after COD of the Project. The Commission has not considered any additional spares after COD as the cost of the mandatory spares has already been capitalised for efficient operation of the Unit along with the Project Cost.



iv) Cost of Common Facilities

90. The Commission obtained the cost of the common facilities, which have been considered as part of Project Cost of this Unit, but the facilities are proposed to be shared with the other Unit yet to be commissioned at Paras. MSPGCL submitted the allocation of common facilities cost as Rs. 118.12 Crore for Paras Unit No. 3 and Rs. 78.30 Crore for Paras Unit No. 4 (yet to be commissioned). Accordingly, the Commission has considered the reduction in capital cost as on COD to the extent of Rs. 78.30 Crore pertaining to Paras Unit No. 4.

v) Revenue Earned before COD

91. As regards the capitalisation of revenue earned before COD, the Commission observes that MSPGCL has capitalised the value net of fuel costs less revenue, on account of infirm generation of power. However, since fuel cost is of a revenue nature, whether incurred during infirm generation or firm generation, the Commission while allowing the actual expense incurred on this account (Rs. 75.12 crore), directs that the same be recovered from MSEDCL. Since Rs. 27.72 crore of revenue has been stated to have been recovered by MSPGCL, **the Commission hereby allows MSPGCL to recover the under-recovered fuel cost, i.e., Rs. 47.40 Crore (Rs. 75.12 crore – Rs. 27.72 crore) from MSEDCL in six equal monthly instalments, after the issue of this Order.**

vi) Summary of Approved Capital cost, excluding IDC and FC

92. Accordingly, the Commission has approved the capital cost excluding IDC and FC as Rs. 1122.62 Crore. The summary of the Capital Cost approved by the Commission is shown in the Table below:

Sr. No.	Description	Cost as on COD (Rs Crore)			Difference
		Actual	Revised as submitted by MSPGCL	As approved by the Commission	
			1	2	3=2-1
1	Land & Land development	2.93	2.93	2.93	Nil
2	Work Cost (Including Taxes & Duties)	1,187.93	1,187.93	1,118.69	69.24 (on account of not considering the variation of Rs. 47.40 Crore as variation in fuel cost for infirm power and disallowance of Rs. 21.84 of cost of spares)
3	Overheads	139.28	139.28	82.23	57.05 (on account of restricting overheads)
4	Less: Cost of Common Facilities	-	(78.30)	(78.30)	78.30 (on account of cost of shared facility)
5	Net Project Cost (Excluding IDC & FC)	1,327.21	1,248.91	1,122.62	126.29



II. Interest During Construction and Financing Charges (IDC and FC)

93. The Commission observed that the CEA, in its Techno Economic Clearance (TEC) issued on June 13, 2003 for Paras Unit No. 3, stipulated as under regarding the IDC for the Project:

“The Completed cost of the scheme shall not exceed the above cost except on account of the following:

c) Interest During Construction and the Financing Charges as per actual but not exceeding the amount as indicated in Annex-I

Accordingly, CEA has approved IDC of Rs. 103.70 Crore for Paras Unit No. 3.

94. As regards the increase in capital cost and impact of the delay on the project cost and levy of liquidated damages on M/s BHEL, the Commission has deliberated on the same in detail in the subsequent paragraphs.

95. As regards the impact of time over run on account of delay in the project commissioning, MSPGCL has considered the entire IDC incurred till actual COD of the Project and has proposed to reduce the same by the Liquidated Damages levied on the Contractors for delay in project. The Commission agrees with the views of some of the stakeholders raised during the hearing that the burden of increase in IDC due to delay in Project should not be loaded to the consumers. The Commission has therefore, re-computed the IDC considering original schedule and original phasing of expenditure.

96. As regards MSPGCL's submission to consider the repayment of Rs. 80.48 Crore of PFC loans and Rs. 30.20 Crore of GoM loans before COD of the project, the Commission observed that the RoE on internal accrual used for funding debt repayment prior to COD may result in double accounting as the interest on some loans has been considered as part of the IDC and asked MSPGCL to revisit this aspect to optimise the overall tariff. MSPGCL submitted that it had to repay the loans based on the intimation sent by the lending agencies and not because of any deliberate attempt to infuse internal accruals towards the completion of the project. The deployment of internal accruals is however, within the permissible limit of 30% of the project cost as on COD. On this issue of double accounting of IDC, MSPGCL requested the Commission to apply prudence check for approval of capital cost.

97. As per the prudent industry practice, any project is funded in the following pattern

- Certain proportion of Upfront Equity (30% or 50%)
- Similar proportion of Upfront Debt
- Debt and Equity over the duration of the Project in proportion to Debt:Equity Ratio

In case the project is initially funded with debt, and equity is infused at later stage to repay the debt, the IDC component will increase as compared to proportionate debt and equity funding. This will have a cascading effect on tariff determined on cost plus approach as the Project Cost will increase due to higher IDC and the Return will also be admissible on the equity infused at later stage to repay the debt component, which will amount to double-accounting, since both IDC and Returns would be passed through on the same amount of funds. Accordingly, the Commission has re-computed the IDC considering equity funding in proportion to revised debt:equity ratio arrived based on total equity funding including equity funded to repay certain proportion of debt.

98. The IDC re-computed by the Commission considering the original schedule (phasing of expenditure) and revised debt equity ratio arrived based on total equity funding including equity funded to repay certain proportion of debt, works out to Rs. 103.14 Crore.
99. Further, the Commission had asked MSPGCL to submit the details related to interest subsidy received under Accelerated Generation and Supply Programme (AG&SP). MSPGCL submitted that initially the Paras Unit 3 project had envisaged its debt funding from PFC under AG & SP of Ministry of Power. The guidelines issued under this programme were that the project should be completed/commissioned within 10th Five year plan. PFC has sanctioned loan of Rs 1174 Crore for Paras TPS Expansion Project Unit No 3. This loan was initially covered under AG&SP scheme of MoP, GOI, whereby the borrower is entitled to get subsidy in interest. However, since Paras Unit 3 was not able to achieve its commissioning up to the end of 10th Five year plan, MSPGCL had to refund the entire amount of AG & SP subsidy passed on for Paras Unit 3 PFC.
100. MSPGCL submitted that the total amount received and refunded to PFC under AG&SP amounts to Rs. 18.47 Crore. The Commission observes that had the Project been commissioned on time, this amount of Rs. 18.47 Crore received as subsidy under AG&SP would have reduced the project cost by that amount. The amount refunded by MSPGCL under AG&SP cannot be passed on to consumers as the consumers in Maharashtra have already suffered in terms of load shedding as well as higher purchase costs from the costlier sources due to delay in the Project. Therefore, the Commission has not considered the refund of Rs 18.47 Crore under AG&SP as pass through to the consumers and has considered the benefit of interest subsidy while computing the tariff.
101. As regards the liquidated damages levied and collected by MSPGCL from BHEL, the Commission obtained the updated information and MSPGCL submitted that it has levied the liquidated damages for Supply of main equipment, Mandatory spares and Erection, Testing and Commissioning. The details as submitted by MSPGCL are as under:

Supply of Main Equipment	
Contract Price	4,56,49,93,200
Estimated Taxes and Duties	72,29,24,200
Contract Price including taxes and duties	5,28,79,17,400
Maximum Applicable Price Variation on Equipment Price (20% of 456,49,93,200)	91,29,98,640
Maximum LD Applicable on Supply of the Equipments @ 10% of (456,49,93,200+ 91,29,98,640)	54,77,99,184
Liquidated Damage Amount Recovered on Supply of Equipments and Mandatory Spares	26,06,72,702
Supply of Mandatory Spares	
Contract Price	363227604
Contract Price for Mandatory Spares(including taxes and duties, Freight and Insurance etc)	44,00,00,000
Maximum Applicable Price Variation on Contract Price of Mandatory Spares (20% of 36,32,27,604)	7,26,45,521
Maximum Liquidated Damage amount levied on (Contract price including Price Variation) on Mandatory Spares @ 10% of (37,41,24,467 + 7,26,45,521)	4,46,76,999
Liquidated Damage amount recovered on contract price of Mandatory Spares	Included in 1 G (Since this is a single contract)
Total Liquidated Damage amount recovered on Supply of Main Plant and Mandatory Spares	26,06,72,702
Erection, Testing and Commissioning	
Contract Price	61,59,47,000
Taxes and Duties	At actual
Contract Price (including price variation) and excluding taxes and duties (Considering Max. Price Variation @ 20% of Erection Price)	73,91,36,400
Liquidated Damage amount levied on Contract Price excluding taxes and duties	7,39,13,640
Liquidated Damage amount recovered on Contract Price excluding taxes and duties	5,18,06,031
Total Liquidated Damage amount recovered as on 11.11.09	31,24,78,733

102. As discussed earlier in this Section, the Commission has re-computed the IDC by considering the original schedule and phasing of expenditure and as the Commission has not allowed the higher IDC due to delay in commissioning of the Project, the Commission has not reduced the IDC by the liquidated damages recovered from BHEL. The reduction in the IDC as approved by the Commission will get compensated by the liquidated damages recovered by MSPGCL, to a certain extent.

103. The Commission further enquired regarding the delays in various other contracts and whether liquidated damages can be levied based on the contracts. MSPGCL submitted the



details of the various contracts and liquidated damages in percentage terms that may be levied on account of delay.

104. As regards the financing charges paid for Paras Unit No. 3 till COD, the Commission observes that for FY 2005-06 (in MYT Petition in Case No. 68 of 2006) and FY 2006-07 (in APR Petition in Case No. 71 of 2007), MSPGCL has claimed the entire financing charges for Paras Unit No. 3 based on the Audited Accounts for the relevant years in its ARR.
105. The Commission asked specific queries in this regard and asked MSPGCL to confirm whether it has claimed financing charges for Parli Unit No. 6 and Paras Unit No. 3 for previous years including FY 2005-06 and FY 2006-07 in its MYT and APR Petitions for these years. The Commission also asked MSPGCL to provide the year-wise details of financing charges (separately under various heads like guarantee fee, commitment charges, etc.) pertaining to Parli Unit No. 6, Paras Unit No. 3 and any other up-coming stations from FY 2005-06 onwards.
106. MSPGCL, in its reply, confirmed that the financing charges for Parli Unit-6 and Paras Unit-3 were inadvertently accounted for in the books of accounts of MSPGCL for the respective years and submitted the detailed break-up of the said charges as summarised in the table below:

(Rs. Crore)

Parameter	FY 2005-06				FY 2006-07			
	Existing TPS	Paras Unit-3	Parli Unit-6	Total	Existing TPS	Paras Unit-3	Parli Unit-6	Total
Finance Charges	0.46	0.24	0.3	1.00	3.89	0.2	0.10	4.11
Guarantee Charges	7.58	-	7.6	16.54	9.0	-	16.04	25.1
SBI Lease Rentals	5.37	-	-	5.37	6.56	-	-	6.56
Total	13.41	0.24	7.9	22.91	19.50	0.2	16.14	35.75

107. As observed from the above Table, financing charges including guarantee fees have been claimed in previous years and already passed through to the consumers. Since, the financing charges pertaining to Paras Unit No. 3 is part of the capital cost of Paras Unit No. 3, the Commission has considered the same as a part of the capital cost for Paras Unit No. 3. As regards the claims of such expenses in the tariff of existing generating stations, since the final truing up for existing stations for FY 2005-06 and FY 2006-07 is yet to be carried out by the Commission, the Commission rules that the financing expenses pertaining to these Units, which have already been allowed in tariff of existing stations, would be written back while carrying out the final truing up for FY 2005-06 and FY 2006-07.



108. The summary of the total capital cost (including IDC and FC) as submitted by MSPGCL and approved by the Commission as on COD is shown in the Table below:

Sr. No.	Description	Cost as on COD (Rs Crore)		
		Actual	Revised Submission of MSPGCL	As approved by the Commission
1	Land & Land development	2.93	2.93	2.93
2	Work Cost (Including Taxes & Duties)	1,187.93	1,187.93	1,118.69
3	Overheads	139.28	139.28	82.23
Project Cost (Excluding IDC & FC)		1,327.21	1,327.21	1,200.92
4	Less: Cost of Common Facilities		(78.30)	(78.30)
5	Net Project Cost (Excluding IDC & FC)	1,327.21	1,248.91	1,122.62
6	IDC & FC	216.07	216.07	
8	Less: Liquidated Damages		(25.66)	103.14
9	Less: Interest subsidy under AG&SP			(18.47)
Net Project Cost		1,543.28	1,439.32	1,207.29

Accordingly, the Commission has approved the capital cost including IDC and FC as Rs. 1207.29 Crore as against the revised capital cost of Rs. 1439.32 Crore considered by MSPGCL in its Petition.

The Capital Cost approved by the Commission is lower than that projected by MSPGCL, primarily due to the following reasons:

- Reduction in base capital cost, primarily on account of considering the under-recovery of revenue for infirm generation before COD, and allowing the same to be recovered through energy charges rather than capitalising the same. Hence, this does not affect MSPGCL.
- Reduction in overheads, by limiting the overheads to the same percentage as that approved by the CEA in the TEC.
- Reduction due to cost of common facilities for Paras new Unit No. 4, which has been admitted by MSPGCL. Hence, this does not affect MSPGCL.
- Considering IDC and FC as if the project has been completed on time, and by not considering the Liquidated Damages that MSPGCL is entitled to recover from its suppliers.

III. Means of Finance

109. In accordance with the MERC (Terms and Conditions of Tariff) Regulations, 2005, the normative debt:equity ratio is 70:30 or actual debt if the same is higher than 70%. The Paras Unit No. 3 has been financed by loan availed from PFC and GoM.

110. The revised debt:equity ratio as submitted by MSPGCL after repayment of loans from internal accruals is 75.80: 24.20. As the debt component is higher than the normative debt of 70% as stipulated in the MERC (Terms and Conditions of Tariff) Regulations, 2005, the Commission has considered the Debt:Equity ratio of 75.80: 24.20.
111. As the Project Cost approved by the Commission is lower than the actual Project Cost on account of the reasons mentioned in the previous paragraphs, the Commission has considered such reduction in the capital cost from the loan and internal accruals in the ratio of debt:equity as submitted by MSPGCL. The summary of the debt:equity as submitted by MSPGCL and approved by the Commission is shown in the Table below:

(Rs. Crore)

Project Funding	MSPGCL	MSPGCL	Approved
	Actual	As submitted in the Petition	
Debt	1091.03	1091.03	915.14
Equity	452.25	348.30	292.15
Total	1543.28	1439.33	1,207.29

IV. Additional Capitalisation

112. Regulation 30.2 of the MERC (Terms and Conditions of Tariff) Regulations, 2005 stipulates regarding additional capitalisation as under:

“30.2 Additional Capitalisation: The following capital expenditure within the original scope of work actually incurred after the date of commissioning and up to the cut off date may be allowed by the Commission for inclusion in the original cost of project, 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 30.1;

(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 determination of tariff:



Provided further that a list of the deferred liabilities and works deferred for execution shall be submitted along with the application for determination of tariff after the date of commissioning of the generating station.” (Emphasis added)

113. The Commission observed that though MSPGCL has submitted the amount of additional capitalisation, it has not submitted the detailed scope of work along with estimate, list of deferred liabilities and works deferred for execution. Further, MSPGCL has submitted that though the activities have been completed, however, the contract closure is still in progress and any incidental contractual cost paid to the contractors will be submitted as and when finalised. Further, MSPGCL submitted that the financing of such additional capitalisation will be done in accordance with MERC Tariff Regulations, 2005 through a combination of debt and equity subject to the approval from MSPGCL Board. Accordingly, the Commission has not considered the additional capitalisation as submitted by MSPGCL for FY 2007-08 and FY 2008-09, and directs MSPGCL to submit the details of the additional capitalisation in accordance with the MERC (Terms and Conditions of Tariff) Regulations, 2005 based on the actual expenditure incurred along with the financing of such capitalisation. Since, the details of the additional capitalisation have not been submitted, the Commission has not considered the impact of the additional capitalisation at this stage, however, the Commission will consider the same provided that the requisite information stated hereinabove are submitted and detailed scrutiny of the additional capitalisation actually incurred is carried out subject to prudence check during final truing up.

V. Depreciation and Advance Against Depreciation

114. In accordance with Regulation 34.4.1 of the MERC (Terms and Conditions of Tariff) Regulations, 2005, the Commission has considered the classification of assets as submitted by MSPGCL and considered the rates as submitted by MSPGCL, which are based on the depreciation schedule specified in the MERC (Terms and Conditions of Tariff) Regulations, 2005, to compute the depreciation.

115. Regulation 32.3 of the MERC (Terms and Conditions of Tariff) Regulations, 2005 stipulates that where the actual amount of loan repayment in any financial year exceeds the amount of depreciation allowable under Regulation 34.4.1, the Generating Company shall be allowed an advance against depreciation for the difference between the actual amount of such repayment and the allowable depreciation for such financial year.

116. The Commission has considered the depreciation and loan repayment approved by the Commission for the period from FY 2007-08 to FY 2009-10 for the existing stations and Parli Unit No. 6 along with the depreciation and loan repayment for Paras Unit No. 3. The summary of the depreciation and loan repayment as approved by the Commission in its



Order in Case No. 115 of 2008 for existing generating stations and Case No. 26 of 2008 for Parli Unit No. 6, as submitted by MSPGCL in that Petition and as approved by the Commission is shown in the Table below:

(Rs. Crore)

Particulars	FY 2008-09		FY 2009-10	
	MSPGCL	Approved	MSPGCL	Approved
A. Existing Stations				
Opening Loan Balance	979.37	867.99	1060.89	792.89
Approved Loan Repayment	199.7	199.7	171.59	171.59
Depreciation	339.72	339.6	359.81	354.92
B. Parli Unit No. 6				
Opening Loan Balance	1035.33	817.86	921.17	725.15
Loan Repayment	114.16	92.71	114.16	92.71
Depreciation	51.98	40.89	53.19	40.89
B. Paras Unit No. 3				
Opening Loan Balance	1091.03	915.14	1001.41	820.61
Loan Repayment	103.30	94.53	103.31	94.53
Depreciation	51.61	43.29	51.96	43.29
C. Total				
Opening Loan Balance	3105.73	2600.99	2983.47	2338.65
Loan Repayment	417.16	386.94	389.06	358.83
Depreciation	443.31	423.78	464.96	439.10

*Note: For existing stations, approved loan repayment and depreciation considered as per APR Order in Case No. 115 of 2008

117. As observed from the above Table, loan repayment for the period from FY 2007-08 to FY 2009-10 does not exceed depreciation for each year for MSPGCL as a whole. The Commission is of the view that AAD is intended to meet shortfall in meeting loan repayment obligations of the Generating Company as a whole. Accordingly, for the purpose of determination of tariff for Paras Unit No. 3, the Commission has not considered any AAD. The summary of depreciation and AAD as proposed by MSPGCL and as approved by the Commission is given in the Table below:

(Rs. Crore)

Particulars	FY 2008-09		FY 2009-10	
	MSPGCL	Approved	MSPGCL	Approved
Depreciation	51.61	43.29	51.96	43.29
Advance Against Depreciation	51.69	-	51.35	-
Total	103.30	43.29	103.31	43.29

VI. Interest Rate and Loan Repayment

118. As mentioned earlier, the project has been financed through debt taken from PFC and GoM. The summary of the loan amount and interest expenses as submitted by MSPGCL is shown below:

(Rs. Crore)

Particulars	FY 2008-09	FY 2009-10
A. PFC		
Opening Loan Balance	970.23	882.03
Repayment during the year	88.20	88.21
Closing Balance	882.03	793.82
Interest Expense	108.62	97.61
B. GoM		
Opening Loan Balance	120.80	105.70
Repayment during the year	15.10	15.10
Closing Balance	105.70	90.60
Interest Expense	13.09	11.36
C. Additional Capitalisation		
Opening Loan Balance	0.00	13.68
Drawal during the year	13.68	36.62
Repayment during the year	0.00	0.00
Closing Balance	13.68	50.31
Interest Expense	0.00	3.68

Based on loan agreements, the tenure of the loan has been considered as 10 years by MSPGCL.

119. The Commission has considered the interest rate as submitted by MSPGCL for the loan availed from PFC and GoM; however, the Commission has considered the opening balance of loan on pro-rata basis based on the Capital Cost and means of finance approved by the Commission in this Order. The Commission has also considered the tenure of loan as 10 years.

120. The summary of loan balance and interest expenses as approved by the Commission in this Order is shown as below:

Rs. Crore

Particulars	FY 2008-09	FY 2009-10
A. PFC		
Opening Loan Balance	794.34	714.91
Repayment during the year	79.43	79.43
Closing Balance	714.91	635.47
Interest Expense	86.78	77.65
B. GoM		
Opening Loan Balance	120.80	105.70
Repayment during the year	15.10	15.10
Closing Balance	105.70	90.60
Interest Expense	13.02	11.29

VII. Return on Equity

121. In accordance with Regulation 34.1 of MERC (Terms and Conditions of Tariff) Regulations, 2005, the Commission has considered the applicable return on equity of 14% per annum in Indian Rupee terms on the equity portion as approved in the Order.

122. While computing the return on equity for FY 2008-09 and FY 2009-10, the Commission has considered the opening equity only. The summary of Return on Equity as proposed by MSGPCL and as approved by the Commission is given in the Table below:

(Rs. Crore)

S.No	Particulars	FY 2008-09		FY 2009-10	
		MSPGCL	Approved	MSPGCL	Approved
1	Equity on COD as per Debt: Equity Ratio	348.30	292.15	348.30	292.15
2	Equity toward Additional Capitalisation	-	-	-	-
	Return Computation				
3	Return on Equity as on COD	48.76	40.90	48.76	40.90
4	Return on Equity toward Additional Capitalisation	-	-	-	-
5	Total Return on Equity	48.76	40.90	48.76	40.90



VIII. Interest on Working Capital

123. The Commission has computed the working capital requirement in accordance with Regulation 34.5 of MERC (Terms and Conditions of Tariff) Regulations. :

Further, while computing the interest on working capital, the Commission has considered the interest rate of 13.75%, considering the prevalent SBI PLR on the date of filing of the Petition for determination of tariff.

The summary of interest on working capital as proposed by MSGPCL and as approved by the Commission is given in the Table below:

(Rs. Crore)

S.No.	Particulars	FY 2008-09		FY 2009-10	
		MSPGCL	Approved	MSPGCL	Approved
1	Interest on working capital	16.81	8.67	17.52	14.91

IX. O&M Expenses

124. The Commission has considered the O&M expenses on normative basis for FY 2005-06 as Rs. 10.82 Lakh/MW as specified in Regulation 34.6.2 of the MERC (Terms and Conditions of Tariff) Regulations, 2005 for a new generating station. Further, the Commission has considered an escalation rate of 4% per annum to arrive at O&M expenses for FY 2006-07. The normative O&M expenses for FY 2007-08, FY 2008-09 and FY 2009-10 have been considered based on escalation rate as approved by the Commission in the MYT Order and APR Orders of MSPGCL, in accordance with the increase in Wholesale Price Index (WPI) and Consumer Price Index (CPI).

125. The summary of O&M expenses considered by MSPGCL and as approved by the Commission is provided in the Table below:

Rs Crore

Particulars	FY 2008-09		FY 2009-10	
	MSPGCL	Approved	MSPGCL	Approved
Operation & Maintenance Expenses	31.24	31.24	32.92	33.13



X. Income Tax

126. The Income Tax for Paras Unit No. 3 for FY 2008-09 and FY 2009-10 will be assessed as part of assessment of overall income tax of MSPGCL, which has been allowed separately in the Tariff order for MSPGCL. In case there is any variation in the Income Tax payment, the same may be claimed at the appropriate time, upon submission of due documentary evidence. Hence, the Commission has not considered any income tax separately for Paras Unit No. 3.

XI. Stabilisation Period and Performance Parameters during Stabilisation and Post-Stabilisation Period

a. Target Availability

127. MSPGCL, in its Petition, has submitted the target availability for Paras Unit No. 3 as 49.37% for FY 2008-09, and 80% for FY 2009-10. Subsequently, MSPGCL submitted the actual availability as 41.96% for FY 2008-09. It is to be noted that the normative availability stipulated in the MERC (Terms and Conditions of Tariff) Regulations, 2005, for full recovery of annual fixed charges, is 80%.
128. The issue of relaxation of target availability norm for the generating station during FY 2008-09 (post Commercial Operation Date of the Unit), as submitted by MSPGCL has been analysed by the Commission. It may be observed that MSPGCL, within 6 months of synchronisation of the Unit, has declared the “commercial operation of Paras Unit No. 3” on March 31, 2008, even though sustained performance of the Unit for 24 days with 72 hours at full load, was not established. In accordance with standard industry practice, the Performance Guarantee (PG) test has to be conducted before declaring COD. This appears highly irregular and does not conform to “good engineering practice” However, MSPGCL declared COD before conducting the PG test, and the PG test was conducted well after the COD. In view of the above, the Commission has gone by the target availability norms as laid down in the Tariff Regulations. The consequences of such low level of operation of the generating station cannot be passed on to consumers as the consumers have already suffered high load shedding due to lower generation from this station, and has to be borne by the generator

b. Stabilisation Period and Performance Parameters during Stabilisation Period

129. MERC (Terms and Conditions of Tariff) Regulations, 2005, stipulate that stabilisation period of coal based and lignite fired stations shall be reckoned as 180 days from the date of commissioning. As against this, MSPGCL has requested for consideration of a higher period of stabilisation of 275 days. The Commission has observed that the reasons provided by MSPGCL such as collapse of ESP, hoppers and RHS of flue gas duct from boiler outlet to ESP inlet, commissioning of various equipments like C&I auto loops, smart soot blowing system, ESP washing arrangement, etc., are not tenable. Considering the experience of MSPGCL in operating power plants, and the experience of BHEL in erecting standard sized 250 MW power plants, such failures and collapse of various equipments should have not taken place. Moreover, it is an acknowledged fact that machine size of 250 MW and all the accessories and auxiliaries are a proven technology and it is expected that it would be of good quality, proven performance and their construction features, supporting infrastructures etc. would be well matched with the requirements. The Commission is of the opinion that it is the duty of the owner of the plant to ensure full compliance with all norms of Quality Assurance and Quality Control (QA & QC) thorough regular inspection and stage wise testing of the equipment, to ensure that the equipment being procured are of good quality, these are stored and erected at site as required, and training is imparted to its operating personnel well in advance, and any losses incurred through non performance of these elementary duties effectively cannot be passed on to the consumers.
130. The Commission is of the view that the poor performance of the equipment and systems at the beginning itself can be attributed singly or collectively to any or all of the following reasons :
- a. Failure of Quality Assurance and Quality Control systems at site, not observing proper Customer Hold Points (CHPs) during the manufacturing, assembly, erection and Commissioning process and not conducting proper inspections at the works, not conducting proper pre-commissioning tests/checks, improper storage of material at site, etc.
 - b. Inexperience of the operating staff can be attributed to inadequate training given to the staff and lack of ability and experience to perform the given tasks (operating the Unit).
 - c. Paras Unit No. 3 was commissioned by MSPGCL in haste, even when all the systems were not fully checked out and integrated operation and continuous operation for stipulated period were not carried out.

131. Further, it is observed from the results of the Performance Guarantee tests (PG tests) conducted on the major equipment, viz., the Boiler efficiency test, the Turbine Heat Rate and the capacity test on the Unit, these **are close to the guaranteed design values**, in each case. MSPGCL has submitted that it has received the test report, however, review and acceptance is pending as some corrective actions and clarifications have been sought from M/s BHEL. It is to be noted that the PG test was carried out in April 2009, i.e., one year after the commercial operation date and six months after the restoration of the failed/collapsed equipments.
132. In view of the above, the stabilisation period for the generating station for the period from COD has been considered as 180 days and the performance parameters like station heat rate, secondary fuel oil consumption and auxiliary consumption have been considered on the basis of norms as specified in the MERC (Terms and Conditions of Tariff) Regulations, 2005. The summary of the stabilisation period and performance parameters during the stabilisation period as considered by MSPGCL and approved by the Commission is shown in the Table below:

Parameter	Unit	MERC Tariff Regulations	MSPGCL Petition	Approved
Stabilisation Period	Days	180	275 (up to Dec 2008)	180
SHR	kcal/kWh	2600	2991	2600
Secondary fuel oil consumption	ml/kWh	4.5	15.18	4.5
Auxiliary consumption	%	9.5	9.96	9.5

c. Performance Parameters post Stabilisation Period

133. The Commission has considered the normative values of the performance parameters viz., station heat rate, auxiliary consumption and secondary fuel oil consumption as specified in the MERC (Terms and Conditions of Tariff) Regulations, 2005, for post stabilisation period. The summary of the performance parameters post stabilisation period as considered by MSPGCL and approved by the Commission is shown in the Table below:

Parameter	Unit	MERC Tariff Regulations	MSPGCL*	Approved
SHR	kcal/kWh	2500	2500	2500
Secondary fuel oil consumption	ml/kWh	2	2	2
Auxiliary consumption	%	9	9	9

Note: MSPGCL has also considered the normative performance parameters post stabilisation period (however, stabilisation period requested by MSPGCL is for 275 days as against 180 days stipulated in the Tariff Regulations)



d. Transit Loss

134. In accordance with Regulation 33.1.6 of the MERC (Terms and Conditions of Tariff) Regulations, 2005, allowable transit losses for coal based generating stations, as a percentage of quantity of coal dispatched by the coal supply company during the month, is 0.8% for non-pit head generating stations. MSPGCL, in its Petition has also asked for 0.8% as transit loss, accordingly, the Commission has considered the same in its tariff computations.

XII. Variable Cost**A. Impact of Performance parameters on fuel cost in FY 2008-09**

135. The Commission has re-computed the fuel cost based on the performance parameters as approved by the Commission in this Order, as shown in the Table below:

Parameter	Unit	MERC Tariff Regulations	Projected by MSPGCL	Approved by the Commission
Stabilisation Period	Days	180.00	275 (up to Dec 08)	180.00
SHR	kcal/kWh	2,600.00	2,901.00	2600 (during stabilisation period)
				2500 (after stabilisation period)
Sec. oil consumption	ml/kWh	4.50	31.95 during stabilisation	4.5 (during stabilisation period)
			2 Post stabilisation	2 (after stabilisation period)
Auxiliary consumption	%	9.50	10.89%	9.5 (during stabilisation period)
				9 (after stabilisation period)
Fuel cost (2008-09)	Rs. Crore	169.07*	204.24	122.14

*Note: impact as submitted by MSPGCL

Accordingly, the Commission hereby approves the variable cost for FY 2008-09 as Rs. 122.14 Crore.

B. Fuel Price and Fuel Calorific Value for FY 2009-10

136. For FY 2009-10, the Commission has considered the price of fuel equivalent to average actual fuel price and the average calorific value of fuel for the last six months, i.e., from April 2009 to September 2009, as submitted by MSPGCL in subsequent submissions. The Commission has not considered any escalation in fuel prices as the adjustments for variation in fuel prices is allowed under the Fuel Adjustment Cost (FAC) mechanism. Further, the Commission has considered the utilisation of domestic coal and washed coal as proposed by MSPGCL in its Petition. The summary of fuel prices and calorific value as projected by MSPGCL and as considered by the Commission for FY 2009-10 is given in the Tables below:

Table: Summary of Fuel Price and Calorific Value for Indian Coal

Station	MSPGCL		Approved	
	Price	Calorific Value	Price	Calorific Value
	Rs/MT	kcal/kg	Rs/MT	kcal/kg
Paras Unit No. 3	1821	3705	1685	3404

Table: Summary of Fuel Price and Calorific Value for Washed Coal

Station	MSPGCL		Approved	
	Price	Calorific Value	Price	Calorific Value
	Rs/MT	kcal/kg	Rs/MT	kcal/kg
Paras Unit No. 3	1856	3784	1924	3869

Table: Summary of Fuel Price and Calorific Value for Secondary Fuels as approved by the Commission

Station	FO			LDO		
	Sp. Cons.	Price	Cal. Value	Sp. Cons.	Price	Cal. Value
	ml/kWh	Rs/KL	kcal/kg	ml/kWh	Rs/KL	kcal/kg
MSPGCL	1.56	29667	10137	0.44	21708	10241
Commission	1.56	36955	10427	0.44	35606	10450

C. Cost of Lubricants, Other Consumables and Water Charges, etc.

137. MSPGCL, in its Petition, submitted that it has considered the cost of lubricants, chemicals and water charges, etc., as part of energy charge. The Commission has also included the cost of these other items, viz., lubricants, chemicals and water charges, etc., as part of variable costs while estimating the energy charges. The Commission has considered these costs for FY 2009-10 as submitted by MSPGCL, as shown in the following Table:

Table: Summary of Other Variable Costs and Adjustments for FY 2009-10 (Rs Crore)

Station	MSPGCL	Approved
Paras Unit No. 3	4.34	4.34

The variation in other variable costs and adjustments shall not be considered as part of FAC computations and the FAC computations should only include the variations in fuel prices. Any variations in other charges and adjustments shall be considered at the time of truing up.



D. Rate of Energy Charge

138. Based on performance parameters, i.e., heat rate and auxiliary consumption approved for FY 2009-10 and considering the fuel prices and fuel calorific value as discussed in above paragraphs, the rate of energy charge for Paras Unit No.36 for FY 2009-10 as approved by the Commission is given in the Table below:

Table: Rate of Energy Charge for FY 2009-10

Station	Fuel Cost excluding other fuel charges (Rs Crore)		Other Variable Cost (Rs Crore)		Rate of Energy Charge to be considered for FAC (Rs/kWh)		Rate of Energy Charge (Rs/kWh)	
	MSPGCL	Approved	MSPGCL	Approved	MSPGCL	Approved	MSPGCL	Approved
Paras Unit No. 3	224.45	224.13	4.34	4.34	1.408	1.406	1.435	1.433

XIII. Incentive

139. MSPGCL would be entitled to earn incentive in accordance with Regulation 37.1 of the MERC (Terms and Conditions of Tariff) Regulations, 2005, wherein incentive is payable at a flat rate of 25 paise/kWh for ex-bus actual energy corresponding to actual generation in excess of ex-bus energy corresponding to target PLF.

XIV. Annual Fixed Charges (AFC)

140. Based on the above principles, the approved AFC is shown in the Table below:

Rs. Crore

Particulars	FY 2008-09		FY 2009-10	
	MSPGCL	Approved	MSPGCL	Approved
Depreciation	51.61	43.29	51.96	43.29
Advance Against Depreciation	51.69	-	51.35	-
Operation & Maintenance Expenses	31.24	31.24	32.92	33.13
Interest on Long Term Loan	121.71	99.81	112.65	88.93
Interest on Working Capital	16.81	8.67	17.52	14.91
Return on Equity Capital	48.76	40.90	48.76	40.90
Income tax paid/payable	5.52	-	5.52	-
Total Annual Fixed Charges	327.35	223.91	320.69	221.17

The Annual Fixed Charge approved by the Commission is lower than that projected by MSPGCL, mainly due to lower Capital Cost considered by the Commission on account of following reasons:

- Reduction in base capital cost for the under-recovery of revenue for infirm generation before COD, and allowing the same to be recovered through energy charges rather than capitalising the same. This does not affect MSPGCL.
- Reduction in overheads, by limiting the overheads to the same percentage as that approved by the CEA in the TEC.
- Reduction due to cost of common facilities for Paras new Unit No. 4, which has been admitted by MSPGCL. Hence, this does not affect MSPGCL.
- Considering IDC and FC as if the project has been completed on time, and by not considering the Liquidated Damages that MSPGCL is entitled to recover from its suppliers.

141. This tariff shall be effective from April 1, 2008 (i.e., the date of COD), any under/over recovery vis-a-viz the actual revenue recovered till date should be recovered/paid to MSEDCL in six equal monthly instalments.

With this Order, the Commission disposes of MSPGCL's Petition in Case No. 95 of 2008.

Sd/-
(S.B. Kulkarni)
Member

Sd/-
(V.P. Raja)
Chairman



(Sanjay Sethi)
Secretary, MERC