

**MADHYA PRADESH ELECTRICITY REGULATORY COMMISSION**  
**"Metro Plaza", Bittan Market, Bhopal - 462 016**



**Petition No. 45/2009**

**PRESENT:**

**Dr. J. L. Bose, Chairman**

**K.K. Garg, Member.**

**C.S. Sharma, Member**

**IN THE MATTER OF:**

**Approval of provisional Generation Tariff for 1 x 20 MW Unit-III of Madikheda Hydro power Station of Madhya Pradesh Power Generating Company Limited (MPPGCL) for FY 2007-08 and FY2008-09 after CoD.**

**M.P. Power Generating Company Ltd, Rampur, Jabalpur.**

**PETITIONER**

**Vs.**

**1. M.P. Power Trading Company Ltd., Rampur, Jabalpur**

**RESPONDENTS**

**2. M.P. Poorv Kshetra Vidyut Vitaran Company Ltd., Jabalpur**

**3. MP Madhya Kshetra Vidyut Vitaran Company Ltd., Bhopal**

**4. MP Paschim Kshetra Vidyut Vitaran Company Ltd., Indore**

**5. M.P. Power Transmission Co. Ltd. Jabalpur.**

**6. M.P. State Electricity Board, Rampur, Jabalpur.**

## ORDER

*(Passed on this 5<sup>th</sup> January, 2010)*

1. The Madhya Pradesh Electricity Regulatory Commission (hereinafter called “the Commission” or “MPERC”) after going through the petition submitted by the MP Power Generating Company Limited (hereinafter called “the Petitioner” or “Company” or “Generating Company” or “MPPGCL”) and considering the documents available on record and the supplementary submissions made by the petitioner with supporting documents thereof, hereby accepts the applications with modifications, conditions and directions as herewith attached. The Commission has also considered the orders issued by the Government of Madhya Pradesh (Energy Department) on 31<sup>st</sup> May 2005 making the Transfer Scheme Rules effective from 1<sup>st</sup> June 2005, (order no.3679/FRS/18/13/2002 dated 31.5.2005) and subsequent orders.
2. The Commission after detailed scrutiny of the financial data and operating parameters submitted by the petitioner in respect of Madikheda Hydro Power Projects (1X20MW) Unit-III and after considering the Commission’s applicable Regulations in this regard has determined the provisional generation tariff for 20 MW Unit-III at Madikheda as per detailed order attached herewith.
3. The generation tariff determined by the Commission in this order, in exercise of the powers conferred under Section 64 of the Electricity Act, 2003, will be applicable w.e.f. 18<sup>th</sup> August 2007 i.e. the COD (commercial operation date) to 31<sup>st</sup> March, 2009. The petitioner must take steps to implement the Order after giving seven (7) days’ public notice in accordance with clause 1.30 of MPERC (Details to be furnished and fee payable by licensee or generating company for determination of tariff and manner of making application) Regulations, 2004 and raise its bills for energy supplied to the three Distribution Companies in accordance with allocation made by the Government of Madhya Pradesh.
4. A gist of the total cost of generation as filed by the Petitioner and approved by the Commission for FY 2007-08 and FY 2008-09 after CoD through this order is given below: -

**(a) Total cost of generation as filed by the petitioner:-**

(Rs. Lakhs)

Particulars		FY 08	FY 09
Return on Equity	Lakh.Rs	67.93	109.53
Depreciation	Lakh.Rs	65.98	106.38
Interest on Loan	Lakh.Rs	294.00	431.49
O&M Expenses	Lakh.Rs	58.18	99.40
Advance Against Depreciation	Lakh.Rs	88.71	213.83
Interest on Working Capital	Lakh.Rs	16.90	28.43
MPERC Fee @ Rs 1000/MW	Lakh.Rs	0.124	0.20
<b>Total Fixed Cost</b>	Lakh.Rs	<b>591.82</b>	<b>989.25</b>
Days of Operation	No.	227	365
Fixed Charges / Month	Lakh.Rs	<b>79.43</b>	<b>82.44</b>

**(b) Total annual fixed charges as approved by the Commission :-**

(Rs. Lakhs)

Sr. No.	Particular	Unit	FY08	FY09
1	Return on equity	Rs. Lakhs.	72.24	72.24
2	Depreciation	Rs. Lakhs.	82.88	82.88
3	O&M Charges	Rs. Lakhs.	48.38	51.28
4	Interest and finance charges	Rs. Lakhs.	290.03	328.66
5	Advance against depreciation	Rs. Lakhs.	83.90	160.93
6	Interest on working capital	Rs. Lakhs.	17.96	20.67
7	Annual fixed charges	Rs. Lakhs.	595.39	716.65
8	Annual fixed charges for 227 days in FY2007-08	Rs. Lakhs.	370.28	716.65
9	Allowed 95% recovery on provisional basis	Rs. Lakhs.	351.77	680.82

5. Ordered as above read with attached detailed reasons and grounds,

Sd/-  
(C.S. Sharma)  
Member (Economics)

Sd/-  
(K.K. Garg)  
Member (Engineering)

Sd/-  
(Dr. J. L. Bose)  
Chairman

Date: 5<sup>th</sup> January, 2010  
Place: Bhopal

## TABLE OF CONTENTS

	Page No.
<b>CHAPTER 1 – BACKGROUND OF THE ORDER.....</b>	<b>5</b>
<i>INTRODUCTION.....</i>	<i>5</i>
<i>PROCEDURAL HISTORY .....</i>	<i>6</i>
<i>PUBLIC HEARING.....</i>	<i>8</i>
<b>CHAPTER 2 – ANALYSIS OF THE PETITION.....</b>	<b>9</b>
<b><i>INTRODUCTION OF THE PROJECT AND STATUS OF CLEARANCES AS SUBMITTED BY THE PETITIONER.....</i></b>	<b><i>9</i></b>
<b><i>GENERATION DETAILS OF MADHIKHEDA UNIT 3.....</i></b>	<b><i>9</i></b>
<b><i>COST ANALYSIS.....</i></b>	<b><i>11</i></b>
<i>CAPITAL COST.....</i>	<i>11</i>
<i>DEBT-EQUITY RATIO .....</i>	<i>13</i>
<i>RETURN ON EQUITY .....</i>	<i>14</i>
<i>INTEREST AND FINANCE CHARGES ON LOAN CAPITAL.....</i>	<i>15</i>
<i>DEPRECIATION.....</i>	<i>17</i>
<i>ADVANCE AGAINST DEPRECIATION.....</i>	<i>19</i>
<i>O&amp;M EXPENSES.....</i>	<i>20</i>
<i>INTEREST ON WORKING CAPITAL .....</i>	<i>21</i>
<i>TARGET CAPACITY INDEX.....</i>	<i>21</i>
<i>OTHER CHARGES – MPERC FEES.....</i>	<i>22</i>
<i>SUMMARY OF FIXED COST.....</i>	<i>22</i>
<i>Primary and secondary energy charges .....</i>	<i>23</i>
<i>Incentive.....</i>	<i>23</i>

## CHAPTER-1

### Background of the order

#### Introduction

- 1.1 This order relates to petition number 45 of 2009 filed by the Madhya Pradesh Power Generating Company Limited (MPPGCL) for determination of generation tariff for 1X20 MW unit-3 of Madhikheda Hydel Power Station from 18 Aug 2007. i.e. from the “date of commercial operation” to 31<sup>st</sup> of March 2009.
- 1.2 Madhikheda hydro power station is a new hydro power station having three units of 20MW capacity each having CoD of unit-1 on 28<sup>th</sup> August 2006, unit-2 on 9<sup>th</sup> Sept 2006 under phase-I and unit-3 on 18<sup>th</sup> August 2007 under phase-II.
- 1.3 The Commission has notified the MPERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2005 in the Madhya Pradesh Government Gazette on 5th December 2005. These tariff regulations have been notified under the multiyear tariff principles for the block of 3 years from FY2006-07 to FY2008-09. As per clause 1.3 of the said Regulations, the Regulations shall come into force from the date of their publication in the official Gazette of the Government of Madhya Pradesh. As per clause 1.4, these Regulations shall apply in all cases of determination of generation tariff under section 62 of the Electricity Act 2003 for supply of electricity to a distribution licensee by existing state sector generating stations where the capacity is allocated by the State Government under section 132 of the Electricity Act 2003, but shall not apply where tariff has been determined through a transparent process of bidding in accordance with the guidelines issued by the Central Government as per the provisions of section 63 of the Electricity Act 2003. Further, Clause 1.5 of the Regulation provides that,  
  
*“ Any new generating company or station which comes up in future and proposes to supply electricity to a distribution licensee of the State shall be subjected to the norms prescribed by CERC vide its order dated 26/03/2004 unless it proposes to supply electricity through bidding in accordance with the guidelines issued by the Central Government as per provisions of section 63 of the Electricity Act 2003. ”*
- 1.4 The M.P. Power Generating Company Limited had filed the petition No. P-102 of 2006 for unit No.1&2 before the Commission and the Commission had issued the tariff order dated 18<sup>th</sup> Jan 2008 on the said petition. The present petition is for the unit No.-3 and it is based on the above regulation. The Commission has observed from the petition that the petitioner is required to **sell** the entire generation of MPPGCL to MP Tradeco at a rate determined by the Commission in accordance with the Govt. of MP notification of June 03, 2006. A Power Purchase Agreement to this effect has also been signed between MPPGCL and MP Tradeco on 29<sup>th</sup> Nov 2006.

## Procedural history

1.5 The petitioner filed the subject petition on 24/08/2009 through its authorised signatory Shri S.P.Soni, Additional Chief Engineer in accordance with the clause 1.5 of Commission's regulations for FY2007-08 and FY2008-09 after COD. The petitioner has made the following submissions for the consideration of the Commission.

1..5.1 *"In pursuance with "MPERC (Terms and Conditions of Generation Tariff) Regulations, 2005 (G-26 of 2005)", hydro power stations shall be eligible for recovery of fixed charges in equal monthly installments, provided cumulative Capacity Index (CI) of the station is above the minimum specified CI level by the Hon'ble Commission for the specific type of hydro station, which are 80% in first year of commissioning and thereafter 85%. The station shall also be eligible for incentive on the rate specified in "MPERC (Terms and Conditions of Generation Tariff) Regulations, 2005 (G-26 of 2005)", if cumulative CI is more than the minimum specified CI. In case the CI is lower than the minimum required CI, prorata deduction of fixed cost shall be applicable. At the same time, secondary energy shall also be made available on the rates prescribed by Hon'ble Commission in its "MPERC (Terms and Conditions of Generation Tariff) Regulations, 2005 (G-26 of 2005)".*

1..5.2 *MPPGCL has determined Fixed cost on target CI and with design energy equally apportioned to three units. Incentive / Penalties and sale of secondary energy shall be affected in pursuance with the specified norms by Hon'ble Commission.*

1..5.3 *MPPGCL has also considered tax holiday under Section-80IA of IT Act during initial 10 years of date of incorporation of the company and has not loaded any incidence of the same. However the company has to pay Minimum Alternative Tax (MAT) subjected to actual. In case, due to change in Govt. policy or otherwise, if any, liability of tax and duties (except on incentive of additional profit over and above RoE) arises, the same shall be charged extra. Similarly, Water Charges are payable to Govt. on the rates specified by GoMP. The same shall be chargeable extra. Fringe benefit tax, if payable on the project shall be chargeable extra on actual basis*

1..5.4 *MPPGCL has determined Fixed cost on target Capacity Index only. Incentive / Penalties shall be affected in pursuance with the specified norms and order considering above request of MPPGCL in the final order in this regard by Commission".*

1.6 The Summary of the Genration cost filed by MPPGCL is given below:

**Table 1 : Summary of petition (Rs in Lakhs)**

Particulars		FY 08	FY 09
Depreciation	Lakh.Rs	65.98	106.38
Interest on Loan	Lakh.Rs	294.00	431.49
Return on Equity	Lakh.Rs	67.93	109.53
Advance Against Depreciation	Lakh.Rs	88.71	213.83
Interest on Working Capital	Lakh.Rs	16.90	28.43
MPERC Fee @ Rs 1000/MW	Lakh.Rs	0.124	0.20
O&M Expenses	Lakh.Rs	58.18	99.40
<b>Total Fixed Cost</b>	Lakh.Rs	<b>591.82</b>	<b>989.25</b>
Days of Operation	No.	227	365
Fixed Charges / Month	Lakh.Rs	<b>79.43</b>	<b>82.44</b>

1.7 The petitioner has prayed the following for consideration of the Commission

- 1.7.1 *“Accept the tariff (fixed cost) as elaborated in para 6 to 9 of the petition on normative basis and permit recovery.*
- 1.7.2 *Accept and permit recovery of Incentive and cost of Secondary Energy on the terms specified in "MPERC (Terms and Conditions of Generation Tariff) Regulations, 2005 (G-26 of 2005)". Deduction on account of under achievement of CI shall also be applicable as specified in the above regulation.*
- 1.7.3 *Permit additional recovery on account of Water Charges, taxes, duties and levies on actual basis, over and above the amounts elaborated in the table above.*
- 1.7.4 *Permit recovery of expenses understated / not considered in this petition e.g. cost, interest and finance charges, depreciation etc at a later stage, if required.*
- 1.7.5 *Permit recovery of fixed charges as proposed above w.e.f Aug 07 on provisional basis, till issue of final order and effect reconciliation based on the rates approved by Hon'ble Commission at a latter stage”.*

## Public Hearing

1.8 In view of the foregoing, the Commission vide order dated 9<sup>th</sup> Oct.,2009 admitted the petition and directed the petitioner to publish the public notice for inviting comments/suggestions of the stakeholders on the Petition filed by MPPGCL. The public notice was published in the newspapers on 24<sup>th</sup> Oct. 2009. The last date for filing the comments/suggestions was 16<sup>th</sup> Nov.2009.

1.9 The Commission office had received Comments/suggestions from the following two stakeholders:

- Nagrik Adhikar Association (Satna)
- Electricity Consumer Society (Indore)

1.10 The Commission held a public hearing on the tariff petition of MPPGCL in its office on 8<sup>th</sup> December 2009. The representatives of the petitioner appeared in the hearing. No objector appeared before the Commission in the public hearing.

## CHAPTER 2

### Analysis of the petition

#### 2.0 Introduction of the Project and status of Statutory clearances as submitted by the petitioner

2.1 Madhikheda Hydel Project is a part of Sindh River Project, Phase – II (Multi-purpose Scheme) located in District Shivpuri, Madhya Pradesh. The project envisages utilization of water available at Madhikheda dam reservoir and the head created due to construction of 59 meter high Madhikheda dam for generation of power for peaking purpose. The firm power works out to 09 MW. The first phase consists of installation of two units of 20MW i.e. 2x20MW. Further in order to avoid under utilization of available water, an additional capacity of 20 MW has been considered under phase-II. For the petition purpose the second phase i.e. 1x20MW has been considered.

2.2 The water conductor system for the project has been designed to feed water for generating 60 MW of power. The intake structure (Semi-circular cage type) has been provided on the left bank of the river about 1 KM upstream of Madhikheda dam. From this point the river takes a U-turn towards right. A 6.5 M dia tunnel (RCC lined) of length 750 meter takes off from the intake. A surge tank of 18 M dia to dampen the water hammer has been provided. The tunnel trifurcates into 3.75 M dia pressure shafts (each 80 M long) to feed the three units in the Power house. The power house is surface type. A 500 meter long RCC lined tail race channel (bed width 43.50 meters, side slopes 1:1) discharges the water back into Sindh river about 2 KM down stream of Madhikheda dam.

2.3 Francis type turbines have been installed to work under the net design head of 52.75 M and design discharge of 45.5 Cumecs for each unit. The total energy generation in a 90% dependable year works out to be 74.12 Million Units. The power so generated is proposed to be evacuated by connecting the Power House to 132 KV Substation at Karera with double circuit 132 KV (DCDS) line. Karera S/s is about 22 KM from the Power House

#### **Generation Details of Madhikheda unit-3**

2.4 The Petitioner has submitted that the Installed capacity of Madhikheda phase I & II is 60 MW (peaking) and the project is surface type. It has design energy of 74.12 MU.

The actual amount of energy generated will depend upon the rainfall and actual water discharge from upstream. Thus for the purpose of computation of tariff, 74.12 MU has been considered to be generated from the station. The energy apportioned to Madhikheda Unit No. 3 is therefore 24.71 MU with Capacity Index 80% for FY 08 & 85% for FY 09.

The Madhikheda dam is complete upto crest level (EL 334.25 M) and Spillway radial dam gates have also been erected by WRD. The table below elaborates normative possible generation from the station, considered for the purpose of determination of tariff :-

Particulars		FY 08	FY 09
Total Capacity of Plant	MW	60	60
Design Energy	MU	74.12	74.12
Unit under consideration - No.3	MW	20	20
Apportioned Energy	MU	24.71	24.71
% of Energy Generation (#)	%	62%	100%
Gross Generation	MU	15.32	24.71
Capacity Index	%	80	85
Auxiliary Consumption	%	0.50%	0.50%
Transformation Loss	%	0.50%	0.50%
<b>Net Generation</b>	<b>MU</b>	<b>15.17</b>	<b>24.46</b>

# Based on number of days of operation i.e. 227 days in FY08 and 365 days in FY09.

2.5 Status of statutory clearances:-The project was taken up after obtaining requisite clearances as follow:-

- Environmental clearance and diversion of Forest land (3106 ha.) for Sindh Project phase-II was made available for the project by Ministry of Environment and Forest vide letter No. 8-161/91-FC dated 24<sup>th</sup> Dec 1995.
- Techno-economic clearance of the project granted by CEA New Delhi vide their letter No. 302/25/93/HPA.I/389 dated 12.05.93.
- Shri E.Sundaraiya, Advisor New Delhi was awarded the consultancy work for construction of Madhikheda Hydel project vide C.E.(Civil:P&D:Proj.) letter No. 4152 dated 05.10.2001.

- Approval of capital cost by GoMP vide its letter No. 2843/F.3/13/2001 dated 11.05.01 and No. 6525/13/2004 dated 8.11.2004 for Madhikheda unit-3.
- Agreement copy of the PFC loans along with terms and conditions for the loan.

### **3.0 Cost Analysis**

#### **3.1 Annual Fixed Charge**

##### **(A) Capital Cost**

##### **Provision(s) under Regulation**

- 3.1.1 Clause 2.5 of the MPERC(Terms and Conditions for Determination of generation tariff) Regulation (G-26 of 2005), relating to the capital cost, provides that:

*“Subject to prudence check by the commission, the actual expenditure incurred on completion of the project shall form the basis for determination of tariff. The tariff shall be determined based on the admitted capital expenditure actually incurred upto the date of commercial operation of the Generating units/station and shall include capitalized initial spares subject to ceiling norms as stipulated hereunder”.*

- (i) *upto 1.5% of original capital cost in case of Hydro generating stations,*

- 3.1.2 Clause 2.6 of the same regulation provides that:

*“Scrutiny of the cost estimates by the Commission shall be with regard to the reasonableness of the capital cost, financing plan, interest during construction, use of efficient technology, and such other matters for determination of tariff and the Commission may obtain expert advice as deemed necessary”.*

##### **Petitioner’s Submission**

- 3.1.3 The capital cost as per the techno-economic clearance accorded by the Central Electricity Authority (CEA) vide letter No. 302/25/93-HPA.I/339 dated 12<sup>th</sup> May, 1993 was Rs. 106.94Cr. (including transmission and IDC) with an installation of two units of 20MW each with a provision of one more unit of 20MW at a later date on 23<sup>rd</sup> April, 1993.

- 3.1.4 The MPPGCL has also obtained approval of capital cost from GoMP vide letter No. 2843/F.3/5/13/2001 dated 11.05.2001 and No. 6525/13/2004 dated 08/11/2004 for Madhikheda unit No. 3 for Civil and E&M work as Rs.47.69 Crores. The amount pertaining to MPPGCL excluding 132KV DCDS Transmission Line is Rs. 41.77 Crores.
- 3.1.5 The details of the capital cost as filed by the petitioner in the petition on provisional basis and estimated capital cost as approved by the GoMP are as given below.

Sr. No.	Particular	Unit	Approved Estimated Cost from GoMP	Provisional Actual Expenditure as filed by the petitioner
1	Civil Work	Rs. Cr.	4.53	3.23
2	E& M Works	Rs. Cr.	37.24	34.76
3	IDC (Interest during construction)	Rs. Cr.	Inclusive	3.4
4	Total Capital cost	Rs. Cr.	41.77	41.39

- 3.1.6 The petitioner in the petition has not specifically provided the cost incurred up to the date of Commercial operation. The Commission vide letter No.MPERC/DD(Gen.)/2674 dated 05/12/2009 had sought the clarification on the total expenditure up to CoD and after CoD on various heads.
- 3.1.7 The petitioner vide its letter No. 04-12/CP-MPPGCL/MPERC/MK-3/705 dated 07/12/2009 has submitted the details of the expenditure made up to the CoD and after CoD as given below.

Sr. No.	Particular	Unit	Approved Estimated Cost from GoMP	Provisional Actual Expenditure up to CoD as submitted by the petitioner
1	Civil Work	Rs. Cr.	4.53	2.85
2	E& M Works	Rs. Cr.	37.24	26.00
3	IDC	Rs. Cr.	Inclusive	3.40
4	Total Capital cost	Rs. Cr.	41.77	<b>32.25</b>

- 3.1.8 The petitioner has filed the computation of IDC upto CoD for the PFC loans in Form 7A & 7B of the petition and has claimed the IDC of Rs. 3.40 Cr. on PFC loan No. 20102009 and loan No. 20102010 up to CoD. The Petitioner has also submitted the detailed sheets clearly indicating the date wise loan amount drawn, interest rate on the date of drawal and number of days for which amount of IDC is calculated for both the loans.

**Commission's Analysis**

- 3.1.9 The Commission has scrutinized the details of IDC submitted by the petitioner and provisionally allows the IDC amount of Rs. 3.40 Cr. for determination of capital cost.
- 3.1.10 The Petitioner has also submitted the details of the expenditure incurred on Civil as well as E&M work duly filled up in Form 2 to Form 6 of the petition. The petitioner vide its letter dated 7<sup>th</sup> December 2009 has further submitted the segregation of expenditure made up to CoD i.e. 18<sup>th</sup> August, 2007.
- 3.1.11 The Commission hereby decides to provisionally consider the capital cost of Rs. 32.25 Cr. for unit-3. and directs the petitioner to file the petition for determination of final tariff for complete Madhikheda project (3X20MW) along with audited expenditure up to CoD and after CoD of the project. The break up of the capital cost provisionally approved by the Commission in this order for unit-3 is given below:

<b>Sr. No.</b>	<b>Particular</b>	<b>Unit</b>	<b>Provisional Actual Expenditure up to CoD approved by the Commission</b>
1	Civil Work	Rs. Cr.	2.85
2	E& M Works	Rs. Cr.	26.00
3	IDC	Rs. Cr.	3.40
4	Total Capital cost	Rs. Cr.	<b>32.25</b>

**(B) Debt-equity ratio****Provisions under Regulation**

- 3.1.12 Clause 2.11 of the MPERC(Terms and Conditions for Determination of generation tariff) Regulation (G-26 of 2005), relating to the Debt-equity ratio, stipulated that:

*“Where equity employed is in excess of 30%, the amount of equity for the purpose of tariff shall be limited to 30% and the balance amount shall be considered as loan. The interest rate applicable on the equity in excess of 30% treated as loan has been specified in regulation 22. Where actual equity employed is less than 30%, the actual equity shall be considered”.*

**Petitioner's Submission**

3.1.13 While scrutinizing the details regarding drawal of loans, the Commission has observed from the Form 7A and 7B of the petition that an amount of Rs.25.68 crores has been drawn from PFC loan No.20102009 and an amount of Rs.1.41 crores has been drawn against PFC loan No.20102010 upto COD of the project.

**Commission's Analysis**

3.1.14 The Commission in this provisional order has considered that the capital cost of Rs.32.25 crores upto CoD has been financed by debt of Rs.(25.68+1.41) = 27.09 crores and the remaining cost by equity of Rs.5.16 Cr. The debt–equity ratio shall be 84:16 considered for determination of tariff which is within the limit prescribed in the regulation.

**(C) Return on equity**

**Provisions under Regulation**

3.1.15 As per Clause 2.12 of the MPERC (Terms and Conditions for determination of generation tariff) Regulation, 2005 stated that

*“Return on equity shall be determined on the paid up equity capital determined in accordance regulation and shall be computed at 14% (Post tax) per annum unless the Commission allows a lower level for reason to be recorded. Provided that return on equity invested in work in progress shall be allowed from the date of commercial operation”.*

**Petitioner's Submission**

3.1.16 The Petitioner has submitted that the Company is on tax holiday under Section-80IA of IT Act during initial 10 years of date of incorporation of the company. In case, MPPGCL become liable to pay any type of tax /surcharge on RoE, the same shall be chargeable separately. In view of Tax Holidays the Company is required to pay Minimum Alternate Tax (MAT) @ 11.33%. Considering this RoE (proportionately for the period of operation in respective years) works out as Rs. 8.68 Lakhs for FY08 and Rs. 13.99 Lakhs for the year of FY09.

**Commission’s Analysis**

- 3.1.17 As per the regulation MPERC (Terms and Conditions for determination of generation tariff) Regulation, 2005 RoE is computed at 14% (post tax) per annum. **The Commission has not considered the MAT claimed by the petitioner.** Any liability towards tax on income has to be claimed separately in terms of Clause 28 of the Regulation.
- 3.1.18 The Commission has reworked the capital cost of the project as Rs. **32.25** Cr. upto CoD. Hence the total equity amount invested in this project after considering the debt of Rs. 27.09 Cr. works out to Rs. 5.16 Cr.
- 3.1.19 It is obvious from the above that, with the present level of cost estimates, the equity contribution is about 16% and is well within the specified norms of 30% as prescribed in the regulation (G-26 of 2005). The return on equity has been considered in this order accordingly. The Commission has allowed return on equity on this amount as given in table below

**Annual Return on equity:-**

Sr. No.	Particular	Unit	FY 08	FY 09
1	Total capital cost up to CoD	Rs.Lakhs	3225	3225
2	Loan up to CoD	Rs.Lakhs	2709	2709
3	Equity up to CoD	Rs.Lakhs	516	516
4	Rate of return	%	14	14
5	Return on equity	Rs.Lakhs	<b>72.24</b>	<b>72.24</b>

**(D) Interest and finance charges on loan capital**

**Provisions under Regulation**

- 3.1.20 As per the clause 2.15 of the regulation MPERC (Terms and Condition for Determination of Generation Tariff) Regulation, 2005, stated that,

*“Interest and finance charges on loan capital shall be computed on the outstanding loans, duly taking into account the schedule of repayment, as per the terms and conditions of relevant agreements of loan, bond or debenture, ordinarily restricted to prevailing rates of PFC / REC Term Lending Rate or the rates specified by the CERC from time to time”*

3.1.21 Clause 2.17 of the regulation MPERC (Terms and Condition for Determination of Generation Tariff) Regulation, 2005, further stated that,

*“In case any moratorium period is availed of, depreciation provided for in the tariff during the years of moratorium shall be treated as repayment during those years and interest on loan capital shall be calculated accordingly”.*

**Petitioner’s Submission**

3.1.22 The petitioner has filed the capital cost for Rs. 41.39 Cr. on the basis of the actual expenditure as on date of commercial operation, the capital cost has been worked out to Rs. 32.25 Cr. This capital cost is funded through loan amount of Rs. 27.09 Cr.

3.1.23 The Petitioner in its petition submitted that, for funding the project two loans has been availed from PFC (Loan No. 20102009 & 20102010) and one loan from GoMP. The major terms of loans as per agreements submitted by the petitioner are as under.

Sr. No.	Particular	PFC Loan No 20102009	PFC Loan No. 20102010	GoMP. Loan
1	Sanctioned Amount	Rs.25.68Cr.	Rs.5.26Cr.	Rs.2.63Cr.
2	Sanctioned date	19-01-2005	23-12-2005	20-03-2008
3	Number of instalments	40, Quarterly	40, Quarterly	10,yearly
4	Repayment Period	10 years	10 years	10 years
5	Rate of interest	8.25% (Floating)	9.0% (Floating)	10.50% p/a

**Commission’s Analysis**

3.1.24 From the details of the above loans the Commission has observed that the sanctioned date of the GoMP loan is 20<sup>th</sup> March, 2008 whereas the unit has achieved CoD on 18<sup>th</sup> August,2007. The Commission vide its letter dated 5<sup>th</sup>December, 2009 asked the petitioner to submit details of the each loan drawl upto CoD and after CoD.

3.1.25 The petitioner vide letter dated 7<sup>th</sup> December,2009 has submitted the loans draws up to CoD and after CoD as given below:

**Upto CoD(18<sup>th</sup> Aug 2007):-**

- a.** PFC Loan No. 20102009:- Rs.25.68 Crs.  
**b.** PFC Loan No. 20102010:- Rs. 1.41 Crs..

**After CoD (18<sup>th</sup> Aug 2007).**

- a.** PFC Loan No. 20102010:- Rs. 3.85. Crs.  
**b.** GoMP Loan :- Rs. 2.63. Crs.

3.1.26 From the above submission made by the petitioner, the Commission has observed that the total sanctioned amount of PFC loan No. 20102010 was Rs.5.26 Crs. Out of the sanctioned amount, the petitioner has drawn Rs.1.41 Crs. before CoD and balance Rs.3.85 Crs. drawn after CoD. The Commission has considered the loan amount drawn up to CoD. The total PFC loan considered for interest on loan is Rs.27.09 crores. The Commission has considered the repayment of loan for FY2007-08 & FY2008-09 as per the loan agreement filed by the petitioner.

3.1.27 The Commission has considered the loan amount of Rs.27.09 Crs. drawn up to CoD of the unit. Accordingly the Commission has determined the interest on loan and repayment during the year FY2007-08 & FY2008-09 as follows;

**Annual Interest and Finance charges**

Sr. No.	Particular	Unit	FY 08	FY 09
1	Opening balance of loan	Lakh. Rs.	2643	2574
2	Repayment Amount	Lakh. Rs.	135.45	270.90
3	Drawl during the year	Lakh. Rs.	66.14	0.0
4	Closing balance	Lakh. Rs.	2574	2302.7
5	Average loan	Lakh. Rs.	2608	2438.10
6	Rate of interest	%	11.12	13.48
7	Interest amount	Lakh. Rs.	290.03	328.66

**(D) Depreciation**

**Provisions under Regulation**

3.1.28 The Commission in its regulation “MPERC (Terms and Conditions for determination of generation tariff) Regulations, 2005” has specified the principles of charging depreciation as follows:

*“(a) The value base for the purpose of depreciation shall be the*

*historical cost of the assets, i.e. actual expenses limited to approved /accepted capital cost:*

*Provided that the consumer contribution or capital subsidy/ grant etc shall be treated as per the accounting rules notified and in force from time to time.*

*(b) The approved/accepted cost shall include foreign currency funding converted to equivalent rupee at the exchange rate prevalent on the date of foreign currency actually availed.*

*(c) Depreciation rates for the purpose of determination of allowable depreciation shall be as per CERC notification.*

*“Provided that the total depreciation during the life of the asset shall not exceed 90% of the original cost”.*

### **Petitioner’s Submission**

3.1.29 The petitioner has submitted that in the instant case the capital cost has not been finalized hence it will be redundant to determine the weighted average rate of depreciation for this based on cost elements. The petitioner further stated that for most of the cost elements elaborated in Annexure –I of “MPERC (Terms and Conditions for determination of generation tariff) Regulations, 2005” the rate applicable for Hydro power Stations are 2.57%. The MPPGCL in its petition, for the purpose of determination of provisional tariff has considered rate of depreciation 2.57% per year.

### **Commission’s Analysis**

3.1.30 The Commission in the regulation has fixed the average rate of depreciation for the elements of hydel power station as 2.57% and the Commission has considered the same average rate of depreciation for Madikheda Unit-III assuming life of the plant as 35 years. The Commission directs the petitioner to bring out the actual facts and figures for working of the depreciation when the project is completed in all respects and the audited statements of accounts are available for filing the petition for final tariff.

3.1.31 However, the amount of annual depreciation provisionally allowed by the Commission in this order is given below:-

Sr. No.	Particular	Unit	FY 08	FY 09
1	Total project cost up to CoD	Rs.Lakhs	3225	3225
2	Annual rate of depreciation	%	2.57	2.57
3	Annual Depreciation amount	Rs.Lakhs	82.88	82.88

**(E) Advance against depreciation****Provisions under Regulation**

3.1.32 As per "MPERC (Terms and Conditions of Generation Tariff) Regulations, 2005 (G-26 of 2005)", Advance Against Depreciation (AAD) is permissible if the available cumulative depreciation up to the year is lower than the cumulative repayment till the year. Further ceiling of depreciation shall be  $1/10^{\text{th}}$  of the loan less depreciation for the year.

3.1.33 Clause 2.20 of the regulation also states that the Advance Against Depreciation for any new project shall be permitted only if the cumulative repayment up to a particular year exceeds the cumulative depreciation up to that year. Provided further that Advance Against Depreciation in a year shall be restricted to the extent of difference between cumulative repayment and cumulative depreciation up to that year.

**Petitioner's Submission**

3.1.34 The petitioner by referring to the amount of repayment of loan to PFC, has submitted that the depreciation amount alone can not set aside the repayment liability of the PFC loan. In view of this, the petitioner has requested the Commission to consider the AAD as per the provisions in the Commission's regulations on generation tariff. The PFC loan has repayment period of 10 years and loan is to be repaid in equal instalments. Thus, in no case the repayment requirement shall be more than  $1/10^{\text{th}}$  of the loan during the year. Further, The depreciation and cumulative depreciation during each year is lower than repayment/cumulative repayment requirements.

**Commission's Analysis**

3.1.35 However, the amount of annual AAD provisionally allowed by the Commission in this order is given below:-

Sr. No.	Particular	Unit	FY 08	FY 09
1	Annual depreciation amount	Rs.Lakhs	82.88	82.88
2	Depreciation for 227 days in FY2007-08	Rs.Lakhs	51.55	82.88
3	Cumulative depreciation	Rs.Lakhs	51.55	134.43
4	Loan repayment after CoD	Rs.Lakhs	135.45	270.90
5	Cumulative loan repayment	Rs.Lakhs	135.45	406.35
6	Advance against depreciation	Rs.Lakhs	83.90	271.92
7	$1/10^{\text{th}}$ of the average loan amount less depreciation for the year	Rs.Lakhs	209.27	160.93
8	AAD allowed	Rs.Lakhs	83.90	160.93

**(F) O & M Expenses**

**Provisions under Regulation**

3.1.36 The clause 3.33 of “MPERC (Terms and Conditions for determination of generation tariff) Regulations, (G-26of 2005)” stipulates that,

*“In case of the hydro electric generating stations declared under commercial operation on or after 1.4.2006, the base operation and maintenance expenses shall be fixed at 1.5% of the actual capital cost as admitted by the Commission, in the year of commissioning and shall be subject to an annual escalation as per the provisions of clause 2.27 for the subsequent years”.*

Clause 2.27 of the same regulation further stated that;

*“Normative O&M expenses allowed at the commencement of the tariff period shall be escalated at the prevailing rates of inflation for the year as notified by the Central Government and shall be considered as a weighted average of Wholesale Price Index and Consumer Price Index in the ratio of 60: 40 respectively. For the first tariff period inflation had been allowed at 6%”.*

**Petitioner’s Submission & Commission’s Analysis**

3.1.37 Based on the above regulations, the Commission has determined the Operation and Maintenance expenses for the FY08 and FY 09 on annual basis and provisionally approves the same.

3.1.38 However, the amount of annual O&M expenses provisionally allowed by the Commission in this order is given below:-

<b>Sr. No.</b>	<b>Particular</b>	<b>Unit</b>	<b>FY 08</b>	<b>FY 09</b>
1	Total capital cost up to CoD	Rs.Lakhs	3225	3225
2	% of capital cost applicable for O&M charges	%	1.5	1.5
3	Amount for O&M for initial year.	Rs.Lakhs	48.375	48.375
4	Yearly applicable escalation	%		6
5	Annual O&M amount	Rs.Lakhs	<b>48.38</b>	<b>51.28</b>

**(G) Interest on working Capital****Provisions under Regulation**

3.1.39 As per clause 3.9 of regulation G-26 of 2005, working capital in case of Hydel based generating stations shall cover:

- (i) Operation and Maintenance expenses for one month;
- (ii) Maintenance spares @ 1% of the historical cost escalated @ 4% per annum from the date of commercial operation; and
- (iii) Receivables equivalent to two months of fixed charges for sale of electricity, calculated on normative capacity index.

3.1.40 As per clause 2.30 of the above-mentioned regulation, the rate of interest on working capital shall be taken on a normative basis and shall be equal to the short-term Prime Lending Rate (PLR) of State Bank of India as on 1<sup>st</sup> April of the relevant year plus 1%. The interest on working capital shall be therefore; payable on normative basis notwithstanding that the generating company has not taken working capital loan from any outside agency.

**Commission's Analysis**

3.1.41 The interest rate is considered as 13.25% (12.25+1) based on the PLR actually prevailing on 1<sup>st</sup> April 2008. The annual interest on working capital is worked out and provisionally allowed by the Commission as follows:

Sr. No.	Particular	Unit	FY08	FY09
1	O&M charges for one month	.Rs.Lakhs	4.03	4.27
2	Maint. Spares 1% of the project cost	.Rs.Lakhs	32.25	32.25
3	Receivables 2 Months	.Rs.Lakhs	99.25	119.48
4	Working capital	.Rs.Lakhs	135.53	156.00
5	Interest rate (PLR+1%)	%	13.25	13.25
6	Interest on working capital	.Rs.Lakhs	17.96	20.67

**(H) Target Capacity Index**

“Daily Capacity Index means the declared capacity expressed as a percentage of the maximum available capacity for the day “

3.1.42 In pursuance with "MPERC (Terms and Conditions of Generation Tariff) Regulations, 2005 (G-26 of 2005)", hydro power stations are be eligible for recovery of fixed charges in equal monthly installments, provided cumulative Capacity Index (CI) of the station is above the minimum specified CI level in the regulation for the specific type of hydro station, 80% in first year of commissioning and thereafter 85% in this case. The station shall also be eligible for incentive on the rate specified in the above regulation, if cumulative CI is more than the minimum specified CI. In case the CI is lower than the minimum required CI, prorate deduction of fixed cost shall be applicable. At the same time, secondary energy shall also be made available on the rates prescribed above-mentioned regulation.

3.1.43 The petitioner has considered target Capacity Index of 80% in first year and then 85% for recovery of full capacity charges based on the provisions of the regulation for determination of tariff,2004. Accordingly, Commission has considered the target Capacity Index for recovery of full fixed charges.

**Other charges - MPERC Fees**

3.1.44 The Commission has specified fee for Hydel Power Station as Rs. 1000/MW or part thereof for full year. Accordingly, the petitioner has paid the fee for FY 08 (Sept.'08 to Mar'09) amounting to Rs.12,400/- and for FY09 as Rs.20,000/- **The Commission allows the amount of fees paid by the petitioner.**

**Summary of Annual fixed charge**

3.1.45 The Commission has calculated the allowable fixed cost for all components of the fixed cost as mentioned in the table below at normative Capacity Index.

(Rs. Lakhs)

**Annual fixed cost:-**

Sr. No.	Particular	Unit	FY08	FY09
1	Return on equity	Rs. Lakhs.	72.24	72.24
2	Depreciation	Rs. Lakhs.	82.88	82.88
3	O&M Charges	Rs. Lakhs.	48.38	51.28
4	Interest and finance charges	Rs. Lakhs.	290.03	328.66
5	Advance against depreciation	Rs. Lakhs.	83.90	160.93
6	Interest on working capital	Rs. Lakhs.	17.96	20.67
7	Annual fixed charges	Rs. Lakhs.	595.39	716.65
8	Annual fixed charges for 227 days in FY2007-08	Rs. Lakhs.	370.28	716.65
9	Allowed 95% recovery on provisional basis	Rs. Lakhs.	351.77	680.82

The Commission hereby provisionally allows 95% recovery of above fixed cost for 227 days for FY2007-08 and full year for FY2008-09 at normative availability. **The amount allowed as annual fixed charges is Rs.351.77 Lakhs for FY2007-08 and Rs.680.82 Lakhs for FY2008-09**

**Primary and secondary energy charges**

3.1.46 As per Clause 3.39 of the “MPERC (Terms and Conditions for determination of generation tariff) Regulations, (G-26of 2005)” stipulates that,

*“Rate of primary energy for all hydro electric power generating stations shall be equal to the lowest variable charges of the central sector thermal power generating station in the western region. The primary energy charge shall be computed based on the primary energy rate and saleable energy of the station.*

*Provided that in case the primary energy charge recoverable by applying the above primary energy rate exceeds the Annual Fixed Charge of a generating station, the primary energy rate for such generating station shall be calculated by the following formula:*

$$\text{Primary energy rate} = \frac{\text{Annual Fixed Charge}}{\text{Saleable Primary Energy}}$$

$$\text{Primary Energy Charge} = \text{Saleable Primary Energy} \times \text{Primary Energy Rate}$$

*Secondary Energy Rate shall be equal to Primary Energy Rate.*

$$\text{Secondary Energy Charge} = \text{Saleable Secondary Energy} \times \text{Secondary Energy Rate}”$$

The recovery of the primary and secondary energy charges shall be done in accordance with the above mentioned clause of the regulation

**Incentive**

3.1.47 As per Clause 3.40 of the “MPERC (Terms and Conditions for determination of generation tariff) Regulations, (G-26of 2005)” stipulates that,

*“Incentive shall be payable in case of all the generating stations, including in case of new generating stations in the first year of operation, when the capacity index (CI) exceeds 90% for purely run-of-river power generating stations and 85% for run-of-river power station with pondage or storage type power generating stations and incentive shall accrue up to a maximum capacity index of 100%.”*

Clause 3.41 of the same regulation provides the formula for calculating the incentive as follows

Incentive shall be payable to the generating company in accordance with the following formula:

Incentive =  $0.65 \times \text{Annual Fixed Charge} \times (\text{CIA} - \text{CIN})/100$  (If incentive is negative, it shall be set to zero.

Where, CIA is the Capacity Index achieved and CIN is the normative capacity index whose values are 90% for purely run of the river hydro stations and 85% for pondage/storage type hydro generating stations.

- 3.1.48 The Commission has expressed its displeasure on the inordinate delay in filing this petition by MPPGCL after a period of more than two years from the COD. The Commission directs the petitioner that such delay in filing the petitions after a long period from COD should not occur in future. The petitioner is required to confirm whether he has raised the bills for the energy supplied during 18<sup>th</sup> August, 2007 to 31<sup>st</sup> March, 2009 and how the energy accounting had been maintained for supply of energy during the financial years 2007-08 and 2008-09. The petitioner is also directed to file the justification of this 1x20 MW Unit-3 without any incremental benefit in design energy with all required supporting documents. The petitioner should file the response on all above-mentioned issues within a month from the date of issue of this order.
- 3.1.49 The Commission allows 95% recovery of the provisionally approved fixed cost in this order for 227 days of FY 2007-08 and the complete FY 2008-09 at normative availability till the final generation tariff is determined by the Commission. The petitioner is directed to file the petition for determination of final generation tariff for all the units of Madikheda Hydro Power Stations at the earliest.

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