

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



**Petition No.15/2012**

**PRESENT:**

**Rakesh Sahni, Chairman**

**C.S. Sharma, Member**

**IN THE MATTER OF:**

**Determination of Generation Tariff for FY 2012-13 based on the tariff application filed by Madhya Pradesh Power Generating Company Limited (MPPGCL) under Multi Year Tariff Principles.**

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

**PETITIONER**

**Vs.**

- |  |                    |
|--|--------------------|
| <b>1. M.P. Power Trading Company Ltd., Rampur, Jabalpur</b>              | <b>RESPONDENTS</b> |
| <b>2. M.P. Poorv Kshetra Vidyut Vitaran Company Ltd., Jabalpur</b>       |                    |
| <b>3. MP Madhya Kshetra Vidyut Vitaran Company Ltd., Bhopal</b>          |                    |
| <b>4. MP Paschim Kshetra Vidyut Vitaran Company Ltd., Indore</b>         |                    |
| <b>5. M.P. Power Transmission Co. Ltd. Jabalpur</b>                      |                    |
| <b>6. M.P. State Electricity Board, Rampur, Jabalpur</b>                 |                    |
| <b>7. CMD, Rajasthan Rajya Vidyut Prasaran Nigam Ltd (RRVPL), Jaipur</b> |                    |
| <b>8. CMD, Uttar Pradesh Power Corporation Ltd (UPPCL), Lucknow</b>      |                    |
| <b>9. Managing Director, MSEB (Holding Co) &amp; MSTCL, Mumbai</b>       |                    |

## ORDER

(Passed on this 16<sup>th</sup> day of April, 2012)

1. The Madhya Pradesh Electricity Regulatory Commission (hereinafter called “the Commission”) issued MPERC (Terms and Conditions for determination of Generation Tariff) Regulations, 2009 {RG-26 (I) of 2009} (hereinafter referred to as “the Regulations”) for the control period FY 2009-10 to FY 2011-12. These were notified in the official gazette on 8<sup>th</sup> May, 2009. The Commission issued Multi-Year Generation Tariff order for FY 2009-10 to FY 2011-12 in accordance with the afore-mentioned Regulations on 3<sup>rd</sup> March, 2010.
2. The Commission has further notified Second Amendment to MPERC (Terms and Condition for determination of Generation Tariff) (Revision-I) Regulation, 2009 on 24/02/2012 to extend the control period of Principle Regulations from 01.04.2012 to 31.03.2013 with appropriate amendments in certain Regulations.
3. The Commission has scrutinized the subject petition filed by MPPGCL based on the principles and methodology specified in the Regulations, 2009 and its amendments. Since the applicability of the MYT tariff order issued by the Commission on 3<sup>rd</sup> March, 2010 was expiring on 31<sup>st</sup> March, 2012, MPPGCL has filed the subject petition for determination of generation tariff for FY 2012-13 based on the Tariff Regulations and amendments.
4. MPPGCL has filed the subject petition for approval of generation tariff for FY 2012-13 on 30<sup>th</sup> January, 2012. The information gaps were communicated to the petitioner vide Commission’s letter No.590 dated 24<sup>th</sup> February, 2012. MPPGCL filed additional submission vide letter No.07-12/CS-MPPGCL/MPERC/15 of 2012 /227 dated 3<sup>rd</sup> March, 2012.
5. The Commission vide letter dated 23<sup>rd</sup> February, 2012 asked the petitioner to publish the gist of the petition and tariff proposal in English and Hindi newspapers for inviting comments/suggestions from stakeholders. The public hearing in the subject petition was held on 20<sup>th</sup> March, 2012 in the Commission’s office at Bhopal.
6. The Commission had earlier issued MYT generation tariff order for FY 2009-10 to FY 2011-12 on 3<sup>rd</sup> March, 2010 based on the following :
  - i) The provisional opening balance sheet as on 31<sup>st</sup> May, 2005 notified by GoMP.
  - ii) The status of gross block, accumulated depreciation, equity and the loans as on 31<sup>st</sup> March, 2007, as approved by the Commission in its true-up order for FY 2006-07 issued on 17<sup>th</sup> June, 2009.
  - iii) The impact of final opening balance sheet (as on 1<sup>st</sup> June, 2005) notified by the State Government on 12<sup>th</sup> June, 2008 was not considered in the above MYT order. However, the impact of all such tariff components was considered subsequently since FY 2005-06 in true-up petition for FY 2007-08 based on the audited accounts for FY 2007-08.
  - iv) The Commission considered the addition to gross block, equity and loan for all the following new generating units for which the Commission issued provisional tariff orders as given below :

**Provisional Tariff Orders issued by the Commission**

<b>S. No.</b>	<b>Unit</b>	<b>CoD</b>	<b>Date of Order</b>
1	Madhikheda HPS Unit No.1 Unit No.2	28 <sup>th</sup> August, 2006 9 <sup>th</sup> September, 2006	18 <sup>th</sup> January, 2008
2	Madhikheda HPS Unit No.3	18 <sup>th</sup> August, 2007	5 <sup>th</sup> January, 2010
3	Bansagar IV Jhinna Unit No.1 Jhinna Unit No.2	20 <sup>th</sup> August, 2006 30 <sup>th</sup> August, 2006	18 <sup>th</sup> January, 2008
4	SGTPS, Extn. Unit 500MW (PH-III)	28 <sup>th</sup> August, 2008	24 <sup>th</sup> November, 2009

7. The subject petition for FY 2012-13 was filed by the petitioner on 30<sup>th</sup> January, 2012 and the following developments have occurred subsequent to the MYT order issued on 3<sup>rd</sup> March, 2010 :
- i) The Commission issued provisional generation tariff order for 210 MW, ATPS, Chachai on **6<sup>th</sup> July, 2010**.
  - ii) The Commission also issued the generation true-up orders for FY 2007-08 and FY 2008-09 on **24<sup>th</sup> January, 2011** and **22<sup>nd</sup> March, 2012** respectively based on the audited accounts for the respective years.
  - iii) The impact of final opening balance sheet notified by the GoMP was also taken into account in generation true-up order for FY 2007-08 and FY 2008-09.
8. The Commission has therefore, taken into consideration all the above orders while finalizing this order. The closing figures of the capital cost components admitted in the true-up of generation tariff for FY 2008-09 issued by the Commission on 22<sup>nd</sup> March, 2012 are taken as base figures while finalizing this order.
9. The Commission has scrutinized the petition as per the “Regulations” and its amendments and made modifications to the proposed Annual Fixed Charges based on provisions of the Regulations. The modifications made to the proposal of MPPGCL are attached to this order.

10. The summary of annual fixed charges and energy charges as filed by the petitioner are given in the following tables:

**Table : 1 Annual Fixed charges proposed by the petitioner for FY 2012-13**

Name of Power House	Fixed Charge in Rs. Crores	Energy Charges in Rs. Crores	Scheduled Energy (Normative) in MU	Energy Charge paise/Unit
ATPS PH 2	98.48	172.69	1135	152.11
ATPS PH 3	213.64	162.23	1423	114.01
<b>STPS</b>	<b>419.31</b>	1212.58	7344	165.11
SGTPS PH 1&2	457.33	1351.13	5416	249.48
SGTPS PH 3	451.62	796.77	3500	227.67
<b>Thermal</b>	<b>1640.37</b>	<b>3695.41</b>	<b>18818</b>	
Gandhi Sagar	9.36	-	-	-
Pench	20.37	-	-	-
Birsinghpur	6.67	-	-	-
Bansagar Complex	178.92	-	-	-
Madhikheda	33.59	-	-	-
Bargi	15.17	-	-	-
Rajghat	11.72	-	-	-
<b>Hydro Total</b>	<b>275.82</b>	-	-	-
<b>Total</b>	<b>1916.19</b>	<b>3695.41</b>	<b>18818</b>	

The annual fixed charges and energy charges approved by the Commission are given in the table below :

**Table : 2 Annual Capacity (fixed) charges and Energy charges approved by the Commission for FY2012-13**

Sr. No.	Power House	Annual Capacity Charges (Rs. Cr.)	Energy Charges paise/unit
1	ATPS Chachai (PH-II)	92.99	149.32
2	ATPS Chachai (PH-III)	190.24	110.69
3	STPS Sarni Complex	417.09	168.09
4	SGTPS (PH-1&2)	429.60	195.10
5	SGTPS (PH-III)	379.82	176.06
6	Gandhi Sagar	9.33	-
7	Pench	18.38	-
8	Rajghat	11.44	-
9	Bargi	12.10	-
10	Bansagar (I to III)	156.11	-
11	Bansagar-IV (Jhinna)	14.24	-
12	Madhikheda	26.89	-
13	Birsinghpur	6.56	-
<b>Total</b>		<b>1764.79</b>	

11. The recovery of annual capacity (fixed) charges shall be made by the petitioner in accordance with the Regulations 38.2 and 38.3 in case of Thermal Power Stations and Regulations 50.1 and 50.3 in case of Hydro Generating Stations. The Energy charges for hydro generating stations shall be recovered in accordance with Regulations 50.4 to 50.7.
12. The Commission, in exercise of the powers vested in it under Section 64 of the Electricity Act, 2003, directs that the generation tariff determined by this order shall be applicable from 1<sup>st</sup> April, 2012 and will continue to be operative until 31<sup>st</sup> March, 2013 under multi-year tariff principles. The petitioner must take steps to implement the Order after giving 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 its amendments and must also provide information to the Commission in support of having complied with this order.
13. Ordered as above read with attached detailed reasons and grounds.

sd/-  
**(C.S. Sharma)**  
**Member**

sd/-  
**(Rakesh Sahni)**  
**Chairman**

**Date: 16<sup>th</sup> April, 2012**  
**Place: Bhopal**

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## CHAPTER 1

### Background of the order

#### **Introduction**

- 1.1. This order relates to petition No.15 of 2012 filed by the Madhya Pradesh Power Generating Company Limited (MPPGCL) for determination of generation tariff for FY 2012-13 under multi year tariff principles. MPPGCL is the owner of the generating plants and started functioning independently from 1<sup>st</sup> June, 2005.
- 1.2. The Commission notified MPERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2009 on 8<sup>th</sup> May, 2009. These Regulations were based on multi year tariff principles and prescribed norms for control period FY 2009-10 to FY 2011-12. The Commission has further notified the Second Amendment to MPERC (Terms & Conditions for Determination of Generation Tariff) (REVISION-I) Regulation, 2009 on 24<sup>th</sup> February, 2012, specifying norms of operation for FY 2012-13.
- 1.3. The Commission had issued the generation tariff order for the earlier control period i.e. FY 2009-10 to FY 2011-12 on 3<sup>rd</sup> March, 2010 under MYT tariff principles notified on 8<sup>th</sup> May, 2009. The MYT order dated 3<sup>rd</sup> March, 2010 issued by the Commission is effective up to 31<sup>st</sup> March, 2012. Since the applicability of the MYT tariff order issued by the Commission on 3<sup>rd</sup> March, 2010 was expiring on 31<sup>st</sup> March, 2012, MPPGCL has filed the subject petition for determination of generation tariff for FY 2012-13 based on the Tariff Regulations and amendments.
- 1.4. The State Government vide notification dated 31<sup>st</sup> May, 2005 provided that the petitioner will sale entire power generated to the M. P. Power Trading Co. Ltd. (MP Tradeco), Jabalpur at a rate determined by the Commission. The Power Purchase Agreement to this effect has also been signed between MPPGCL and MP Tradeco. The functions of retail supply of power has been vested with the three Distribution Companies viz. the M. P. Poorv Kshetra Vidyut Vitaran Co. Ltd., Jabalpur (Respondent No.2 in the petition), M. P. Madhya Kshetra Vidyut Vitaran Co. Ltd., Bhopal (Respondent No.3 in the petition) and M. P. Paschim Kshetra Vidyut Vitaran Co. Ltd., Indore (Respondent No.4 in the petition). The responsibility for power transmission has been vested with M. P. Power Transmission Co. Ltd., Jabalpur (Respondent No.5 in the petition).
- 1.5. Rajasthan Rajya Vidyut Prasaran Nigam (RRVPL), Jaipur, (hereinafter referred as Respondent No.7) has 40% share in the PH-1 of STPS Sarni and 50% share in Gandhi Sagar Hydro Station operated by MPPGCL. At the same time MPPGCL has 50% share in the Ranapratap Sagar Hydro Station and Jawahar Sagar Hydro Station operated by the Respondent No.7. Similarly Uttar Pradesh Power Corporation Ltd (UPPCL), Lucknow (hereinafter referred as Respondent No.8) and MSEB (Holding Co) & Maharashtra State Transmission Co. Ltd, Mumbai (hereinafter referred as Respondent No.9) have 50% share in Rajghat Hydro Power Station and 33.3% share in Pench Hydro Station operated by MPPGCL respectively.

- 1.6. MPPGCL has filed this petition for determination of generation tariff for FY 2012-13 based on MPERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2009 and its amendments. In the subject petition the petitioner has considered the operation and maintenance expenses for thermal and hydel power stations and operating norms for thermal power stations as per the second draft amendment to MPERC (Terms and Conditions for determination of Generation Tariff) Regulations, 2009 which has been notified by the Commission on 24<sup>th</sup> February, 2012. This order is based on the operational and O&M norms specified in the Second amendment to Tariff Regulation, 2009 notified on 24<sup>th</sup> February, 2012.

### **Procedural History**

- 1.7. MPPGCL has filed the subject petition for approval of generation tariff for FY 2012-13 on 30<sup>th</sup> January, 2012. The information gaps were communicated to the petitioner vide Commission's letter No.590 dated 24<sup>th</sup> February, 2012. MPPGCL filed additional submission vide letter No.07-12/CS-MPPGCL/MPERC/15 of 2012 /227 dated 3<sup>rd</sup> March, 2012.
- 1.8. The Commission vide letter dated 23<sup>rd</sup> February, 2012 admitted the petition and asked the petitioner to publish the gist of the petition and tariff proposal in English and Hindi newspapers for inviting comments/suggestions from stakeholders. The public hearing in the subject petition held on 20<sup>th</sup> March, 2012 in the Commission's office at Bhopal.
- 1.9. The petitioner has prayed the following in the petition:
- a) *Determine the generation tariff of power stations of MPPGCL for FY 2012-13.*
  - b) *Permit additional recovery on actual payment basis, on account of levies, taxes, duties, service tax, SLDC charges, water charges, filing fee, and publication expenses etc., as and when paid.*
  - c) *Permit additional recovery on actual payment basis, in case due to any change in the Government policy or otherwise if any tax liability arises during the year*
  - d) *Permit recovery of expenses understated / not considered in this petition at a later stage, if required.*
  - e) *Condone any inadvertent omissions / errors / short comings and permit the applicant to add / change /modify / alter this filing and make further submissions as may be required at later stages.*

### **Public Hearing**

- 1.10. In view of the supplementary submissions made by the petitioner, the Commission vide letter dated 23<sup>rd</sup> February, 2012 asked the petitioner to publish the gist of the petition in English and Hindi newspapers for inviting comments/suggestions from stakeholders giving 21 days time for submitting their comments/suggestion. The public notice was published in following news papers:

- 1 Central Chronical, Bhopal (English)
- 2 Swadesh, Gwalior (Hindi)



- 3 Dainik Nav Duniya, Bhopal (Hindi)
  - 4 Alok, Rewa (Hindi)
  - 5 Danik Bhaskar, Jabalpur (Hindi)
  - 6 Raj Express, Indore (Hindi)
- 1.11. The Commission received no comments/suggestions from any stakeholder. The public hearing on the subject petition was held on 20<sup>th</sup> March, 2012 in the office of the Commission. None appeared on behalf of any respondent/stakeholder.

## CHAPTER 2

**Status of Generation Capacity filed in the petition****Installed Capacity of MPPGCL**

- 2.1 Total installed capacity of the MPPGCL share, as on 01.01.2012 is 3724.7 MW (including its share in bilateral interstate projects), consisting of 2807.5 MW Thermal and 917.2 MW Hydro power. The plant wise details are as under:

**Table : 3**

Power Station			Installed Capacity (MW)				
			Total		MPPGCL Share		
Thermal Power Stations	1	Amarkantak Thermal Power Station (Chachai)	PH 2	2 x 120 =	240	100%	<b>240</b>
			PH 3	1 x 210 =	210	100%	<b>210</b>
			<b>Complex</b>		<b>450</b>	<b>100%</b>	<b>450</b>
	2	Satpura Thermal Power Station (Sarni)	PH 1	5 x 62.5 =	312.5	60%	<b>187.5</b>
			PH 2	200 + 210 =	410	100%	<b>410</b>
			PH 3	2 x 210 =	420	100%	<b>420</b>
			<b>Complex</b>		<b>1142.5</b>	<b>89%</b>	<b>1017.5</b>
	3	Sanjay Gandhi Thermal Power Station (Birsinghpur)	PH 1	2 x 210 =	420	100%	<b>420</b>
			PH 2	2 x 210 =	420	100%	<b>420</b>
			PH 3	1 x 500 =	500	100%	<b>500</b>
			<b>Complex</b>		<b>1340</b>	<b>100%</b>	<b>1340</b>
	<b>4</b>	<b>Total Thermal Generation</b>		<b>2932.5</b>	<b>95%</b>	<b>2807.5</b>	
Hydro Power Stations	1	Chambal HPS	Gandhi Sagar	5 x 23 =	115	50%	<b>57.5</b>
			R.P. Sagar	4 x 43 =	172	50%	<b>86</b>
			Jawahar Sagar	3 x 33 =	99	50%	<b>49.5</b>
			<b>Complex</b>		<b>386</b>	<b>50%</b>	<b>193</b>
	2	Pench Totladoh HPS		2 x 80 =	160	67%	<b>106.7</b>
	3	Bansagar HPS	Tons	3 x 105 =	315	100%	<b>315</b>
			Silpara	2 x 15 =	30	100%	<b>30</b>
			Devlond	3 x 20 =	60	100%	<b>60</b>
			Jhinna	2 x 10 =	20	100%	<b>20</b>
			<b>Complex</b>		<b>425</b>	<b>100%</b>	<b>425</b>
	4	Birsinghpur HPS		1 x 20 =	20	100%	<b>20</b>
	5	Bargi HPS		2 x 45 =	90	100%	<b>90</b>
	6	Rajghat HPS		3 x 15 =	45	50%	<b>22.5</b>
7	Madhikheda HPS		3 x 20 =	60	100%	<b>60</b>	
<b>8</b>	<b>Total Hydro Generation</b>		<b>1186</b>	<b>100%</b>	<b>917.2</b>		
<b>Total Generation</b>			<b>4118.5</b>	<b>90%</b>	<b>3724.7</b>		

**Generation Capacity Operated by MPPGCL**

- 2.2 MPPGCL has submitted that as on 01.01.2012, MPPGCL is operating 3847.5 MW, consisting of 2932.5 MW thermal and 915.0 MW Hydro power. Out of this 258.33 MW capacity belong to other States. The plant wise details are as under:

**Table : 4**

Station	Installed Capacity	MP Share	Other State's Share		
			MW	%	State's Name
ATPS Chachai	450	450	0		
STPS Sarni PH 1	312.5	187.5	125	40.00%	Rajasthan
STPS Sarni PH 2&3	830	830	0		
SGTPS Birsinghpur	1340	1340	0		
<b>Total Thermal</b>	<b>2932.5</b>	<b>2807.5</b>	<b>125</b>		
Gandhi Sagar	115	57.5	57.5	50.00%	Rajasthan
Pench	160	106.7	53.3	33.31%	Maharashtra
Bansagar Complex	425	425	0		
Birsinghpur	20	20	0		
Madhikheda	60	60	0		
Bargi	90	90	0		
Rajghat	45	22.5	22.5	50.00%	Uttar Pradesh
<b>Total Hydro</b>	<b>915</b>	<b>781.7</b>	<b>133.3</b>		
<b>Total Capacity</b>	<b>3847.5</b>	<b>3589.2</b>	<b>258.3</b>		

**Age of the thermal and hydel power stations**

- 2.3 The petitioner in Para 6.1 of the petition has mentioned that the Fair life of Thermal Power Station is 25 years. During this life span also, the performance of the plants gradually goes down unless required maintenance is carried out regularly. After completion of normal life, the plants are either to be retired or major Renovation and Modernization is to be done to bring their performance back to a reasonable level. The table below elaborates the average age of thermal generating units of MPPGCL as on 01.01.2012, from which it may be seen that the average age of thermal generating units of MPPGCL is around 20 years. Out of total 17 thermal generating units, 11 units having 47% of installed capacity have lived their life for more than 25 years.

Table : 5

Power Station			Commercial Operation/ Commissioning Year	Capacity MW	Avg. Age in completed Years, as on 01/01/2012	
Thermal Power Stations	1	Amarkantak Thermal Power Station, Chachai	PH 2 (2 units)	1977-78	240	33
			PH 3 (1 Unit)	2009	210	2
			<b>Complex (3 units)</b>		<b>290</b>	<b>19</b>
	2	Satpura Thermal Power Station Sarni	PH 1 (5 units)	1967-70	312.5	42
			PH 2 (2 units)	1979-80	410	31
			PH 3 (2 units)	1983-84	420	27
			<b>Complex (9 units)</b>		<b>1142.5</b>	<b>32</b>
	3	Sanjay Gandhi Thermal Power Station Birsinghpur	PH 1 (2 units)	1993-94	420	17
			PH 2 (2 units)	1999	420	12
			PH 3 (1 Unit)	2008	500	3
			<b>Complex (5 units)</b>		<b>1340</b>	<b>10</b>
	4	<b>Total Thermal Generation (17 Units)</b>			<b>2772.5</b>	<b>20</b>

- 2.4 The petitioner has further mentioned that the life of Hydro Generating Stations is about 35 years. Out of total 26 units including 10 units having installed capacity of 385 MW (42% of installed hydro capacity) have lived for 20 years or more than 20 years. The station-wise details are as under:

Table : 6

Power Station		Commissioning Year	Capacity in MW.	Avg. Age in Completed Years, as on 01/01/2012	
1	Gandhi Sagar (5 units)	1960-66	115	49	
2	Pench Totladoh Hydro Station (2 units)	1986-87	160	24	
3	Bansagar Tons HPS	I- Tons (3 units)	1991-92	315	19
		II- Silpara (2 units)	2002	30	9
		III- Devloned (3 units)	2001-02	60	9
		IV- Jhinna (2 Units)	2006	20	5
		<b>Complex (10 units)</b>		<b>425</b>	<b>16</b>
4	Birsinghpur HPS (1 units)	1991	20	20	
5	Bargi HPS (2 units)	1988-1992	90	21	
6	Rajghat HPS (3 units)	1999	45	12	
7	Madhikheda HPS (3 Units)	2006-2007	60	4	
	<b>Total Hydro Generation (26 Units)</b>		<b>915</b>	<b>26</b>	

## CHAPTER 3

### Capital Cost

#### Petitioner's Submission

#### Opening Gross Block

3.1 The petitioner has submitted the power station-wise Gross block of fixed asset as on 01.04.2009 as per Audited Statement of Account for FY 2009-10 as under:

**Table : 7** Rs. Crores

Stations		Gross Block as on 01-04-2009
1	ATPS PH-2	135.59
2	ATPS PH-3 *	1111.54
<b>4</b>	<b>STPS</b>	<b>631.2</b>
5	SGTPS PH-1&2	2163.73
6	SGPTS PH-3	1956.94
<b>8</b>	<b>Total Thermal</b>	<b>5999</b>
9	Gandhi Sagar	10.29
10	R.P. Sagar	18.86
11	J Sagar	16.56
12	Pench	96.24
13	Rajghat	82.8
14	Bargi	87.03
15	Bansagar	1361.16
16	Madhikheda	214.67
17	Birsinghpur	52.15
<b>18</b>	<b>Total Hydro</b>	<b>1939.76</b>
19	HQ	0.73
<b>Total</b>		<b>7939.49</b>

\*Gross Block as on 01-04-2011

#### Provision of the Regulation

3.2 Clause 17.2 of the Regulation relating to the capital cost provides that,

*“Subject to prudent check, the capital cost admitted by the Commission shall form the basis for determination of Tariff:*

*Provided that, prudent check of capital cost may be carried out based on the benchmark norms to be specified by the Central Commission from time to time*

*Provided further that in cases where benchmark norms have not been specified by the Central Commission, prudent check may include scrutiny of the reasonableness of the capital expenditure, financing plan, interest during construction, use of efficient technology, cost over-run and time over-run, and such other matters as may be considered appropriate by the Commission for determination of Tariff :*

.....  
.....

*Provided also that where the power purchase agreement entered into between the Generating Company and the Beneficiaries or the implementation agreement provide for ceiling of actual expenditure, the capital expenditure admitted by the Commission shall take into consideration such ceiling for determination of Tariff :*

*Provided also that in case of the existing Projects, the capital cost admitted by the Commission prior to 1.4.2009 and the additional capital expenditure Projected to be incurred for the respective Year of the Tariff period during 2009-12, as may be admitted by the Commission, shall form the basis for determination of Tariff.”*

### **Commission’s Analysis**

- 3.3 MPPGCL in its petition has taken the opening gross block as on 1<sup>st</sup> April, 2009 as per the annual audited accounts for FY 2009-10. It is worthwhile to mention that the Commission has recently issued the order for true-up of the generation cost for FY 2008-09 on 22<sup>nd</sup> March, 2012 on the basis of the annual audited accounts for FY 2008-09 filed by the petitioner. In the true-up order for FY 2008-09 the Commission admitted the additional capitalization during the period FY 2005-06 to FY 2008-09 in respect of existing thermal and hydel power stations due to need based R&M work.
- 3.4 Since the clause 17.1 (b) of the Regulation, 2009 provides that the “*Subject to prudent check, the capital cost admitted by the Commission shall form the basis for determination of Tariff*” therefore, the Commission has taken the figures at the closing of the financial year FY 2008-09 duly approved by the Commission vide its true-up order for FY 2008-09 in this tariff order. Accordingly, the Commission has considered the opening gross block, accumulated depreciation, equity and the status of opening loans as on 1<sup>st</sup> April, 2009 as per the true-up order for FY 2008-09 issued by the Commission on 22<sup>nd</sup> March, 2012.

- 3.5 For the new capacity additions, the Commission issued the provisional tariff order as given below :

**Provisional Tariff Orders issued by the Commission**

S. No.	Unit	CoD	Date of Order
1	Madhikheda HPS Unit No.1 Unit No.2	28 <sup>th</sup> August, 2006 9 <sup>th</sup> September, 2006	18 <sup>th</sup> January, 2008
2	Madhikheda HPS Unit No.3	18 <sup>th</sup> August, 2007	5 <sup>th</sup> January, 2010
3	Bansagar IV Jhinna Unit No.1 Jhinna Unit No.2	20 <sup>th</sup> August, 2006 30 <sup>th</sup> August, 2006	18 <sup>th</sup> January, 2008
4	SGTIPS, Extn. Unit 500MW (PH-III)	28 <sup>th</sup> August, 2008	24 <sup>th</sup> November, 2009
5	ATPS Extn. Unit 210MW (PH-III)	10 <sup>th</sup> September, 2009	6 <sup>th</sup> July, 2010

- 3.6 The Commission has observed that the petitioner has not yet filed the petition for determination of final tariff in respect of above mentioned new generating units except ATPS Extension unit-5 which is under scrutiny with the Commission. The Commission has therefore, considered the capital cost and other components for new generating units in this order based on the cost provisionally admitted by the Commission in their respective provisional tariff orders and considered in last MYT order. For ATPS, Extension Unit-5, the capital cost admitted by the Commission in provisional order dated 6<sup>th</sup> July, 2010 is considered in this order.
- 3.7 Accordingly, the Commission has considered the opening gross block as on 1<sup>st</sup> April, 2009 for all the generating stations as per the true-up order for FY 2008-09 issued by the Commission on 22<sup>nd</sup> March, 2012 and provisional orders for new generating units.
- 3.8 Since MPPGCL has de-commissioned two old units of 30MW+20MW at ATPS, Phase-1, Chachai on 31<sup>st</sup> March, 2009, the Commission has therefore, not considered the gross block of ATPS, Phase-1 Chachai for arriving to the opening gross block as on 1<sup>st</sup> April, 2009. The gross block of ATPS Complex (PH-I&II) was Rs.183.61 crores as on 31<sup>st</sup> March, 2009. The petitioner in the true-up petition for FY 2008-09 has filed the gross block of ATPS PH-I as on 31<sup>st</sup> March, 2009 as audited books of accounts is Rs.48.02 crores. The Commission has not considered the gross block of Rs.48.02 crores in this order. Therefore, the gross block for ATPS, PH-II is considered as Rs.135.59 crores as on 1<sup>st</sup> April, 2009 in this order. The petitioner has also filed the same gross block for ATPS PH-II in this petition since no asset addition is projected by the petitioner during FY 2009-10 to FY 2011-12.

- 3.9 The status of opening gross block as on 1<sup>st</sup> April, 2012 including additional capitalization due to addition of new ATPS extension unit 5 is worked out as given below :

**Table : 8 Capital Cost**

**Status of Gross Block as on 01.04.2012:**

**Rs. Cr.**

Sr. No.	Power Station	Closing Gross Block as on 31.03.2009 as admitted by the Commission in true-up order for FY 2008-09	Addition due to new unit/additional capitalization			Opening Gross Block as on 01.04.2012
			FY 2009-10	FY 2010-11	FY 2011-12	
1	*ATPS Chachai (PH-I)	48.02	De-commissioned			-
2	ATPS Chachai (PH-II)	135.59	-	-	-	135.59
3	**ATPS Chachai (PH-III)	0.00	876.73	-	-	876.73
4	STPS Sarni Complex	626.47	-	-	-	626.47
5	SGTPS (PH-1&2)	2163.73	-	-	-	2163.73
6	**SGTPS (PH-III)	1729.5	-	-	-	1729.5
7	Gandhi Sagar	10.29	-	-	-	10.29
8	Pench	96.24	-	-	-	96.24
9	Rajghat	82.80	-	-	-	82.80
10	Bargi	87.03	-	-	-	87.03
11	Bansagar (I to III)	1243.91	-	-	-	1243.91
12	**Bansagar-IV (Jhinna)	97.18	-	-	-	97.18
13	**Madhikheda	175.24	-	-	-	175.24
14	Birsinghpur	52.15	-	-	-	52.15
<b>Total</b>		<b>6548.16</b>	<b>876.73</b>	<b>-</b>	<b>-</b>	<b>7376.87</b>

\* MPPGCL have de-capitalized ATPS (PH-1) on 31<sup>st</sup> March, 2009.

\*\*As per provisional orders issued by the Commission.

- 3.10 The Commission has considered the closing cumulative depreciation as on 31<sup>st</sup> March, 2009 as per the true-up order for FY 2008-09 dated 22<sup>nd</sup> March, 2012 as the opening cumulative depreciation in this order for existing power stations and the cumulative depreciation approved by the Commission in provisional orders as also considered in last MYT order for new generating units.
- 3.11 Accordingly, the Commission has computed the accumulated depreciation as on 31<sup>st</sup> March, 2012 considering
- Power house-wise depreciation approved by the Commission in its last MYT order dated 3<sup>rd</sup> March, 2010 and,
  - The depreciation allowed by the Commission in provisional order for the new generating units commissioned after 1<sup>st</sup> April, 2009.



Table : 9

Status of Cumulative depreciation as on 01.04.2012

Rs. Cr.

Sr. No.	Power Station	Closing Acc. depreciation as on 31.03.2009 admitted by the Commission in true-up order for FY 2008-09	Depreciation allowed in MYT order dated 3 <sup>rd</sup> March, 2010 and in prov. Order for ATPS 210 MW			Opening accumulated depreciation as on 01.04.2012
			FY 2009-10	FY 2010-11	FY 2011-12	
1	ATPS Chachai (PH-I)*	18.80	De-commissioned			-
2	ATPS Chachai (PH-II)	93.31	1.21	1.21	1.21	96.94
3	ATPS Chachai (PH-III)**	0.00	***23.84	42.87	42.87	109.58
4	STPS Sarni Complex	474.32	8.68	8.5	8.31	499.81
5	SGTPS (PH-1&2)	1108.21	93.13	90.92	88.2	1380.46
6	SGTPS (PH-III) **	36.84	89.34	89.34	89.34	304.86
7	Gandhi Sagar	8.07	0.23	0.23	0.22	8.75
8	Pench	61.25	2.71	1.51	1.51	66.98
9	Rajghat	25.00	4.02	4.02	4.02	37.06
10	Bargi	48.67	3.26	3.26	1.18	56.37
11	Bansagar (I to III)	332.26	62.57	62.57	62.5	519.90
12	Bansagar-IV (Jhinna)**	15.98	4.9	4.9	4.9	30.68
13	Madhikheda**	30.01	9.13	9.13	9.13	57.40
14	Birsinghpur	25.25	2.51	2.47	2.47	32.70
<b>Total</b>		<b>2277.97</b>	<b>305.53</b>	<b>320.93</b>	<b>315.86</b>	<b>3201.49</b>

\* MPPGCL have de-capitalized ATPS (PH-1) on 31<sup>st</sup> March, 2009.

\*\*As per provisional orders issued by the Commission.

\*\*\* Depreciation only for 203 days under commercial operation

## CHAPTER 4

### Capacity (Fixed) Charges

#### Components of Capacity (Fixed) Charges

4.1 Clause 32.2 of the Regulation, 2009 provides that,

*“The annual Capacity (fixed) Charges shall consist of:*

- (a) *Return on Equity;*
- (b) *Interest and Financing Charges on Loan Capital;*
- (c) *Depreciation;*
- (d) *Lease/Hire Purchase Charges;*
- (e) *Operation and Maintenance Expenses;*
- (f) *Interest Charges on Working Capital;*
- (g) *Cost of Secondary Fuel Oil;*
- (h) *Special allowance in lieu of R&M or separate compensation allowance, wherever applicable;*

*Provided that in case of coal based thermal generating stations, expenses on normative secondary fuel oil consumption during the Year shall be included in the Fixed Charge.”*

#### Return on Equity

##### **Petitioner’s submission**

4.2 The petitioner under Para 8.2 of the petition has submitted the following :

“The Proviso 21.2 of MPERC Generation Tariff Regulation 2009 provides that where equity actually 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. Accordingly power station wise equity and excess equity computed by the petitioner as per table below:

Table : 10

Rs. Crores

S. No.	Stations	Gross Block as on 1-4-2009	Actual Equity in Running Projects	Permissible Equity 30% of Gross Block	Equity Admissible for Return	Excess Equity treated as Loan
1	ATPS PH-2	135.59	39.63	40.68	39.63	0
2	ATPS PH-3 *	1111.54	223.42	333.46	223.42	0
<b>3</b>	<b>ATPS Chachai</b>	<b>1247.13</b>	<b>263.05</b>	<b>374.14</b>	<b>263.05</b>	<b>0</b>
<b>4</b>	<b>STPS Complex</b>	<b>631.2</b>	<b>223.17</b>	<b>189.36</b>	<b>189.36</b>	<b>33.81</b>
5	SGTPS PH-1&2	2163.73	746.11	649.12	649.12	96.99
6	SGTPS PH-3	1956.94	638.15	587.08	587.08	51.07
<b>7</b>	<b>SGTPS Total</b>	<b>4120.67</b>	<b>1384.27</b>	<b>1236.2</b>	<b>1236.2</b>	<b>148.07</b>
<b>8</b>	<b>Total Thermal</b>	<b>5999</b>	<b>1870.49</b>	<b>1799.7</b>	<b>1688.61</b>	<b>181.88</b>
9	Gandhi Sagar	10.29	3.53	3.09	3.09	0.44
10	R.P. Sagar	18.86	6.47	5.66	5.66	0.81
11	J Sagar	16.56	5.68	4.97	4.97	0.71
12	Pench	96.24	38.58	28.87	28.87	9.71
13	Rajghat	82.8	28.39	24.84	24.84	3.55
14	Bargi	87.03	29.86	26.11	26.11	3.75
15	Bansagar	1361.16	479.8	408.35	408.35	71.45
16	Madhikheda	214.67	72.31	64.4	64.4	7.91
17	Birsinghpur	52.15	17.88	15.64	15.64	2.23
<b>18</b>	<b>Total Hydro</b>	<b>1939.76</b>	<b>682.5</b>	<b>581.93</b>	<b>581.93</b>	<b>100.57</b>
19	HQ	<b>0.73</b>	0.72	0.22	0.22	0.5
<b>Total</b>		<b>7939.49</b>	<b>2553.71</b>	<b>2381.85</b>	<b>2270.76</b>	<b>282.95</b>

\*Gross Block as on 01-04-2011”

- 4.3 The petitioner has further mentioned that MPERC in its Generation true-up order for FY 2007-08 treated equity in excess of 30% as loan and considered the repayment of this loan from the date of commercial operation of last unit of the respective power houses. It is submitted that effective date of business operation of MPPGCL is 01.06.2005, prior to that utilization of excess equity (Repayment) cannot be considered. Besides, MPERC Generation Tariff Regulation, 2009 provides treatment of excess equity as normative loan. Therefore, the petitioner has considered repayment of excess equity w.e.f. 01.04.2009 instead of CoD. Accordingly, average loan balance power house-wise has been worked out by the petitioner.
- 4.4 The total return on equity and interest on excess equity after applying the weighted average rate of interest worked out by the petitioner in the petition for the stations operated by MPPGCL is as follows :

**Table : 11 RoE claimed (Rs. Cr.)**

	Particulars	Equity for RoE	Av.Excess Equity for Intt.	Return On Equity		
				RoE	Intt.	Total
				15.50%	11.83%	
1	ATPS Chachai	263.05	0	40.77	0	40.77
2	STPS Total	189.36	21.98	29.35	2.6	31.95
3	SGTPS Total	1236.2	96.24	191.61	11.39	203
<b>4</b>	<b>Total Thermal</b>	<b>1688.61</b>	<b>118.22</b>	<b>261.73</b>	<b>13.99</b>	<b>275.72</b>
5	Gandhi Sagar	3.09	0.29	0.48	0.03	0.51
6	Pench	28.87	6.31	4.48	0.75	5.22
7	Rajghat	24.84	2.31	3.85	0.27	4.12
8	Bargi	26.11	2.44	4.05	0.29	4.34
9	Bansagar	408.35	46.44	63.29	5.49	68.79
10	Madhikheda	64.4	5.14	9.98	0.61	10.59
11	Birsinghpur	15.64	1.45	2.42	0.17	2.6
<b>12</b>	<b>Total Hydro</b>	<b>571.3</b>	<b>64.38</b>	<b>88.55</b>	<b>7.62</b>	<b>96.17</b>
13	HQ	0.22	0.33	0.03	0.04	0.07
	<b>Total</b>	<b>2260.13</b>	<b>182.93</b>	<b>350.32</b>	<b>21.64</b>	<b>371.96</b>

### Provisions of the Regulation

4.5 Clause 22 of the Regulations provides that,

*“Return on equity shall be computed in rupee terms, on the paid up equity capital determined in accordance with Regulation 21.*

*Return on equity shall be computed on pre-tax basis at the base rate of 15.5% to be grossed up as per Regulation 22.3 of this Regulation:*

*Provided that in case of Projects commissioned on or after 1<sup>st</sup> April, 2009, an additional return of 0.5% shall be allowed if such Projects are completed within the timeline specified in Appendix-I :*

*Provided further that the additional return of 0.5% shall not be admissible if the Project is not completed within the timeline specified above for reasons whatsoever.*

*The rate of return on equity shall be computed by grossing up the base rate with the normal tax rate for the Year 2008-09 applicable to the Generating Company:*

*Provided that return on equity with respect to the actual tax rate applicable to the Generating Company, in line with the provisions of the relevant Finance Acts of the respective Year during the Tariff period shall be tried up separately.*

Rate of return on equity shall be rounded off to three decimal points and be computed as per the formula given below:

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

*Where t is the applicable tax rate in accordance with Regulation 22.3 of this Regulation.*

**Illustration.-**

- (i) *In case of Generating Company paying Minimum Alternate Tax (MAT) @ 11.33% including surcharge and cess:  
Rate of return on equity =  $15.50 / (1 - 0.1133) = 17.481\%$*
- (ii) *In case of Generating Company paying normal corporate tax @ 33.99% including surcharge and cess:  
Rate of return on equity =  $15.50 / (1 - 0.3399) = 23.481\%$*

**Commission's Analysis**

- 4.6 The Commission issued the true-up order for FY 2007-08 on 24<sup>th</sup> January, 2011 based on the final opening balance sheet. In the afore-mentioned tariff order, it was found by the Commission that the power station-wise equity provided by the GoMP to generating company is more than the normative equity as per the Regulation hence, the equity amount in excess of normative equity was treated as normative loan.
- 4.7 In the last true-up order for FY 2008-09 dated 22<sup>nd</sup> March, 2012, the equity invested in need based additional capital expenditure was also considered by the Commission as per Regulation with respect to revised capital cost and the equity over and above the normative equity was treated as normative loan.
- 4.8 The Commission has considered the opening equity as on 1<sup>st</sup> April, 2009 for the existing generating stations as per the true-up order for FY 2008-09 issued by the Commission on 22<sup>nd</sup> March, 2012. Since no additional capitalization admitted by the Commission for existing units after 1<sup>st</sup> April, 2009 hence, equity for these units as on 31<sup>st</sup> March, 2012 remains unchanged.
- 4.9 The Commission has issued provisional tariff orders for new generating units. Since the petitioner has not yet filed the petition for determination of final tariff based on audited accounts for these new units (except ATPS Ext. unit 5, which is under scrutiny with the Commission) therefore, the equity for these new units, as approved by the Commission in its provisional orders and considered in the last MYT order is considered in this order.
- 4.10 Since (20+30MW) units of ATPS, PH-I Chachai has been de-commissioned on 31<sup>st</sup> March, 2009, the Commission has not considered the equity of these de-commissioned units in this order. The power station-wise equity amount, which is entitled for return being up to 30% of the capital cost as on 1<sup>st</sup> April, 2012 worked out by the Commission is as given below. Equity which is invested in the assets but is in excess of prescribed 30% is treated as normative loan. Interest thereon is being dealt within chapter relating to interest and financing charges later on in this order.

**Table : 12 Status of Equity as on 01.04.2012****Rs. crores**

Sr. No.	Power Station	Closing Equity as on 31.03.2009 as admitted by the Commission in last true-up/tariff order	Equity addition due to new unit/additional capitalization			Opening Equity as on 01.04.2012 considered in this order
			FY 2009-10	FY 2010-11	FY 2011-12	
1	ATPS Chachai (PH-I)	11.31	De-commissioned			-
2	ATPS Chachai (PH-II)	31.92	-	-	-	31.92
3	ATPS Chachai (PH-III)	-	164.96	-	-	164.96
4	STPS Sarni Complex	187.82	-	-	-	187.82
5	SGTPS (PH-1&2)	649.12	-	-	-	649.12
6	SGTPS (PH-III)	428.72	-	-	-	428.72
7	Gandhi Sagar	3.09	-	-	-	3.09
8	Pench	28.87	-	-	-	28.87
9	Rajghat	24.84	-	-	-	24.84
10	Bargi	26.11	-	-	-	26.11
11	Bansagar (I to III)	373.18	-	-	-	373.18
12	Bansagar-IV (Jhinna)	*29.981	-	-	-	29.976
13	Madhikheda	43.20	-	-	-	43.20
14	Birsinghpur	15.65	-	-	-	15.65
<b>Total</b>		<b>1853.806</b>	<b>164.96</b>	-	-	<b>2007.45</b>

\* excluding excess equity considered in MYT order.

4.11 As per the provisions of the Regulations, the return on equity has been worked out as under:

**Table : 13 Return on Equity****Rs. Cr.**

Sr. No.	Power Station	Opening Equity as on 01.04.2012	Applicable rate of return (%)	Return on Equity allowed
1	ATPS Chachai (PH-II)	31.92	15.50	4.95
2	ATPS Chachai (PH-III)	164.96	15.50	25.57
3	STPS Sarni Complex	187.82	15.50	29.11
4	SGTPS (PH-1&2)	649.12	15.50	100.61
5	SGTPS (PH-III)	428.72	15.50	66.45
6	Gandhi Sagar	3.09	15.50	0.48
7	Pench	28.87	15.50	4.47
8	Rajghat	24.84	15.50	3.85
9	Bargi	26.11	15.50	4.05
10	Bansagar (I to III)	373.18	15.50	57.84
11	Bansagar-IV (Jhinna)	29.98	15.50	4.65
12	Madhikheda	43.20	15.50	6.70
13	Birsinghpur	15.65	15.50	2.43
<b>Total</b>		<b>2007.456</b>		<b>311.16</b>

## Interest and finance charges on loan

### Petitioner's submission

- 4.12 The petitioner has submitted the power station-wise opening loan balance as on 01.04.2009 indicating the loan agencies is indicated below:

Table : 14

Rs. Crores

Stations	Opening Bal in Running Projects as on 01-04-2009				Total
	PFC	LIC	REC	GoMP	
ATPS PH-2	60.27	0	0	0	60.27
ATPS PH-3	692.54	0	0	0	692.54
<b>ATPS Chachai</b>	<b>752.81</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>752.81</b>
<b>STPS Total</b>	<b>17.17</b>	<b>0</b>	<b>0</b>	<b>0.68</b>	<b>17.85</b>
SGTPS PH 1&2	37.5	336.48	0	0	373.98
SGTPS PH-3	1318.61	0	0	0	1318.61
<b>SGTPS Total</b>	<b>1356.11</b>	<b>336.48</b>	<b>0</b>	<b>0</b>	<b>1692.59</b>
<b>Total Thermal</b>	<b>2126.08</b>	<b>336.48</b>	<b>0</b>	<b>0.68</b>	<b>2463.24</b>
Gandhi Sagar	0	0	0	0	0
R.P. Sagar	0	0	0	0	0
J Sagar	0	0	0	0	0
Pench	0	0	0	0	0
Rajghat	1.14	0	0	0	1.14
Bargi	0	0	0	0	0
Bansagar	73.88	0	226.44	2.34	302.67
Madhikheda	115.63	0	0	2.37	118
Birsinghpur	0	0	0	0	0
<b>Total Hydro</b>	<b>190.65</b>	<b>0</b>	<b>226.44</b>	<b>4.71</b>	<b>421.8</b>
HQ	0	0	0	1.06	1.06
<b>Total</b>	<b>2316.74</b>	<b>336.48</b>	<b>226.44</b>	<b>6.45</b>	<b>2886.11</b>

- 4.13 The petitioner has further submitted that the details of loan taken from PFC during FY 2009-10 & FY 2010-11 for Renovation & Modernization of ATPS PH-2 & STPS PH-2&3 and towards additional capitalization for 210 MW ATPS Unit No.5, SGTPS Unit No.5 are indicated below:

Table : 15

Rs. Crores

Stations	PFC		GoMP		Total
	FY 2009-10	FY 2010-11	FY 2009-10	FY 2010-11	
ATPS PH-2	21.9	8.69	6.01	0	36.6
ATPS PH-3	52.85	16.26	0	0	69.11
<b>ATPS Chachai</b>	<b>74.75</b>	<b>24.95</b>	<b>6.01</b>	<b>0</b>	<b>105.71</b>
<b>STPS Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6.25</b>	<b>6.25</b>
SGTPS PH 1&2	0	0	0	0	0
SGTPS PH-3	82.54	71.87	0	0	154.41
<b>SGTPS Total</b>	<b>82.54</b>	<b>71.87</b>	<b>0</b>	<b>0</b>	<b>154.4</b>
<b>Total Thermal</b>	<b>157.3</b>	<b>96.82</b>	<b>6.01</b>	<b>6.25</b>	<b>266.38</b>
Bansagar	0	0	0	9.46	9.46
<b>Total Hydro</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>9.46</b>	<b>9.4578</b>
<b>Total</b>	<b>157.3</b>	<b>96.82</b>	<b>6.01</b>	<b>15.71</b>	<b>275.83</b>

\*Additional GoMP loan of Rs.9.5 Cr has been transferred to MPPGCL, this loan has been linked to Bansagar PH1,2 & 3 treating it as unidentified loan and considering adequacy of balance depreciation.

- 4.14 The petitioner has mentioned that the power station-wise depreciation charged during FY 2009-10 to FY 2011-12 under proviso 24 of the Regulation and closing balances of the loans as on 31.03.2012 worked out accordingly. The petitioner has determined the Power station wise Interest charges for FY 2012-13 in accordance to the proviso 23 of the Generation Tariff Regulation, 2009 by applying weighted average rate of interest on loans are indicated below:

Table : 16

Station-wise Average Loan Balances for FY 2012-13				
Stations	Opening Balance 01/04/2012	Principal Repayment	In Rs. Crs	
			Closing Balance 31.03.2013	Average Balance
ATPS PH-2	91.06	1.93	89.13	90.1
ATPS PH-3	629.78	51.92	577.86	603.82
<b>ATPS Chachai</b>	<b>720.84</b>	<b>53.85</b>	<b>666.99</b>	<b>693.91</b>
SGTPS PH 1 & 2	95.5	90.22	5.28	50.39
SGTPS PH-3	1169.78	101.08	1068.7	1119.24
<b>SGTPS Total</b>	<b>1265.28</b>	<b>191.3</b>	<b>1073.98</b>	<b>1169.63</b>
<b>Total Thermal</b>	<b>1986.12</b>	<b>245.15</b>	<b>1740.97</b>	<b>1863.55</b>
Bansagar	106.48	68.54	37.94	72.21
Madhikheda	84.4	11.2	73.2	78.8
<b>Total Hydro</b>	<b>190.87</b>	<b>79.74</b>	<b>111.13</b>	<b>151</b>
HQ	0.82	0.08	0.74	0.78
<b>Total</b>	<b>2177.81</b>	<b>324.97</b>	<b>1852.84</b>	<b>2015.33</b>



- 4.15 Based on the above balances the power station wise the interest on loan worked out by the petitioner is as follows:

**Table : 17 Station-wise Interest for FY 2012-13**

Stations	Rs. Crs		
	Average Balance For FY 2012-13	Weighted Average Rate of interest %	Interest Amount
ATPS Chachai	693.91	11.48%	79.66
<b>SGTPS Total</b>	1169.63	11.02%	128.93
<b>Total Thermal</b>	<b>1863.55</b>		<b>208.6</b>
Bansagar	72.21	8.72%	6.3
Madhikheda	78.8	8.40%	6.62
<b>Total Hydro</b>	<b>151</b>		<b>12.92</b>
HQ	0.78	12.39%	0.1
<b>Total</b>	<b>2015.33</b>		<b>221.61</b>

### Provision of the Regulation

- 4.16 Clause 23 of the Regulation provides that,

*“The loans arrived at in the manner indicated in Regulation 21 shall be considered as gross normative loan for calculation of interest on loan.*

*The normative loan outstanding as on 1.4.2009 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to 31.3.2009 from the gross normative loan.*

*The repayment for the Year of the Tariff period 2009-12 shall be deemed to be equal to the depreciation allowed for that Year.*

*Notwithstanding any moratorium period availed by the Generating Company, the repayment of loan shall be considered from the first Year of commercial operation of the Project and shall be equal to the annual depreciation allowed.*

*The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each Year applicable to the Project:*

*Provided that if there is no actual loan for a particular Year but normative loan is still outstanding, the last available weighted average rate of interest shall be considered.*

*Provided further that if the generating station does not have actual loan, then the weighted average rate of interest of the Generating Company as a whole shall be considered.*

*The interest on loan shall be calculated on the normative average loan of the Year by applying the weighted average rate of interest*

*The Generating Company shall make every effort to re-finance the loan as long as it results in net savings on interest and in that event the costs associated with such re-financing shall be borne by the Beneficiaries and the net savings shall be shared between the Beneficiaries and the Generating Company, in the ratio of 2:1.*

*The changes to the terms and conditions of the loans shall be reflected from the date of such re-financing.....”*

**Commission’s analysis**

- 4.17 Clause 23.2 of the regulation provides that “*the normative loan outstanding as on 1.4.2009 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to 31.3.2009 from the gross normative loan*”. In the last true-up order for FY 2008-09 issued by the Commission on 22<sup>nd</sup> March, 2012, the loan amount invested in need based additional capital expenditure was also considered by the Commission as per Regulation.
- 4.18 The Commission has considered the opening loan as on 1<sup>st</sup> April, 2009 for the existing generating stations as per the true-up order for FY 2008-09 issued by the Commission on 22<sup>nd</sup> March, 2012. Since no additional capitalization has been filed by the petitioner or considered by the Commission for existing units after 1<sup>st</sup> April, 2009 hence, the loan balances for these units as on 31<sup>st</sup> March, 2012 are worked out after considering repayment equal to the depreciation allowed in the last MYT order for FY 2009-10 to FY 2011-12.
- 4.19 For new generating units, the loan balances as on 1<sup>st</sup> April, 2009 as per provisional order for respective units are considered. The repayment during the period FY 2009-10 to FY 2011-12 has been taken equal to depreciation allowed in the last MYT order dated 3<sup>rd</sup> March, 2010. Since ATPS PH-III was commissioned on 10<sup>th</sup> September, 2009 therefore, the depreciation allowed in provisional order dated 6<sup>th</sup> July, 2010 is considered equal to repayment while determining the opening loan balances for FY2012-13.
- 4.20 As mentioned in preceding paragraphs of this order, the closing balances as on 31<sup>st</sup> March, 2009 as per true-up order for FY 2008-09 are considered as opening figures in this order. The status of lender-wise closing balances as on 31<sup>st</sup> March, 2009 recognized in true-up order for FY 2008-09 are given below :

**Table : 18**

Sr. No.	Power Station	Closing balance of loan as on 31st March, 2009 (Rs. Cr.)				
		PFC	LIC	REC	GoMP	Total
1	ATPS	59.58				59.58
2	STPS	14.49			2.72	17.21
3	SGTPS	36.37	223.26			259.63
4	Gandhi Sagar					0.00
5	Pench					0.00
6	Rajghat	0.52				0.52
7	Bargi					0.00
8	Bansagar	22.16		212.75		234.91
9	Birsinghpur					0.00
10	ATPS PH-III **	711.77				711.77
11	SGTPS PH-III *	1238.52				1238.52
12	Bansagar-IV (Jhinna) *	47.93				47.93
13	Madhikheda *	101.07				101.07
<b>Grand Total as on 31st March, 2009</b>		<b>2232.42</b>	<b>223.26</b>	<b>212.75</b>	<b>2.72</b>	<b>2671.15</b>

\* As per provisional order for new units

\*\* As on 10<sup>th</sup> September, 2009 as per provisional order

4.21 Accordingly, the normative loan outstanding as on 1<sup>st</sup> April, 2012 is worked out as shown below :

**Table :19 Status of Loan as on 01.04.2012 Rs. Cr.**

Sr. No.	Power Station	Closing Loan as on 31.03.2009 as admitted by the Commission	Loan addition due to new unit/additional capitalization			Repayment for the year equal to depreciation considered			Opening Loan as on 01.04.2012
			FY 2009-10	FY 2010-11	FY 2011-12	FY 2009-10	FY 2010-11	FY 2011-12	
1	ATPS Chachai (PH-I)		De-commissioned			De-commissioned			-
2	ATPS Chachai (PH-II)	59.58	-	-	-	1.21	1.21	1.21	55.95
3	ATPS Chachai (PH-III)	-	711.77	-	-	23.84	42.87	42.87	602.19
4	STPS Sarni Complex	17.21	-	-	-	8.68	8.50	8.31	0.00
5	SGTPS (PH-1&2)	259.63	-	-	-	93.13	90.92	88.20	0.00
6	SGTPS (PH-III)	1238.52	-	-	-	89.34	89.34	89.34	970.50
7	Gandhi Sagar	0.00	-	-	-	0.23	0.23	0.22	0.00
8	Pench	0.00	-	-	-	2.71	1.51	1.51	0.00
9	Rajghat	0.52	-	-	-	4.02	4.02	4.02	0.00
10	Bargi	0.00	-	-	-	3.26	3.26	1.18	0.00
11	Bansagar (I to III)	234.91	-	-	-	62.57	62.57	62.5	47.27
12	Bansagar-IV (Jhinna)	47.93	-	-	-	4.90	4.90	4.90	33.23
13	Madhikheda	101.07	-	-	-	9.13	9.13	9.13	73.68
14	Birsinghpur	0.00	-	-	-	2.51	2.47	2.47	0.00
<b>Total</b>		<b>1959.37</b>	<b>711.77</b>	<b>-</b>	<b>-</b>	<b>305.53</b>	<b>320.93</b>	<b>315.86</b>	<b>1782.82</b>

- 4.22 The repayment for the year FY 2012-13 is considered equal to the depreciation allowed in the year for arriving at the closing balances of loan. Since there is no addition in the loan amount considered during FY 2012-13 therefore, the average loan for the year worked out accordingly.
- 4.23 With regard to weighted average rate of interest, the Commission vide letter dated 24<sup>th</sup> February, 2012 asked the petitioner to submit the documents in support of lender wise and power station wise weighted average rate of interest worked out for FY 2012-13. The petitioner vide affidavit dated 3<sup>rd</sup> March, 2012 filed the calculations and supporting documents for wt. average rate of interest for FY 2012-13 considered by the petitioner. The Commission has considered the same weighted average rate of interest as filed by the petitioner while determining the interest on loan in this order. Accordingly, the power station-wise interest amount worked out by the Commission is as given below:

**Table : 20**

**Rs. Cr**

Sr. No.	Power Station	Opening Loan balance as on 01.04.2012	Repayment considered during the year	Closing Balance	Average Loan	Applicable Wt. average interest rate	Interest amount
1	ATPS Chachai (PH-II)	55.95	1.93	54.02	54.99	11.48	6.31
2	ATPS Chachai (PH-III)	602.19	40.94	561.24	581.72	11.48	66.78
3	STPS Sarni Complex	0.00	8.58	0.00	0.00	12.92	0.00
4	SGTPS (PH-1&2)	0.00	90.23	0.00	0.00	11.02	0.00
5	SGTPS (PH-III)	970.50	89.42	881.08	925.79	11.02	102.02
6	Gandhi Sagar	0.00	0.21	0.00	0.00		0.00
7	Pench	0.00	1.51	0.00	0.00		0.00
8	Rajghat	0.00	4.03	0.00	0.00		0.00
9	Bargi	0.00	1.18	0.00	0.00		0.00
10	Bansagar (I to III)	47.27	62.69	0.00	23.64	8.72	2.06
11	Bansagar-IV (Jhinna)	33.23	4.90	28.33	30.78	8.72	2.68
12	Madhikheda	73.68	9.15	64.53	69.11	8.72	6.03
13	Birsinghpur	0.00	2.46	0.00	0.00	8.40	0.00
<b>Total</b>		<b>1782.82</b>	<b>317.23</b>				<b>185.89</b>

### Interest on Excess Equity

- 4.24 In accordance with the provisions under Regulation, 2009, the excess equity shall be treated as loan. While determining the power station-wise opening balance of excess equity for FY 2012-13, the Commission has taken the power station-wise closing balance of excess equity as on 31<sup>st</sup> March, 2009 as admitted by the Commission in true-up order for FY 2008-09 issued on 22<sup>nd</sup> March, 2012. Since the amount of equity in excess of norms is treated as loan therefore, repayment of this loan has also been considered in accordance with the repayment schedule considered in last true-up order for FY 2008-09 for the respective power stations. The power station-wise excess equity amount as on 1<sup>st</sup> April, 2012 worked out by the Commission is given as below:

**Table : 20A Status of Excess equity as on 01.04.2012**

Sr. No.	Power Station	Excess equity as on 31.03.2009 as admitted by the Commission in true-up order/tariff order	Repayment for the year considered			Opening balance as on 01.04.2012
			FY 2009-10	FY 2010-11	FY 2011-12	
1	ATPS Chachai (PH-II)	-	-	-	-	-
2	ATPS Chachai (PH-III)	-	-	-	-	-
3	STPS Sarni Complex	-	-	-	-	-
4	SGTPS (PH-1&2)	13.84	9.24	4.60	0.00	0.00
5	SGTPS (PH-III)	-	-	-	-	-
6	Gandhi Sagar	-	-	-	-	-
7	Pench	4.19	0.59	0.59	0.59	2.42
8	Rajghat	0.26	0.26	0.00	0.00	0.00
9	Bargi	0.03	0.03	0.00	0.00	0.00
10	Bansagar (I to III)	19.70	5.32	5.32	5.32	3.74
11	*Bansagar-IV (Jhinna)	3.30	0.41	0.41	0.41	2.07
12	Madhikheda	-	-	-	-	-
13	Birsinghpur	-	-	-	-	-
<b>Total</b>		<b>41.32</b>	<b>15.44</b>	<b>10.51</b>	<b>5.91</b>	<b>8.23</b>

\*Repayment considered since commissioning

- 4.25 The interest payable to the excess equity amount has been worked out applying weighted average rate of interest applicable for FY 2012-13 as filed by the petitioner is given as below:

**Table : 20B Interest on excess equity for FY 2012-13****Rs. Cr.**

Sr. No.	Power Station	Opening balance as on 01.04.2012	Repayment during FY2012-13	Closing balance as on 31.03.2013	Average for the year	Applicable wt. average rate of interest (%)	Interest on excess equity amount
1	ATPS Chachai (PH-II)	-	-	-	-	-	0.00
2	ATPS Chachai (PH-III)	-	-	-	-	-	0.00
3	STPS Sarni Complex	-	-	-	-	-	0.00
4	SGTPS (PH-1&2)	0.00	0.00	0.00	0.00	11.83	0.00
5	SGTPS (PH-III)	-	-	-	-	-	0.00
6	Gandhi Sagar	-	-	-	-	-	0.00
7	Pench	2.42	0.59	1.83	2.13	11.83	0.25
8	Rajghat	0.00	0.00	0.00	0.00	11.83	0.00
9	Bargi	0.00	0.00	0.00	0.00	11.83	0.00
10	Bansagar (I to III)	3.74	3.74	0.00	1.87	11.83	0.22
11	Bansagar-IV (Jhinna)	2.07	0.41	1.65	1.86	11.83	0.22
12	Madhikheda	-	-	-	-	-	0.00
13	Birsinghpur	-	-	-	-	-	0.00
<b>Total</b>		<b>8.23</b>					<b>0.69</b>

**Table : 20C Power station-wise interest on loan including interest on excess equity allowed for FY 2012-13****Rs. Cr.**

<b>Sr. No.</b>	<b>Power House</b>	<b>Interest Charges on Loan</b>	<b>Interest on Excess Equity</b>	<b>Total Interest Amount</b>
1	ATPS Chachai (PH-II)	6.31	0.00	6.31
2	ATPS Chachai (PH-III)	66.78	0.00	66.78
3	STPS Sarni Complex	0.00	0.00	0.00
4	SGTPS (PH-1&2)	0.00	0.00	0.00
5	SGTPS (PH-III)	102.02	0.00	102.02
6	Gandhi Sagar	0.00	0.00	0.00
7	Pench	0.00	0.25	0.25
8	Rajghat	0.00	0.00	0.00
9	Bargi	0.00	0.00	0.00
10	Bansagar (I to III)	2.06	0.22	2.28
11	Bansagar-IV (Jhinna)	2.68	0.22	2.90
12	Madhikheda	6.03	0.00	6.03
13	Birsinghpur	0.00	0.00	0.00
<b>Total</b>		<b>185.89</b>	<b>0.69</b>	<b>186.58</b>

## **Depreciation :**

### **Petitioner's submission**

4.26 The petitioner has submitted that the depreciation on the gross block computed based on the following:

- i) The rates for depreciation are considered as approved by the Commission in Appendix II of Regulation RG-26(I) of 2009.
- ii) The salvage value of assets is considered as 10% i.e. none of the assets is depreciated more than 90% of the gross value.

4.27 Based on the above the petitioner has filed the power station-wise depreciation amount is as given below:

**Table : 21**

<b>S. No.</b>	<b>Station</b>	<b>Opening Gross Block</b>	<b>Opening Acc Dep.</b>	<b>Dep. Amount</b>
1	ATPS PH-2	135.59	100.64	1.93
2	ATPS PH-3	1111.54	131.87	51.92
<b>3</b>	<b>ATPS Chachai</b>	<b>1247.13</b>	<b>232.51</b>	<b>53.85</b>
4	STPS PH-1	36.53	32.9	0.27
5	STPS PH2&3	594.66	469.06	8.38
<b>6</b>	<b>STPS Total</b>	<b>631.2</b>	<b>501.96</b>	<b>8.65</b>
7	SGTPS PH-1 & 2	2163.72	1389.75	90.22
8	SGTPS PH-3	1956.94	373.37	101.08
<b>9</b>	<b>SGTPS Total</b>	<b>4120.66</b>	<b>1763.12</b>	<b>191.3</b>
<b>10</b>	<b>Total Thermal</b>	<b>5998.99</b>	<b>2497.58</b>	<b>253.81</b>
11	Gandhi Sagar	10.3	8.72	0.21
12	Pench	96.24	70.32	2.96
13	Rajghat	82.81	37.09	4.03
14	Bargi	87.03	59.66	3.65
15	Bansagar	1361.16	544.82	68.54
16	Madhikheda	214.67	43.63	11.2
17	Birsinghpur	52.15	32.68	2.46
<b>18</b>	<b>Total Hydro</b>	<b>1939.77</b>	<b>825.37</b>	<b>93.05</b>
19	HQ	0.73	0.32	0.08
<b>Total</b>		<b>7939.5</b>	<b>3323.27</b>	<b>346.94</b>

### **Provision of the Regulation**

4.28 Clause 24 of the Regulation provides that,

*“For the purpose of Tariff, depreciation shall be computed in the following manner:*

- (a) *The value base for the purpose of depreciation shall be the capital cost of the assets as admitted by the Commission*

(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) *The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the capital cost of the asset.*

*Provided that in case of Hydro generating stations, the salvage value shall be as provided in the agreement signed by the developers with the State Government for creation of the site.*

*Provided further that the capital cost of the assets of the hydro generating station for the purpose of computation of depreciable value shall correspond to the percentage of sale of electricity under Long-term power purchase agreement at regulated Tariff.*

(d) *Land other than land held under lease and the land for reservoir in case of hydro generating station shall not be a depreciable asset and its cost shall be excluded from the capital cost while computing depreciable value of the asset.*

(e) *Depreciation shall be calculated annually based on ‘Straight Line Method’ and at rates specified in **Appendix-II** to these Regulations for the assets of the generating station:*

*Provided that, the remaining depreciable value as on 31<sup>st</sup> March of the Year closing after a period of 12 Years from the Date of Commercial operation shall be spread over the balance Useful life of the assets.*

(f) *In case of the existing Projects, the balance depreciable value as on 1.4.2009 shall be worked out by deducting the cumulative depreciation including Advance Against Depreciation as admitted by the Commission upto 31.3.2009 from the gross depreciable value of the assets. The rate of Depreciation shall be continued to be charged at the rate specified in **Appendix-II** till cumulative depreciation reaches 70%. Thereafter the remaining depreciable value shall be spread over the remaining life of the asset such that the maximum depreciation does not exceed 90%.*

(g) *Depreciation shall be chargeable from the first Year of commercial operation. In case of commercial operation of the asset for part of the Year, depreciation shall be charged on pro rata basis. “*

### **Commission’s analysis**

4.29 The Commission, while determining the depreciation in this order has considered the gross block and accumulated depreciation as on 1<sup>st</sup> April, 2009 as per the true-up order issued by the Commission for FY 2008-09 on 22<sup>nd</sup> March, 2012. Further, the Commission has also considered the gross block and accumulated depreciation approved by the Commission in its provisional tariff orders for new generating units and considered in last MYT order dated 3<sup>rd</sup> March, 2010.

4.30 Accordingly, the Commission in Chapter 3 of this order has worked out the gross block and accumulated depreciation as on 31<sup>st</sup> March, 2012 considering depreciation approved by the Commission in its last MYT order issued on 3<sup>rd</sup> March, 2010 for FY 2009-10 to FY 2011-12



and the depreciation allowed by the Commission through its provisional order for ATPS Ext. unit 5 commissioned after 01.04.2009..

- 4.31 In the last MYT order dated 3<sup>rd</sup> March, 2010 the Commission observed that the accumulated depreciation in Pench and Bargi Hydro Power Stations had reached upto 70% of gross block in FY 2010-11 and FY 2011-12 respectively. As per the provision of the Regulation, the balance depreciation for these two stations was required to be spread over the balance useful life of the project from the year. Hence, the depreciation in case of these two projects is worked out as per the Regulation.
- 4.32 In this tariff order the Commission has also taken same approach while working out the depreciation for Pench and Bargi Hydro Power Stations. It is further observed that in some other projects, the accumulated depreciation has reached upto 70% of gross block and they have also completed their useful life. The Commission allowed to charge the depreciation at the rate specified in the Regulations till the accumulated depreciation reaches 90% of the gross block.
- 4.33 The Commission, after arriving at the gross block and the accumulated depreciation as on 1<sup>st</sup> April, 2012 has computed the depreciation for FY 2012-13 on the basis of weighted average rate of depreciation as filed by the petitioner. The power house wise depreciation allowed in this order is given below :

**Table : 22 Depreciation**

**Rs. Cr.**

Sr. No.	Power Station	Gross Block as on 01.04.2012	Opening Accu. depreciation	Applicable rate of depreciation	Depreciation amount	Closing Accu. depreciation
1	ATPS Chachai (PH-I)	-				
2	ATPS Chachai (PH-II)	135.59	96.94	1.42	1.93	98.87
3	ATPS Chachai (PH-III)	876.73	109.58	4.67	40.94	150.53
4	STPS Sarni Complex	626.47	499.81	1.37	8.58	508.39
5	SGTPS (PH-I&2)	2163.73	1380.46	4.17	90.23	1470.69
6	SGTPS (PH-III)	1729.5	304.86	5.17	89.42	394.28
7	Gandhi Sagar	10.29	8.75	2.04	0.21	8.96
8	Pench	96.24	66.98	1.57	1.51	68.49
9	Rajghat	82.80	37.06	4.87	4.03	41.09
10	Bargi	87.03	56.37	1.36	1.18	57.55
11	Bansagar (I to III)	1243.92	519.9	5.04	62.69	582.59
12	Bansagar-IV (Jhinna)	97.18	30.68	5.04	4.90	35.58
13	Madhikheda	175.24	57.4	5.22	9.15	66.55
14	Birsinghpur	52.15	32.7	4.72	2.46	35.16
<b>Total</b>		<b>7376.87</b>	<b>3201.49</b>		<b>317.23</b>	<b>3518.72</b>

## **Operation & Maintenance Expenses:**

### **Petitioner's submission**

- 4.34 The petitioner has filed the Operation and Maintenance expenses for thermal and hydel power stations based on the norms prescribed by the Commission in second amendment to MPERC (Terms and Conditions for determination of Generation Tariff) Regulations, 2009 {RG-26 (I) of 2009}.

### **Provision of the Regulation**

- 4.35 Clause 34.1 of the second amendment to MPERC (Terms and Conditions for determination of Generation Tariff) Regulations, 2009 regarding Thermal Power Stations provides that,

*“The Operation and Maintenance expenses admissible to existing thermal power stations comprise of employee cost, Repair & Maintenance (R&M) cost and Administrative and General (A&G) cost . These norms exclude Pension, Terminal Benefits and Incentive to be paid to employees, taxes payable to the Government, MPSEB expenses and fees payable to MPERC. The Generating Company shall claim the taxes payable to the Government and fees to be paid to MPERC separately as actuals. The claim of pension and Terminal Benefits shall be dealt as per Regulation 26.*

#### **O&M Norms for Thermal Generating Units**

<b>Rs. In Lacs/MW</b>				
<b>Units (MW)</b>	<b>FY 2009-10</b>	<b>FY 2010-11</b>	<b>FY 2011-12</b>	<b>FY 2012-13</b>
62.5	21.42	22.74	24.13	25.61
120	17.84	18.94	20.1	21.33
200/210/250	14.28	15.16	16.09	17.08
500	10.7	11.36	12.05	12.79

- 4.36 Further, Clause 47.1 of the second amendment to the same Regulations regarding Hydel Power Stations provides that,

*“The Operation and Maintenance Expenses admissible to existing Hydro power stations comprise of employee cost, Repair & Maintenance (R&M) cost and Administrative and General (A&G) cost . These norms exclude pension, terminal benefits and incentives to be paid to employees, taxes payable to the Government, MPSEB expenses and fees payable to MPERC. The Generating Company shall claim the taxes payable to the Government and fees to be paid to MPERC separately as actuals. The claim of Pension and Terminal Benefits shall be dealt as per Regulation 26.*

#### **O&M Norms for Hydel Power Stations**

<b>Year</b>	<b>O&amp;M Expenses in Rs. in Lacs/MW</b>
<b>FY 2009-10</b>	<b>5.96</b>
<b>FY 2010-11</b>	<b>6.31</b>
<b>FY 2011-12</b>	<b>6.68</b>
<b>FY 2012-13</b>	<b>7.09</b>

**Commission's analysis**

- 4.37 The Commission considering the MW capacity of the units of existing thermal and hydel power stations has computed the O&M expenses as per the above mentioned norms prescribed in the Regulation, 2009 and its second amendment is as given below :

**Table : 23 Operation and Maintenance Expenses Rs. Cr.**

Name of Power House	Capacity	Rate	Total O&M Charges allowed
	in MW	Lacs/MW	Rs. Crores
ATPS-PH 2	240	21.33	51.19
ATPS PH 3	210	17.08	35.87
STPS PH1	312.5	25.61	80.03
STPS PH (2&3)	830	17.08	141.76
STPS Complex	<b>1142.5</b>		<b>221.80</b>
SGTPS PH(1&2)	840	17.08	143.47
SGTPS PH 3	500	12.79	63.95
G. Sagar	115	7.09	8.15
Pench	160	7.09	11.34
Rajghat	45	7.09	3.19
Bargi	90	7.09	6.38
Bansagar I,II&III	405	7.09	28.71
Bansagar IV	20	7.09	1.42
Birsinghpur	20	7.09	1.42
Madhikheda	60	7.09	4.25
<b>Total</b>	<b>3847.5</b>		<b>581.15</b>

- 4.38 Clause 26.3 of the aforementioned second amendment of regulation, 2009 provide that;

*“For first financial Year of the control period, the impact of implementation of 6<sup>th</sup> Pay Commission recommendations has been considered in employee cost, which has been escalated @ 6.14% in subsequent years. The Commission has also considered expenditure on payment of arrears up to 31.08.2008 during the Financial Years 2009-10 to 2011-12 as one third each year based on estimate submitted by the Generation Company. Any unpaid arrears standing at the end of the control period from FY 2009-10 to FY 2011-12 shall be treated on actually paid basis for FY 2012-13. The actual arrears payments made in each year of the control period shall be trued up vis-à-vis those provided in the O&M charges.”*

- 4.39 In view of the above the actual payment of arrears shall be dealt separately in the true-up order of respective years after prudence check as per the provision of the Regulation.

## Compensation Allowance :

### Petitioner's submission

- 4.40 The petitioner has filed the compensation allowance for thermal power stations based on the norms prescribed by the Commission in MPERC (Terms and Conditions for determination of Generation Tariff) Regulations, 2009 {RG-26 (I) of 2009}.

### Provision of the Regulation

- 4.41 Clause 34.2 of the Regulation, 2009 provides that,

*“In case of coal-based or lignite-fired thermal generating station, a separate compensation allowance Unit-wise shall be admissible to meet expenses on new assets of capital nature including in the nature of minor assets, in the following manner from the Year following the Year of completion of 10, 15, or 20 Years of Useful life:*

<i>Years of operation</i>	<i>Compensation Allowance (Rs Lacs/MW/Year)</i>
<i>0-10</i>	<i>Nil</i>
<i>11-15</i>	<i>0.15</i>
<i>16-20</i>	<i>0.35</i>
<i>21-25</i>	<i>0.65</i>

### Commission's Analysis

- 4.42 The Commission in Regulation RG-26(I) of 2009 has permitted “Compensation Allowances” to the Thermal Generating stations depending upon their age to meet the requirement of capital nature of minor assets. The amount of compensation allowance worked out by the Commission as per above norms is as under:

**Table : 24 Compensation allowance for Thermal Power Stations**

<b>Name of Power House</b>	<b>Capacity in MW</b>	<b>Age of Power House as on 01.04.2012</b>	<b>Rate in Lacs/MW</b>	<b>Total allowed in Rs. Crores</b>
ATPS-PH 2	240	> 25	0.65	1.56
ATPS PH 3	210	0 - 10	0.00	0.00
STPS PH1	312.5	> 25	0.65	2.03
STPS PH (2&3)	830	> 25	0.65	5.40
<b>STPS Total</b>	<b>1142.5</b>	> 25	0.65	<b>7.43</b>
SGTPS PH1	420	16 - 20	0.35	1.47
SGTPS PH2	420	11 - 15	0.15	0.63
SGTPS PH 3	500	0 - 10	0.00	0.00
<b>Thermal (100%)</b>	<b>2932.5</b>			<b>11.09</b>

## **Special Allowance :**

### **Petitioner's submission**

- 4.43 The petitioner has submitted that the Commission in Regulation RG-26(I) of 2009 provided the special allowance either for a unit or a group of units as compensation for meeting the requirement of expenses including R&M works beyond the useful life of the generating stations. The petitioner has further submitted that the units of STPS, Sarni PH-1 are planned for their closure, soon after the commencement of 2x250 MW Units of STPS, Sarni. MPPGCL opts to avail this special allowance for these five units. Based on the above fact and applying escalation factor @5.72% every year starting from FY 2009-10 (Rs.5.0 Lacs/MW/Year) onwards, the Special allowance for FY 2012-13 works out to be Rs.5.91 Lacs/MW/Year.

### **Provision of the Regulation**

- 4.44 The Commission in Regulation RG-26(I) of 2009, clause 18.4 for Renovation & Modernization provides that,

*“The Generating Company in case of thermal generating station, may, in its discretion, avail of a special allowance either for a Unit or a group of Units as compensation for meeting the requirement of expenses including Renovation and Modernisation beyond the Useful life of the generating station or a Unit thereof, and in such an event revision of the capital cost shall not be considered and the applicable operational norms shall not be relaxed but the special allowance shall be included in the annual fixed cost :*

*Provided further that the option once exercised shall be final and shall not be allowed to be changed.”*

- 4.45 Clause 18.5 of the same Regulation further provides that,

*“A Generating Company on opting for alternative option in Regulation 18.4 of this Regulation shall be allowed special allowance @ Rs.5 Lacs/MW/Year in 2009-10 and thereafter escalated @ 5.72 % every Year during the Tariff period in 2009-12, Unit-wise from the next financial Year from the respective date of the completion of Useful life with reference to the COD of respective Units of generating station.*

*Provided that in respect of a Unit in commercial operation for more than 25 Years as on 1.4.2009, this allowance shall be admissible from the year 2009-10.”*

### **Commission's analysis**

- 4.46 The petitioner has submitted that the units of STPS, Sarni PH-1 are planned for their closure, soon after the commencement of 2x250 MW Units of STPS, Sarni. MPPGCL has filed special allowance for these five units.

- 4.47 Special allowance of Rs.5 Lacs/MW/year with escalation @5.72% every year from FY 2009-10 onwards on the units of STPS Sarni in which R&M is not taken by the petitioner is worked out as follows :

**Table : 25**

<b>Power House</b>	<b>Capacity in MW</b>	<b>Rate in Lacs/MW/Year</b>	<b>Total allowed in Rs. Crores</b>
<b>STPS PH1 100%)</b>	312.5	5.91	18.47

## Interest on Working Capital:

### Petitioner's submission

4.48 The petitioner has submitted that the interest on working capital has been determined on the Working capital elements determined in pursuance with the norms approved by Hon'ble Commission in "MPERC (Terms and Conditions of Generation Tariff) Regulations, 2009 {RG-26 (I) of 2009}". The petitioner has applied the Rate of interest on working capital equal to Base Rate of SBI (10.0%) + 4.0% = 14.0%.

The power station-wise interest on working capital filed by the petitioner is as given below:

**Table : 26**

Name of Power House	Total Working Capital	Rate of Interest (10+4)%	Interest on Working Capital
ATPS PH 2	83.59	14.00%	11.7
ATPS PH 3	101.14	14.00%	14.16
<b>STPS Complex</b>	<b>546.02</b>	<b>14.00%</b>	<b>76.44</b>
SGTPS PH 1&2	571.89	14.00%	80.06
SGTPS PH 3	361.92	14.00%	50.67
G. Sagar	3.46	14.00%	0.48
Pench	6.04	14.00%	0.85
Birsinghpur	1.44	14.00%	0.2
Bansagar Complex	36.85	14.00%	5.16
Madhikheda	6.59	14.00%	0.92
Bargi	4.02	14.00%	0.56
Rajghat	2.7	14.00%	0.38
<b>Total</b>	<b>1725.66</b>	<b>14.00%</b>	<b>241.59</b>

### Provision of the Regulation

4.49 Clause 35 of the Regulations regarding working capital for coal based generating stations provides that,

*“The Working Capital for Coal based generating stations shall cover:*

- (i) *Cost of coal for 45 Days for pit-head generating stations and two months for non-pit-head generating stations, corresponding to the normative availability;*
- (ii) *Cost of secondary fuel oil for two months corresponding to the normative availability;*

*Provided that in case of use of more than one secondary fuel oil, cost of fuel oil stock shall be provided for the main secondary fuel oil.*

- (iii) *Maintenance spares @ 20% of the normative O&M expenses;*

- (iv) *Receivables equivalent to two months of capacity charges and energy charges for sale of electricity calculated on the Normative Annual Plant Availability Factor; and*
- (v) *Operation and Maintenance expenses for one month.*

*The cost of fuel shall be based on the landed cost incurred (taking into account normative transit and handling losses) by the Generating Company and Gross Calorific Value of the fuel as per actual for the preceding three months and no fuel price escalation shall be provided during the Tariff period.”*

4.50 Clause 48 of the Regulations regarding working capital for hydel power stations provides that,

*“The Working Capital shall cover:*

- (i) *Maintenance spares @ 15% of normative O&M expenses;*
- (ii) *Receivables equivalent to two months of fixed cost; and*
- (iii) *Operation and Maintenance Expenses for one month.”*

### **Commission’s analysis**

4.51 The Commission has computed the working capital for thermal and hydel power stations as per the norms provided in Regulations for the following elements :

**(a) Coal Cost:**

The cost of coal for thermal power stations has been worked out for 45 days for pit-head generating stations and two months for non pit-head generating stations on the basis of operational norms specified in the Regulations and actual weighted average price and GCV of coal. While determining the coal cost for working capital the petitioner has considered weighted average rate and GCV of coal from July’11 to September, 2011.

4.52 Clause 35.2 of the Regulation provides the basis for cost of fuel for working capital purpose is as given below :

*“The cost of fuel shall be based on the landed cost incurred (taking into account normative transit and handling losses) by the Generating Company and Gross Calorific Value of the fuel as per actual for the preceding three months and no fuel price escalation shall be provided during the Tariff period.”*

4.53 Since the regulation provides that the weighted average rate and GCV of coal for three preceding months is required therefore, the Commission vide letter dated 24<sup>th</sup> February, 2012 asked the petitioner to file power station wise details of actual weighted average rate and GCV of coal for the months October, 2011 to December, 2011 (three preceding months for the subject petition) along with supporting documents.



4.54 The petitioner vide its affidavit dated 3<sup>rd</sup> March, 2012 submitted that the power station wise details of rate and GCV of coal for December, 2011 is yet to be received from various sites, therefore the details of rate and GCV of coal for the months September, 2011 to November, 2011 along with the monthly coal analysis report and power station wise certificate for rate of coal has been submitted by the petitioner. In SGTPS PH-1&2 and SGTPS Ext. unit 5, the cost of coal stock for working capital has been determined as per the rate of energy charges considered by the Commission for FY 2012-13 with detailed reasons mentioned in Paras 5.15 and 5.18 of this order. The cost of coal for working capital for other thermal power stations has been worked out as given below:

4.55 Accordingly, the cost of coal for working capital has been worked out as given below :

**Table: 27 Station-wise Cost of Coal for working capital**

Particulars	Unit	ATPS PH-II	ATPS PH-III	STPS Complex
Wt. average GCV of Coal	kCal/kg	3995	3995	3462
Heat contributed by Coal	kCal/kWh	3275	2440	2738
Specific Coal consumption including normative transit loss	kg/kWh	0.8214	0.6157	0.7973
Annual requirement of Coal	MT	1036169	962728	6383296
Coal stock (45 days in pit head station and 60 days for non-pit-head stations)	Metric Tons	127747	158257	1049309
Wt. Avg. price of Coal	Rs./MT	1636	1636	1934
Cost of Coal stock mentioned above	Rs.Cr	<b>20.90</b>	<b>25.89</b>	<b>202.94</b>

**(b) Secondary fuel oil:**

4.56 The petitioner has claimed the cost of secondary fuel oil (HFO+LDO/HSD) for working capital for thermal power stations based on the weighted average price of oil procured during financial year FY 2011-12. The Commission vide its letter dated 24<sup>th</sup> February, 2012 asked the petitioner to submit the weighted average rate of oil for three preceding months (Oct.'11 to Dec.'11) along with authentic supporting documents. The petitioner in its additional submissions dated 3<sup>rd</sup> March, 2012 has submitted the weighted average price of oil for three preceding months along with the power station wise statement certified by the chief engineer of the respective power stations and same has been considered for determining cost of oil for working capital.

4.57 As per the 2009 Regulation, in case of use of more than one secondary fuel oil, cost of fuel oil stock shall be provided for the main secondary fuel oil. Accordingly, the fuel oil component in working capital works out as follows for FY 2012-13:

**Table : 28 Station-wise Cost of Secondary Fuel Oil for working capital**

Particulars	Unit	ATPS PH-II	ATPS PH-III	STPS Complex	SGTPS PH I&II	SGTPS PH-III
Wt.avg. GCV of Oil	kCal/ltr.	10,000	10,000	10,000	10,000	10,000
Sp. Oil consumption	kg/kWh	2.50	1.00	1.70	1.00	1.00
Heat contributed by oil	kCal/kWh	25	10	17	10	10
Annual requirement of oil	KL	3153.6	1563.66	13611.288	5886.72	3723.00
Oil stock for two months	KL	525.6	260.61	2268.548	981.12	620.5
Wt. Avg. price of furnace Oil	Rs./KL	44181	44181	39912	39750	39750
Cost of Oil stock mentioned above	Rs.Cr	<b>2.32</b>	<b>1.15</b>	<b>9.05</b>	<b>3.90</b>	<b>2.47</b>

**(c) O&M expenses:**

- 4.58 O&M expenses of one month out of the normative O&M expenses approved in this order have been considered for working capital of thermal and hydro power stations.

**(d) Maintenance Spares:**

- 4.59 The petitioner has calculated the value of maintenance spares for the purpose of working capital for thermal and hydel power stations as 20% and 15% of the normative O&M expenses respectively based on the norms for working capital prescribed in the Regulations. The Commission has also considered the same for working capital purpose.

**(e) Receivable:**

- 4.60 As per the Regulations, receivables for thermal power stations shall be equivalent to two months of capacity and energy charges for sale of electricity calculated on the normative annual plant availability factor. The receivables for hydel power stations shall be equivalent to two months of fixed charges.
- 4.61 Accordingly, the receivables have been worked out considering the operational parameters and weighted average price of fuel.
- 4.62 The petitioner has filed the Rate of interest on working capital equal to Base Rate of SBI (10.0%) + 4.0% = 14.0% for FY 2012-13, the Commission has worked out the interest on working capital considering the same rate of interest as filed by the petitioner. The necessary details in support of calculation of interest on working capital are appended below:

**Table : 29 Station-wise interest on working capital for Thermal Power Stations (Rs. Cr.)**

Sr. No.	Particular	Thermal Power houses				
		ATPS PH-II	ATPS PH-III	STPS Complex	SGTPS PH-I&II	SGTPS PH-III
1	Coal Cost 45 days for pit-head and 60 days for non-pit-head stations	20.90	25.89	202.94	173.69	101.28
2	Sec. fuel oil for two months corresponding to the normative availability	2.60	1.29	9.11	4.64	2.94
3	Maintenance spares @ 20% and @ 15% of normative O&M expenses for thermal and hydel power stations respectively	10.24	7.17	44.36	28.69	12.79
4	Receivables equivalent to two months of Capacity charges and energy charges on Normative Annual Plant Availability Factor	43.75	57.96	275.27	247.70	165.99
5	O&M Expenses for one month	4.27	2.99	18.48	11.96	5.33
6	Total working capital	81.76	95.30	550.16	466.69	288.33
7	Applicable rate of interest (%)	14.00	14.00	14.00	14.00	14.00
8	<b>Interest on working capital</b>	<b>11.45</b>	<b>13.34</b>	<b>77.02</b>	<b>65.34</b>	<b>40.37</b>

**Table : 30 Calculation of interest on working capital for Hydro power stations (Rs. Cr.)**

Sr. No.	Particular	Hydel Power houses							
		Gandhi Sagar	Pench	Rajghat	Bargi	Bansagar I, II & III	Bansagar IV (Jhinna)	Madhi kheda	Birsingh pur hydel
1	Maintenance spares @ 20% and @ 15% of normative O&M expenses for thermal and hydel power stations respectively	1.22	1.70	0.48	0.96	4.31	0.21	0.64	0.64
2	Receivables equivalent to two months of Capacity charges and energy charges on Normative Annual PAF	1.55	3.06	1.91	2.02	26.02	2.37	4.48	1.09
3	O&M Expenses for one month	0.68	0.95	0.27	0.53	2.39	0.12	0.35	0.12
4	Total working capital	3.46	5.71	2.65	3.51	32.72	2.71	5.47	1.85
5	Applicable rate of interest (%)	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00
6	<b>Interest on working capital</b>	<b>0.48</b>	<b>0.80</b>	<b>0.37</b>	<b>0.49</b>	<b>4.58</b>	<b>0.38</b>	<b>0.77</b>	<b>0.26</b>

## **Expenses on Secondary fuel oil Consumption:**

### **Petitioner's submission**

- 4.63 The petitioner has submitted that the expenses on Secondary fuel oil consumption have been computed on corresponding to normative Specific Fuel Oil Consumption (SFC) and Normative Annual Plant Availability Factor, in accordance with the MPERC Regulations 2009 and its second amendment. Cost to be incurred on secondary fuel oil during FY 2012-13 is based on the Weighted Average Price of Secondary Fuel Oil incurred for months October, 2011 to December, 2011.

### **Provision of the Regulation**

- 4.64 Clause 36 of the Regulations, 2009 provides that,

*“Expenses on Secondary fuel oil in Rupees shall be computed corresponding to normative Specific Fuel Oil Consumption (SFC) specified in Regulation 33, in accordance with the following formula:*

$$= SFC \times LPSFi \times NAPAF \times 24 \times NDY \times IC \times 10$$

**Where,**

<i>SFC</i>	-	<i>Normative Specific Fuel Oil Consumption in ml/kWh</i>
<i>LPSFi</i>	-	<i>Weighted Average Landed Price of Secondary Fuel in Rs./ml considered initially</i>
<i>NAPAF</i>	-	<i>Normative Annual Plant Availability Factor in percentage</i>
<i>NDY</i>	-	<i>Number of Days in a Year</i>
<i>IC</i>	-	<i>Installed Capacity in MW</i>

*Initially, the landed cost incurred by the Generating Company on secondary fuel oil shall be taken based on actuals of the weighted average price of the three preceding months and in the absence of landed costs for the three preceding months, latest procurement price for the generating station, before the start of the Year.*

*The secondary fuel oil expenses shall be subject to fuel price adjustment at the end of the each Year of Tariff period as per following formula:*

$$SFC \times NAPAF \times 24 \times NDY \times IC \times 10 \times (LPSFy - LPSFi)$$

*Where,*

*LPSFy = The weighted average landed price of secondary fuel oil for the Year in Rs. /ml.*

### **Commission's analysis**

- 4.65 The petitioner has worked out the specific oil consumption as per the norms notified by the Commission in the second amendment "MPERC (Terms and Conditions of Generation Tariff) Regulations, 2009 {RG-26 (I) of 2009}" for determination of oil cost for thermal power stations. The power station-wise norms for specific oil consumption for FY 2012-13 is as given below:

**Table : 31**  
**Norms for Sec. oil consumption for FY 2012-13**

Power Station	Norms in ml/kWh
ATPS PH-II	2.50
ATPS PH-III	1.00
STPS Complex	1.70
SGTPS PH I&II	1.00
SGTPS PH-III	1.00

- 4.66 The petitioner has claimed the cost of secondary fuel oil (HFO+LDO/HSD) based on the operational parameters as specified in the second amendment of regulation, 2009 and weighted average price of oil procured during three preceding months. While going through the petition, the Commission has observed that the petitioner has not filed any authentic documents in support of the weighted average rate of oil considered in the petition and same was conveyed to the petitioner. On response, the petitioner vide affidavit dated 3<sup>rd</sup> March, 2012 filed the power station wise statement determining the wt. average rate of oil and same has been considered for determination of cost of secondary fuel oil.
- 4.67 The station-wise cost of secondary fuel oil is determined as given in the tables below based on actual of the weighted average price of the three preceding months and normative operating parameters. Further, clause 36.2 of the Regulations takes care of the cost of secondary fuel oil subject to fuel price adjustment at the end of the each year of tariff period as per the formula mentioned under clause 36.2 of the Regulations:

**Table : 32 Station-wise Cost of secondary fuel Oil for FY 2012-13**

Particulars	Unit	Allowed in this order (Rs. Cr.)				
		ATPS PH-II	ATPS PH-III	STPS Complex	SGTPS PH-I&II	SGTPS PH-III
Capacity	MW	240	210	1142.5	840	500
NAPAF	%	60	85	80	80	85
Gross Generation	MU	1261.44	1563.66	8006.64	5886.72	3723.00
Sp. Oil Consumption	ml/KWh	2.50	1.00	1.70	1.00	1.00
Quantity of Oil required	KL	3154	1564	13611	5887	3723
Wt. Avg. Price of Oil	Rs./KL	49494	49494	40174	47311	47311
Total Oil Cost	Rs. Cr.	<b>15.61</b>	<b>7.74</b>	<b>54.68</b>	<b>27.85</b>	<b>17.61</b>

**Normative Annual Plant Availability Factor :**

- 4.68 Normative Annual Plant Availability Factor (NAPAF) for thermal and hydro power stations as per the second amendment of "MPERC (Terms and Conditions of Generation Tariff) Regulations, 2009 {RG-26 (I) of 2009}" has been considered for recovery of full fixed charges and computation of fuel element in working capital.

**Summary of Annual Fixed Charges approved in this order :**

- 4.69 The power station-wise Annual Fixed Charges for FY 2012-13 allowed in this order are summarized in the tables below :

**Table : 33****Station-wise Capacity (Fixed) Charges for FY 2012-13 approved in this Order**

Sr. No.	Power House	Annual Capacity Charges in Rs. Cr.
1	ATPS Chachai (PH-II)	92.99
2	ATPS Chachai (PH-III)	190.24
3	STPS Sarni Complex	417.09
4	SGTPS (PH-1&2)	429.60
5	SGTPS (PH-III)	379.82
6	Gandhi Sagar	9.33
7	Pench	18.38
8	Rajghat	11.44
9	Bargi	12.10
10	Bansagar (I to III)	156.11
11	Bansagar-IV (Jhinna)	14.24
12	Madhikheda	26.89
13	Birsinghpur	6.56
<b>Total</b>		<b>1764.79</b>

**Table: 34****Component-wise Capacity (Fixed) Charges for FY 2012-13 approved in this Order**

Sr. No.	Cost Component	Total Cost Rs. Cr.
1	Return on Equity	311.16
2	Interest Charges on Loan (including interest on excess equity)	186.58
3	Depreciation	317.23
4	O&M Expenses	581.15
5	Interest on WC	215.64
6	Cost of Sec. fuel Oil	123.49
7	Special Allowance	18.47
8	Compensation allowance	11.09
9	<b>Annual Capacity Charges</b>	<b>1764.79</b>

**Table : 35 Power house-wise break-up of capacity charges****Rs. Cr.**

Sr. No.	Cost Component	Thermal Power houses				
		ATPS PH-II	ATPS PH-III	STPS Complex	SGTPS PH-I&II	SGTPS PH-III
1	Return on Equity	4.95	25.57	29.11	100.61	66.45
2	Interest Charges on Loan (including interest on excess equity)	6.31	66.78	0.00	0.00	102.02
3	Depreciation	1.93	40.94	8.58	90.23	89.42
4	O&M Expenses	51.19	35.87	221.80	143.47	63.95
5	Interest on WC	11.45	13.34	77.02	65.34	40.37
6	Cost of Sec. fuel Oil	15.61	7.74	54.68	27.85	17.61
7	Special Allowance	0.00	0.00	18.47	0.00	0.00
8	Compensation allowance	1.56	0.00	7.43	2.10	0.00
9	<b>Annual Capacity Charges</b>	<b>92.99</b>	<b>190.24</b>	<b>417.09</b>	<b>429.60</b>	<b>379.82</b>

**Table : 36**

Sr. No.	Cost Component	Hydel Power Houses							
		Gandhi Sagar	Pench	Rajghat	Bargi	Bansagar I, II & III	Bansagar IV	Madhi kheda	Birsinghpur hydel
1	Return on Equity	0.48	4.47	3.85	4.05	57.84	4.65	6.70	2.43
2	Interest Charges on Loan (including interest on excess equity)	0.00	0.25	0.00	0.00	2.28	2.90	6.03	0.00
3	Depreciation	0.21	1.51	4.03	1.18	62.69	4.90	9.15	2.46
4	O&M Expenses	8.15	11.34	3.19	6.38	28.71	1.42	4.25	1.42
5	Interest on WC	0.48	0.80	0.37	0.49	4.58	0.38	0.77	0.26
	<b>Annual Capacity Charges</b>	<b>9.33</b>	<b>18.38</b>	<b>11.44</b>	<b>12.10</b>	<b>156.11</b>	<b>14.24</b>	<b>26.89</b>	<b>6.56</b>

4.70 The recovery of annual capacity (fixed) charges shall be made by the petitioner in accordance with the Regulations 38.2 and 38.3 in case of Thermal Power Stations and Regulations 50.1 and 50.3 in case of Hydro Generating Stations.

4.71 The Commission has issued tariff orders in respect of some new capacity additions allowing recovery of charges on provisional basis. The details of all such units along with the Date of Commercial Operation and the date of provisional order issued by the Commission has been provided in Para 3.5 of this order. It is noted that the petitioner has still not filed tariff petition for determination of final tariff (except ATPS PH-III, which is under scrutiny with the Commission). The petitioner is thus, allowed to recover the fixed charges only to the extent of 95% of the fixed charges determined in this order on provisional basis subject to retrospective adjustment on determination of final tariff for the following generating units/stations:

S. No.	Unit
1	Madhikheda HPS - Unit No.1, Unit No.2
2	Madhikheda HPS Unit No.3
3	Bansagar IV - Jhinna Unit No.1, Jhinna Unit No.2
4	SGTPS, Extn. Unit 500MW (PH-III)
5	ATPS Extn. Unit 210 MW (PH-III)

## Chapter 5

### Energy Charges (Variable Charges)

#### Petitioner's submission

- 5.1 With regard to energy charges, the petitioner in Para 7.1 of the petition has mentioned that the energy charges (Variable charges) cover main fuel costs and shall be payable for the total energy scheduled to be supplied to the beneficiary during the calendar month on ex-power plant basis, at the variable charge rates approved by the Commission. The Energy Charge Rate, in Rupees per kWh, has been determined to three decimal places, in accordance with clause 39.2 of the Regulations, 2009. The landed price of coal incurred during July, 2011 to September, 2011 and weighted average rate of coal on power station-wise considered by the petitioner for calculating energy charges is given below:

**Table : 37** **in Rs./MT**

<b>Power Station</b>	<b>Jul-11</b>	<b>Aug-11</b>	<b>Sep-11</b>	<b>Wt. Average Rate of Coal</b>
<b>ATPS</b>	1518	1532	1771	<b>1610</b>
<b>STPS</b>	1889	1818	1794	<b>1837</b>
<b>SGTPS</b>	3105	3334	3995	<b>3423</b>

- 5.2 The petitioner has further mentioned that the Gross Calorific value of Coal received during above period (July, 2011 to September, 2011) and the weighted average GCV of Coal as on fired basis has been calculated as detailed below:

**Table : 38** **in kCal/Kg**

<b>Power Station</b>	<b>Jul-11</b>	<b>Aug-11</b>	<b>Sep-11</b>	<b>Wt. Average GCV</b>
<b>ATPS</b>	3870	3810	3900	<b>3860</b>
<b>STPS</b>	3311	3355	3387	<b>3348</b>
<b>SGTPS</b>	3901	3867	3915	<b>3894</b>

- 5.3 Based on the normative operating parameters as per second amendment of Regulations, 2009 issued by the Commission and considering the afore-mentioned rate of coal and GCV of coal, the power station-wise rate of energy charges at ex-bus worked out by the petitioner is given as below:

**Table : 39**

<b>Particular</b>	<b>ATPS PH-II</b>	<b>ATPS PH-III</b>	<b>STPS PH-I</b>	<b>STPS PH-II&amp;III</b>	<b>SGTPS PH-I&amp;II</b>	<b>SGTPS PH-III</b>
Energy charges at ex-bus filed (paisa/kWh)	152.10	114.01	174.61	161.56	249.48	227.67



## Provision of the Regulation

- 5.4 For calculating the energy charges (variable charges) of thermal power stations, clause 39 of MPERC (Terms and Conditions for determination of Generation Tariff) Regulations, 2009 RG-26(I) of 2009 provides that,

*“The energy (variable) charges shall cover main fuel costs and shall be payable for the total energy scheduled to be supplied to such Beneficiary during the calendar month on ex-power plant basis, at the specified variable charge rate (with fuel price adjustment).”*

*Energy (variable) Charges in Rupees per kWh on ex-power plant basis shall be determined to three decimal places as per the following formula:*

*For coal fired stations*

$$ECR = (GHR - SFC \times CVSF) \times LPPF \times 100 / \{CVPF \times (100 - AUX)\}$$

*Where,*

*AUX= Normative Auxiliary Energy Consumption in percentage.*

*ECR = Energy Charge Rate, in Rupees per kWh sent out.*

*GHR = Gross Station Heat Rate, in kCal per kWh.*

*SFC = Specific Fuel Oil Consumption, in ml/kWh*

*CVSF = Calorific value of Secondary Fuel, in kCal/ml.*

*LPPF = Weighted average Landed price of Primary Fuel, in Rupees per kg, per liter or per standard cubic meter, as applicable, during the month.*

*CVPF = Gross Calorific Value of Primary Fuel as fired, in kCal per kg, per liter or per standard cubic meter.*

*Variable charge for the month shall be worked out on the basis of ex-bus energy scheduled to be sent out from the generating station in accordance with the following formula:*

*Monthly Energy Charge (Rs) =*

*Variable Charge Rate in Rs/kWh X Scheduled Energy (ex-bus) for the month in kWh corresponding to Scheduled Generation.”*

- 5.5 For determining the landed cost of coal, clause 39.4 of the Regulation, 2009 provides that,

*“The landed cost of coal shall include price of coal corresponding to the grade and quality of coal inclusive of royalty, taxes and duties as applicable, transportation cost by rail/road or any other means, and, for the purpose of computation of Energy Charges, shall be arrived at after considering normative transit and handling losses as percentage of the quantity of coal despatched by the Coal Supply Company during the month as given below:*

*Pit head generating stations: 0.2%*

*Non-Pit head generating stations: 0.8%”*

**Commission's analysis**

- 5.6 As per MPERC (Terms and Conditions for determination of Generation Tariff) Regulations, 2009 RG-26(I) of 2009, the energy (variable) charges cover main fuel costs and shall be payable for the total energy scheduled to be supplied to such beneficiary during the calendar month on ex-power plant basis. For coal based thermal power stations, the main fuel is coal and per unit cost of coal shall be the energy (variable) charges.
- 5.7 The Commission has notified the second amendment to MPERC (Terms and Conditions for determination of Generation Tariff) Regulations, 2009 RG-26(I) of 2009, on 24<sup>th</sup> February, 2012. The operating parameters of thermal power stations for FY 2012-13 prescribed by the Commission in afore-mentioned amendment is given as below:

**Table : 40 Operating norms for FY 2012-13**

Sr. No.	Normative Operating Parameters	Unit	Thermal Power houses				
			ATPS PH-II	ATPS PH-III	STPS Complex	SGTPS PH-I&II	SGTPS PH-III
1	NAPAF	%	60.00	85.00	80.00	80.00	85.00
2	SHR	Kcal/kWh	3300	2450	2755	2600	2425
3	Sp. Oil consumption	ml/kWh	2.50	1.00	1.70	1.00	1.00
4	Aux. consumption	%	10.00	9.00	8.27	8.00	6.00

- 5.8 The Commission in clause 39.4 of MPERC (Terms and Conditions for determination of Generation Tariff) Regulations, 2009 RG-26(I) of 2009 has also notified the norms for transit and handling loss for thermal power houses as given below:

Pit head generating stations : 0.2%

Non-Pit head generating stations : 0.8%

- 5.9 With regard to the status of thermal power houses in respect of pit-head/non-pit-head, clause 39.5 of the Regulation, 2009 provides that,

*“The 2X120MW PH-I Unit of ATPS Chachai shall be treated pit head generating Unit and 1X210MW PH-III Unit of ATPS Chachai shall be treated as non-pit head generating Unit based on the Coal linkage as informed by Madhya Pradesh Power Generating Company Limited (MPPGCL). In case of any change in the Coal linkage, MPPGCL shall inform to the Commission for appropriate orders.”*

- 5.10 In view of the above, the status of thermal power houses, as considered by the Commission while allowing transit and handling loss in this order is given below :

**Table : 41**

Sr. No.	Power Station	Status
1	ATPS PH-II	Pit-head
2	ATPS PH-III	Non-pit-head
3	STPS Complex	Non-pit-head
4	SGTPS PH I&II	Non-pit-head
5	SGTPS PH-III	Non-pit-head

- 5.11 The petitioner has claimed the rate of energy charges based on the operational parameters as specified in the Regulation, 2009 and its amendment and weighted average price of coal and GCV of coal has been considered by the petitioner as per the actual coal procured during July, 2011 to September, 2011.
- 5.12 The Commission vide its letter dated 24/02/2012 asked the petitioner that the details of weighted average rate and GCV of coal filed in the petition for three months from July, 2011 to September, 2011 while the Regulation provides that the weighted average rate and GCV of coal for three preceding months is required those are October, 2011 to December, 2011 for subject petition. The petitioner was asked to submit the weighted average GCV and price of coal for these three preceding months along with supporting documents.
- 5.13 The petitioner vide its affidavit dated 3<sup>rd</sup> March, 2012 has submitted the following:
- (a) *The GCV of coal for the period Sept. '11 to Nov. '11 in respect of STPS, ATPS and SGTPS and its weighted average along with supporting document is enclosed as Annexure-2. The data in regard to GCV of coal for the month of Dec. '11 is yet to be received from various sites, it is therefore submitted that GCV for the months Sept. '11 to Nov. '11 may kindly be considered.*
- (b) *The weighted average rate of coal for the period Sept. '11 to Nov. '11 in respect of STPS, ATPS and SGTPS along with its supporting document is enclosed as Annexure-3.*
- 5.14 In view of the above submission, the power station wise-actual weighted average GCV of coal and actual weighted average rate of coal for three preceding months as filed by the petitioner in its additional submission has been considered for determination of energy charge rate.
- 5.15 The Commission while examining the variable costs has observed that the energy charge rate of SGTPS Birsinghpur (PH-I, II & III ) filed in the petition are comparatively very high. The Commission vide letter dated 24<sup>th</sup> February, 2012 asked the petitioner to give the reason(s) with full justification for such abnormal hike in energy charge rate of SGTPS, Birsinghpur.
- 5.16 The petitioner vide its response dated 3<sup>rd</sup> March, 2012 has submitted the following;
- “Energy charge rate depends on rate of coal and its as fired GCV. The coal at SGTPS is received from various mines of SECL (more than 20) located at Korea-Rewa Area and Korba Area. The grade of coal received from these mines varies from A to F grade. The grade-wise quantity of coal received from various mines during period July, 2011 to November, 2011 and its rates are indicated at Annexure-4.*
- It is observed that 80% of the total cost incurred on the coal corresponds to A&B grade of coal. The rates of A & B grade coal are Rs.4100/MT and Rs.3990/MT respectively, as per CIL notification dated 26.02.2011 annexed herewith as Annexure-5. The higher ECR at SGTPS is due to hike in coal prices of A&B grade type coal w.e.f. 27.02.2011. in support to this a statement is submitted as Annexure-6 indicating weighted coal prices at SGTPS during July to September without hike (Rs.1891/MT) and with hike (Rs.3573/MT), the corresponding*

*ECR taking GCV as fired (i.e. 3894 kcal/Kg.) works out to 141.723 paisa/kwh for SGTPS PH1 & 2 and 129.335 paisa/kwh for SGTPS PH-3 before price hike and 260.371 paisa/kwh for SGTPS PH1 & 2 and 237.613 paisa/kwh for SGTPS PH-3 after price hike which clearly indicates that hike in ECR is on account of hike in coal prices.*

*MPPGCL is trying its best and requesting SECL to minimize A&B type coal and enhance other grade C to F as to bring down the cost of generation. Even efforts have been made at State Government level to reduce prices of A&B type coal being supplied to SEBs. The correspondence in this regard is also annexed as Annexure-7”.*

- 5.17 It was gathered that this increase is on account of receipt of higher percentage of A&B grade coal from coal companies. Efforts are on to persuade coal companies to restrict or discontinue A&B grade coal for which the matter has already been taken up by MPPGCL with appropriate authorities. The Commission expects that the actual rates as found in FY 2011-12 and proposed for FY 2012-13 would then get reduced. In order that unnecessary burden is not passed on to the consumers, the Commission in the present order has considered an average variable charge based on the rates as per FY 2011-12 retail tariff order and as per actual bills of FY 2011-12 (considered in retail tariff for FY 2012-13) . The Commission has further taken into consideration the fact that if the increase in the actual rates is sustained, the generating company can recover it through the formula as per Regulation subject to month to month adjustment of fuel price and GCV of main fuel to meet the expenses on this account.
- 5.18 In view of the above, the average rate of energy charges for SGTPS PH-1&2 and SGTPS Ext. has been considered as **195.10 Paisa/Unit and 176.06 Paisa/Unit** respectively for computation of weighted average price of coal of SGTPS PH-I, II and III for FY 2012-13. The energy charges for other thermal power stations worked out by the Commission for the period FY 2012-13 is as per the following table:

**Table : 42 Energy Charges for FY 2012-13**

Sr. No.	Description	Unit	ATPS PH-II	ATPS PH-III	STPS Complex	SGTPS PH-I&II	SGTPS PH-III
1	Capacity	MW	240	210	1142.5	840	500
2	Gross Station Heat Rate	Kcal/Kwh	3300	2450	2755	2600	2425
3	Sp. Fuel Oil Consumption	ml/KWh	2.50	1.00	1.70	1.00	1.00
4	Auxiliary Energy Consumption	%	10.00	9.00	8.27	8.00	6.00
5	Transit and handling losses	%	0.20	0.80	0.80	0.80	0.80
6	Wt. Average GCV of Oil	Kcal/litre	10000	10000	10000	10000	10000
7	Wt. Average GCV of Coal	Kcal/Kg	3995	3995	3462	3980	3980
8	Wt. Average Price of Coal	Rs./MT	1636	1636	1934	2736.15	2705.62
9	Heat Contributed from Oil	Kcal/Kwh	25	10	17	10	10
10	Heat Contributed from Coal	Kcal/Kwh	3275	2440	2738	2590	2415
11	Sp. Coal Consumption	Kg/KWh	0.8198	0.6108	0.7909	0.6508	0.6068
12	Sp. Coal Consumption incl. Transit Loss	Kg/KWh	0.8214	0.6157	0.7973	0.6560	0.6117
13	Rate of Energy Charge	Paise/KWh	134.38	100.73	154.19	179.49	165.50
14	<b>Rate of Energy Charge Ex-Bus</b>	<b>Paise/KWh</b>	<b>149.32</b>	<b>110.69</b>	<b>168.09</b>	<b>195.10</b>	<b>176.06</b>

- 5.19 The base rate of the energy charges shall however, be subject to month to month adjustment of fuel price and GCV of main fuel.
- 5.20 The above energy charges have been calculated for the purpose of calculation of two month's billing, which is used for calculation of interest on working capital. The actual billing of energy charges shall be as per the formula and other provisions detailed in Regulation 39. Energy charges for hydro generating stations shall be recovered in accordance with Regulation 50.4 to 50.7.

**Other Charges**

- 5.21 The petitioner in the prayer of the petition has requested to permit for additional recovery on actual payment basis on account of levies, taxes, duties, service tax, SLDC charges, water charges, filling fee, publication expenses etc., as and paid. The petitioner is allowed to recover the fee paid by the petitioner to MPERC for determination of generation tariff, water charges and cess on usage of water for hydro stations and E.D. and cess on auxiliary power consumption levied by the Statutory Authorities from the beneficiaries and publication expenses on pro-rata basis. Accordingly, the petition is disposed off.

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