

4.7 Debt Equity Ratio

Regulation 27 provides that for the purpose of determination of tariff of new generating stations commencing commercial operation after the notification of this regulation, the debt equity ratio shall be 70:30. Where equity employed is more than 30%, the amount of equity for the purpose of tariff shall be limited to 30% and the balance shall be treated as normative loan. Where actual equity employer is less than 30%, the actual equity employee shall be considered. It is important to note that issue of share capital shall only be treated as amount of equity invested for the purpose of determination of tariff.

In the case of existing generating station the debt equity ratio as per the balance sheet on the date of the transfer notification will be the debt equity ratio for the first year of operation subject to such modification as may be found necessary upon audit of the accounts if such balance sheet is not audited. The debt equity amount arrive shall be used for calculating interest on loan, return on equity, etc. In this tariff order, the Commission is not accepting the size of equity as proposed by the generation corporation without the proper audit is done and formalities with regard to distribution of shares completed as per Company Law. Moreover, until and unless these companies start functioning independently and improve their performance, it will allow the same return as allowed last year.

4.8 Components of Tariff

Regulation 54 provides that there will be tariff for supply of electricity from a hydro power generating station shall comprise of two parts, namely, annual capacity charges and energy charges.

The fixed cost of a generating station shall be recovered through annual capacity charges and shall consist of :

- a) Return on equity as may be allowed
- b) Interest on loan capital
- c) Operation and maintenance expenses
- d) Interest on working capital
- e) Depreciation as may be allowed by the Commission
- f) Income Tax.

The annual capacity charges shall be worked out by deducting any other income of the generating company from the total expenses.

4.9 Return on Equity

Return on equity shall be computed in accordance with regulation 53 on the equity base as determined in accordance with regulation 31 and shall not exceed 14%. However, in the absence of audited and separate accounts for each utility the Commission has decided to allow same return on equity as allowed in the previous year equally to generation, transmission and distribution utilities. The Commission shall take a view on return on equity which shall not exceed 14% for projects under MePGCL after the accounts are audited with CAG report on it. In this tariff order, the Commission has decided not to change its position from the previous years and do not allow return on equity as proposed.

4.10 Interest and finance charges on loan capital

Regulation 55 provides that interest and finance charges on loan capital shall be computed on the outstanding loans, duly taking into account the schedule of loan repayment, terms and conditions of loan agreement, bond or debentures and the lending rates prevailing therein. However, the loan capital should meet the requirement of regulation providing debt equity ratio.

The regulation also prescribes that interest and finance charges attributable to capital work in progress (COD not achieved) shall not be allowed. There is a provision in the regulation that generating company shall make every effort to swap loans as long as it results in net benefit to it. In case of any moratorium period is availed by the generating, the depreciation provided for in the tariff during the years of moratorium shall be treated as repayment during those years and interest on loan capital shall be calculated accordingly.

4.11 Operation and maintenance expenses

The operation and maintenance expenses shall comprise of the following:

- a) Employees cost

- b) Repair and maintenance
- c) Administration and general expenses

In order to introduce efficient operation in the generation the Commission is considering allowing a ceiling on the O & M expenses so that at the time of truing up it may not allow any unreasonable expenses over and above the O & M ceiling. In the previous year, the Commission has allowed the O & M expenses as per Regulations which also met with the MePGCL proposal. This year the Corporation has demanded much more than what Regulation provides for. The approach for determining the O & M expenses this year shall not be different than the previous year. The Commission also feels that the expenses should be within the normative and should not exceed the budgeted figures. Accordingly the Commission has allowed combined O&M cost after considering escalation on the expenses as allowed in FY 2014-15. The petitioner requires controlling its expenses in each head to remain within the ceiling of O&M expenses.

4.12 Interest on working capital

Regulation 34 (iii) prescribes that working capital shall cover the following:

- a) Operation and maintenance expenses for one month
- b) Maintenance sphere at 15% of O&M
- c) Two months receivables of AFC

Rate of interest on the working capital shall be short term prime lending rate of SBI @14.45%. On the basis of the previous year record the Commission has allowed interest amount including loan capital and working capital. The Commission has also considered relevant sections of RE regulations for Sonapani.

4.13 Depreciation

Regulation 33 provides that depreciation shall be computed on the assets/capital costs of the assets as entered by the Commission where the opening asset value recorded in the balance sheet as per the transfer scheme notification shall be deemed to have been approved. However, after the audit of the accounts necessary modification may be made. For the new assets the approved cost for the asset value shall be taken into account. The depreciation shall be calculated annually as per

straight line method at the rates as specified in CERC regulations. In case of the existing projects the balance depreciable value as on 01.04.2010 shall be worked out by deducting the cumulative depreciation as admitted by the Commission from the gross value of the assets. Depreciation shall only be chargeable from the first year of operation. The Commission has allowed the depreciation in order to meet the financial commitments of the Corporation for renovation and modernization. However, after meeting its obligation under the contract, the licensee shall create a separate reserve for meeting the replacement of assets or modernization of the unit in future. The Commission has allowed sufficient budget in it and desired that the petitioner shall use it judiciously for its R& M work of old stations.

4.14 Income Tax

Income tax shall be treated as expenses and shall be recoverable from the consumers through tariff. The income tax actually paid shall be included in the ARR. Any under recovery or over recovery shall be adjusted every year on the basis of income tax certificate issued by the authorities.

4.15 Computation of capacity charges and energy charges

Regulation 57 provides the methodology to calculate the capacity charges and energy charges to be payable by the beneficiary. However, the Commission has determined the same in order to make simple tariff and its application for generator and distribution utility.

During the proceeding, the Commission has determined the tariff on the basis of the regulation as well as adopting a pragmatic approach in the interest of the all stakeholders.

5. Generating Stations and their performance for MYT period FY 2015-16 to FY 2017-18

5.1 ARR for FY 2015-16 to FY 2017-18 – Existing Generating Stations

Petitioner's Submission

MePGCL has proposed the following for determination of tariffs for its 6 generating stations.

5.2 Segregation of Financials

- Pursuant to Meghalaya Power Sector Reforms Transfer Scheme 2010 (as amended in 2012), the Assets and Liabilities including rights, obligations and contingencies is transferred to and vested in MePGCL from MeECL on and from 1.4.2012. Transfer of Assets and Liabilities to MePGCL is based on the provisional financials of MeECL for FY2011-12.
- The segregated annual accounts post restructuring and unbundling for FY 2012-13 are being finalized. The accounts for the holding company and its subsidiaries have been segregated by appropriating the Assets, Properties, Liabilities, Expenditures, and Obligations etc. as attributable to the respective companies. The Assets and liabilities of individual functions i.e Generation, Transmission and Distribution were maintained by erstwhile MeSEB and later MeECL, and appropriation of common items to respective companies is being done by taking relevant basis/ methodology.

5.3 Existing Generation Capacity

- The initial installed capacity when the erstwhile Meghalaya State Electricity Board (MeSEB) was bifurcated from the Assam State Electricity Board (ASEB) in 1975 was 65.2 MW. With the commissioning of Stage-III HEP (1979), Stage IV HEP (1992) & Mini Hydel, the installed capacity increased by 121.5 MW. All the Generating Stations except Sonapani Micro Hydel Project, as indicated in Table below are hydel power stations with the main reservoir at Umiam for all the

stages. Therefore, all these stages depend mainly on water availability at the Umiam reservoir. The total installed capacity of MePGCL projects are as under:

Table 5.1: Details of Existing Capacity

Sl. No	Name of Station	No. of Units	Capacity (MW)	Total Capacity (MW)	Year of Commissioning
1.	Umiam Stage I	I	9	36	21.02.1965
		II	9		16.03.1965
		III	9		06.09.1965
		IV	9		09.11.1965
2.	Umiam Stage II	I	10	20	22.07.1970
		II	10		24.07.1970
3.	Umiam Stage III	I	30	60	6.01.1979
		II	30		30.03.1979
4.	Umiam Stage IV	I	30	60	16.09.1992
		II	30		11.08.1992
5.	Umtru Power Station	I	2.8	11.2	01.04.1957
		II	2.8		01.04.1957
		III	2.8		01.04.1957
		IV	2.8		12.07.1968
6.	Sonapani	I	1.5	1.5	27.10.2009
7.	Leshka	I	42	126	01.04.2012
		II	42		01.04.2012
		III	42		08.03.2013
Total				312.7	

New Generation Capacity

- MePGCL is currently executing works of hydro electric projects which are proposed for commissioning in near future as under:

Table 5.2: Details of New Generating Stations

Sl. No.	Name & Location	Capacity (MW)	Year of Commencement	Schedule Date of Commissioning /
1	Lakroh SHP	1.5	2003	March 2014
2	New Umtru	40 (20*2)	2008	March 2015

It is submitted that for Lakroh SHP provisional tariff has been approved in the Tariff Order dated 30th March, 2013. The final tariff petition for Lakroh SHP will be filed after commissioning of the same.

5.4 Computation of Generation Energy

The following sections outline details of operational norms for computation of energy generation for MYT period FY 2015-16 to FY 2017-18 based on Tariff Regulations, 2011 or past trend as the case may be.

Operation Norms

The following sections provide the extract of the Tariff Regulations, 2011 with respect to computation of generation energy.

a) Normative Annual Plant Availability Factor

Sl. No.	Station Particular	Norm
1	Storage and pondage type plants: where plant availability is not affected by silt and with head variation between Full Reservoir Level (FRL) and Minimum Draw Down Level	90 %
b	with head variation between FRL and MDDL of more than 8%	(Head at MDDL/Rated Head) x 0.5 + 0.2
2	Pondage type plant	where plant availability is significantly affected by silt -
3	Run –of River type plants	NAPAF to be determined plant-wise, based on 10-day design energy data, moderated by past

Note:

(i) A further allowance may be made by the Commission under special circumstances, eg. Abnormal silt problem or other operating conditions, and known plant limitations.

(ii) A further allowance of 5 % may be allowed for difficulties in the North East Region.

(iii) In case of new hydro electric project the developer shall have the option of approaching the Commission in advance for further above norms.

b) Auxiliary Consumption

Sl. No.	Station Particular	Norm
1	Surface hydro electric power generating stations with rotating exciters mounted on the	0.7% of energy generated
2	Surface hydro electric power generating stations with static excitation system	1.0% of energy generated
3	Underground hydro electric power generating stations with rotating exciters mounted on the	0.9% of energy generated
4	Underground hydro electric power generating	1.2% of energy generated

c) Transformation Losses

From generation voltage to transmission voltage0.5% of energy generated.

Design Energy – Existing Generating Stations

The design energy for MePGCL power stations as approved in the earlier Tariff Orders is proposed for the control period as well. The station-wise design energy is given in Table below:

Table 5.3: Design Energy

Name of Power Station	Design Energy (MU)
Umiam Stage I	116.29
Umiam Stage II	45.51
Umiam Stage III	139.4
Umiam Stage IV	207.5
Umtru Power Station	39.01
Sonapani	5.5

It is submitted by MePGCL that for the control period the approved design energy will be used for computation of energy charge. The month wise and station wise design energy is provided in the Formats in the petition.

Computation of Energy Generation - Existing Stations

The computation of hydro power generation requires Design Energy, Capacity Index, Details of Reservoir levels, Head details, Past Availability details, features of the hydro power plants in terms of type of plant, type of excitation etc which are provided in the table below:

Table 5.4: Features of Hydro Power Plant

Sl. No	Particulars	Umtru	Umiam-I	Umiam-II	Umiam-III	Umiam-IV	Sonapani
1	Type of						
a	<i>Surface/</i>	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE
b	<i>Purely ROR/</i>	PONDAGE	STORAGE	POWER CHANNEL	PONDAGE	PONDAGE	ROR
c	<i>Peaking/N</i>	NON	NON	NON	NON	NON	NON
d	<i>No. of</i>	NA	NA	NA	NA	NA	NA
e	<i>Overload (MW) & Period</i>	NIL	NIL	NIL	NIL	NIL	NA
2	Type of						
a	<i>Rotating exciters on Generator</i>	Rotating exciters on Generator	Rotating exciters on Generator	Rotating exciters on Generator	Rotating exciters on Generator	NA	Rotating exciters on Generator
b	<i>Static excitation</i>	NA	NA	NA	NA	Static Excitation	NA

Computation of NAPAF for Storage and Pondage type plants:

Based on the above details and the norms specified by Regulation 60 (1) (a) of the Tariff Regulations, 2011, the computation of NAPAF for Storage and Pondage type hydro generating stations is carried out as under:

Table 5.5: Computation of Head Variation for Storage & Pondage Plants

Name of Power Station	FRL (mtrs)	MDDL (mtrs)	Maximum Head	Minimum Head	% Head Variation
Umiam Stage I	981.46	960.12	169.0	130.0	23.08%
Umiam Stage II	804.06	800.85	78.5	75.0	4.46%
Umiam Stage III	679.70	672.05	162.0	146.0	9.88%
Umiam Stage IV	503.00	496.00	162.0	131.0	19.14%

As submitted in the above table other than Umiam Stage-II, for all power stations, the head variation between FRL and MDDL is more than 8%. Hence, an allowance is to be provided in NAPAF as indicated in the table below:

Table 5.6: Computation of NAPAF for Storage & Pondage Plants

Name of Power Station	% Head Variation	Rated Head	Head at MDDL	NAPAF (Head at MDDL /
Umiam Stage I	23.08%	145.0	130.0	64.83%
Umiam Stage II	4.46%	77.7	75.0	90.00%
Umiam Stage III	9.88%	150.0	146.0	68.67%
Umiam Stage IV	19.14%	140.0	131.0	66.79%

Computation of NAPAF for Pondage type plants: As per Regulation 60 (1) (b) of the Tariff Regulations, 2011 for pondage type plants where plant availability is significantly affected by silt is NAPAF is 85%. Umtru being the only plant under this category and accordingly, NAPAF for Umtru is **85.00%** as per regulations. Further as per Regulation 60 of the Tariff Regulations, 2011, after considering further allowance of 5% for difficulties in north east region, the NAPAF for Umtru is **80.00%**.

Computation of NAPAF for Run of River type plants: As per Regulation 60 (1) (c) of the Tariff Regulations, 2011, the NAPAF for Run of River type plants is to be determined based on 10-day design energy data, moderated by past experience wherever relevant. Therefore, based on the past records and as per norm given in regulation, the NAPAF for Sonapani works out to be **50.00%**. Further as per Regulation 60 of the Tariff Regulations, 2011, after considering further allowance of 5% for difficulties in north east region, the NAPAF for Sonapani is **45.00%**.

As per Regulation 60 of the Tariff Regulations, 2011, the computed NAPAF is shown below:

Table 5.7: NAPAF as per Operation norms for MePGCL Power Stations

Name of Power Station	NAPAF (%) as per workings	NAPAF (%) with 5% allowance
Umiam Stage I	64.83%	59.83%
Umiam Stage II	90.00%	85.00%
Umiam Stage III	68.67%	63.67%
Umiam Stage IV	66.79%	61.79%
Umtru Power Station	85.00%	80.00%
Sonapani	50.00%	45.00%

Computation of NAPAF based on last year’s actual generation

It is further submitted by MePGCL that as per direction of MSERC in the tariff order dated 10th April, 2014 has conducted study of last 3year’s hourly generation to arrive at the existing level of availability. The computed PAFM based on last 3year’s actual hourly generation is mentioned in the table below:

Table 5.8: PAFM based on actual hourly generation

Particulars		Umiam Stage I	Umiam Stage II	Umiam Stage III	Umiam Stage IV	Umtru	Sonapani
PAFM	FY	56%	45%	42%	68%	17%	47%
	FY	57%	15%	49%	60%	41%	59%
	FY	58%	53%	50%	65%	36%	67%
	Maximum	58%	53%	50%	68%	41%	67%

MePGCL submitted before the Commission to approve the maximum of last 3 year’s actual PAFM as NAPAF for the control period.

Station Wise generation for the control period

Table 5.9: NAPAF proposed for FY 2014-15 and control period

Name of Power Station	NAPAF for FY 2014-15 (%)
Umiam Stage I	58%
Umiam Stage II	53%
Umiam Stage III	50%
Umiam Stage IV	68%
Umtru	41%
Sonapani	67%

MePGCL has however not furnished station-wise generation for each year of the control period.

Commission’s Analysis

The Commission has done detailed analysis of the actual generation from FY 2007-08 to FY 2012-13 in to arrive at generation for FY 2014-15 as furnished by MePGCL.

Table 5.10: Six Year Generation Records

Sl. No.	Name of the Plant	Installed capacity (MW)	Designed Energy (MU)	Actual Generation (Source MePGCL)					
				FY 08-09	FY 09	FY 10	FY 11	FY 12	FY 13
1	Umiam	36	60.7	150.6	107.8	110.32	103.8	108.8	103.9
2	Umiam	20	29.5	67.27	48.67	51.2	47.52	12.9	50.93
3	Umiam	60	115.3	149.2	159.7	128.32	132.2	127.5	131.1
4	Umiam	60	129.5	247.7	193.7	187.1	205	204	190.0
5	Umtru	11.2	82.3	49.33	43.95	48.22	15.51	38.04	30.64
6	Sonapani	2	11.01				4.9	6.03	7.28

Table 5.11: Computation Of Average Generation

Sl. No	Name of Plant	Installed	Designed	Option I	Option II	Option III
		(MW)	(MU)	Best gen In 6 yrs	Worst gen in 6 Yrs	Avg. of past 6 yrs
1	Umiam Stage I	36	60.7	150.6	103.8	114.2
2	Umiam Stage II	20	29.5	67.27	12.9	46.4
3	Umiam Stage III	60	115.3	149.2	127.5	138.0
4	Umiam Stage IV	60	129.5	247.7	187.1	204.6
5	Umtru	11.2	82.3	49.3	15.51	37.6
6	Sonapani	2	11.01	6.03	4.9	3.0
	Total			670.1	451.71	543.9

The total designed energy from six plants is approved as 553.21 MU for FY 2015-16 and in the control period. However under recovery on account of lower generation shall be considered based on availability of plants:

Table 5.12: Provisionally Approved Designed Energy

(MU)

Sl. No	Name of Plant	FY 2014-15 (MePGCL proposal)	FY 2014-15 (MSERC approval)
1	Umiam Stage I	76.58	116.29
2	Umiam Stage II	40.17	45.51
3	Umiam Stage III	124.37	139.4
4	Umiam Stage IV	162.13	207.5
5	Umtru	21.88	39.01
6	Sonapani	6.60	5.5
	Total	431.73	553.21

5.5 Auxiliary Consumption

MePGCL has given auxiliary consumption and transformation losses for each generating station as per the Regulation in the following Table:

Table 5.13: Auxiliary / Transformation Consumption

(%)

Name of the Plant	Auxiliary consumption (%)	Transformation losses (%)
Umiam Stage I	0.7	0.5
Umiam Stage II	0.7	0.5
Umiam Stage III	0.7	0.5
Umiam Stage IV	1.0	0.5
Umtru	0.7	0.5
Sonapani	0.7	0.5

The MePGCL has not furnished the energy generation for the control period FY 2015-16 to FY 2017-18. The Commission has not considered the new project Umtru until and unless it is commissioned and informed. However, in availability in the control period has been considered for the purpose of determination of ARR of MePDCL on adhoc basis. The same shall be reviewed when MePGCL files its mid term review by 30.08.2015 to the Commission. The Commission has considered the station-wise generations approved for FY 2014-15 for the control period as given below:

Table 5.14: Approved Energy for the control period

Sl. No.	Name of the plant	Energy (MU)		
		FY 2015-16	FY 2016-17	FY 2017-18
1	Umiam Stage I	116	116	116
2	Umiam Stage II	46	46	46

3	Umiam Stage III	139	139	139
4	Umiam Stage IV	207	207	207
5	Umtru	39	39	39
6	Sonapani	5	5	5
	Total	552	552	552

5.6 Computation of Generation Energy

Components of Tariff

The Regulation 52 provides components of tariff which is reproduced below for reference:

52. Components of Tariff

1. *Tariff for supply of electricity from a hydro power generating station shall comprise of two parts, namely, annual capacity charges and energy charges to be in the manner provided hereinafter.*
2. *The fixed cost of a generating station eligible for recovery through annual capacity charges shall consist of:*
 - a. *Return on Equity as may be allowed*
 - b. *Interest on Loan Capital*
 - c. *Operation and Maintenance expenses*
 - d. *Interest on Working Capital*
 - e. *Depreciation as may be allowed by the Commission*
 - f. *Taxes of Income*

Accordingly, MePGCL has computed and provided herewith various cost elements for determination of Tariff.

5.7 Gross Fixed Assets (GFA)

Petitioner's Submission

5.7.1 Gross Fixed Asset for MePGCL old stations

The opening balance of GFA of MePGCL as on 1.4.2013 is Rs. **292.78** Cr (excluding MLHEP project cost). The closing GFA for each year of the control period is worked out considering actual capitalization during FY 2013-14, estimated capitalization

during FY 2014-15 and projected capitalization during control period of FY 2015-16 to FY 2017-18.

Table 5.15: Gross Fixed Asset Details MePGCL old stations

(Rs. Cr)

Particulars	FY 2012-13 (Provisional)	FY 2013-14 (Provisional)	FY 2014-15 (Estimated)	FY 2015-16 (Projected)	FY 2016-17 (Projected)	FY 2017-18 (Projected)
Opening values of Gross Fixed Assets	292.78	399.12	399.81	399.81	414.71	421.75
Addition during the year	106.67	0.69	-	14.90	7.04	37.36
Retirements during the year	0.33	-	-	-	-	-
Closing value of Gross Fixed Values	399.12	399.81	399.81	414.71	421.75	459.11

Source Table 32 (Page 9 of Tariff petition of MYT period)

MePGCL submits before the Hon'ble Commission to approve the GFA for MePGCL old stations (excluding Sonapani) as submitted in the above table.

5.7.2 Gross Fixed Asset (GFA)-Sonapani

MePGCL has submitted that the opening GFA of Sonapani as on 1st April, 2014 is Rs. 10.86 Crores. The GFA Sonapani for the control period of FY 2015-16 to FY 2017-18 is projected as detailed below including the land acquisition for the project for which originally lead for 95 years.

Table 5.16: Gross Fixed Assets – Sonapani

(Rs. Cr)

Particulars	FY 2014-15 (Estimated)	FY 2015-16 (Projected)	FY 2016-17 (Projected)	FY 2017-18 (Projected)
Opening values of Gross Fixed Assets	10.86	10.86	16.86	16.86
Addition during the year	-	6.00	-	0.38
Retirements during the year	-	-	-	-
Closing value of Gross Fixed Values	10.86	16.86	16.86	17.24

Source Table 33 (Page 9 of Tariff petition of MYT period)

Commission’s Analysis

The Commission in the Tariff Order for FY 2014-15 dated 10th April, 2014 has examined the proposal of MePGCL for Gross Fixed Assets and recorded as below:

“MePGCL has projected a provisional figure of Gross Fixed Assets as on 31.03.2012 as Rs. 327.39 Crores for existing projects. For sonapani project MePGCL has projected Rs. 10.78 Crores GFA. During FY 2012-13 MePGCL has added Rs. 104.75 Crores fixed assets for Umiam Stage II and R&M work, therefore the closing value of GFA as on 31.03.2014 shall become Rs. 432.14 Crores. The Commission has examined the report on renovation and modernization work for stage II and allowed on provisional basis addition of assets. However, the Commission is not changing GFA opening value for FY 2011-12 without verification of audited results. GFA is approved by the Commission as follows:

Table 5.17: Gross Fixed Assets

(Rs. Crores)

Particulars	As Projected by MePGCL	As Approved by the Commission
Opening GFA as on 01.04.2012	327.39	286.49
Addition during FY 2012-13 as on 01.04.2013	104.75	104.75
As on 01.04.2013	432.14	391.24
As on 01.04.2014	432.14	391.24
As on 01.04.2015	432.14	391.24

5.7.3 Gross Fixed Assets during the Control Period

The MePGCL has proposed certain addition during the control period as given below:

Financial Year	Addition of Old Stations	Sonapani	Total
2015-16	14.90	6.00	20.90
2016-17	7.04	-	7.04
2017-18	37.36	0.38	37.74

In accordance with the Regulations, MePGCL is required to get the approval of the business plan prior to submission of ARR application. **Accordingly the Commission directs the petitioner to submit the business plan for new investments by 30.8.15 for prior approval for all projects including Sonapani. Till such time the Commission will not allow any investments during the control period.**

5.7.4 Return on Equity

Petitioner’s Submission

The MePGCL has projected the Return on Equity in the Petition as detailed in the Table below:

Table 5.20: Return on Equity Computation of MePGCL old stations

(Rs. Cr)

Particulars	FY 2012-13 (Actual)	FY 2013-14 (Actual)	FY 2014-15 (Estimated)	FY 2015-16 (Projected)	FY 2016-17 (Projected)	FY 2017-18 (Projected)
Opening Equity (Rs. crore)	278.74	338.62	360.20	423.20	431.81	436.19
Addition during the year (Rs. Crores)	59.89	21.58	63.00	8.60	4.38	30.63
Closing Equity (Rs. Crores)	338.62	360.20	423.20	431.81	436.19	466.82
Equity considered for RoE (Rs. Crores)	310.74	310.95	310.95	315.42	317.53	328.74
RoE (%)	14%	14%	14%	14%	14%	14%
RoE (Rs. Crore)	43.50	43.53	43.53	44.16	44.45	46.02

Source Table 34

The MePGCL has submitted that the funding pattern is as given below:

Table 5.21: Funding pattern – Sonapani

Sl.No.	Particulars	Rs. Cr.
1	Equity	4.11
2	Grant	6.75
3	Total	10.86

The Return on Equity computed by MePGCL Sonapani for the control period as shown in Table below:

Table 5.37: O&M Expenditure based on Actuals

Sl. No	Particulars	FY 2014-15 (Estimated)	FY 2015-16 (Projected)	FY 2016-17 (Projected)	FY 2017-18 (Projected)
1	Employee Cost	31.65	37.50	41.51	46.05
2	R & M Cost	9.91	10.81	11.79	12.85
3	A & G Cost	13.83	15.78	14.56	18.69
	Total	55.40	64.10	67.85	77.59

Commission's Analysis

The Commission has considered the O&M expenses projected by the MePGCL for the control period based on Regulation and based on actuals as reproduced below:

Table 5.38: O&M Expenses as per Regulation

Sl.No	Particulars	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
1	O&M Expenses – Category A (Old Assets)	45.25	47.83	50.57	53.46	56.52
2	O&M Expenses – Category C (Sonapani)	0.27	0.29	0.30	0.32	0.34
	Total O&M Expenses	45.52	48.12	50.87	53.78	56.86

Table 5.39: O&M Expenditure based on Actuals

Sl.No	Particulars	FY 2014-15 (Estimated)	FY 2015-16 (Projected)	FY 2016-17 (Projected)	FY 2017-18 (Projected)
1	Employee Cost	31.65	37.50	41.51	46.05
2	R & M Cost	9.91	10.81	11.79	12.85
3	A & G Cost	13.83	15.78	14.56	18.69
	Total	55.40	64.10	67.85	77.59

The expenses can only be validated if the audited records were made available to the Commission. The Commission has examined the O&M expenses projected by MePGCL. In accordance with the regulations and available records, the Commission has allowed escalation on the O& M expenditures as allowed in FY 2014-15 and determined the charges for the control period. After getting the audited records the Commission shall review the same and if required appropriate changes shall be considered. For Sonapani the Commission has considered the RE regulations and allowed the O& M expenses accordingly after appropriate adjustments. The

Commission has allowed the combined O&M cost for the control period which are given below:

Table 5.41: O & M Expenses approved by the Commission for the control Period

(Rs. Cr)

Sl. No	Particulars	FY 2015-16	FY 2016-17	FY 2017-18
1	O&M expenses for old stations	54.7	57.69	61.18
2	O&M expenses for Sonapani	0.30	0.32	0.34
4	Total	55.00	58.01	61.52

The Commission approves the O&M expenses for the control period at Rs. 55.00 Crore for FY 2015-16, Rs. 58.01 Crore for FY 2016-17 and Rs. 61.52 Crore for FY 2017-18.

5.11 Interest on Working Capital

As per Regulation 34.1 (iii) of the MYT Regulations, 2014, the components of working capital will be:

“34 Interest on Working Capital

34.1 Generation

(iii) In case of hydro power generating stations, working capital shall cover:

- *Operation and maintenance expenses for one (1) month;*
- *Maintenance spares at the rate of 15% of O & M expenses escalated at 6% from the date of commercial operation; and*
- *Receivables equivalent to two (2) month of fixed cost:*

Provided that in case of own generating stations, no amount shall be allowed towards receivables, to the extent of supply of power by the Generation Business to the Retail Supply Business, in the computation of working capital in accordance with these Regulations.”

Table 5.42: Interest on Working Capital – MePGCL Old Stations

Sl.No	Particulars	FY 2015-16	FY 2016-17	FY 2017-18
1	O&M Expenses for 1 Month	5.30	5.61	6.41
2	Maintenance spares @ 15% of O&M plus escalated by 6%	9.54	10.10	11.55
3	Receivables @ 2 months of Fixed Cost	24.76	25.64	28.11
4	Total Working Capital Requirement (Rs. Crore)	39.60	41.35	46.07
5	SBI Advance Bank rate as on 01.04.2014 (%)*	14.75%	14.75%	14.75%
6	Interest on Working Capital	5.84	6.10	6.79

* SBI Advance Bank rate (earlier SBI PLR) has not been revised since November 2013. Therefore the SBI PLR as on 01-11-2013 considered for interest on Working Capital.

Table 5.43: Interest on Working Capital - Sonapani

Sl. No	Particulars	FY 2015-16	FY 2016-17	FY 2017-18
1	O&M Expenses for 1 Month	0.04	0.04	0.04
2	Maintenance spares @ 15% of O&M plus escalated by 6%	0.08	0.08	0.08
3	Receivables @ 2 months of Fixed Cost	0.33	0.38	0.41
4	Total Working Capital Requirement (Rs. Crore)	0.45	0.51	0.55
5	SBI Advance Bank rate as on 01.04.2014 (%)	14.75%	14.75%	14.75%
6	Interest on Working Capital	0.07	0.08	0.08

Commission's Analysis

Based on the analysis of various components of normative working capital, the Commission approves the working capital and interest on working capital as given table below:

Table 5.44: Interest on Working Capital, approved by the Commission for the Control Period

Sl.No	Particulars	FY 2015-16	FY 2016-17	FY 2017-18
1	O&M Expenses for 1 Month	4.56	4.81	5.10
2	Maintenance spares @ 15% of O&M plus escalated by 6%	8.20	8.65	9.17
3	Receivables @ 2 months of Fixed Cost	12.68	13.95	15.34
4	Total Working Capital Requirement (Rs. Crore)	25.44	27.41	29.61
5	SBI Advance Bank rate as on 01.04.2014 (%)	14.75	14.75%	14.75%
6	Interest on Working Capital	3.75	4.04	4.37

Table 5.44: Interest on Working Capital of sonapani, approved by the Commission for the Control Period

Sl. No	Particulars	FY 2015-16	FY 2016-17	FY 2017-18
1	O&M Expenses for 1 Month	0.03	0.03	0.03
2	Maintenance spares @ 15% of O&M plus escalated by 6%	0.05	0.05	0.05
3	Receivables @ 2 months of energy charges	0.17	0.17	0.17
4	Total Working Capital Requirement (Rs. Crore)	0.25	0.25	0.25
5	SBI Advance Bank rate as on 01.04.2014 (%)	14.75%	14.75%	14.75%
6	Interest on Working Capital	0.04	0.04	0.04

Table 5.45: Total Interest on Working Capital

Sl.No	Particulars	FY 2015-16	FY 2016-17	FY 2017-18
1	Old Stations	3.75	4.04	4.37
2	Sonpani	0.04	0.04	0.04
3	Total Interest on Working Capital	3.79	4.08	4.41

5.12 Income Tax

MePGCL has submitted that Income Tax will be claimed in subsequent follow-up in annual performance reviewed / true-up. As such Income Tax has not been claimed in the Petition.

5.13 Connectivity to SLDC and SLDC Charges

MePGCL has submitted that as per Regulation 59 of MYT Regulations, 2014 provides to claim of SLDC of connecting charges and expenses. It is submitted that as per the information received from SLDC, MePGCL has to pay SLDC charges for the control period of FY 2015-16 to FY 2017-18 as detailed below:

Table 5.46: SLDC Charges applicable to MePGCL

(Rs. Cr)

Sl. No	Particulars	Capacity (MW)	SLDC Charge		
			FY 2015-16	FY 2016-17	FY 2017-18
1	Umiam Stage I	36	0.20	0.19	0.21
2	Umiam Stage II	20	0.11	0.11	0.12
3	Umiam Stage III	60	0.33	0.32	0.37
4	Umiam Stage IV	60	0.33	0.32	0.37
5	Umtru Power Station	11.2	0.07	0.06	0.07
6	Sonpani	1.5	0.01	0.01	0.01

The Commission has considered that above SLDC charges and approves the same including Sonpani for the control period.

5.14 Summary of Fixed Costs – MePGCL Old Stations

The summary of the Annual Fixed Cost for MePGCL old stations is provided in the table below:

Table 5.47: Annual Fixed Cost – MePGCL Old Stations

(Rs. Cr)

Sl. No	Particulars	FY 2015-16	FY 2016-17	FY 2017-18
1	Interest on Loan Capital	14.93	15.20	16.78
2	Depreciation	19.58	20.09	21.28
3	O&M Expenses	63.59	67.31	76.97
4	Interest on Working Capital	5.84	6.10	6.79
5	Return on Equity	44.16	44.45	46.02
6	Income Tax	-	-	-
7	SLDC Charges	0.78	0.99	1.11
8	Total Annual Fixed Cost	148.87	154.14	168.95
9	Less: Non Tariff Income	0.31	0.31	0.31
10	Net Annual Fixed Cost	148.57	153.84	168.64

MePGCL has submitted that Net Annual Fixed Cost for MePGCL Old Stations to the MePGCL Old – A Stations as per the capacity of each station. The station-wise allotting Net Annual Fixed Cost is shown in the Table Below:

Table 5.48: Net AFC allotment to Old Stations

(Rs. Cr)

Sl. No	Particulars	Capacity (MW)	SLDC Charge		
			FY 2015-16	FY 2016-17	FY 2017-18
1	Umiam Stage I	36	28.57	29.58	32.43
2	Umiam Stage II	20	15.87	16.44	18.02
3	Umiam Stage III	60	47.62	49.31	54.05
4	Umiam Stage IV	60	47.62	49.31	54.05
5	Umtru Power Station	11.2	8.89	9.20	10.09
6	Total AFC for Old Stations	187.20	148.57	153.84	168.64

Summary of Annual fixed cost of Sonapani

The summary of the Annual Fixed Cost for Sonapani is provided in the table below:

Table 5.49: Annual Fixed Cost – Sonapani

(Rs. Cr)

Sl.No	Particulars	FY 2015-16	FY 2016-17	FY 2017-18
1	Interest on Loan Capital	0.30	0.60	0.60
2	Depreciation	0.50	0.50	0.52
3	O&M Expenses	0.51	0.54	0.62
4	Interest on Working Capital	0.07	0.08	0.08
5	Return on Equity	0.58	0.58	0.62
6	Income Tax	-	-	-
7	SLDC Charges	0.01	0.01	0.01
8	Total Annual Fixed Cost	1.96	2.30	2.45
9	Less: Non Tariff Income	-	-	-
10	Net Annual Fixed Cost	1.96	2.30	2.45

MePGCL submits before the Hon’ble Commission to kindly approve the Annual Fixed Cost of Rs. 1.96 Cr, Rs. 2.30 Cr and Rs. 2.45 Cr for FY 2015-16, FY 2016-17 and FY 2017-18 respectively for Sonapani.

Commission’s Analysis

Based on the Analysis of ARR components in the earlier paras in ARR to MEPGCL for the control period given below:

Table 5.50: Annual fixed cost approved for the control period for MePGCL old stations**(Rs. Cr)**

Sl. No	Particulars	FY 2015-16	FY 2016-17	FY 2017-18
1	Interest on Loan Capital	0.46	1.13	1.82
2	Depreciation	10.33	10.33	10.33
3	O&M Expenses	54.70	57.69	61.18
4	Interest on Working Capital	3.75	4.04	4.37
5	Return on Equity	9.18	9.18	9.18
6	Income Tax	0	0	0
7	SLDC Charges	1.04	.99	1.14
8	Total Annual Fixed Cost	79.46	83.36	88.02
9	Less: Non Tariff Income	0.31	0.31	0.31
10	Net Annual Fixed Cost	79.15	83.05	87.71

Similarly for Sonapani, the Commission has fixed the AFC in the following manner keeping in view the interest of Renewable energy heritage plant in Meghalaya.

Table 5.51: Annual Fixed Cost approved for Sonapani**(Rs. Cr)**

Sl.No	Particulars	FY 2015-16	FY 2016-17	FY 2017-18
1	Interest on Loan Capital	-	-	-
2	Depreciation	0.31	0.31	0.31
3	O&M Expenses	0.30	0.32	0.34
4	Interest on Working Capital	0.04	0.04	0.04
5	Return on Equity	0.25	0.25	0.25
6	Income Tax			
7	SLDC Charges	0.01	0.01	0.01
8	Total Annual Fixed Cost			
9	Less: Non Tariff Income	-	-	-
10	Net Annual Fixed Cost	0.91	0.93	0.95

Allocation of AFC Plant Wise:

Regulation prescribes that annual fixed charges should be determined for each generating station so that the availability of the machine is validated by the concerned Load Despatch Centre on the basis of the schedules provided by each generating station for optimal utilization of all the energy declared to be available. MePGCL has proposed that net annual fixed cost should be allocated to the its power stations as per the capacity of each station. While allowing MePGCL proposal, the O&M expenses allowed to small hydro less than 25 MW (RE) like Umiam-II and

Umtru plants are far better than the RE regulation prescribes. The Commission has accepted it and allocated the annual fixed cost in the table below:

Table 5.53: Annual Fixed Cost allocated for each power station during control period

Sl. No	Particulars	Capacity (MW)	Approved AFC (Rs. Crores)		
			2015-16	2016-17	2017-18
1	Umiam Stage I	36	15.22	15.97	16.87
2	Umiam Stage II	20	8.46	8.87	9.37
3	Umiam Stage III	60	25.37	26.62	28.11
4	Umiam Stage IV	60	25.37	26.62	28.11
5	Umtru Power Station	11.2	4.74	4.97	5.25
6	Sonapani	1.5	0.91	0.93	0.95
	Total	188.7	80.06	83.98	88.66

Recovery of annual fixed charges:

As per the regulation the recovery of annual fixed charges has to be made in two parts namely, capacity charges and energy charges. The Commission has adopted the similar approach as adopted in the last tariff order to allow the payment of fixed charges and energy charges in a simpler form. 50% recovery of fixed charges of Rs.40.03 crores in 2014-15 shall be made in 12 equal monthly installments by MePDCL which shall be Rs.3.336 crores per month to the generating company for its six existing plants. This amount shall be paid by MePDCL to MePGCL every month within seven days of invoice. Remaining terms and conditions shall be as per the Regulation. In addition to the fixed charges, generating company shall also recover 50% of annual fixed charges i.e. Rs.40.03 crores through energy charges on actual purchase of electricity by MePDCL at the rate approved for each plant in the last column of the table below:.

Table 5.52: Fixed and Energy charges approved for 2015-16

CAPACITY AND ENERGY CHARGES PLANTWISE FOR 2015-16							
Sl. No.	Name of Plant	Capacity (MW)	Designed/Annual Energy(MU)	AFC Allocation (Rs. Cr)	Average Tariff (Rs/Unit)	50% as Capacity charges (Rs. Cr.)	50% as energy charges (Rs./KWH)
1	Umiam Stage I	36	116	15.22	1.31	7.61	0.66
2	Umiam Stage II	20	46	8.46	1.84	4.23	0.92
3	Umiam Stage III	60	139	25.37	1.83	12.68	0.91
4	Umiam Stage IV	60	207	25.37	1.23	12.68	0.61
5	Umtru	11.2	39	4.74	1.21	2.37	0.61
6	Sonapani	1.5	5	0.91	1.82	0.46	0.91
	Total	188.7	552	80.06	1.45	40.03	0.73

On the basis of the information provided by the MePGCL and discussions held, the Commission has determined the total AFC for the control period for six plants namely: Umiam Stage I, Umiam Stage II, Umiam Stage III, Umiam Stage IV, Umtru and Sonapani. The total installed capacity of the plant is 188.7 MW and the generation available from these plants is 552 MU after allowing auxiliary consumptions. For the sake of clarity and efficiency, the Commission has tried to allocate the total annual fixed charges to be recovered from the beneficiary MePDCL in the Financial Year 2015-16 on these plants on the basis of their capacity and designed energy. This will give a signal to each generating station to make their schedules to SLDC on the basis of their capacity to generate and availability to the fullest. The station wise tariff shall give them a motivation to improve their current level of operation so as to optimize generation and get maximum revenue.

6. Directives

Compliance Report on the directives given in the tariff order of 2013-14

Direction 1:

Power purchase agreement: The regulation prescribes that there would be a power purchase agreement or commercial agreement between the company and beneficiary company. It will contain all the terms and conditions for purchase of energy and payment thereof. It would also cover the installed capacity and designed energy and the period of supply. The PPA should be in accordance with the tariff regulation notified by the Commission from time to time. Accordingly, the Commission directs the generating company and MePDCL to have a commercial agreement for purchase of energy from MePGCL plants within three months of issue of this order.

Compliance:

MePGCL submitted that a power purchase agreement has already been signed between MePDCL and MePGCL, copy of which has been sent vide their letter dated 25.09.2013.

Direction 2:

MePGCL shall file a tariff petition for new projects like Leshka and Lakroh after their COD achieved for determination of final tariff.

Compliance:

MePGCL submitted that revise cost estimate of the MLHEP was sent to CEA for vetting the same. Further it is informed that Government of Meghalaya has also form a state level technical committee for scrutiny of Leshka power project, report of which is awaited. The tariff filing shall be made after getting the project cost approved by CEA and others. For Lakroh project MePGCL submitted that it is yet to achieve commercial operation. MePGCL will be filing the petition as soon as the project is completed.

Direction 3:

Regulation prescribes that norms of operation shall be determined for each plant separately by calculating normative annual plant availability factor (NAPAF), auxiliary consumption and

transformation losses. This year the Commission is not satisfied with the assumptions taken by the generating company for working out their NAPAF for each plant without any validated supporting information. The Commission directs MePGCL to conduct a study for determining the designed energy, availability, generation, water levels and determine NAPAF based on actual data and submit a report to the Commission with supporting data within six months time.

Compliance:

MePGCL has submitted a detailed report on the computation of NAPAF and designed energy vide their letter dated 25.09.2013. MePGCL has also studied the station wise hourly generation for the last three financial years and the same is reflected in the ARR petition.

Direction 4:

Performance improvement: The Commission directs MePGCL to conduct a bench marking study of its plant with other efficient utilities to explore further scope of improvement in operational efficiency, optimal utilisation of the sources, man power rationalisation including incentive/disincentive schemes. This study should give bench mark for each plant in respect of key parameters including cost and submit a report within six months of this order.

Compliance:

MePGCL submitted a report on step taken on efficiency improvement vide its letter dated 25.09.2013. However, without segregated details of O & M cost for different station MePGCL is unable to conduct bench marking study by comparing the same with the other utilities.

Direction 5:

Renovation and modernisation of existing plant: The Commission directs MePGCL to make comprehensive RMU schemes for efficiency improvement and life extension of old and existing plants and submit the detailed project report to the Commission within a period of six months giving road map for completing these schemes.

Compliance:

MePGCL submitted that a detailed report on R & M on the existing plant for stage II is already submitted to the Commission vide letter dated 25.09.2013.

Direction 6:

Financial statement of accounts: The Commission directs MePGCL to complete their annual accounts for 2012-13 and get it audited as per the statutory requirement so that in the next year ARR determination the Commission is not handicapped for want of audited data.

Compliance:

MePGCL submitted that statements of account for FY 2010-11 for the combined business of MeECL have been placed before the statutory auditor for its audit. Similarly, the statement of accounts for FY 2011-12 for the MeECL is being placed before the audit committee. For MePGCL, the process of trifurcation is under process and the statement of account for FY 2012-13 shall be prepared after the process is over.

Direction 7:

MePGCL shall open a depreciation reserve fund within 30 days of this order wherein the depreciation amount allowed against the existing plant shall be deposited. This fund shall be used for renovation and modernization work.

Compliance:

MePGCL informed that in absence of sufficient fund it is yet to open a separate depreciation reserve fund.

New Directions

Improvement of Performance

The Commission is concerned about the improvement in the performance of the Corporation so that the generation and the availability of the plants are improved. In order to conduct a bench mark study, the Commission has already directed the Corporation in its order for 2013-14. The Commission reiterates its position and direct the Corporation to apply the report made on bench marking. The Corporation is further directed to submit an action plan for implementation of efficiency improvement and manpower rationalization

measures giving target dates for completion of each milestone of proposed plan within six months of issuance of this order.

Control on Expense

The Commission directs the Corporation to prepare an annual budget for FY 2015-16 for each and every plant and submit the same to the Commission within one month of the issuance of this Order so that expenses are made within the provision of tariff order and regulations.

Business Plan

As required in the regulation MePGCL is required to file all investment plans to be undertaken in the control period for approval of the Commission by 30.08.2015 so that same may be considered at the time of midterm review. The Corporation is also required to file mandatory requirement for approval of the project like submission of DPRs, investment agreements, approval of the appropriate authority, cost and benefit analysis of the work to be undertaken, etc with the petition of approval of investment plans.

MePGCL is to ensure compliances of directions issued by the Commission from time to time and send their compliance report in timely manner. It is important to adhere with the efficiency standards at each level and the Corporation shall improve from the current level and reach to the best standards in the sector. Finally the Commission would like to appreciate the response from MePGCL for submitting all required information to the Commission as and when required.

(ANAND KUMAR)
CHAIRMAN, MSERC