



ORDER

ON

TRUE UP FOR FY 2010-11 & FY 2012-13

REVIEW FOR FY 2014-15

AGGREGATE REVENUE REQUIREMENT

FOR

FY 2015-16 TO FY 2017-18

&

TARIFF FOR FY 2015-16

FOR

POWER & ELECTRICITY DEPARTMENT

GOVERNMENT OF MIZORAM

27 FEBRUARY 2015

JOINT ELECTRICITY REGULATORY COMMISSION
FOR MANIPUR AND MIZORAM

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Abbreviations

| Abbreviation | Description |
|---------------------|--|
| A&G | Administrative and General |
| AAD | Advance Against Depreciation |
| ARR | Aggregate Revenue Requirement |
| CEA | Central Electricity Authority |
| CERC | Central Electricity Regulatory Commission |
| CWIP | Capital Work in Progress |
| DPS | Delayed Payment Surcharge |
| EA, 2003 | Electricity Act, 2003 |
| FSA | Fuel Surcharge Adjustment |
| FY | Financial Year |
| GFA | Gross Fixed Assets |
| GOI | Government of India |
| HT | High Tension |
| IEX | Indian Energy Exchange |
| JERC | Joint Electricity Regulatory Commission for Manipur and Mizoram |
| kV | Kilovolt |
| kVA | Kilovolt-ampere |
| kW | kilowatt |
| kWh | kilowatt-hour |
| LT | Low Tension |
| MAT | Minimum Alternate Tax |
| MDI | Maximum Demand Indicators |
| MUs | Million Units |
| NEEPCO | North Eastern Electric Power Corporation |
| NHPC | National Hydro Electric Power Corporation |
| NTI | Non-Tariff Income |
| O&M | Operation and Maintenance |
| PGCIL | Power Grid Corporation of India Ltd |
| PLF | Plant Load Factor |
| PLR | Prime Lending Rate |
| PPA | Power Purchase Agreement |
| PWW | Public Water Works |
| R&M | Repair and Maintenance |
| RoE | Return of Equity |
| SBAR | State Bank Advance Rate |
| SLDC | State Load Despatch Centre |
| T&D | Transmission and Distribution |
| UI | Unscheduled Interchange |

JOINT ELECTRICITY REGULATORY COMMISSION

FOR MANIPUR AND MIZORAM

TBL Bhawan, 2nd to 5th Floor peter street,
E18, Khatla, Aizawl, Mizoram – 796001

Case No. 2 of 2014

In the matter of

True up for FY 2010-11 and FY 2012-13 and Review for FY 2014-15 and determination of Multi Year Aggregate Revenue Requirement (ARR) for the control period FY2015-16 to FY 2017-18 and Tariffs for FY 2015-16 in the State of Mizoram

AND

Power & Electricity Department,
Government of Mizoram
(herein referred to as PED).

Petitioner

Present

Mr. A. Chhawnmawia,
Chairperson

ORDER

(The 27th February, 2015)

1. The Electricity Department, Government of Mizoram (herein after referred to as PED) is a deemed licensee in terms of section 14 of the Electricity Act 2003 (herein after referred to as Act), engaged in the business of generation, transmission and distribution of electricity in the state of Mizoram.

2. As per the directive of the Commission, the PED has filed the Petition for true up of expenses and revenues for FY 2010-11 and FY 2012-13 and determination of Multi Year Aggregate Revenue Requirement (ARR) for control period FY 2015-16, FY 2016-17 and FY 2017-18 and Retail Tariff for FY 2015-16.
3. In exercise of the powers vested under section 62(1) read with section 62(3) and section 64 3(a) of the Electricity Act 2003 and Regulation 5.2 JERC (M&M) MYT Regulations, 2014 (Notified on 09.06.2014) (herein after referred to as Tariff Regulations) and other enabling provisions in this behalf the Commission issues this order for truing up of the ARR and revenues for FY 2010-11 and FY 2012-13 and suo-moto review for FY 2014-15 under JERC (Terms and Conditions for determination of Tariff) Regulations, 2010 and approval of the ARR for control period FY 2015-16 to FY 2017-18 and determination of retail Tariff for FY 2015-16 for supply of electricity in the state of Mizoram under JERC (MYT) Regulations, 2014.
4. Tariff Regulations specify that the distribution licensee shall file ARR and Tariff Petition in all aspects along with requisite fee as specified in Commission's fees, fines and charges regulations on or before 30th November of the preceding year. Accordingly the PED has filed the ARR and Tariff Petition for the control period FY 2015-16 to FY 2017-18 along with the Petitions for truing up for FY 2010-11 and FY 2012-13.
5. Regulation 17 of the Tariff Regulations, 2014 provides for giving adequate opportunities to all stake holders and general public for making suggestions/objections on the Tariff Petition as mandated under section 64(3) of the Electricity Act 2003. Accordingly the Commission directed PED vide letter no H.20013/07/14/JERC dt. 9.1.2015 to publish the ARR and Tariff Petition for the control period FY 2015-16 to FY 2017-18 in an abridged form as public notice in newspapers having wide circulation in the state inviting suggestions/objections on the Tariff Petition.

6. Accordingly PED has published the Tariff Petition in the abridged form as public notice in various newspapers and the Tariff petition was also placed on the website of PED. The last date of submission of suggestions/objections was fixed on 29th January, 2015 and later extended up to 14.2.2015 with approval of the Commission.
7. The Commission, to ensure transparency in the process of Tariff determination and for providing proper opportunity to all stake holders and general public for making suggestions/objections on the Tariff petition and for convenience of the consumers and general public across the state, decided to hold the public hearing at the headquarters of the state. Accordingly the Commission held public hearing at Aizawl on 17.2.2015
8. The proposal of PED was also placed before the State Advisory Committee in its meeting held on 16.2.2015 and various aspects of the Petition were discussed by the committee. The Commission took into consideration the deliberations in the State Advisory Committee on the ARR for the FY16 to FY18 and Tariff Petition of PED for the FY2015-16 during the meeting of the committee.
9. The Commission took into consideration of the facts presented by the PED in its Petition and subsequent filings, the suggestions/objections received from stakeholders, consumer organizations, general public and State Advisory Committee and response of the PED to those suggestions/objections.
10. The Commission taking into consideration all the facts which came up during the public hearing and meeting of the State Advisory Committee, has tried up the ARR and revenues for FY 2010-11 and FY 2012-13 and reviewed the ARR and revenues for FY2014-15 and approved the ARR for the control period FY 2015-16 to FY 2017-18 and revised the tariffs for FY 2015-16.
11. The Commission has reviewed the directives issued earlier in the Tariff orders for FY 2010-11 to FY 2014-15 and noted that some of the directives are complied and some are partially attended. The Commission has dropped the

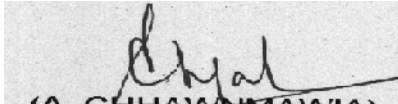
directives compiled with and the remaining directives are consolidated and fresh directives are added.

12. This order is in fourteen chapters as detailed below:

1. Chapter 1 : Introduction.
2. Chapter 2 : Summary of ARR for FY16 to FY18 & Tariff petition for FY16.
3. Chapter 3 : Power Sector in Mizoram-An over view.
4. Chapter 4 : Public hearing.
5. Chapter 5 : True up of ARR for FY 2010-11.
6. Chapter 6 : True up ARR of for FY 2012-13.
7. Chapter 7 : Suo-moto Review of ARR for FY2014-15.
8. Chapter 8 : Analysis of ARR for FY16 to FY18 and approval of the Commission.
9. Chapter 9 : Tariff principles and design.
10. Chapter 10 : Wheeling charges for FY2015-16.
11. Chapter 11 : Fuel and Power purchase cost Adjustment.
12. Chapter 12 : ARR of Transmission Function and Transmission charges.
13. Chapter 13 : ARR of Generation Function.
14. Chapter 14 : Directives.

13. The PED should ensure implementation of the Tariff Order from the effective date after issuance of a public notice in such a font size which is clearly visible in two daily newspapers having wide circulation in the state within a week, and compliance of the same shall be submitted to the Commission.

14. This order shall be effective from 1st April, 2015 and shall remain in force till 31st March, 2016 or till the next Tariff Order of the Commission.



(A. CHHAWNMAWIA)
Chairperson

Place : Aizawl

The 27th February, 2015

1. Introduction

1.1 JERC for Manipur and Mizoram (JERC, M&M)

In exercise of the powers conferred by the Electricity Act 2003, (hereinafter referred to as Act) the Government of India constituted a Joint Electricity Regulatory Commission for the States of Manipur and Mizoram to be known as “Joint Electricity Regulatory Commission for Manipur and Mizoram” vide GOI. Gazette (Extra Ordinary) Notification No.23/3/2002 R&R dated 18/01/2005, (hereinafter referred to as Commission) as per the authorization given by the Government of Manipur and the Government of Mizoram vide Memorandum of Agreement dated 23/07/2004. The Commission constituted is a two-member body designated to function as an autonomous authority responsible for regulation of the power sector in the States of Manipur and Mizoram. The powers and functions of the Commission are as prescribed in the Act. The head office of the Commission is presently located at Aizawl, the capital town of Mizoram. The Commission became functional w.e.f. 24th January, 2008.

1.1.1 In accordance with the provisions of the Act, the Joint Commission discharges the following functions:

- a) Determine the tariff for generation, supply, transmission and wheeling of electricity, wholesale, bulk or retail, as the case may be, within the State: Provided that where open access has been permitted to a category of consumers under Section 42, the State Commission shall determine only the wheeling charges and surcharge thereon, if any, for the said category of consumers;
- b) Regulate electricity purchase and procurement process of distribution licensees including the price at which electricity shall be procured from the generating companies or licensees or from other sources through agreements for purchase of power for distribution and supply within the State;

- c) Facilitate intra-State transmission and wheeling of electricity;
- d) Issue licenses to persons seeking to act as transmission licensees, distribution licensees and electricity traders with respect to their operations within the State;
- e) Promote co-generation and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person, and also specify, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee;
- f) Adjudicate upon the disputes between the licensees and generating companies; and to refer any dispute for arbitration;
- g) Levy fee for the purposes of this Act;
- h) Specify State Grid Code consistent with the Grid Code specified under Clause (h) of sub-section(1) of Section 79;
- i) Specify or enforce standards with respect to quality, continuity and reliability of service by licensees;
- j) Fix the trading margin in the intra-State trading of electricity, if considered, necessary;
- k) Discharge such other functions as may be assigned to it under the Act.

1.1.2 Further, the Commission also advises the State Government on all or any of the following matters namely:

- a) Promotion of competition, efficiency and economy in activities of the electricity industry;
- b) Promotion of investment in electricity industry;
- c) Reorganization and restructuring of electricity industry in the State;
- d) Matters concerning generation, transmission, distribution and trading of electricity or any other matter referred to the State Commission by that Government.

1.1.3 The State Commission ensures transparency while exercising its powers and discharging its functions.

1.1.4 In discharge of its functions, the State Commission is guided by the National Tariff Policy (NTP) as brought out by GOI in compliance to Section 3 of the Act. The objectives of the NTP are to:

- a) Ensure availability of electricity to consumers at reasonable and competitive rates;
- b) Ensure financial viability of the sector and attract investments;
- c) Promote transparency, consistency and predictability in regulatory approaches across jurisdictions and minimize perceptions of regulatory risks;
- d) Promote competition, efficiency in operations and improvement in quality of supply.

1.2 ARR and Tariff Petition

PED, being an integrated utility, is responsible for generation, transmission, and distribution of electricity in the State of Mizoram and also trading functions through its SLDC.

As per the JERC (M&M) MYT Regulations, 2014 the licensee was required to submit the ARR for control period FY 2015-16 to FY 2017-18 and tariff petition for FY 2015-16 and file the Petition in the month of November of proceeding year for fixing the Tariff for the next financial year. The PED has filed the ARR and MYT Petition for the control period FY2015-16 to FY2017-18 along with true up petitions for FY 2010-11 and FY2012-13. In the petition PED estimated an ARR of Rs. 281.96 crore , Rs 294.15 crore and Rs 312.98 crore for FY 2015-16, 2016-17 and 2017-18 respectively and projected a gap of Rs. 131.86 crore, Rs. 143.46 crore and Rs. 158.00 crore for FY 2015-16, 2016-17 and 2017-18 respectively.

1.3 Admission of Petition and Public Hearing Process

The Commission observed that the ARR filed by the petitioner was incomplete and lacking crucial and vital information required as specified in Commission's Regulations on Terms and Conditions for Determination of Tariff.

PED was asked to submit the required information vide Commission's letter No.H.20013/07/14-JERC Dt. 9th January, 2015. Pending receipt of additional information the ARR and Tariff Petition was admitted on 22.12.2014 and marked as Petition No. 2 of 2014 to avoid delay in processing of ARR.

The Commission directed the PED to publish the summary of the ARR and tariff proposal in the abridged form and manner as approved in accordance with section 64 of the Electricity Act 2003 to ensure public participation.

The notification of the proposed ARR and the tariff schedule for FY 2015-16 was published by the PED in the following newspapers.

| SI.No. | Name of the newspaper | Languag | Date of publication |
|--------|-----------------------|---------|----------------------|
| 1 | Highlander | English | 15.1.2015 |
| 2 | Zozam Times | Mizo | 15.1.2015 & 6.2.2015 |
| 3 | Vanglaini | Mizo | 6.2.2015 |

Through the public notice, the stakeholders/public were invited to file their objections and suggestions on the petition on or before 14.2.2014.

1.4 Notice for Public Hearing:

A notification was published by the Commission in the following leading newspapers for giving due intimation to all stakeholders, general public, interested parties, and consumers about the public hearing to be held at Aizawl on 17.2.2015.

| SI. No. | Name of the News- | Language | Date of Publication |
|---------|-------------------|----------|-----------------------|
| 1 | The Aizawl Post | Mizo | 29.1.2015 & 30.2.2015 |
| 2 | Highlander | English | 29.1.2015 & 30.2.2015 |

1.5 Public Hearing:

Public hearing was held as scheduled on 17.2.2015 in the Conference Hall

of I & PR Department, Aizawl. During the public hearing each objector was provided a time slot for presenting his views on the petition of PED before the Commission. The main issues raised by the objectors during the public hearing along with response of PED are briefly reproduced in Chapter - 4.

1.6 Meeting of State Advisory Committee

The State Advisory Committee met on 16.2.2015 in the Conference Hall of I & PR Department, Aizawl and discussed the MYT ARR & Tariff proposal for FY 2015-16 of PED, Mizoram. The minutes of the Advisory Committee meeting are given in Annexure – I

2. Summary of ARR & Tariff Petition

2.1 Aggregate Revenue Requirement (ARR)

The PED in its petition has projected the Aggregate Revenue Requirement for the first control period FY 2015-16 to FY 2017-18 and Tariff proposal for FLY 2015-16 for meeting its expenses and the estimated revenue during the control period with the existing tariff. The ARR and revenue gap are shown in Table 2.1 below.

Table 2.1: Aggregate Revenue Requirement for the period FY 2015-16 to FY 2017-18
(Rs. in crore)

| Sl. No | Particulars | FY 2014-15 | FY 2015-16 | FY 2016-17 | FY 2017-18 |
|--------|---|---------------|---------------|---------------|---------------|
| 1 | Cost of Power Purchase | 167.29 | 179.63 | 187.86 | 201.43 |
| 2 | Cost of Generation | 0.00 | 7.84 | 8.15 | 8.36 |
| 3 | Cost of Fuel | 0.05 | 0.07 | 0.07 | 0.07 |
| 4 | Operation & Maintenance Expenses | 99.56 | 48.26 | 51.02 | 53.94 |
| 5 | Transmission charges | 18.36 | 19.31 | 20.46 | 2168.29 |
| 6 | Intra- state Transmission Charges | 0.00 | 19.46 | 20.20 | 21.59 |
| 7 | Interest & Finance Charges | 3.63 | 3.16 | 2.68 | 2.26 |
| | Depreciation | 1.43 | 2.32 | 1.75 | 1.64 |
| 8 | Interest on Working Capital | 3.51 | 4.35 | 4.54 | 4.75 |
| 9 | Return on Equity | 0.00 | 0.00 | 0.00 | 0.00 |
| | Prior period expenses | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 | Provision for Bad Debt | 0.00 | 0.00 | 0.00 | 0.00 |
| 11 | Total Revenue | 296.86 | 284.40 | 296.73 | 315.72 |
| 12 | Less: Non-Tariff Income | 3.00 | 2.44 | 2.58 | 2.73 |
| 13 | Less: Revenue from Sale of Power-Exchange | 0.00 | 0.00 | 0.00 | 0.00 |
| 14 | Net Revenue Requirement (11-12-13) | 293.36 | 281.96 | 294.15 | 312.98 |
| 15 | Revenue from existing tariff | 142.92 | 150.10 | 150.69 | 154.98 |
| 16 | GAP | 15.94 | 131.86 | 143.46 | 158.00 |

(Source: Table 4.21 of ARR Petition)

2.2 Tariff

The PED in its petition has submitted the proposed tariff for the FY 2015-16 as per the table 2.2 below:

Table 2.2: Existing V/s. Proposed Tariff for FY 2015-16

| Sl.No | Type of Installation | Existing Tariff | | Proposed Tariff | |
|----------|----------------------|-----------------|--------------------------|-----------------|--------------------------|
| | | Energy Charges | Fixed charges | Energy Charges | Fixed charges |
| | | Rs./kWh /Month | Rs/Con/kW/month | Rs./kWh/Month | Rs/Con/kW/month |
| | | A | B | A | B |
| 1 | Kutir Jyothi | | | | |
| i) | First 15 kWh | 1.2 | 10/Connection | 1.3 | 15/Connection |
| ii) | Next 15 kWh | 1.8 | 10/Connection | 1.9 | 15/Connection |
| iii) | Balance above 30 kWh | 2.1 | 10/Connection | 2.3 | 15/Connection |
| 2 | Domestic | | | | |
| A | LT | | | | |
| i) | First 50 kWh | 2.1 | 25/kW of Contracted Load | 2.3 | 30/kW of Contracted Load |
| ii) | Next 50 kWh | 3 | 25/kW of Contracted Load | 3.2 | 30/kW of Contracted Load |
| iii) | Next 100 kWh | 3.8 | 25/kW of Contracted Load | 3.95 | 30/kW of Contracted Load |
| iv) | Balance | 4.5 | 25/kW of | 4.7 | 30/kW of |

| | | | | | |
|----------|-------------------------------------|------|--------------------------|-----|--------------------------|
| | above 200 kWh | | Contracted Load | | Contracted Load |
| B | HT | 4.5 | 30/kVA of Billing Demand | 4.7 | 30/kVA of Billing Demand |
| 3 | Commercial | | | | |
| A | LT | | | | |
| i) | First 100 kWh | 3.3 | 50/kW of Contracted Load | 3.4 | 60/kW of Contracted Load |
| ii) | Next 100 kWh | 4.3 | 50/kW of Contracted Load | 4.3 | 60/kW of Contracted Load |
| iii) | Balance above 200 kWh | 5.2 | 50/kW of Contracted Load | 5.2 | 60/kW of Contracted Load |
| B | HT | 5.2 | 60/kVA of Billing Demand | 5.2 | 60/kVA of Billing Demand |
| 4 | Public Lighting | 4.75 | 50/kW of Contracted Load | 4.8 | 60/kW of Contracted Load |
| 5 | Irrigation & Agriculture | | | | |
| A | LT | 1.75 | 20/kW of Contracted Load | 1.8 | 30/kW of Contracted Load |
| B | HT | 1.75 | 30/kVA of Billing | 1.8 | 30/kVA of Billing |

| | | | | | |
|----------|---------------------------|------|--------------------------|-----|--------------------------|
| | | | Demand | | Demand |
| 6 | Public Water Works | | | | |
| A | LT | 4.75 | 50/kW of Contracted Load | 4.9 | 75/kW of Contracted Load |
| B | HT | 4.75 | 70/kVA of Billing Demand | 4.9 | 75/kVA of Billing Demand |
| 7 | Industrial | | | | |
| A | LT | | | | |
| i) | First 400 KWh | 3.45 | 50/kW of Contracted Load | 3.6 | 60/kW of Contracted Load |
| ii) | Balance above 400 KWh | 4.1 | 50/kW of Contracted Load | 4.3 | 60/kW of Contracted Load |
| B | HT | 4.1 | 60/kVA of Billing Demand | 4.2 | 60/kVA of Billing Demand |
| 8 | Bulk Supply | 3.85 | 70/kVA of Billing Demand | 4 | 70/kVA of Billing Demand |

3. Power Sector in Mizoram- An over view.

3.1 Geographical Reality

The PED is responsible for supply and distribution of electricity in the State of Mizoram which has a total area of 21087 Sq KM in its eight districts, viz. Aizawl, Mamit, Kolasib, Champhai, Serchhip, Lunglei, Lawngtlai and Saiha. The State shares more than 700 Kms of international boundary with Bangladesh and Myanmar. The total population of Mizoram State is 10.92 lakh as per 2011 census. The per capita consumption is about 262 kWh for FY 2013-14. PED serves about 1.80 lakh consumers of various categories at the end of March, 2014.

3.2 Power supply

3.2.1 Own Generation

PED has Generation from its own generating plants. The total installed capacity of the State owned generating stations and the actual energy generation during 2013-14 as furnished by PED is in Table 3.1 below:

Table 3.1: Own Generating Stations as on 31.03.2014

| Sl. No. | Station | Installed Capacity (MW) | Gross Generation (MU) |
|------------|-------------------------|-------------------------|-----------------------|
| | | | 2013-14 |
| I | Hydel | 29.35 | |
| 1 | Serlui 'A' | 1.00 | |
| 2 | Tuirivang | 0.30 | |
| 3 | Khawiva | 1.05 | |
| 4 | Tuipui | 0.50 | |
| 5 | Maicham-I | 2.00 | |
| 6 | Teirei | 3.00 | |
| 7 | Tuipanglui | 3.00 | |
| 8 | Kau-Tlabung | 3.00 | |
| 9 | Lamsial | 0.50 | |
| 10 | Maicham-II | 3.00 | |
| 11 | Serlui 'B' | 12.00 | |
| II | Diesel | | |
| 1 | Lengpui | 0.50 | |
| III | HFO | | |
| 1 | Bairabi | 22.92 | |
| | Total (I+II+III) | 52.77 | 55.34 |

PED stated that out of its own generation plants of 52.77 MW the diesel generating set of 0.50 MW is for Lengpui Airport, and the heavy fuel plant of 22.92 MW at Bairabi is kept on standby mode for the purpose of meeting the emergency requirements. The rest are mini Hydel plants having seasonal generation.

3.2.2 Power Purchase

The State is dependent on outside sources for meeting its energy requirement. The State has share from Central Sector Generating Stations and total firm share from the Central Sector Generating Stations of NEEPCO, NHPC and NTPC is 70.60 MW. Apart from this PED is also getting power to a tune of 10.5 MW from NEC funded Baramura gas based thermal power plant and 22 MW from Palatana gas based power plant in Tripura state. Therefore the total allocation to Mizoram from its share of power from the generating stations outside the State is 103.09 MW as depicted in the Table 3.2 below:

Table 3.2: Share from Central Generating Stations (CGS)

| Sl. No | Source | Plant Capacity (MW) | Licensee's Share in (%) | Licensee's Share in MW |
|------------|---------------------------|---------------------|-------------------------|------------------------|
| A | Central Generating | | | |
| I | NTPC | | | |
| 1 | Farakka STPS | 1600 | 0.14 | 2.24 |
| 2 | Kahalgaon | 840 | 0.14 | 1.18 |
| 3 | Talcher STPS | 1000 | 0.14 | 1.4 |
| | NTPC-Total | 3440 | | 4.82 |
| II | NHPC | | | |
| 1 | Loktak HEP | 105 | 5.02 | 5.27 |
| | NHPC-Total | 105 | | 5.27 |
| III | NEEPCO | | | |
| 1 | Kopilli HEP | 200 | 4.618 | 9.24 |
| 2 | Kopili - II HEP | 25 | 6.04 | 1.51 |
| 3 | Khandong HEP | 50 | 3.94 | 1.97 |
| 4 | Ranganadi HEP | 405 | 5.7 | 23.09 |
| 5 | Doyang HEP | 75 | 5.25 | 3.94 |
| 6 | AGBPP | 291 | 5.41 | 15.74 |
| 7 | AGTPP | 84 | 5.98 | 5.02 |

| Sl. No | Source | Plant Capacity (MW) | Licensee's Share in (%) | Licensee's Share in MW |
|--------|--------------|---------------------|-------------------------|------------------------|
| | NEEPCO-Total | 1130 | | 60.50 |
| IV | TSECL | | | |
| 1 | B'mura - IV | 21 | .5 | 5.25 |
| 2 | B'mura - V | 21 | 25 | 5.25 |
| | TSECL-Total | 42 | | 10.5 |
| V | OTPC | | | |
| 1 | Palatana | 726 | 3.03 | 22 |
| | OTPC-Total | 726 | | 22 |
| VI | Total | 5443 | | 103.09 |

(Source: table 4.5 of ARR Petition)

The energy drawn from various central generating stations and Tripura during 2013-14 is given in Table 3.3 below:

Table: 3.3: Energy draws from Sources outside the State.

| Sl No | Source | FY 2011-12 | FY 2012-13 | FY 2013-14 |
|------------|------------------------------------|--------------|--------------|--------------|
| A | Central Generating Stations | | | |
| I | NTPC | | | |
| 1 | Farakka STPS | 20.94 | 14.87 | 17.57 |
| 2 | Kahalgaon STPS | 10.39 | 8.83 | 9.25 |
| 3 | Talcher STPS | 12.82 | 10.33 | 10.19 |
| | NTPC-Total | 44.15 | 34.04 | 37.01 |
| II | NHPC | | | |
| 1 | Loktak HEP | 25.54 | 27.99 | 30.83 |
| | NHPC-Total | 25.54 | 27.99 | 30.83 |
| III | NEEPCO | | | |
| 1 | Kopili HEP | 41.53 | 28.56 | 32.52 |
| 2 | Kopili - II HEP | 5.51 | 5.57 | 4.67 |
| 3 | Khandong HEP | 6.98 | 6.38 | 7.01 |

| SI No | Source | FY 2011-12 | FY 2012-13 | FY 2013-14 |
|-----------|--|---------------|---------------|---------------|
| 4 | Ranganadi HEP | 55.28 | 69.94 | 55.58 |
| 5 | Doyang HEP | 11.49 | 10.39 | 12.24 |
| 6 | AGBPP | 93.73 | 84.17 | 91.64 |
| 7 | AGTPP | 38.78 | 35.96 | 37.64 |
| | NEEPCO-Total | 253.30 | 240.97 | 241.30 |
| IV | TSECL | | | |
| 1 | B`mura -IV | 43.62 | 34.56 | 23.68 |
| 2 | B`mura -V | 22.95 | 40.11 | 40.61 |
| | TSECL-Total | 66.57 | 74.67 | 64.29 |
| V | OTPC | | | |
| 1 | Palatana | | | 18.58 |
| | OTPC-Total | | 0.00 | 18.58 |
| VI | Other Stations/IPPs | | | |
| | Others-total | 0.00 | 0.00 | 0.00 |
| | State Generating Stations | | | |
| 1 | All Units | 22.33 | 57.13 | 54.24 |
| | State Generating Stations-Total | 22.33 | 57.13 | 54.24 |
| C | RPO | 51.46 | -0.16 | 32.97 |
| | RPO Total | 51.46 | -0.16 | 32.97 |
| E | Supplementary Bills | | | |
| F | Grand Total | 463.36 | 434.62 | 479.21 |

3.3 Transmission and distribution

For drawing power from CGS and other outside sources, there are 3 (three) Nos. of 132kV transmission lines owned by PGCIL connecting Mizoram as given below.

- i) 132kV S/C Jiribam (Manipur) – Aizawl
- ii) 132kV S/C Badarpur (Assam) – Aizawl

iii) 132kV S/C Kumarghat (Tripura) – Aizawl

All these lines terminate at 132KV Luangmual SS, Aizawl under PGCIL, from where power is drawn to different load centers through 2 (two) No. 132 kV lines of PED.

Being a hilly State with its population unevenly dispersed to the remote areas, the State of Mizoram is having large network of HT and LT lines as well as distribution transformers.

The details of transmission and distribution network, owned & operated by PED as on 31/03/2014 are given in Table below:

Table 3.4: Transmission and Distribution Network

| Sl. | Voltage | Transmission lines (Ckt. Km) | Substations/ Transformers | Capacity (MVA) |
|-----|---------------------------|------------------------------|---------------------------|----------------|
| 1 | 132kV | 728.961 | 7 | 121.80 |
| 2 | 66 KV | 117.00 | 2 | 12.60 |
| 3 | 33kV | 972.26 | 45 | 208.70 |
| 4 | 11kV lines | 4976.22 | | |
| | LT lines | 2728.92 | | |
| 6 | Power | | 79 | 358.40 |
| 7 | Distribution transformers | | 1648 | 188.323 |

3.4 Transmission and distribution (T&D) losses

The transmission and distribution losses of PED system were given as 30% during the year 2013-14 including external pool losses. The technical and commercial losses are not segregated.

3.5 Consumer profile and Energy sales

The consumers profile and corresponding energy sales during the year 2013-14 are given in Table below:

Table 3.5: Consumer Profile and Energy Sales for FY 2013-14

| | Category | FY 2013-14 | | |
|------|----------------------------|---------------|------------------|---------------------|
| | | Sales (MU) | No. of Consumers | Connected Load (MW) |
| 1(a) | Kutir Jyothi - LT | 3.69 | 12885 | 1.455 |
| 1(b) | Domestic - LT | 199.5 | 173864 | 222.685 |
| 1(c) | Domestic - HT | 0.65 | 43 | 8.081 |
| 2(a) | Commercial - LT | 21.51 | 7418 | 25.046 |
| 2(b) | Commercial - HT | 2.07 | 119 | 15.767 |
| 3 | Public Lighting - LT | 7.47 | 755 | 1.668 |
| 4(a) | Irrigation & Agriculture - | 0 | 18 | 0.018 |
| 4(b) | Irrigation & Agriculture - | 0.05 | 1 | 0.085 |
| 5(a) | Public Water Works - LT | 0.29 | 8 | 0.037 |
| 5(b) | Public Water Works - HT | 39.92 | 40 | 35.127 |
| 6(a) | Industrial - LT | 2.1 | 688 | 4.902 |
| 6(b) | Industrial - HT | 4.99 | 11 | 7.366 |
| 7 | Bulk Supply - LT | 20.18 | 150 | 12.674 |
| | TOTAL | 302.43 | 1,96,000 | 334.911 |

(Source: Form No: R1 of ARR)

3.6 Demand

The restricted peak power demand of PED during FY 2013-14 was 86 MW as per Retrospect and annual report of NERLDC, Shillong for FY 2013-14. The allocation (firm and infirm) from various central generating stations and NEC funded Baramura Gas Based Thermal Power Plant is 103.09 MW.

The energy drawal by PED during the year 2013-14 is 479.21 MU.

3.7 Energy Audit

PED is not conducting Energy Audit effectively- neither at the state level nor at the consumer end. At present, the PED does the calculation of loss by taking the energy input at 132kV and energy sales at consumer end and the

difference is shown as distribution loss, which cannot be termed as energy audit. As a matter of fact, energy audit should be conducted Voltage wise and computed with standard norms. Any high loss areas should be identified and analyzed and effective measures to be taken to bring down the losses to the permissible limits. To achieve this all the line feeders, transformers and consumers should be provided with standard meters.

3.8 Energy Metering

PED has completed 100 % consumers metering. Most of the meters are static type. Some are not tested for many years. Metering of 33KV, 11KV feeders and DTs are not completed.

3.9 Continuity of Power Supply

All the District Head Quarters are given a continuous power supply. In remote areas and outskirts of the District Headquarters of the State, there are load sheddings during dry season.

4. Public Hearing

4.1 Public Response to the Petition

On admitting the Multi-year ARR and Tariff Petition for 2015-16, the Commission directed the PED to make available copies of the petition to the general public, post the petition on their website and also publish the same in newspapers in abridged form and invite comments / objections from them.

Written objections were received from Central YMA and M/s Eternity Partners LLP during the time period fixed by the Commission.

4.2 Public hearing

In order to ensure transparency in the process of determination of tariff as envisaged in the Electricity Act, 2003, public hearing was held at Aizawl on 17.2.2015 as scheduled.

During public hearing who submitted objections in writing and the participants from general public were given an opportunity to offer their views in respect of the Multi-year ARR and Tariff Petition of P&E Department. The list of stakeholders who attended the public hearing is given in Annexure-II. The officers of P&E Department who were present during the public hearing responded on the issues raised by the objectors.

4.3 Proceedings of Public Hearing

4.3.1 Objector-1: M/s Eternity Partners LLP, Aizawl

Objection:

- (1) In the Para 1-6 the objector has stated facts regarding his organization, filing of the instant objection & filing of the petition by the P&ED.
- (2) The objector has requested the Hon'ble Commission to review and reconsider the various charges for Wheeling and Transmission for the MYT period in view of the difficulties so as to create a viable environment for enabling the Open Access transactions in the state.

- (3) The objector has stated that the whole concept of Open Access is to bring competition and abolish market domination. It also states that it is the duty of the Commission to promote competition.
- (4) The objector has stated that PED has claimed huge amount towards wheeling charges, transmission charges etc. which adds up to a huge amount towards Open Access Charges thereby making it unviable.
- (5) The objector has stated that it is the obligation of the Hon'ble Commission to promote development of market by promoting Open Access under a viable implementable tariff.
- (6) The Objector has stated that the huge sum of money is borne every year by the state by granting subsidies to the consumers which is ultimately causing huge loss to the state fund. The objector has also referred to section 65 of the Electricity Act, 2003 which states the State Government shall pay to compensate the person affected by the grant of subsidy.
- (7) The Objector has quoted the National Tariff Policy and has submitted that the viable cost effective mechanism for Open Access transactions would help improve the system and reduce losses.
- (8) The Objector has states that the Electricity Act, 2003 and National Tariff Policy envisages that a fair and competitive structure shall be created by all the Regulatory Commission for promoting and allowing Open Access.
- (9) The Objector has stated that the Hon'ble Commission has notified Open Access Regulations, 2010, however, due to the high cost involved it is practically impossible to trade electricity under Open Access for any new player who wishes to enter the market under Open Access.
- (10) The Objector has stated that at the proposed charges it will become impossible for an electricity licensed trader like them to provide energy under Open Access at a competitive price.

- (11) The Objector has submitted that the huge amount of subsidy offered every year would also be brought down by a huge margin if Open Access is made viable.
- (12) The Objector has stated that the Wheeling & Transmission charges are high and are required to be reduced.
- (13) The Objector has stated that DISCOM has not taken steps to curb down or minimize the transmission losses which have resulted in higher rate for transmission charges.
- (14) The Objector has stated the Department has not fulfilled its Renewable Energy Purchase Obligations (RPO).
- (15) The Objector has stated the Cross Subsidy Surcharge, Transmission and Wheeling Charges and other charges earlier fixed by the Hon'ble Commission were on the higher side and should be reduced.

4.3.2 Objector-2: Mr. Vanlalruata, General Secretary, Central YMA

Objections:

- (1) The Objector suggests to look into the ARR calculation details jointly by P&E Deptt. and CYMA with an expert Auditor in this matter because CYMA is doubtful of the ARR which has been worked out based on various unaudited parameters. He states that this proposal has been made on the basis of concrete facts.
- (2) In Objector's opinion, it is not necessary to revise power tariff as revision was made last year i.e. 2014-15.
- (3) The Objector suggests that the new Tariff Petition shall not be entertained as the current public notice on power Tariff Petition was issued on 6th February, 2015 only by giving short period of time to the general public.

4.3.3 Objector-3: Mr. Vanlalruata, President, PRISM

Objections:

- (1) The Objector asks how the Employee Cost of Rs.4101.79 lakh was arrived, whereas, the Employee Cost (Salary) from the State Budget

(BE) FY 2014-15 during the same period was more than Rs.8800 lakh and

- (2) the Numbers of BPL connection.

4.3.4 Objector-4: Mr. Lalsawmliana, Vice President, AMFU

Objections:

- (1) The Objector suggests by looking at the proposed tariff for domestic category, the rate of increase for commercial category shall be proportionately more than suggested in the petition.

4.3.5 Objector-5: Mr.H.Rammawi, MNF Party

Objections:

- (1) The Objector requests the Commission to slightly decrease the tariff hike from the proposal.
- (2) The Objector wants to know how transmission and wheeling charges can be decreased from the previous Tariff Order.

4.4 Response of PED

4.4.1 On Objector-1

- (1) Para 1-6 being statement of facts requires no response from PED.
- (2) PED submitted that all assumptions and projections in the petition are based on standard accounting practices and taking into consideration past trends and other factors affecting for the determinants of Aggregate Revenue Requirement. Further, tariff & other charges are in accordance with principles for determination of tariff as laid down in various clauses of the The Joint Electricity Regulatory Commission for Manipur and Mizoram (Multi Year Tariff) Regulations, 2014.

It is also submitted that the tariff & other charges are determined by the Hon'ble Commission by applying the yardsticks/norms and applicable clauses of the Regulation, hence it is requested that the Hon'ble Commission may determine the tariff & charges as per the Regulation and Petition submitted by the PED.

- (3) It is submitted that above is the prerogative of the Hon'ble Commission and hence requires no comment from the PED.
- (4) Submission of PED in response to (2) above may kindly be considered as reply to this issue. However, it is again reiterated that PED has submitted its ARR & other charges in accordance with principles for determination of tariff as laid down in various clauses of the Joint Electricity Regulatory Commission for Manipur and Mizoram (Multi Year Tariff) Regulations, 2014.

It is prayed that Hon'ble Commission may kindly determine the ARR & Tariff/other charges by applying the yardsticks/norms and applicable clauses of the Regulation.

- (5) PED submitted that the deciding on the above is the prerogative of the Hon'ble Commission. However, Hon'ble Commission may kindly consider the interest of the PED while deciding on the matter.
- (6) PED submits that the Tariff is a sensitive subject having substantial impact on social, economic and financial well-being of the public at large as well as the viability and growth of power sector. The entire deficit/revenue gap so far has not been passed on to the consumers in view of maintaining the essential services at payable price irrespective of economic viability.

PED proposes to recover only a part of the gap between ARR & Revenue from tariff through hike in tariff as recovery of the total gap would result in huge burden on the consumers. PED being a government department funded by budgetary support from State Government proposes to absorb the unrecovered gap.

Moreover, the PED is being Government Department and directly controlled by the Government of Mizoram in all financial related matters, therefore, payment of subsidised amount in advance may also not practicable at this situation.

However, the PED is working towards reduction in subsidy/cross subsidy as mandated by the National Tariff Policy in a phased manner.

- (7) It is submitted that deciding the Tariff & other charges is the prerogative of the Hon'ble Commission. However, Hon'ble Commission may kindly decide the tariff and charges in accordance with the Regulations and may keep in view the interest of PED while deciding on the matter.
- (8) It is submitted that the above is the prerogative of the Hon'ble Commission and requires no comments from PED.
- (9) It is submitted that deciding the Tariff & other charges is the prerogative of the Hon'ble Commission. However, Hon'ble Commission may kindly decide the tariff and charges in accordance with the Regulations and may keep in view the interest of both the parties while deciding on the matter.
- (10) It is submitted that deciding the Tariff & other charges is the prerogative of the Hon'ble Commission. However, Hon'ble Commission may kindly decide the tariff and charges in accordance with the Regulations and may keep in view the interest of PED while deciding on the matter.
- (11) It is submitted that ARR and tariff/other charges are to be determined in accordance with the Regulations issued by the Hon'ble Commission.
- (12) It is submitted that the Wheeling charges has been calculated in accordance with the Regulation 71 read with Regulation 72 of The Joint Electricity Regulatory Commission For Manipur and Mizoram (Multi Year Tariff) Regulations, 2014.

Similarly, Transmission charges have also been calculated as per the applicable provisions of The Joint Electricity Regulatory Commission for Manipur and Mizoram (Multi Year Tariff) Regulations, 2014.

It is requested that the Hon'ble Commission may kindly keep in view the interest of the PED while deciding on the matter.

- (13) It is submitted that PED has been trying to reduce the transmission losses during recent years. PED submits that the system improvement works executed every year under the plan schemes have also

contributed to the reduction of transmission losses. However, it may also be noted that reduction of transmission losses may not be possible beyond a certain level due to topographical conditions and technical limitations and other factors. In the instant petition the transmission losses has been considered at 3% as approved by the Hon'ble Commission in the Tariff Order for the FY 2014-15.

- (14) It is submitted that the PED is making efforts to increase the Renewable energy generation. Many micro & small hydro projects are being developed. Presently, there are 10 commissioned SHPs with installed capacity in the range of 1MW to 3MW each. In addition to this Serlui 'B' (12 MW) is also generating power. Total energy generated from these SHPs during FY 2013-14 was 54.22 MUs. PED has also projected generation from these SHPs at 66 MUs during the MYT period.

In this regard it is submitted that Regulation 2 of the Joint Electricity Regulatory Commission for the States of Manipur & Mizoram (Renewable Purchase Obligation and its Compliance) Regulations, 2010 provides as follows:

“Minimum quantum of electricity to be purchased by the licensees from renewable energy sources, expressed as percentage of their total consumption of electricity in a year shall be as per the schedule, given below:

| <i>Renewable Purchase Obligation of Licensee</i> | | |
|--|------------------------|-----------------------|
| <i>Year</i> | <i>RPO for Manipur</i> | <i>RPO for Mizorm</i> |
| <i>2010-11</i> | <i>2%</i> | <i>5.0%</i> |
| <i>2011-12</i> | <i>3%</i> | <i>6.0%</i> |
| <i>2012-13</i> | <i>5%</i> | <i>7.0%</i> |

For subsequent years, the Commission will separately specify the purchase obligation as the Commission deems fit.

Provided that 0.25% percentage point out of the total consumption shall be procured from generation based on solar as renewable energy source only.”

Total consumption in the licensee area of the PED for the FY 2015-16 to FY 2017-18 has been projected in the range of 350 MUs to 395 MUs. As per the above Regulation 28 MUs (Approx) is to be procured from Renewable Energy Sources. The PED has proposed to procure 66 MUs from Renewable sources during the period.

Therefore, the PED is fulfilling its RPO obligation as far as other than solar sources are concerned.

However, with regard to the requirement of procurement from solar energy sources to the extent of 0.25% of total consumption i.e 0.9 MUs (approx), it is submitted that Regulation 3 of the Joint Electricity Regulatory Commission for the States of Manipur & Mizoram (Renewable Purchase Obligation and its Compliance) Regulations, 2010 provides as follows:

“(1) Subject to the terms and conditions contained in these regulations the Certificates issued under the Central Electricity Regulatory Commission (Terms and Conditions for recognition and issuance of Renewable Energy Certificate for Renewable Energy Generation) Regulations, 2010 shall be the valid instruments for the discharge of the mandatory obligations set out in these regulations for the obligated entities to purchase electricity from renewable energy sources.

*Provided that in the event of the obligated entity fulfilling the renewable purchase obligation by purchase of certificates, **the obligation to purchase electricity from generation based on solar as renewable energy source can be fulfilled by purchase of solar certificates***

only, and the obligation to purchase electricity from generation based on renewable energy other than solar can be fulfilled by purchase of non-solar certificates.”

As mandated by the above Regulation, P&ED plans to purchase Renewable Energy Certificate (Solar Certificates) to fulfill its obligation under the RPO Regulation for procurement of solar energy. Accordingly, P & ED has made provision for purchase of Renewable Energy Certificate (Solar Certificates) in the ARR. The projected power purchase cost includes charges towards purchase of REC certificates to meet the RPO obligation (Solar). Total cost of REC certificates projected is Rs 120.69 Lakhs, Rs. 127.48 Lakhs & Rs. 134.66 lakhs for the FY 2015-16, FY 2016-17 & FY 2017-18 respectively.

Moreover, as far as Solar RPO is concerned, approval from the Competent authority is being awaited to tie up with Solar Generators for purchase RE from Solar and fulfill the obligation.

- (15) It is submitted that the PED has submitted its petition for determination of ARR, Tariff & other charges for the MYT period taking into consideration the past trends and other factors affecting various determinants of Aggregate Revenue Requirement. Further, tariff & other charges are in accordance with principles for determination of tariff as laid down in various clauses of the The Joint Electricity Regulatory Commission For Manipur and Mizoram (Multi Year Tariff) Regulations, 2014.

It is also submitted that the tariff & other charges are determined by the Hon'ble Commission by applying the yardsticks/norms and applicable clauses of the Regulation, hence, it is requested that the Hon'ble Commission may determine the tariff & charges as per the Regulations and Petition submitted by the PED. Further, it is prayed that the Hon'ble Commission may kindly keep the interest of the PED while deciding on the matter.

4.4.2 On Objector-2

- (1) PED has not calculated ARR by taking various parameters as per commercial accounting in the past petitions. The accounting has been maintained as per CPW Account Code and reconciled with PAG. PED has worked out the ARR based on certified Charter Accountant Audited statement in the current petition for FY 2015-16.
- (2) PED has filed the current petition in line with JERC M&M (Multi-Year Tariff) Regulations, 2014 which mandates to file with the Commission the petition every year.
- (3) PED has submitted Public Notice to I &PR Department on 13.01.2015 to be issued in English and Mizo languages in 2 (two) local newspapers in 1 (one) issue each. The same was published in Highlander newspaper in English and in Zozam Times in Mizo language on 15.01.2015. Zozam Times was requested to republish it as it made typing mistakes. As permitted by the Commission, PED has published Public Notice in Mizo language again in Vanglaini and Zozam Times newspapers on 06.02.2015.

4.4.3 Objector-3

- (1) In this regard it is submitted that the MYT Regulations, 2014 issued by the Hon'ble Commission requires the expenses of the department to be segregated and submitted function wise.

The employee cost of Rs. 4101.79 reflects only the part attributable to the distribution function, employee cost attributable the transmission function & generation is accounted for separately in the section of the petition dealing with the Transmission Tariff & Generation tariff respectively.

It also submitted that the total employee cost for the FY 2015-16 is projected at Rs.8667 lakh as reflected in Format- S1 of Part-II (B) of the petition.

- (2) It is submitted that the number of BPL connection as on 31.03.2014 were 12885.

4.4.4 On Objector-4

- (1) It is submitted that in the proposed tariff, the slab wise variable charges of Domestic category are lower than that of the Commercial category. Apart from that the fixed charges applicable for Commercial category is Rs.60/contracted load where as that for Domestic category is Rs.30/contracted Load. This would result in reasonable difference in tariff for Domestic & Commercial category.

4.4.5 On Objector-5

- (1) Fixation of tariff is the prerogative of the Hon'ble Commission in accordance with the MYT Regulations.
- (2) It is submitted that the transmission charge and wheeling charges are determined by the Hon'ble Commission for the FY 2014-15 was in accordance with the Tariff determination Regulations, 2010. As per this regulation, ARR for transmission and wheeling are Rs.22.08 crores and Rs. 58.51 crores respectively. Hence, the tariffs are Rs. 0.46/kWh for transmission and 1.75/kWh for wheeling.

Whereas, the current petition has been filed in accordance with the MYT Regulations, 2014 notified by the Commission. ARR for transmission and wheeling are worked out to be Rs. 19.46 crores and Rs. 35.85 crores respectively. Hence, the tariffs are Rs. 0.43/unit for transmission and Rs. 1.02/unit for wheeling.

Therefore, the transmission and wheeling charges have gone down on account of reduction in ARRs calculated as per the MYT Regulations, 2014.

4.5 Commission's observation

The Commission has taken careful note of the objections, comments and suggestions made by the stake holders, general public and response of P&E Department Mizoram while analysing and finalising different components of ARR and Tariff proposal keeping in view of the suggestions / remarks made by the objectors and also to meet some of the requirements of Electricity Act,

2003, National Tariff Policy. The Commission has also given certain directions to the department as an integral part of this order.

5. True-up of ARR of 2010-11

5.1 Back ground

5.1.1 The Commission had issued First Tariff Order for the FY 2010-11 on 12-01-2011 based on the petition filed by PED Mizoram in September 2010. The Commission carried out the review exercise for FY 2010-11 with Tariff Order for FY 2012-13 dated 25-07-2012 based on revised estimates of PED Mizoram.

5.1.2 Now the PED has submitted true-up Petition along with MYT Tariff Petition for Control Period of FY 2015-16 to FY 2017-18 along with audited annual accounts for FY 2010-11 as per regulation 21 of JERC, M&M (Terms and Conditions for determination of Tariff) Regulation 2010. The relevant regulation is reproduced below:

- (i) "The Commission shall undertake a review along with next Tariff Order, of the expenses and revenues approved by the Commission in the current year Tariff Order. While doing so, the Commission shall consider variations between approvals and revised estimates / pre-actual of the sale of electricity, income and expenditure for the relevant year and permit necessary adjustments / changes in case such variations are for adequate and justifiable reasons. Such an exercise shall be called 'Review'.*
- (ii) After audited accounts of the year are made available, the Commission shall undertake a similar exercise as in clause (1) above based on the final actual figures as per the audited accounts. This exercise based on the audited accounts shall be called Truing-up.*
- (iii) The Revenue gap of next year shall be adjusted as a result of Review and Truing up exercises.*
- (iv) While approving adjustments towards revenue / expenses in future years, arising out of Review / Truing up exercise, the Commission may allow the carrying costs as determined by the Commission of such expenses /*

revenues, Carrying costs shall be limited to the interest rate approved for working capital borrowings.

- (v) *For any revision of approvals, the licensee shall satisfy the Commission that the revision is necessary for the reasons beyond its control. In case additional supply is required to be made to any particular category, the licensee may, at any time during the year, make an application to the Commission for its approval, duly explaining the need for such change of consumer mix and additional supply of power and also indicating the manner in which the licensee proposes to meet the cost for such change of consumer mix and additional supply of power. The Commission may consider according approval to such proposals provided the cost of additional supply of power is met by the beneficiary category”.*

Accordingly the true up exercise for FY 2010-11 has been under taken by the Commission on the basis of audited accounts for FY 2010-11. However, wherever necessary the Commission has considered expenses based on prudence check and after taking into account efficiency parameters like T&D losses etc.

5.2 True-up of ARR for FY 2010-11

The PED Mizoram in its petition for true-up for FY 2010-11 has furnished actual energy sales, expenditure and revenue for FY 2010-11 based on the audited annual accounts for FY 2010-11. Accordingly the revised ARR, revenue and consequent gap for FY 2010-11 have been claimed by the Petitioner. The Commission has analyzed these components of actual energy sales, expenses, revenue and gap under true-up for FY 2010-11 in the subsequent paragraphs.

5.3 Energy sales Analysis

The PED has reported the actual energy sales at 317.99 MU as against 230.34 MU approved by the Commission for the FY 2010-11. The Category wise actual sales during the FY 2010-11 as reported by the PED in MYT Petition and now approved by the Commission are given in Table below:

Summary of the sales achievement against the approved sales for the FY 2010-11

Table 5.1 Energy Sales for FY 2010-11 approved by the Commission for true-up

(MU)

| Sl. No. | Category | As Approved by Commission in Tariff Order dt.12.1.2011 | As per Accounts for 2010-11 | Now Approved by the Commission on true-up |
|-----------|-------------------------|--|-----------------------------|---|
| 1 | Domestic | 155.45 | 174.40 | 174.40 |
| 2 | Commercial | 16.38 | 14.65 | 14.65 |
| 3 | Public lighting | 8.00 | 7.04 | 7.04 |
| 4 | Agriculture | 0.00 | 0.12 | 0.12 |
| 5 | Public Water Works | 35.18 | 27.29 | 27.29 |
| 6 | LT Industrial | 2.64 | 1.57 | 1.57 |
| | Total LT | 217.65 | 225.07 | 225.07 |
| 7 | HT Industrial | 0.00 | 0.31 | 0.31 |
| 8 | Bulk Supply | 12.69 | 12.49 | 12.49 |
| | Total HT | 12.69 | 12.49 | 12.49 |
| 9 | Outside State – Trading | 70.00 | 80.43 | 80.43 |
| 10 | Total | 300.34 | 317.99 | 317.99 |

5.4 T & D Loss

T&D losses approved by the Commission in the Tariff Order and actuals furnished by PED for FY 2010-11 are as below:

Table 5.2: T&D Loss for FY 2010-11

| Sl. No. | Particulars | As Approved by | As per Account | Deviation |
|---------|----------------------------------|----------------|----------------|-----------|
| 1 | 2 | 3 | 4 | 5 |
| 1 | Transmission & Distribution Loss | 35% | 23.55% | -0.11 |

Commission's analysis

The Commission has analyzed the T&D loss calculation during the FY 2010-11 with the actual data made available by PED and considering NER transmission loss at 3.32% being the average weekly loss during 27-03-2010 to 27-03-2011 of North Eastern Region as detailed in table below:

Table 5.3: T&D Loss Calculation for FY 2010-11 of PED for true up

| Sl. No | Particulars | Year |
|--------|--------------------------------|--------|
| A | Energy Availability | |
| 1 | Own Generation | 33.46 |
| 2 | Power Purchase | 368.13 |
| 3 | NER Transmission Loss @ 3.32% | 12.22 |
| 4 | Net Power Purchase | 355.91 |
| 5 | Total Power Available (1 + 4) | 389.37 |
| 6 | Less: UI Sales | 80.43 |
| 7 | Net Power Available Sale | 308.94 |
| 8 | Less: Energy Sales with State | 237.56 |
| 9 | T&D Loss (MU) | 71.38 |
| 10 | T&D Loss % | 23.10 |

Commission approves T&D Loss at 23.10% as against 23.55% furnished by the PED.

5.5 Energy Requirement & Energy Balance.

Table 5.4: Energy Requirement and Availability for FY 2010-11 after true up.

| Sl. No. | Particulars | Units | Approved by the Commission | Actuals for FY 2010-11 | Considered in True-up for FY 2010-11 |
|---------|---------------------------------------|-------|----------------------------|------------------------|--------------------------------------|
| 1 | Energy Sales | MU | 230.34 | 237.56 | 237.56 |
| 2 | Distribution Loss | MU | 124.03 | 73.18 | 71.36 |
| 3 | Distribution Loss | % | 35.00% | 23.55% | 23.10% |
| 4 | Energy Requirement at State periphery | MU | 354.37 | 310.74 | 308.92 |

5.6 Power Procurement

5.6.1 Own Generation

PED has projected 22.15 MU (Net) own generation for the FY 2010-11. But the Commission approved 43.04 MU (Net) as given in Table 5.12 of the Tariff Order. The actuals now furnished by PED is at 33.46 MU.

The Commission approves own generation at 33.46 MU (Net) for FY 2010-11 in true-up.

5.6.2 Purchase of Power

The Commission approved power purchase of 392.95 MU including UI purchase of 37.57 MU in Tariff Order of FY 2010-11.

PED Mizoram has now reported vide table 1.4 of MYT Tariff petition for FY 2016 to FY18, 368.13 MU of power was purchased from sources outside the state (CGS) during FY 2010-11.

5.7 Energy Balance

The energy balance approved by the Commission in its Tariff Order for FY 2010-11 and actuals furnished by the PED Mizoram and now approved by the Commission after true-up are furnished in Table below:

Table 5.5: Energy Balance Approving by the Commission for FY 2010-11 in true-up.

| Sl. No | Energy Balance | As Approved by Commission | As per Accounts | Now Approved by the Commission |
|----------|---|---------------------------|-----------------|--------------------------------|
| 1 | Energy Sales | 230.34 | 317.99 | 237.56 |
| 2 | Overall T&D Losses % | 35.00% | 23.55% | 23.10% |
| | Overall T&D Losses (MUs) | 124.00 | 70.70 | 71.38 |
| 3 | Total Energy Requirement | 354.34 | 388.70 | 308.94 |
| 4 | a. Own Generation | 43.04 | 33.46 | 33.46 |
| | b. Power Purchase | 355.38 | 368.13 | 368.16 |
| 5 | Less: External loss in the regional network (Pool Loss) | 12.00 | 12.88 | 12.22 |
| 6 | Add: UI purchase from Pool during peak | 37.57 | 0.00 | - |
| 7 | Net Energy Available | 423.98 | 388.71 | 389.37 |
| 8 | Less: Energy requirement at State Periphery | 354.34 | 308.28 | 308.94 |
| 9 | Energy Surplus / Deficit | 69.64 | 80.43 | 80.43 |

5.8 Aggregate Revenue Requirement.

5.8.1 Fuel Cost:

PED projected Fuel Cost of Rs. 348 lakh for own generation of 3.30 MU during the FY 2010-11 for diesel set at Lengpui Airport and HFO power plant Bairabi. Commission desired that the Generation of the above stations be increased to 6.0 MU in order to meet peak period requirement and to minimize the load shedding, and correspondingly the Fuel Cost has been approved at Rs. 640 lakh at Rs. 10.67 kWh/ unit.

Now PED Mizoram has furnished actual fuel cost at Rs. 1.41 crore for generation of 33.46 MU at Rs. 0.42 / kWh which is far from truth as it is too less.

As seen from audited annual accounts no fuel cost is reported. As verified from statement 6 of annual accounts fuel consumption is not recorded. As such, fuel cost is required to be reconciled. However, the fuel cost of Rs. 1.41 crore as furnished by the PED Mizoram is considered for the present.

The Commission accordingly considers Fuel Cost at Rs. 1.41 crore for the generation of 33.46 MU during the FY 2010-11, for true-up.

5.8.2 Power Purchase Cost:

Power purchase cost approved by the Commission was Rs. 81.44 Crore for purchase of 392.95 MU. PED submitted that 368.13 MU power purchased at a cost of Rs. 92.40 Crore as detailed in the Table below:

Table 5.6: Power Purchase Cost approved for true-up

| Sl. No | | Projected by PED | | Approved in Tariff Order for 2010-11 | | Actuals considered in the True-up | |
|--------|--|------------------|---------------|--------------------------------------|---------------|-----------------------------------|---------------|
| | | MU | Cost (Rs. cr) | MU | Cost (Rs. cr) | MU | Cost (Rs. cr) |
| 1 | Cost of Power purchase as per the Tariff Order FY 2010-11 (Table 5.24) | 392.95 | 82.15 | 392.95 | 81.44 | 368.13 | 92.40 |

Commission’s Analysis

To a query the PED through its letter No.T.23011/26/14 EC(P) Com/15 dt 22.1.2015 has stated that the power purchase cost is Rs.90.99 cr and the amount of Rs.92.40 cr is inclusive of fuel cost of Rs.1.41 cr.

Accordingly, the Commission approves power purchase cost at Rs.90.99 crore for FY 2010-11 for purchase of 368.13 MU for true-up.

5.8.3 O & M Expenses

a) Employee Cost: The Commission had approved Rs. 76.56 crore for the year 2010-11 to meet the employee expenses of PED Mizoram. As per annual accounts for FY 2010-11 the employee expenses are Rs. 57.81 crore.

The Commission approves employee expenses at Rs. 57.81 crore for the FY 2010-11, for true-up.

b) Repairs & Maintenance: The Commission had approved R&M expenses at Rs. 10.11 crore as projected by the PED Mizoram for FY 2010-11. PED

has now reported the R&M expenses at Rs. 13.00 crore for the FY 2010-11 as per audited annual accounts for FY 2010-11

The Commission approves the R&M expenses at Rs. 13.00 crore for the FY 2010-11, for true-up

c) Administration & General Expenses: The Commission had approved Rs. 4.35 crore for the FY 2010-11 as projected by the PED. As per annual accounts for FY 2010-11, Adm. & General expenses is Rs. 1.36 crore.

The Commission approves Administration & General expenses at Rs. 1.36 crore for FY 2010-11 as per actuals.

5.8.4 Depreciation

The Commission had approved depreciation at Rs. 16.79 crore for the FY 2010-11 considering the Gross Fixed Assets in use at Rs. 318.11 crore for FY 2010-11.

As per audited annual accounts for FY 2010-11 the opening GFA is Rs. 712.77 crore excluding land valued Rs. 22.03 crore and closing GFA is Rs. 925.81 crore. Total depreciation worked out as per schedule 11 of the accounts is Rs. 38.92 crore. But the PED Mizoram claimed Rs. 3.89 crore being the 10% of total depreciation as 90% of assets are created out of grants.

The Commission approves depreciation of Rs. 3.89 crore for the FY 2010-11, for true-up.

5.8.5 Interest & Finance Charges

The Commission had earlier approved Rs. 19.18 crore towards interest and finance charges for the FY 2010-11 as projected by the PED. Now PED has furnished the Interest & Finance charges at Rs. 1.75 crore for FY 2010-11, as per audited annual accounts for FY 2010-11.

The Commission approves Interest & Finance charges at Rs. 1.75 crore lakh for the FY 2010-11, for true-up.

5.8.6 Interest on Working Capital

The Commission had approved Rs. 1.75 crore, as interest on Working capital as per the JERC Regulation 98 (6) (b) as against the PED claim of Rs. 1.61 crore. Now the PED Mizoram has claimed Rs. 1.62 crore towards interest on Working Capital.

Commission's analysis

Interest on Working Capital is worked out on the approved costs as detailed in Table below:

**Table 5.7: Interest on Working Capital for FY 2010-11 for true-up
(Rs. crore)**

| Sl. No | Particulars | Total Annual Cost | One Month Cost |
|---------------|-----------------------------|--------------------------|-----------------------|
| 1 | Power Purchase Cost | 92.40 | 7.70 |
| 2 | Employee Cost | 57.81 | 4.82 |
| 3 | R&M Expenses Cost | 13.00 | 1.08 |
| 4 | A&G Expenses Cost | 1.36 | 0.11 |
| 5 | Total Working Capital | | 13.71 |
| 6 | SBAR as on 01-04-2010 | | 11.75% |
| 7 | Interest on Working Capital | | 1.61 |

The Commission approves the Interest on Working Capital at Rs. 1.61 crore as per the JERC Regulation 98 (6) (b) and based on the expenses considered for true-up:

5.8.7 Provision for Bad Debts

The Commission had not considered any Provision for Bad and Doubtful Debts for the FY 2010-11, since PED has not written off any amount during FY 2010-11.

5.8.8 Return on Equity

The PED Mizoram has not claimed RoE. The Commission also has not considered any Return on Equity Capital for the FY 2010-11 as the PED is functioning as Government Department.

5.8.9 Non-Tariff Income

The Commission had approved Rs. 1.67 crore as Non-tariff Income for the FY2010-11. Now the PED has reported the Non-tariff Income at Rs. 1.62 crore for the FY 2010-11 as per annual accounts.

The Commission approves Rs. 1.62 crore as Non-tariff Income for the FY 2010-11, after true-up.

5.9 Revenue from approved tariffs

The Commission had approved Revenue with approved tariff rates at Rs. 76.01 crore for approved sales of 230.34 MU for the FY 2010-11.

The PED has reported the energy sales at 317.99 MU, including UI sales at 80.43 MU and revenue from sale of power at Rs. 70.72 crore, as per annual accounts for FY 2010-11.

The Commission approves the revenue receipts at Rs. 70.72 crore for energy sales of 317.99 MU as per accounts.

**Table 5.8: Summary of ARR approved by true-up with actuals for FY
2010-11.**

(Rs. Crore)

| Sl. No. | ARR Elements | ARR Approved | Actuals Furnished by the Licensee | Approved by the Commission |
|----------------|------------------------------|---------------------|--|-----------------------------------|
| 1 | Fuel Cost | 6.40 | 1.41 | 1.41 |
| 2 | Power Purchase Cost | 81.44 | 92.40 | 90.99 |
| 3 | Employees Cost | 76.56 | 57.81 | 57.81 |
| 4 | Repairs and Maintenance Exp | 10.11 | 13.00 | 13.00 |
| 5 | Adm. & Gen Exp | 4.35 | 1.36 | 1.36 |
| 6 | Depreciation | 16.79 | 3.89 | 3.89 |
| 7 | Int. & Fin charges | 19.18 | 1.75 | 1.75 |
| 8 | Int. on Working Capital | 1.75 | 1.63 | 1.61 |
| 9 | Prov. for Bad Debts | - | - | - |
| 10 | Return on Equity | - | - | - |
| 11 | Total ARR | 216.58 | 173.25 | 171.82 |
| 12 | Less: Non-Tariff Income | 1.67 | 1.62 | 1.62 |
| 13 | Net ARR | 214.91 | 171.63 | 170.20 |
| 14 | Revenue from existing tariff | 99.78 | 70.72 | 70.72 |
| 15 | Revenue Gap | 115.13 | 100.91 | 99.48 |
| 16 | Govt. Subsidy | 115.00 | 94.28 | 94.28 |
| 17 | Net Gap/Surplus (-) | 0.13 | 6.63 | 5.20 |
| 18 | Sales (MU) | 230.34 | 237.56 | 237.56 |
| 19 | UI Sales/purchase (MU) | 70.00 | 80.43 | 80.43 |
| 20 | Average | 7.16 | 5.40 | 5.40 |

| Sl. No. | ARR Elements | ARR Approved | Actuals Furnished by the Licensee | Approved by the Commission |
|----------------|-----------------------------|---------------------|--|-----------------------------------|
| | cost(Rs/kWh) | | | |
| 21 | Average realization(Rs/kWh) | 3.32 | 2.22 | 2.22 |

5.10 Revenue Gap / Surplus after true-up.

The net gap approved by the Commission is Rs 5.20 cr which will be adjusted in FY 2015-16 as per Regulations. Carrying cost is not considered as the Petitioner has submitted true up petition belatedly.

6. True-up of ARR of 2012-13

6.1 Back ground

6.1.1 The Commission approved ARR for FY2012-13 on 25.7.2012 based on the petition filed by PED. The Commission had carried out the review exercise for FY 2012-13 with Tariff Order for FY 2014-15 dt 27-02-2014 based on revised estimates of PED.

6.1.2 Now the PED has submitted true-up Petition along with MYT Tariff Petition for Control Period of FY 2015-16 to FY 2017-18 along with audited annual accounts for FY 2012-13. As per regulation 21 of JERC, M&M (Terms and Conditions for determination of Tariff) Regulation 2010. The relevant regulation is reproduced below:

- (i) The Commission shall undertake a review along with next Tariff Order, of the expenses and revenues approved by the Commission in the current year Tariff Order. While doing so, the Commission shall consider variations between approvals and revised estimates / pre-actual of the sale of electricity, income and expenditure for the relevant year and permit necessary adjustments / changes in case such variations are for adequate and justifiable reasons. Such an exercise shall be called 'Review'.*
- (ii) After audited accounts of the year are made available, the Commission shall undertake a similar exercise as in clause (1) above based on the final actual figures as per the audited accounts. This exercise based on the audited accounts shall be called Truing-up.*
- (iii) The Revenue gap of next year shall be adjusted as a result of Review and Truing up exercises.*
- (iv) While approving adjustments towards revenue / expenses in future years, arising out of Review / Truing up exercise, the Commission may allow the carrying costs as determined by the Commission of such expenses / revenues, Carrying costs shall be limited to the interest rate approved for working capital borrowings.*

- (v) *For any revision of approvals, the licensee shall satisfy the Commission that the revision is necessary for the reasons beyond its control. In case additional supply is required to be made to any particular category, the licensee may, at any time during the year, make an application to the Commission for its approval, duly explaining the need for such change of consumer mix and additional supply of power and also indicating the manner in which the licensee proposes to meet the cost for such change of consumer mix and additional supply of power. The Commission may consider according approval to such proposals provided the cost of additional supply of power is met by the beneficiary category.*

Accordingly the true up exercise for FY 2012-13 has been under taken by the Commission on the basis of audited accounts for FY 2012-13. However, wherever necessary the Commission has considered expenses based on prudence check and after taking into account efficiency parameters like T&D losses etc.

6.2 True-up of ARR for FY 2012-13

The PED Mizoram in its petition for true-up for FY 2012-13 has furnished actual energy sales, expenditure and review for FY 2012-13 based on the audited annual accounts for FY 2012-13. Accordingly the revised ARR, Revenue and consequent gap for FY 2012-13 have been claimed by the Petitioner. The Commission has analyzed these components of actual energy sales, expenses and gap under true-up for FY 2012-13 in the subsequent paragraphs.

6.3 Energy sales

The PED has reported the actual energy sales at 286.60 MU as against 326.25 MU approved by the Commission for the FY 2012-13. The Category wise actual sales during the FY 2012-13 as reported by the PED in the MYT Petition and now approved by the Commission are given in table below:

6.1.3 Summary of the sales achievement against the approved sales for the FY 2012-13.

Table 6.1: Energy Sales for FY 2012-13 approved by the Commission after true-up

(MU)

| Sl. No | Category | Approved by the Commission (MU) | Actuals furnished by PED (MU) | Now approved by Commission |
|---------------|-----------------------------|--|--------------------------------------|-----------------------------------|
| 1 | (a) Kutir Jyothi | 8.00 | 3.89 | 3.89 |
| | (b) Domestic | 222.00 | 193.60 | 193.60 |
| | Domestic HT | 0.50 | 0.10 | 0.10 |
| 2 | Commercial | 22.00 | 19.88 | 19.88 |
| | Commercial HT | 1.50 | 1.22 | 1.22 |
| 3 | Public lighting | 7.00 | 5.36 | 5.36 |
| | Irrigation & Agriculture LT | 1.00 | 0.007 | .007 |
| 4 | Irrigation & Agriculture HT | 0.25 | 0.07 | 0.07 |
| | Public Water Works LT | 0.50 | 0.38 | 0.38 |
| 5 | Public Water Works HT | 42.00 | 36.84 | 36.84 |
| | LT Industrial | 1.00 | 1.81 | 1.81 |
| 6 | (HT Industrial) | 0.50 | 1.47 | 1.47 |
| 7 | Bulk Supply | 20.00 | 21.48 | 21.48 |
| 8 | Temp. Supply | | 0.47 | 0.47 |
| 9 | Total sales within States | 326.25 | 286.60 | 286.60 |
| 10 | UI Sales | 34.15 | 53.50 | 53.50 |
| 11 | Total | 360.40 | 340.10 | 340.10 |

The Commission approves energy sales within the state at 286.60 MU as per actuals and UI Sales at 53.50 MU for true-up.

6.4 Transmission & Distribution Losses (T & D Losses).

The Commission in its order dt 25.7.2012 has approved T&D loss at 31% for FY 2012-13. The PED has furnished actual T&D loss at 22.70% in MYT Petition

Commission's analysis

The PED Mizoram has not furnished detailed calculation on how the T&D loss is arrived at. Hence, the losses are recalculated duly considering the average inter-state pool loss at 3.48% based on weekly transmission loss in NER during the period from 02.04.2012 to 31.03.2013. Statements of weekly pool losses from 02.04.2012 to 31.3.2013 is given in Annexure IV and the ER transmission loss in ER during 2.73% based on average weekly transmission loss in ER during the period from 1.4.2012 to 31.3.2013. Considering the above pool losses of 3.48% and 2.73% the T&D Losses in Mizoram is worked out as detailed in Table below:.

Table 6.2: T&D loss calculation of P&ED for FY 2012-13 approved by the Commission.

| Sl. No. | Source | Unit | Energy |
|----------------|--------------------------|-------------|---------------|
| 1 | Own generation | MU | 57.13 |
| 2 | Energy from ER | | 34.04 |
| 3 | ER Tr. Loss | % | 2.73% |
| 4 | Less ER Tr. Loss | MU | 0.93 |
| 5 | Net Energy from ER(2-4) | MU | 33.11 |
| 6 | Energy from NER | | 343.61 |
| 7 | Total energy in NER(5+6) | | 376.72 |
| 8 | NER Tr. Loss | % | 3.48 |

| | | | |
|----|--|----|--------|
| 9 | Less NER Tr. Loss | MU | 13.11 |
| 10 | Net energy in NER (8-9) | | 363.61 |
| 11 | Less purchases | | 0.16 |
| 12 | Less UI sales | | 53.50 |
| 13 | Net energy available at state periphery (1+10-11-12) | MU | 367.08 |
| 14 | Energy sales | MU | 286.60 |
| 15 | T&D loss | MU | 80.48 |
| 16 | T&D loss | % | 21.92 |

Commission accordingly approves actual T&D Loss within the state at 21.92% for FY 2012-13, for true-up.

6.5 Energy Requirement

The energy requirement approved by the Commission for FY 2012-13 in its Tariff Order dt 25. 7. 2012, actuals furnished by PED in its MYT tariff petition FY15 to FY 18 and now approved by the Commission are detailed in table below:

Table 6.3: Energy Requirement for FY 2012.13 approved by the Commission for true-up

| Sl. No. | Particulars | Unit | Approved by the Commission in To dt.25.7.12 | Actuals for FY 2012-13 | Now approved by Commission |
|----------------|---------------------------------------|-------------|--|-------------------------------|-----------------------------------|
| 1 | Energy Sales | MU | 326.25 | 286.60 | 286.60 |
| 2 | Distribution Loss | MU | 146.57 | 84.16 | 80.48 |
| 3 | Distribution Loss | % | 31% | 22.70% | 21.92% |
| 4 | Energy Requirement at State periphery | MU | 472.82 | 370.76 | 367.08 |

6.6 Own Generation

PED has projected net own generation at 43.02 MU for the FY 2012-13. But the Commission approved 40.87 MU (Net) in the Tariff Order for 2012-13. The actual now furnished by PED is at 57.13 MU, inclusive of diesel generation of 0.02 MU.

The Commission now approved PED own generation of 57.13 MU for FY 2012-13 as per actual.

6.7 Purchase of Power.

Power purchase projected by PED for FY 2012-13 and approved by the Commission and actuals furnished by the PED in MYT tariff petition for 2015-16 to FY 2017-18 and now approved by the Commission are furnished in table below:

Table 6.4: Power Purchase during FY 2012-13 approved by the Commission for true-up.

(MU)

| Sl. No. | Particulars | Projected by PED | Approved by the Commission in Tariff Order | Actuals furnished by PED | Now approved by Commission for True-up |
|---------|----------------|------------------|--|--------------------------|--|
| 1 | Power Purchase | 443.05 | 483 | 377.49 | 377.49 |

6.8 Energy Balance

The details of energy requirement and availability of power approved by the Commission FY 2012-13 in its tariff order dated. 25.7.2012 and actuals furnished by the PED in its MYT tariff petition for FY 2015-16 to FY 2017-18 and approved by the Commission are furnished in Table below:

Table 6.5: Energy Balance for FY 2012-13 approved by the Commission.

| Sl. No. | Particulars | Approved by the Commission | Actuals furnished by PED | Now approved by Commission |
|---------|---------------------------------|----------------------------|--------------------------|----------------------------|
| A | Energy Requirement | | | |
| 1 | Energy Sales | 326.25 | 286.60 | 286.60 |
| 2 | T&D Loss % | 31% | 22.10% | 21.92% |
| 3 | T&D Loss MU | 146.57 | 81.31 | 80.48 |
| 4 | Energy Requirement | 472.82 | 367.91 | 367.08 |
| B | Energy Availability | | | |
| 5 | Own Generation | 40.87 | 57.13 | 57.13 |
| 6 | Energy from ER | - | 34.04 | 34.04 |
| 7 | Less ER Tr loss % | - | - | 2.23% |
| 8 | -do (MU) | - | - | 0.93 |
| 9 | Net Energy for ER | | 34.04 | 33.11 |
| 10 | Energy from NER | | 343.61 | 343.61 |
| 11 | Total energy in NER(9+10) | | 377.65 | 376.72 |
| 12 | Less NER Tr loss % | | 3.48 | 3.48% |
| 13 | -do- MU | 16.90 | 13.21 | 13.11 |
| 14 | Net energy(11-13) | | 364.44 | 363.61 |
| 15 | Less UI sale (-) | | 0.16 | 0.16 |
| 16 | Total energy available(5+14-15) | 506.97 | 421.41 | 420.58 |
| 17 | Surplus(16-4) | 34.15 | 53.50 | 53.50 |

The Commission approves for purchase of 377.49 MU and sale of 53.50 MU through trading / UI mechanism.

6.8.1 Fuel Cost.

Actual Fuel Cost of furnished by PED is Rs. 0.03 cr for generation of 0.02 MU during the FY 2012-13, which works Rs.15/kWh.

The Commission accordingly approves fuel cost at Rs. 0.03cr for FY 2012-13.

6.8.2 Power Purchase Cost.

The Commission in its order dt 25.7.2012 had approved Rs. 186.61 cr towards power purchase cost during FY 2012-13 for purchase of 483 MU. The PED in its MYT & Tariff petition for FY 16 to FY 18 has furnished actual power purchase cost during FY 2012-13 at Rs. 123.29 cr for purchase of 377.49 MU.(including fuel cost of Rs 0.03cr).

Commission's analysis

To a query the PED in his letter No T-23011/26/14 EC (P)/Com/15 dt 22.1.2015 has clarified that the actual power purchase cost is Rs 123.26cr and fuel cost is Rs. 0.03 cr.

The Commission accordingly approves power purchase cost of Rs. 123.26 cr for FY 2012-13 for purchase of 377.49 MU as per actuals based on annual accounts for true-up.

6.8.3 O & M Expenses

a) Employee Cost

The Commission had approved Rs. 85.34 cr for the year 2012-13 to meet the employee expenses of PED Mizoram.

PED has now reported the actual employee expenses at Rs. 69.63 cr for FY 2012-13 as per annual accounts for FY 2012-13.

The Commission accordingly approves employee expenses at Rs. 69.63 crore for the FY 2012-13 as per actuals.

b) Repairs & Maintenance

The Commission had approved R&M expenses at Rs. 11.87 cr as projected by the PED Mizoram for FY 2012-13. PED has now reported the actual R&M expenses at Rs. 15.14 Cr for the FY 2012-13 as per annual accounts.

The Commission accordingly approves the R&M expenses at Rs. 15.14 cr for the FY 2012-13 as per actual.

c) Administration & General Expenses

The Commission had approved Rs. 4.76 cr for the FY 2012-13 as projected by the PED Mizoram. PED has now reported the actual Administration and General expenses at Rs. 2.27 cr in its ARR and tariff petition for FY 2014-15.

The Commission approves Administration and General Expenses at Rs. 2.27 cr for the FY 2012-13 as per actuals furnished by PED.

6.8.4 Depreciation.

The Commission had approved depreciation at Rs. 17.70 Cr for FY 2012-13 in its Tariff Order, dt 25.07.2012. As per annual accounts depreciation for FY 2012-13 is Rs. 41.39 cr.

The PED in its MYT petition for FY 2016 to FY 2018 has furnished depreciation for FY 2012-13 at Rs. 4.14 cr being the 10% of actual depreciation worked out as per annual accounts.

Depreciation is calculated on 10% of the average asset value at the rate of 5.28% during FY 2012-13 since 90% of funds are provided by Government of India as grant.

The Commission accordingly now approves depreciation of Rs. 4.14 cr for the FY 2012-13, being the 10% of depreciation as per annual accounts.

6.8.5 Interest & Finance Charges

The Commission had approved Rs. 6.09 cr for the FY 2012-13 in its tariff order dated 25.07.2012.

PED in its MYT tariff petition for FY 16 to FY 18 has now furnished the Interest & Finance charges at Rs. 4.16 cr for FY 2012-13 as per annual accounts.

The Commission approves Interest & Finance charges at Rs. 4.16 cr for the FY 2012-13 as per actuals for true-up.

6.8.6 Interest on Working Capital

Interest on working capital worked out as per Regulation 98 (6) of JERC, M&M (Terms and Conditions for determination of Tariff) Regulations 2010, on approved costs as detailed in Table below:

Table 6.6: Interest on working capital approved by the Commission for FY 2012-13 for true-up.

(Rs. Crore)

| Sl. No | Particulars | Total Cost | One Month |
|---------------|---------------------|-------------------|------------------|
| 1 | Power Purchase Cost | 123.29 | 10.27 |
| 2 | Employee cost | 69.63 | 5.80 |
| 3 | R&M Expenses | 15.14 | 1.26 |
| 4 | A&G Expenses | 2.27 | 0.19 |
| 5 | Total | | 17.52 |

| | | | |
|---|-----------------------------|--|--------|
| 6 | SBAR as on 01-04-2012 | | 14.50% |
| 7 | Interest on Working Capital | | 2.54 |

The Commission approves Interest on Working Capital at Rs. 2.54 cr for FY 2012-13 as per actuals.

6.8.7 Provision for Bad Debts

The Commission had not considered any Provision for Bad Debts for the FY 2012-13, since PED has not submitted the amount written off during FY 2012-13.

6.8.8 Return on Equity

Commission had not considered any Return on Equity Capital for the FY 2012-13 as the PED is functioning as Government Department.

6.8.9 Non-Tariff Income

The Commission had approved Rs. 4 cr as Non-tariff Income for the FY 2012-13. PED has reported the Non-tariff Income at Rs. 2.14 Cr for the FY 2012-13 as per annual accounts.

The Commission accordingly approves Rs. 2.14 Cr towards Non-tariff Income for the FY 2012-13, as per actuals.

6.9 Revenue from approved tariffs

The PED has reported the energy sales at 340.10 MU, including UI Sales of 53.50 MU Revenue from sale of power as per annual accounts is Rs. 111.88 cr including of UI sales amount of Rs. 15.45 cr as detailed in Table below:

Table 6.7: Revenue from energy Sales FY 2012-13

| Sl. No | Category | Sales (MU) | Amount (Rs. cr) | Average Revenue (Rs. / kWh) |
|---------------|----------------------------------|-------------------|------------------------|------------------------------------|
| 1 | a. Kutir Jyoti | 197.59 | 56.49 | 2.86 |
| | b. Domestic (LT) | | | |
| | c. Domestic (HT) | | | |
| 2 | a. Commercial (LT) | 21.10 | 9.23 | 4.37 |
| | b. Commercial (HT) | | | |
| 3 | Public Lighting | 5.36 | 3.59 | 6.70 |
| 4 | a. Irrigation & Agriculture (LT) | 0.08 | 0.05 | 6.25 |
| | b. Irrigation & Agriculture (HT) | | | |
| 5 | a. Public Water Works (LT) | 37.23 | 16.85 | 4.53 |
| | b. Public Water Works (HT) | | | |
| 6 | a. Industrial (LT) | 1.81 | 0.89 | 4.92 |
| | b. Industrial (LT) | 1.47 | 0.88 | 5.99 |
| 7 | Bulk Supply | 21.48 | 8.23 | 3.83 |
| 8 | Temporary supply | 0.48 | 0.22 | 4.58 |
| 9 | Total Sales within State | 286.60 | 96.43 | 3.36 |
| 10 | Outside Sales UI | 53.50 | 15.45 | 2.39 |
| 11 | Total | 340.10 | 111.88 | |

The Commission accordingly approves the revenue from sale of energy of 340.10 MU (286.60+53.50) at Rs. 111.88 cr during FY 2012-13 as per actuals for true-up.

6.10 Summary of ARR after review with actuals and approvals.

Table 6.8: Aggregate Revenue Requirement for FY 2012-13 for true-up
(Rs. crore)

| Sl. No. | ARR Elements | Approved in to dated 25.07.2012 | Actuals Now furnished by PED | Now approved by the Commission |
|---------|---|---------------------------------|------------------------------|--------------------------------|
| 1 | Fuel Cost | 0.03 | 0.03 | 0.03 |
| 2 | Power Purchase Cost including UI purchase | 186.61 | 123.29 | 123.26 |
| 3 | Employees Cost | 85.64 | 69.63 | 69.63 |
| 4 | Repairs and Maintenance Exp. | 11.87 | 15.14 | 15.14 |
| 5 | Adm. & Gen Exp. | 4.76 | 2.27 | 2.27 |
| 6 | Depreciation | 17.70 | 4.14 | 4.14 |
| 7 | Int. & Fin charges | 6.09 | 4.16 | 4.16 |
| 8 | Int. on Working Capital | 3.55 | 2.59 | 2.54 |
| 9 | Prov. for Bad Debts | - | - | - |
| 10 | Return on Equity | - | - | - |
| 11 | Total ARR | 316.25 | 221.22 | 221.17 |
| 12 | Less: Non-Tariff Income | 4.00 | 2.14 | 2.14 |
| 13 | Total Expenditure | 312.25 | 219.08 | 219.03 |
| 14 | Less: Revenue from existing tariff (Including UI sales) | 124.59 | 111.88 | 111.88 |
| 15 | Revenue Gap before subsidy | 187.66 | 107.23 | 107.15 |
| 16 | Govt. Subsidy | 187.66 | 149.02 | 149.02 |
| 17 | Net Gap/Surplus (-) | NIL | (41.29) | (41.87) |
| 18 | Sales (MU) | 326.25 | 340.10 | 340.10 |

| Sl. No. | ARR Elements | Approved in to dated 25.07.2012 | Actuals Now furnished by PED | Now approved by the Commission |
|----------------|-----------------------------|--|-------------------------------------|---------------------------------------|
| 19 | Cost of Supply(Rs/kWh) | 9.57 | 6.44 | 6.44 |
| 20 | Average reliasation(Rs/kWh) | 3.82 | 3.29 | 3.29 |

As seen above there is a surplus revenue of Rs. 41.87 crore during FY 2012-13 after the Government Subsidy of Rs. 149.02 cr.

6.11 Revenue Gap/Surplus after true up.

The surplus approved by the Commission on true up is Rs. 41.87cr for FY 2012-13. After adjusting the gap of Rs.5.20cr arrived on true up for FY 2010-11, the net surplus of Rs.37.67cr(41.87-5.20) will be carried forward to ARR for FY 2015-16 for adjustment.

7. Review of ARR of 2014-15

7.1 Back ground

7.1 The Commission had approved the ARR for FY 2014-15 vide Tariff Order dt 28.2.2014 based on the projected data by the PED. Now the PED in its MYT petition for control period FY15 to FY18 has submitted estimates for FY2014-15. There are differences in certain items of costs as well as revenue between the approvals granted by the Commission and estimates now furnished.

7.1.1 The Commission considers it appropriate and fair to revisit and review the approvals granted by it in the tariff order of FY 2014-15 with reference to estimates now made available by the PED but without altering the Principles and norms adopted earlier. These matters are discussed in the succeeding paragraphs.

7.2 Energy sales

The PED has reported the estimated energy sales at 333.90 MU as against 326.25 MU approved by the Commission for the FY 2014-15. The Category wise actual sales during the FY 2014-15 as reported in the Petition and now approved by the Commission are given in table below:

Table 7.1: Energy Sales for FY 2014-15.

| Sl. No. | Category | Projected by PED (FY 2014-15) (MU) | Approved by the Commission in to dt.28.2.14 (MU) | Estimates furnished by PED (MU) | Now approved by the Commission |
|---------|------------------|------------------------------------|--|---------------------------------|--------------------------------|
| 1 | (a) Kutir Jyothi | 4.71 | 4.01 | 4.00 | 4.00 |
| | (b) Domestic | 222.30 | 223.30 | 223 | 223.00 |
| | Domestic HT | 0.12 | 0.12 | 0.13 | 0.13 |
| 2 | Commercial | 36.01 | 24 | 24.00 | 24.00 |
| | Commercial | 1.47 | 1.47 | 1.47 | 1.47 |

| | | | | | |
|---|-----------------------------|---------------|---------------|---------------|---------------|
| | HT | | | | |
| 3 | Public lighting | 6.49 | 6.49 | 7.20 | 7.20 |
| | Irrigation & Agriculture LT | 0.01 | 0.01 | .01 | .01 |
| 4 | Irrigation & Agriculture HT | 0.09 | 0.09 | 0.09 | 0.09 |
| | Public Water Works LT | 0.46 | 0.46 | 1.04 | 1.04 |
| 5 | Public Water Works HT | 44.58 | 44.58 | 44.00 | 44.00 |
| | LT Industrial | 2.18 | 2.19 | 2.19 | 2.19 |
| 6 | (HT Industrial) | 1.78 | 1.78 | 1.78 | 1.78 |
| 7 | Bulk Supply | 25.99 | 25.99 | 24.99 | 24.99 |
| 8 | Temp. Supply | | | - | - |
| | Total | 340.20 | 334.19 | 333.90 | 333.90 |

The Commission approves energy sales at 333.90 MU for FY2014-15 after review.

7.3 Transmission & Distribution Losses (T & D Losses)

The Commission in its order dt 28.2.2014 had approved T&D loss at 27% for FY 2014-15. The PED has estimated distribution loss 21.04% as detailed in table below.

Table 7.2: Energy requirement for FY 2014-15

| Energy Balance | FY 2014-15 MU |
|---------------------------|---------------|
| ENERGY REQUIREMENT | |
| Energy Sales within State | 333.9 |
| Sales outside Sate | 40 |
| Total Energy Sales | 373.9 |

| Energy Balance | FY 2014-15 MU |
|---|----------------------|
| | |
| Overall T & D Losses % | 21.04 |
| Overall Distribution Loss(MUs) | 88.96 |
| Total Energy Requirement | 462.86 |
| ENERGY AVAILABILITY | |
| Power Purchase from CGS/UI | 442.02 |
| Hydel Generation | 49.3 |
| Diesel Generation | |
| Total Energy | 491.32 |
| Pool Losses (MU) | 15.38 |
| Net Energy available at State periphery | 475.94 |
| Intra- state Transmission Losses (MU) | 13.08 |
| Total Energy Available | 462.86 |
| ENERGY SURPLUS/(GAP) | 0 |

Commission's analysis

As verified from the above table, the petitioner has calculated distribution loss segregating transmission loss. But the petitioner has calculated distribution loss on energy sold outside the state which not in order.

The petitioner has also not considered eastern region transmission losses which are about 2.12% being the average weekly losses during 31.3.2014 to 3.10.2014 and North east from regional losses at 2.99% as per average Weekly Losses in NER during 1.4.2013 to 30.3.2014. Further the PED has considered Intra-state losses at 2.75% while 3% are considered for FY 2016-17: As such considering the above regional losses and intra-state transmission losses at 3% distribution losses are recalculated as detailed in table below.

Table 7.3: Distribution loss calculation for P&ED for FY 2014-15 approved by the Commission

| Sl. No. | Source | Unit | Energy (MU) |
|----------------|---|-------------|--------------------|
| 1 | Own generation | MU | 49.30 |
| 2 | Energy from ER | MU | 29.00 |
| 3 | Less ER for loss | % | 2.12% |
| 4 | -do- | MU | 0.61 |
| 5 | Net energy available by ER(2-4) | MU | 28.39 |
| 6 | Energy from NER | | 398.01 |
| 7 | Total energy in NER(5+6) | | 428.40 |
| 8 | Less NER Tr. Loss | % | 2.99% |
| 9 | -do- | MU | 12.75 |
| 10 | Net energy available(7-9) | MU | 413.65 |
| 11 | Add. UI Purchases | MU | 15.00 |
| 12 | Less UI sales | MU | 40.00 |
| 13 | Total Energy available at NERLDC(1+11+12+13) | MU | 437.95 |
| 14 | Less Intra-State tr. Loss | % | 3.0% |
| 15 | -do- | MU | 13.14 |
| 16 | Net energy available for sale in the State(14-16) | MU | 424.81 |
| 17 | Energy Sales | MU | 333.90 |
| 18 | Distribution Loss | MU | 90.91 |
| 19 | Distribution Loss(19/17) | % | 21.40% |

Commission accordingly approves distribution loss at 21.40% for FY 2014-15 as against 21.04% furnished by the PED.

7.4 Energy Requirement

The energy requirement approved by the Commission for FY 2014-15 in its Tariff Order dated 28.2.2014; actuals furnished by PED in its MYT & tariff

petition FY 2015-16 to 2017-18 and now approved by the Commission are detailed in table below:

Table 7.4: Energy Requirement for FY 2014-15.

| Sl. No. | Particulars | Units | Approved by the Commission | Estimates for FY 2014-15 | Now approved by Commission |
|---------|---------------------------------------|-------|----------------------------|--|----------------------------|
| 1 | Energy Sales | MU | 334.19 | 373.90 (inclusive of outside sales of 40MU) | 333.90 |
| 2 | Distribution Loss | MU | 123.60 | 88.96 | 90.91 |
| 3 | Distribution Loss | % | 27% | 21.04 | 21.40% |
| 4 | Energy Requirement at State periphery | MU | 457.79 | 462.86 | 424.81 |

7.5 Own Generation

PED has estimated own generation at 49.30 MU for the FY 2014-15.

The Commission now approved own generation at 49.30 MU for FY 2014-15 as estimated by PED.

7.6 Purchase of Power

Power purchase approved by the Commission and estimated by the PED in MYT & tariff petition for 2015-16 to FY2017-18 and now approved by the Commission are furnished in table below:

Table 7.5: Power Purchase during FY 2014-15

(in MU)

| Sl. No. | Stations | Approved in to Tariff Order dt.28.2.2014 | Estimated by the PED | Now approved by Commission |
|----------|---------------------------|--|----------------------|----------------------------|
| A | NTPC | | | |
| 1 | Farakka | 16 | 13.89 | 13.89 |
| 2 | Kahalgam | 10 | 6.31 | 6.31 |
| 3 | Talcher | 12 | 8.81 | 8.81 |
| | Sub Total | 38 | 29.01 | 29.01 |
| B | NEEPCO – Hydro | | | |
| 4 | Koppili I | 32 | 20 | 20 |
| 5 | Koppili II | 6 | 5 | 5 |
| 6 | Khandong | 8 | 4 | 4 |
| 7 | Rangamati | 74 | 70 | 70 |
| 8 | Doyang | 15 | 10 | 10 |
| 9 | Sub Total | 135 | 109 | 109 |
| C | NEEPCO – Gas based | | | |
| 10 | AGBPP | 90 | 91 | 91 |
| 11 | AGTPP | 38 | 37 | 37 |
| | Sub Total | 128 | 128 | 128 |
| | NHPC | | | |
| 12 | NHPC loktak | 30 | 21 | 21 |
| D | Others | | | |
| 13 | OTPC- Pallatana | 10 | 70 | 70 |
| 14 | Baramura – IV | 77 | 32 | 32 |
| 15 | Baramura – V | - | 38 | 38 |
| | Sub total | 87 | 140 | 140 |

| | | | | |
|----|--------------------------|------------|---------------|---------------|
| 11 | UI purchase / RPO | - | 15 | 15 |
| | Grand Total | 418 | 442.01 | 442.01 |

The Commission approves power purchase of 442.01MU during FY2014-15 as estimated by PED.

7.7 Energy Balance

The details of energy requirement and availability of power approved by the Commission FY 2014-15 in its tariff order dated. 28.2.2014 and estimated by the PED in its MYT and tariff petition for FY 2015-16 to FY 2017-18 and approved by the Commission are furnished in Table below:

Table 7.6: Energy Balance of PED by for FY 2014-15

| Sl. No. | Particulars | Approved by the Commission in to dt. 28.2.2014 | Estimates by PED | Now approved by Commission |
|----------------|------------------------|---|-------------------------|-----------------------------------|
| A | Energy Requirement | | | |
| 1 | Energy Sales | 334.19 | 373.90 | 333.90 |
| 2 | Distribution in loss % | 27% | 21.04% | 21.40% |
| 3 | -do- MU | 123.60 | 88.96 | 90.99 |
| 4 | Energy Requirement | 457.79 | 462.86 | 424.81 |
| B | Energy Availability | | | |
| 5 | Own Generation | 86.07 | 49.30 | 49.30 |
| 6 | Energy from ER | - | - | 29.01 |
| 7 | Less ER Tr. Loss | - | - | 2.12% |

| | | | | |
|----|------------------------------------|--------|--------|--------|
| | % | | | |
| 8 | -do- MU | - | - | 0.62 |
| 9 | Net energy for ER | - | - | 28.39 |
| 10 | Energy from NER | 418 | 442.02 | 398.01 |
| 11 | Sub Total(9+10) | - | 491.32 | 426.40 |
| 12 | Less NER Tr Loss % | 3.48% | - | 2.99% |
| 13 | -do- (MU) | 14.55 | 15.38 | 12.75 |
| 14 | Net Energy at NERLDC | 403.45 | - | 413.65 |
| 15 | UI purchases | - | - | 15.00 |
| 16 | Total energy available(5+14+15) | 489.52 | 475.94 | 477.95 |
| 17 | Intra State Tr. Loss % | - | - | 3% |
| 18 | Energy available for sales(MU) | - | - | 14.34 |
| 19 | Energy available for sale | 489.52 | 462.86 | 463.61 |
| 20 | Surplus | 31.73 | - | 38.80 |
| 21 | Surplus grossed up by 3% | - | - | 40 |

7.8.1 Fuel Cost:

PED projected Fuel Cost of Rs. 0.03 cr during the FY 2014-15 for DG set generation at Lengpui. The Commission accordingly approved Rs. 0.03 cr towards fuel cost for FY 2014-15 in its Tariff Order dated 28.2.2014.

The PED in its MYT & Tariff petition for FY 2015-16 to FY 2017 - 18 has furnished estimated fuel cost at Rs. 0.03 cr for FY 2014-15.

The Commission accordingly approves Fuel Cost at Rs. 0.03 cr for FY 2014-15.

7.8.2 Power Purchase Cost:

The Commission in its order dt 28.2.2014 had approved Rs. 214.30 cr towards power purchase cost during FY 2014-15 for purchase of 418 MU. The PED in its MYT & Tariff petition for FY 2015-16 to FY 2017-18 has estimated power purchase cost during FY 2014-15 at Rs. 185% cr for purchase of 442.01 MU.

The Commission accordingly now approves power purchase cost of Rs. 185.65 cr for FY 2014-15 for purchase of 442.01 MU as estimated by PED.

7.9 O & M Expenses

7.9.1 a) Employee Cost

The Commission had approved Rs. 60 cr for the year 2014-15 to meet the employee expenses of PED Mizoram.

PED has now estimated employee expenses at Rs. 81.78 cr for FY 2014-15 in its MYT and Tariff petition for FY 2015-16 to FY 2017-18.

The Commission accordingly now approves employee expenses at Rs. 81.78 crore for the FY 2014-15 as estimated by PED.

b) Repairs & Maintenance

The Commission had approved R&M expenses at Rs. 15.44 cr in its tariff order dt 28.2.2014 for FY 2014-15. PED has now estimated R&M expenses at Rs. 16.35 cr for the FY 2014-15 in its MYT & Tariff Petition for FY 2015-16 to FY 2017-18.

The Commission accordingly approves the R&M expenses at Rs. 16.35 cr for the FY 2014-15 as estimated by PED.

c) Administration & General Expenses

The Commission had approved Rs. 3.59 cr for the FY 2014-15 in its Tariff Order dt 28.2.2014. PED has now estimated Administration and General Expenses at Rs. 1.43 Cr in its MYT and tariff petition for FY 2015-16 to FY 2017-18.

The Commission now approves Administration and General Expenses at Rs. 1.43 cr for the FY 2014-15 as estimated by PED.

7.10 Depreciation

The Commission had approved depreciation at Rs. 3.87 cr for the FY 2014-15.

The PED in table 4.17 of MYT & Tariff Petition for FY 2015-16 to FY 2017-18 has estimated total depreciation at Rs 64.70 crore for FY 2014-15 and claimed Rs. 6.47 crore being 10%, since 90% or value of assets are funded through grant.

Commission's analysis

As per regulations depreciation has to be worked on strait line method on average value of assets. As per annual accounts for FY 2012-13, the average rate of depreciation works out to 4.17% and with the given date the depreciation is worked out as detailed in table below

Table 7.7: Depreciation for FY 2014-15 approved by the Commission

(Rs in cr)

| SI. No. | Particulars | 2012-13 | 2013-14 | 2014-15 |
|---------|---------------------------|---------|---------|---------|
| 1 | Opening GFA | 963.36 | 1022.43 | 1034.13 |
| 2 | Additions during the year | 59.00 | 11.70 | 78.43 |
| 3 | Closing GFA | 1022.43 | 1034.13 | 1112.56 |
| 4 | Average GFA | 992.90 | 1028.28 | 1073.35 |

| | | | | |
|---|------------------------------|-------|-------|-------|
| 5 | Average rate of Depreciation | 4.17% | 4.17% | 4.17% |
| 6 | Total Depreciation | 41.40 | 42.88 | 44.76 |
| 7 | 10% Depreciation | 4.14 | 4.29 | 4.48 |

The Commission approves depreciation at Rs. 4.48 cr for FY 2014-15 as against Rs. 6.47 cr estimated by PED.

7.11 Interest & Finance Charges

The Commission had approved Rs. 3.37 cr for the FY 2014-15 in its Tariff Order dt 28.02.2014.

PED in its MYT and tariff petition for FY 2015-16 to FY 2017-18 has estimated Interest & Finance charges at Rs. 3.63 cr for FY 2014-15.

The PED has stated that the department is availing loans from LIC, REC and PFC to fund capital expenditure. The loans from REC under RGGVY which are convertible into grants at a future date subject to fulfillment of certain stipulations have not been included. The details of interest and finance charges are furnished in tables below:

Table 7.8: Loans availed by PED Mizoram during FY 2014-15

(Rs. crore)

| Sl. No. | Particulars | Opening Balance | Rate of Interest | Addition during the Year | Repayment during the year | Closing Balance | Amount of Interest paid |
|---------|-------------------|-----------------|------------------|--------------------------|---------------------------|-----------------|-------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 | LIC Loans | 10.00 | 8.00% | | 1.33 | 8.67 | 0.75 |
| 2 | REC Loans | 2.81 | 8.50% | | 1.08 | 1.74 | 0.23 |
| 3 | REC (RGGVY) Loans | 23.98 | 11.50% | | 2.40 | 21.58 | 2.65 |
| | Total | 36.79 | | | 4.81 | 31.98 | 3.63 |

(Source : Format F3b of ARR)

The Commission approves Interest & Finance charges at Rs. 3.63 cr for the FY 2014-15 as estimated by P&ED.

7.12 Interest on Working Capital

The Commission has approved interest on working capital based on approved cost as furnished in table below.

Table 7.9: Interest on Working Capital costs approved by the Commission for FY 2014-15

(Rs. cr)

| Particulars | Total Cost | One month requirement |
|---------------------|------------|-----------------------|
| Fuel Cost | 0.03 | .003 |
| Power Purchase Cost | 185.65 | 15.47 |
| Employee Cost | 81.78 | 6.82 |
| R&M Expenses | 16.35 | 1.36 |
| A & G Expenses | 1.43 | 0.12 |
| Total W C | - | 23.77 |

| | | |
|------------------|---|--------|
| Rate of Interest | - | 14.75% |
| Interest on W C | - | 3.51 |

The Commission approves Interest on Working Capital at Rs. 3.51 cr for FY 2014-15.

7.13 Provision for Bad Debts

The Commission had not considered any Provision for Bad Debts for the FY 2014-15, since PED has not submitted the amount written off during FY 2014-15.

7.14 Return on Equity

The Commission had not considered any Return on Equity Capital for the FY 2014-15 as the PED is functioning as Government Department.

7.15 Non-tariff Income

The Commission had approved Rs. 3 cr as Non-tariff Income for the FY 15. PED has estimated the Non-tariff Income at Rs. 2.30 cr for the FY 2014-15. The P&ED has not furnished details of non-tariff income. As such the Commission retains already approved nontariff income of Rs. 4 cr for FY 2012-13.

The Commission accordingly approves Rs. 3 cr towards Non-tariff Income for the FY 2014-15.

7.16 Revenue from approved tariffs

The PED has estimated revenue receipt, at Rs. 142.93 cr during FY2014-15. **The Commission accordingly approves the revenue from sale of energy of at Rs. 142.93cr during FY 2014-15, as estimated by PED.**

7.17 Summary of ARR after review with estimates and approvals.

Table 7.10: Aggregate Revenue Requirement for FY 2014-15 approved by the Commission after review.

(Rs. crore)

| Sl. No. | ARR Elements | Approved in TO dated 25.07.2012 | Estimates Now furnished by PED | Now approved by the Commission |
|---------|--|---------------------------------|--------------------------------|--------------------------------|
| 1 | Fuel Cost | 0.05 | 0.03 | 0.03 |
| 2 | Power Purchase Cost including UI purchase | 214.30 | 185.65 | 185.65 |
| 3 | Employees Cost | 60 | 81.78 | 81.78 |
| 4 | Repairs and Maintenance Exp | 15.44 | 16.35 | 16.35 |
| 5 | Adm. & Gen Exp | 3.59 | 1.43 | 1.43 |
| 6 | Depreciation | 3.87 | 4.48 | 4.48 |
| 7 | Int. & Fin charges | 3.37 | 3.63 | 3.63 |
| 8 | Int. on Working Capital | 3.53 | 3.51 | 3.51 |
| 9 | Prov. for Bad Debts | 0.20 | - | - |
| 10 | Return on Equity | - | - | - |
| 11 | Sub-Total | 304.35 | 296.86 | 296.86 |
| 12 | Less: Non-Tariff Income | 3.00 | 3.00 | 3.00 |
| 13 | Total Expenditure | 301.35 | 293.36 | 293.86 |
| 14 | Revenue from existing tariff (Incl. UI sale) | 139.72 | 142.92 | 142.92 |
| 15 | Revenue Gap | 168.77 | 150.94 | 150.94 |
| 16 | Gap before subsidy | | | |
| 17 | Govt. Subsidy | 160.00 | 150.90 | 150.94 |

| | | | | |
|----|----------------------------|------------|----------|----------|
| 18 | Net Gap/Surplus (-) | NIL | - | - |
| 19 | Sales (MU) | 326.25 | 373.90 | 373.90 |
| | | | | |

As seen from the above the revenue gap during FY 2014-15 is NIL, consequent on review for FY2014-15.

8. Analysis of Aggregate Revenue Requirement for Control Period FY 2015-16 to FY 2017-18

8.1 Energy Sales

Proper estimation of category wise energy sales is essential to determine the quantum of power purchase and the likely assessment of revenue. This section examines in detail the customer category wise sales projected by the Power & Electricity Department (PED) in their petition for assessment of ARR.

8.2 Consumer Categories

PED serves about 2.00 lakhs consumers in their licensed area and the consumers are categorized as under.

| | |
|--------|------------------------------|
| 1. (a) | Kutir Jyothi LT |
| (b) | Domestic LT |
| (c) | Domestic HT |
| 2. (a) | Non-domestic/Commercial LT |
| (b) | Non-domestic/Commercial HT |
| 3. | Public Lighting LT |
| 4. (a) | Irrigation & Agricultural LT |
| (b) | Irrigation & Agricultural HT |
| 5. (a) | Public Water Works LT |
| (b) | Public Water Works HT |
| 6. (a) | Industrial LT |
| (b) | Industrial HT |
| 7. | Bulk Supply HT |

PED serves the consumers at different voltage levels at which the consumers avail supply. In all categories there are LT consumers as well as HT consumers except in the categories of Kutir Jyoti and Public Lighting and Temporary Supply. The Commission has considered to retain the same categories as are existing.

8.3 Growth of Consumers and Connected Load

PED has projected the category wise growth of consumers, their connected load for the years FY 2013-14 (actuals), FY 2014-15 (estimated) and FY 2015-16 to FY 2017-18 (projected) as given in the table below:

Table 8.1: Number of Consumes – FY 2015-16, FY 2016-17 & FY 2017-18

| Category | FY 2013-14 | FY 2014-15 | FY 2015-16 | FY 2016-17 | FY 2017-18 |
|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Domestic (HT & LT) | 186792 | 196221 | 206339 | 216984 | 228184 |
| Commercial (HT & LT) | 7537 | 7075 | 7429 | 7801 | 8191 |
| Public Lighting | 755 | 765 | 780 | 796 | 812 |
| Irrigation (HT & LT) | 19 | 20 | 21 | 22 | 23 |
| PWW (HT & LT) | 48 | 50 | 53 | 56 | 60 |
| Industrial (LT) | 688 | 686 | 720 | 756 | 794 |
| Bulk Supply (HT) | 150 | 254 | 267 | 280 | 294 |
| Temporary Connection | 199 | - | - | - | - |
| Total | 196199 | 205084 | 215623 | 226710 | 238374 |

8.4 Projected Energy Sales for control period FY 2015-16 to FY 2017-18

8.4.1 PED has furnished category wise energy sales for the years FY 2013-14 (Actuals), FY 2014-15 (Estimated) and Projections for control period FY 2015-16, FY 2017-18 as given in the table below:

Table 8.2: Projected Energy Sales – FY 2015-16, 2016-17, & 2017-18

| (MU)Category | FY 2013-14 | FY 2014-15 | FY 2015-16 | FY 2016-17 | FY 2017-18 |
|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Domestic (HT & LT) | 203.84 | 227.13 | 238.41 | 250.25 | 262.68 |
| Commercial (HT & LT) | 23.57 | 25.47 | 27.25 | 29.16 | 31.20 |
| Public Lighting | 7.47 | 7.20 | 7.70 | 8.24 | 8.82 |
| Irrigation (HT & LT) | 0.06 | 0.10 | 0.11 | 0.11 | 0.12 |

| | | | | | |
|----------------------|---------------|---------------|---------------|---------------|---------------|
| PWW (HT & LT) | 40.22 | 45.04 | 48.19 | 51.57 | 55.17 |
| Industrial (LT) | 2.10 | 2.19 | 2.34 | 2.51 | 2.68 |
| Industrial (HT) | 4.99 | 1.78 | 1.90 | 2.04 | 2.18 |
| Bulk Supply (HT) | 20.18 | 24.99 | 26.74 | 28.61 | 30.61 |
| Temporary Connection | 0.35 | | | | |
| Total | 302.78 | 333.90 | 352.64 | 372.49 | 393.46 |

Commission analysis

Based on the actual sales during FY 2010-11 to FY 2013-14, the sales growth rate is worked out as detailed in the table below:

Table 8.3: Consumer Category-wise growth in Energy Sales

| Sl. No. | Energy sales (MU) | FY 11 (A) | FY 12 (A) | FY 13 (A) | FY 14 (A) | CAGR for 3 years FY11 to FY14 | CAGR for 2 Years FY 12 to FY14 | CAGR for 1 year FY13 to FY14 |
|-----------|---------------------------|---------------|---------------|---------------|---------------|-------------------------------|--------------------------------|------------------------------|
| 1 | Kutir Jyoti | 6.50 | 6.74 | 3.89 | 3.69 | -17.20% | -26.01% | -5.14% |
| 2 | Domestic (HT <) | 167.90 | 164.41 | 194.57 | 200.15 | 6.03% | 10.34% | 2.87% |
| 3 | Commercial (HT <) | 14.65 | 18.89 | 21.10 | 23.58 | 17.19% | 11.73% | 11.75% |
| 4 | Public Lighting | 7.04 | 6.04 | 5.36 | 7.47 | 2.00% | 11.21% | 39.37% |
| 5 | Irrigation (HT <) | 0.12 | 0.09 | 0.08 | 0.05 | -25.31% | -25.46% | -37.50% |
| 6 | PWW (HT <) | 27.29 | 36.28 | 37.22 | 40.21 | 13.79% | 5.28% | 8.03% |
| 7 | Industrial (LT) | 1.57 | 1.76 | 1.81 | 2.10 | 10.18% | 9.23% | 16.02% |
| 8 | Industrial (HT) | 1.57 | 0.33 | 1.47 | 4.99 | 47.03% | 288.86% | 239.46% |
| 9 | Bulk Supply (HT) | 12.18 | 17.31 | 21.48 | 20.18 | 18.33% | 7.97% | -6.05% |
| 10 | Total Energy Sales | 238.82 | 251.85 | 286.60 | 302.42 | 8.19% | 9.58% | 5.52% |

Considering the data submitted in the petition the category-wise sales projected by the PED and Commissions approvals are discussed below:

1. Domestic

(a) Kutir Jyoti

The Commission approves the sales of Kutir Jyoti at 4 MU per annum for the FY 2015-16 to FY 2017-18, as projected by PED.

(b) Domestic (LT) & HT

The PED has projected energy sales to domestic category clubbing both LT and HT at 238.41 MU for FY 2015-16, 250.25 MU for FY 2016-17 and 262.68 MU for FY 2017-18, while the actual sales during FY 2013-14 are 200.15 MU for both LT & HT. The three year growth rate is 6.03% while 2 year CAGR is 10.34% and YoY growth rate is 2.87%. As the consumers are increasing year by year. 2 years growth rate per annum on the actuals sales during 2013-14 is considered reasonable. Projection of sales during control period with 2 year growth rate works out to 244 MU for FY 2015-16, 254 MU for FY 2016-17, 259 MU for FY 2017-18 respectively. Sales are bifurcated among LT & HT as follows

(MU)

| Year | LT | HT | Total |
|---------|-----|----|-------|
| 2015-16 | 242 | 2 | 244 |
| 2016-17 | 250 | 4 | 254 |
| 2017-18 | 255 | 4 | 259 |

Commission approves the consumption of 242 MU, 250 MU and 255 MU for FY 2015-16, 2016-17 for FY 2017-18 respectively for Domestic (LT) category.

The Commission similarly approves energy sales for domestic (HT) category at 2 MU for FY 2015-16 and 4 Mu each for FY 2016-17 and FY 2017-18.

2 Commercial LT & HT

The PED has projected energy sales for this category at 27.25 MU, 29.16 MU and 31.20 MU for FY 2015-16, 2016-17 and FY 2017-18, while the actual sales during FY 2013-14 are 23.58 MU for both LT & HT. The 3 years CAGR is 17.19% and 2 year CAGR is 11.73% and YOY growth rate is 11.75%. As seen the sales are steadily increasing. As such YOY growth rate of 10.75% is considered reasonable to project sales during control period on the actual sales during FY 2013-14, which works out to 29 MU, 33 Mu, and 37 Mu for control period FY 2015-16, FY 2016-17 and FY 2017-18 respectively.

Based on previous trend the sales are bifurcated among LT & HT as follows:

(MU)

| Year | LT | HT | Total |
|---------|----|----|-------|
| 2015-16 | 28 | 1 | 29 |
| 2016-17 | 31 | 2 | 33 |
| 2017-18 | 35 | 2 | 37 |

The Commission approves sales at 28 MU, 31 MU and 35 MU for FY 2015-16, FY 2016-17 and FY 2017-18 respectively, for Commercial (LT) category.

The Commission similarly approves sales at 1 MU for FY 2015-16 and 2 MU each for FY 2016-17 and FY 2017-18 respectively for commercial (HT) category.

2. Public Lighting

PED has projected sales at 7.7 MU, 8.24 Mu and 8.82 Mu for Control Period FY 2015-16, 2016-17 and 2017-18 respectively to this category.

The past trend is erratic. The PED has not furnished reasons for decrease in sales during FY 2011 – 12 & FY 2012-13.

The three year CAGR is 2%, 2 year CAGR is 11.21% while YOY growth rate is 39.37%. The 3 year CAGR is considered reasonable to project sales during control period based on actual sales during FY 2013-14 which works out to 8 MU, 9 MU and 10 Mu for FY 2015-16, 2016-17 and 2017-18 respectively.

Commission, approves the sales for Public Lighting category at 8 MU, 9 MU and 10 MU for FY 2015-16, FY 2016-17 and FY 2017-18 respectively.

3. (a). Irrigation & Agriculture (LT & HT)

The PED has projected energy sales to this category at 0.11 MU, 0.11 MU and 0.12 Mu for FY 2015-16, FY 2016-17 and FY 2017-18 respectively. (-) growth observed to this category. As such the energy sales as projected by PED are accepted but the sales are bifurcated among HT & LT as detailed below:

| (MU) | | | |
|---------|------|------|-------|
| Year | LT | HT | Total |
| 2015-16 | 0.01 | 0.10 | 0.11 |
| 2016-17 | 0.01 | 0.10 | 0.11 |
| 2017-18 | 0.02 | 0.10 | 0.12 |

The Commission approves the sales 0.01 MU each for FY 2015-16 and FY 2016-17 and 0.02 for FY 2017-18 to irrigation & agriculture (LT) category.

The Commission similarly approves the sales at 0.10 MU each for FY 2015-16 to FY 2017-18 for irrigation & agriculture (HT) category.

4. Public Water Works LT & HT

The PED has projected energy sales to this category clubbing both LT& HT at 48.19 MU, 51.57 MU and 55.17 MU for control period FY 2015-16, FY 2016-17 and FY 2017-18 respectively. The actual sales during FY 2013-14 are

40.22 Mu 3 years CAGR is 13.79%, 2 year CAGR is 5.28% and YOY growth rate is 8.03%. As per the past trend the sales are steadily increasing. As such YOY growth rates is considered reasonable to project sales for control period based on actual sales during FY 2013-14, which works out to 47 MU, 51 MU and 55 MU for FY 2015-16, FY 2016-17 and FY 2017-18 respectively. Based on past trend the sales are bifurcated amount LT & HT as follows:

(MU)

| Year | LT | HT | Total |
|---------|----|----|-------|
| 2015-16 | 1 | 46 | 47 |
| 2016-17 | 1 | 50 | 51 |
| 2017-18 | 1 | 54 | 55 |

The Commission approves energy sales for PWW (LT) at 1 MU each for FY 2015-16, FY 2016-17 and FY 2017-18.

The Commission similarly approves the sales PWW (HT) at 46 MU, 50 MU and 54 MU for FY 2015-16, FY 2016-17 and FY 2017-18 respectively.

5. Industrial (LT)

The PED projected energy sales to this category at 2.34 MU, 2.51 Mu and 2.68 Mu for control period FY 2015-16, 2016-17 and FY 2017-18 respectively. The actual sales during FY 2013-14 are 2.10 MU, 3 year CAGR is 10.18%, 2 year CAGR is 9.23% and YOY growth 2 year CAGR is 9.23% and YOY growth rate is 16.02%. The Commission considers it reasonable to adopt 3 year CAGR to project sales for the control period based on actual sales during FY 2013-14 which works out to 3 MU per annum for each year.

Accordingly, the Commission approves the sales at 3 MU each year for FY 2015-16, 2016-17 and FY 2017-18 for Industrial (LT) category.

(b) Industrial (HT)

The PED projected energy sales to this category at 1.90 MU, 2.04 Mu and 2.18 MU for FY 2015-16, FY 2016-17 and FY 2017-18 respectively. The actual sales during FY 2013-14 are 4.99 MU.

The sales during past years are erratic. There is a sudden jump in FY 2013-14, The 3 year CAGR is 288.86% and YOY growth is 239.46%. The growth rates may not sustain. Based on past trend the sales to a tune of 3 MU per annum are considered reasonable.

The Commission approves energy sales to Industrial (HT) category at 3 Mu per annum during control period FY 2015-16 to FY 2017-18.

6. Bulk Supply

The PED has projected energy sales to this category at 26.74 MU, 28.61 MU and 30.61 Mu for FY 2015-16, 2016-17 and FY 2017-18 respectively.

The actual sales during FY 2013-14 are 20.18 MU. The 3 year CAGR is 18.33%, 2 year CAGR is 7.97% and negative growth observed in YOY growth rate.

The Commission considers 2 year growth rate to project sales during control period based on actual sales during FY 2013-14, which works out to 24 MU, 25 MU, 27 MU for control period FY 2015-16, 2016-17 and FY 2017-18 respectively

The Commission approves the sales at 24 MU, 25 MU and 27 MU for control period FY 2015-16, 2016-17 and FY 2017-18 respectively for bulk supply.

8.5 Category Wise Energy Sales Approved

As discussed in para 8.5 supra category wise energy sales approved by the Commission during control period FY 2015-16 to FY 2017-18 are furnished in table below:

TABLE 8.4: CATEGORY WISE ENERGY SALES APPROVED BY THE COMMISSION FROM CONTROL PERIOD FY 2015-16 TO FY 2017-18

(MU)

| Sl. No | Category | Energy Sales Approved | | |
|----------|----------------------------|-----------------------|---------------|---------------|
| | | FY 2015-16 | FY 2016-17 | FY 2017-18 |
| A | LT Supply | | | |
| 1 | Kutir Jyoti | 4 | 4 | 4 |
| 2 | Domestic | 242 | 250 | 255 |
| 3 | Commercial | 28 | 31 | 35 |
| 4 | Public Lighting | 8 | 9 | 10 |
| 5 | Public water works | 1 | 1 | 1 |
| 6 | Irrigation & Agriculture | 0.01 | 0.01 | 0.02 |
| 7 | Industrial | 3 | 3 | 3 |
| | Total LT | 286.01 | 298.01 | 308.02 |
| B | HT Supply | | | |
| 1 | Domestic | 2 | 4 | 4 |
| 2 | Commercial | 1 | 2 | 2 |
| 3 | Industrial | 3 | 3 | 3 |
| 4 | Irrigational & Agriculture | 0.1 | 0.1 | 0.1 |
| 5 | Public water works | 46 | 50 | 54 |
| 6 | Bulk Supply | 24 | 25 | 27 |
| | Total HT | 76.1 | 84.1 | 90.1 |
| | Grand Total | 362.11 | 382.11 | 398.12 |

8.6 T&D losses

PED has projected the distribution losses at 18% to 20% for the control period of FY 2015-16 to FY 2017-18. Since transmission is an integral part of distribution, the transmission and distribution losses are considered together as distribution losses up to FY 2013-14. Since FY 2014-15, the PED has segregated Transmission at 3% and projected distribution loss, at 19.86% PA for the control period FY2015-16 to FY2017-18.

Commission's Analysis

The distribution losses projected by PED for control period FY 2015-16 to FY 2017-18 have been examined by the Commission. As discussed in Para 7.3, the distribution losses for FY2014-15 are worked out to be 21.40%. Considering a reduction of 1 % per annum, the distribution losses for subsequent years shall be as detailed below.

| Year | % of T&D Loss |
|---------|---------------|
| 2014-15 | 21.40% |
| 2015-16 | 20.40 |
| 2016-17 | 19.40 |
| 2017-18 | 18.40 |

The Commission approves distribution loss at 20.40%, 19.40% and 18.40% for FY2015-16, FY2016-17 and FY2017-18 respectively.

8.7 Energy requirement for FY Control period FY 2015-16 to FY 2017-18.

The energy requirement for PED is estimated based on the retail sales projections grossed up by estimated loss levels. The energy requirement expected for FY 2015-16 to FY 2017-18 is as given below:

Table 8.5: Energy requirement projected by PED for control period FY 2015-16 to FY 2017-18.

| Energy Balance | Unit | FY 2014-15 MU | FY 2015-16 MU | FY 2016-17 MU | FY 2017-18 MU |
|--------------------------------|-------------|------------------------------|------------------------------|------------------------------|------------------------------|
| ENERGY REQUIREMENT | | | | | |
| Energy Sales within State | MU | 333.9 | 352.64 | 372.49 | 393.46 |
| Sales outside State | MU | 40 | 40.5 | 14.93 | 0 |
| Total Energy Sales | MU | 373.9 | 393.14 | 387.42 | 393.46 |
| | | | | | |
| Overall T & D Losses % | % | 21.04 | 19.86 | 19.86 | 19.86 |
| Overall Distribution Loss(MUs) | MU | 88.96 | 87.36 | 92.32 | 97.53 |
| Total Energy Requirement | MU | 462.86 | 480.5 | 479.74 | 490.99 |

Commission’s analysis

The P&ED has considered outside sales to arrive energy requirement which is not in order. Outside sales will arise if there is surplus power. Further they will not contribute for distribution losses as the sales will take place at state periphery.

Based on approved sales within the state and distribution Losses the energy requirement is worked out as detailed in Table below:

Table 8.6 Energy Requirement approved by the Commission for Control period FY 2015-16 to FY 2017-18

(MU)

| Particulars | FY 2015-16 | FY 2016-17 | FY 2017-18 |
|----------------------|-------------------|-------------------|-------------------|
| Energy Requirement | | | |
| Energy Sales | 362.11 | 382.11 | 398.12 |
| Distribution Loss % | 20.40% | 19.40% | 18.40% |
| Distribution Loss MU | 92.80 | 91.97 | 89.77 |
| Energy required | 454.91 | 474.08 | 487.89 |

8.8 Energy Availability

8.8.1 Own Generation

The PED is having 11 mini hydel stations with an installed capacity of 29.35 MW and one diesel generator of capacity 0.5 MW and one HFO generator of 22.92 MW totaling to 52.77 MW as detailed in Table below.

TABLE 8.7 DETAILS OF OWN GENERATING STATIONS

| Sl.No. | Name of Station | Capacity (MW) |
|---------------|------------------------|----------------------|
| I | Hydel | |
| 1 | Serlui 'A' | 1.00 |
| 2 | Tuirivang | 0.30 |
| 3 | Khawiva | 1.05 |
| 4 | Tuipui | 0.50 |
| 5 | Maicham-I | 2.00 |
| 6 | Teirei | 3.00 |
| 7 | Tuipanglui | 3.00 |
| 8 | Kau-Tlabung | 3.00 |
| 9 | Lamsial | 0.50 |
| 10 | Maicham-II | 3.00 |
| 11 | Seruli'B' | 12.00 |
| | Sub Total | 29.35 |

| Sl.No. | Name of Station | Capacity (MW) |
|------------|-------------------------|---------------|
| II | Diesel | |
| 12 | Lengpui | 0.5 |
| III | HFO | |
| | Bairabi | 22.92 |
| | Total (I+II+III) | 52.77 |

PED has projected the generation from above units based on plant availability and estimated the generation as detailed in Table below:

Table 8.8: Projected Power Generation – FY 2015-16, FY 2016-17 and FY 2017-18

(MU)

| Particulars | FY 2013-14 | FY 2014-15 | FY 2015-16 | FY 2016-17 | FY 2017-18 |
|-----------------|---------------|---------------|---------------|---------------|---------------|
| Units Generated | 55.34 | 50.31 | 67.88 | 67.88 | 67.88 |
| Auxiliary | 1.10 | 1.01 | 1.36 | 1.36 | 1.36 |
| Net Generation | | | | | |
| Total | 54.24 | 49.30 | 66.52 | 66.52 | 66.52 |

Commission Analysis

The Commission approves own generation (Net) at 66.52 MU per annum for control period FY 2015-16 to FY 2017-18 as projected by P&ED.

8.8.2 Power Purchase

PED has allocation of power from various central generating stations in north eastern region of NEEPCO, NHPC and eastern region of NTPC and from Tripura gas based stations as given below:

Table 8.9: Allocation of power from Central Sector and other Generating Stations.

| Sl. No. | Source | Plant Capacity (MW) | PED Share in % | PED Share in MW |
|---------|--------------------|---------------------|----------------|-----------------|
| A | Central Generating | | | |
| I | NTPC | | | |
| 1 | Farakka STPS | 1600 | 0.14 | 2.24 |
| 2 | Kahalgaon STPS | 840 | 0.14 | 1.18 |
| 3 | Talcher STPS | 1000 | 0.14 | 1.40 |
| | NTPC-Total | 3440 | | 4.82 |
| II | NHPC | | | |
| 1 | Loktak HEP | 105 | 5.02 | 5.27 |
| | NHPC-Total | 105 | | 5.27 |
| III | NEEPCO | | | |
| 1 | Kopili HEP | 200 | 4.618 | 9.24 |
| 2 | Kopili - II HEP | 25 | 6.04 | 1.51 |
| 3 | Khandong HEP | 50 | 3.94 | 1.97 |
| 4 | Ranganadi HEP | 405 | 5.7 | 23.09 |
| 5 | Doyang HEP | 75 | 5.25 | 3.94 |
| 6 | AGBPP | 291 | 5.41 | 15.74 |
| 7 | AGTPP | 84 | 5.98 | 5.02 |
| | NEEPCO-Total | 1130 | | 60.50 |
| IV | TSECL | | | |
| 1 | B'mura - IV | 21 | 25 | 5.25 |
| 2 | B'mura - V | 21 | 25 | 5.25 |
| | TSECL-Total | 42 | | 10.50 |
| V | OTPC | | | |
| 1 | Palatana | 726 | 3.03 | 22.00 |
| | OTPC-Total | 726 | | 22.00 |
| VI | Own Generation | 29.35 | 100 | 29.35 |
| VI | Total | 5472.35 | | 132.44 |

(Source Table 4.5 of ARR)

8.8.3 Assumption for Power Purchase Projection:

The merit order dispatch principles are to be adopted when determining the power purchases from various generating stations. However, in a

power deficit scenario, these principles do not play a significant role as the utilities will try and purchase all the power that is available at its disposal. Accordingly, PED has considered purchase of the entire power available from all the possible sources during the period to meet the demand to the extent possible.

8.8.4 Energy draws from CGS and other Stations:

PED projected energy drawal of about 509.53 MU, each in FY 2015-16 and 2016-17 and 522.03 MU during FY 2017-18 as detailed in Table below:

Table: 8.10: Power Purchase projected by PED during FY 2015-16 to FY 2017-18

| SI No | Source | FY 2014-15 | FY 2015-16 | FY 2016-17 | FY 2017-18 |
|------------|------------------------------------|--------------|--------------|--------------|--------------|
| A | Central Generating Stations | | | | |
| I | NTPC | | | | |
| 1 | Farakka STPS | 13.89 | 14.37 | 14.37 | 14.37 |
| 2 | Kahalgaon STPS | 6.31 | 6.53 | 6.53 | 6.53 |
| 3 | Talcher STPS | 8.81 | 9.11 | 9.11 | 9.11 |
| | NTPC-Total | 29.01 | 30.01 | 30.01 | 30.01 |
| II | NHPC | | | | |
| 1 | Loktak HEP | 21.00 | 20.00 | 20.00 | 20.00 |
| | NHPC-Total | 21.00 | 20.00 | 20.00 | 20.00 |
| III | NEEPCO | | | | |
| 1 | Kopili HEP | 20.00 | 28.00 | 28.00 | 28.00 |
| 2 | Kopili - II HEP | 5.00 | 5.00 | 5.00 | 5.00 |
| 3 | Khandong HEP | 4.00 | 4.00 | 4.00 | 4.00 |
| 4 | Ranganadi HEP | 70.00 | 55.00 | 55.00 | 55.00 |
| 5 | Doyang HEP | 10.00 | 10.00 | 10.00 | 10.00 |
| 6 | AGBPP | 91.00 | 90.00 | 90.00 | 90.00 |

| Sl No | Source | FY 2014-15 | FY 2015-16 | FY 2016-17 | FY 2017-18 |
|-----------|--|---------------|---------------|---------------|---------------|
| 7 | AGTPP | 37.00 | 35.00 | 35.00 | 35.00 |
| | NEEPCO-Total | 237.00 | 227.00 | 227.00 | 227.00 |
| IV | TSECL | | | | |
| 1 | B`mura -IV | 32.00 | 36.00 | 36.00 | 36.00 |
| 2 | B`mura -V | 38.00 | 38.00 | 38.00 | 38.00 |
| | TSECL-Total | 70.00 | 74.00 | 74.00 | 74.00 |
| V | OTPC | | | | |
| 1 | Palatana | 70.00 | 78.00 | 78.00 | 78.00 |
| | OTPC-Total | 70.00 | 78.00 | 78.00 | 78.00 |
| VI | Other Stations/IPPs | | | | |
| | Others-total | 0.00 | 0.00 | 0.00 | 0.00 |
| | State Generating Stations | | | | |
| 1 | All Units | 49.30 | 66.52 | 66.52 | 66.52 |
| | State Generating Stations-Total | 49.30 | 66.52 | 66.52 | 66.52 |
| C | RPO | 15.00 | 14.00 | 14.00 | 14.00 |
| | RPO Total | 15.00 | 14.00 | 14.00 | 14.00 |
| E | Supplementary Bills | | | | |
| F | Grand Total | 491.32 | 509.53 | 509.53 | 522.53 |

Commission analysis

The Commission approves power purchase of 509.53 MU each during FY 2015-16 and FY 2016-17 and 522.03 MU during FY 2017-18 as projected by PED.

8.9. Energy Balance:

The Energy balance worked out by the PED is furnished in Table below:
 Energy Balance Projected by P&ED for Control Period FY 2015-16 to FY 2017-18

Table 8.11: Energy Balance projected by PED for FY 2015-16 to FY 2017-18.
 (MU)

| Energy Balance | FY 2014- 15 | FY 2015-16 | FY 2016-17 | FY 2017-18 |
|-----------------------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| ENERGY REQUIREMENT | | | | |
| Energy Sales within State | 333.9 | 352.64 | 372.49 | 393.46 |
| Sales outside State | 40.00 | 40.50 | 14.93 | 0.00 |
| Total Energy Sales | 373.9 | 393.14 | 387.42 | 393.46 |
| Overall T & D Losses % | 21.04 | 19.86 | 19.86 | 19.86 |
| Overall Distribution Loss(MUs) | 88.96 | 87.36 | 92.32 | 97.53 |
| Total Energy Requirement | 462.86 | 480.5 | 479.74 | 490.99 |
| ENERGY AVAILABILITY | | | | |
| Power Purchase from CGS/UI | 442.02 | 443.01 | 443.01 | 455.51 |
| Hydel Generation | 49.3 | 66.52 | 66.52 | 66.52 |
| Diesel Generation | | | | |
| Total Energy | 491.32 | 509.53 | 509.53 | 522.03 |
| Pool Losses (MU) | 15.38 | 15.42 | 15.42 | 15.85 |
| Net Energy available at State | 475.94 | 494.11 | 494.11 | 506.18 |

| Energy Balance | FY 2014- 15 | FY 2015-16 | FY 2016-17 | FY 2017-18 |
|---|----------------------------|-----------------------|-----------------------|-----------------------|
| periphery | | | | |
| Intra- state Transmission Losses (MU) | 13.08 | 13.61 | 14.38 | 15.19 |
| Total Energy Available | 462.86 | 480.5 | 479.74 | 490.99 |
| ENERGY SURPLUS/(GAP) | 0 | 0 | 0 | 0 |

Commission's analysis

PED has procured power from Eastern Region (ER) and North Eastern Region (NER). The power purchase from ER will be influenced by both ER and NER transmission losses while power purchased from NER will be influenced by only NER transmission losses. Since transmission losses have been segregated the intra state transmission loss is considered at 3% for the control period.

As per average weekly transmission loss in ER during the period 31.3.2014 to 3.10.2014 is the transmission loss is about 2.12%, while in NER it is about 2.99% as per average weekly losses during 1.4.2013 to 30.3.2014.

Considering the above factors the energy balance is recalculated as detailed in Table below

**Table 8.12: Energy Balance approved by the Commission for control
period FY 2015-16 to FY 2017-18**

(MU)

| Sl. No | Particulars | 2014-15 | 2015-16 | 2016-17 | 2017-18 |
|----------|---|---------|---------|---------|---------|
| A | Energy Requirement | | | | |
| 1 | Energy Sales | 333.90 | 362.11 | 382.11 | 398.12 |
| 2 | Distribution loss % | 21.40 | 20.40 | 19.40 | 18.40 |
| 3 | Distribution loss (MU) | 90.99 | 92.80 | 91.97 | 89.77 |
| 4 | Energy Requirement | 424.81 | 454.91 | 474.08 | 487.89 |
| B | Energy Availability | | | | |
| 5 | Own generation | 49.30 | 66.52 | 66.52 | 66.52 |
| 6 | Power from E.R (MU) | 29.01 | 30.01 | 30.01 | 30.01 |
| 7 | ER Total losses % | 2.12% | 2.12% | 2.12% | 2.12% |
| 8 | Regional Losses MU | 0.62 | 0.65 | 0.65 | 0.65 |
| 9 | Net Energy from ER (6-8) | 28.39 | 29.36 | 29.36 | 29.36 |
| 10 | Power from NER | 398.01 | 399.00 | 399.00 | 399.00 |
| 11 | Total power purchase (9+10) | 426.40 | 428.36 | 428.36 | 428.36 |
| 12 | NER Tr Loss % | 2.99% | 2.99% | 2.99% | 2.99% |
| 13 | NER Tr Loss (MU) | 12.75 | 12.81 | 12.81 | 12.81 |
| 14 | Net power available (11- 13) | 413.65 | 415.55 | 415.55 | 415.55 |
| 15 | RPO | 15.00 | 14.00 | 14.00 | 26.50 |
| 16 | UI | - | - | | |
| 17 | Total power available at state periphery (5+14+15+16) | 477.95 | 496.07 | 496.07 | 508.57 |
| 18 | Intra state Tr Loss @ 3% | 14.34 | 14.88 | 14.88 | 15.25 |
| 19 | Net power available for sale in Distribution(17-18) | 463.61 | 481.19 | 481.19 | 493.32 |
| 20 | Surplus (19-4) | 38.80 | 26.28 | 7.11 | 5.43 |
| 21 | Surplus gross up by 3 % | 40 | 27.09 | 7.33 | 5.60 |

8.10 Revenue Requirement for the Control Period FY 2015-16 to FY 2017-18.

The components for calculation of revenue requirement (Total expenses) for the control period FY 2015-16 to FY 2017-18 are as follows:

- Fuel Cost
- Power Purchase cost
- Operation and Maintenance Expenses
- Depreciation
- Interest on loans and finance charges
- Interest on working capital
- Provision for bad debts
- Return on equity
- Provision for Tax

8.11 Projected expenses by P&ED and decisions of the Commission.

The Projected expenses by PED under each head and analysis and decisions of the Commission are discussed below:

8.11.1 Fuel Cost:

Petitioner's submission

P&ED has projected the cost of fuel in respect of generating unit at Lengpui is Rs. 0.07crore per annum during the control period of FY 2015-16 to FY 2017-18.

Commission's analysis

The Commission approves fuel cost at Rs. 0.07 crore per annum during the control period of FY 2015-16 to FY 2017-18 as projected by PED.

8.11.2 Power Purchase Cost:

Petitioner's submission

PED has projected power purchase cost at Rs. 125.98 crore, Rs. 133.78 core and Rs. 146.03 crore for FY 2015-16, FY 2016-17, and FY 2017-18 respectively.

8.11.3 The assumptions for power purchase costs are as detailed below.

Power Purchase cost is a function of the energy requirement and price of available power from the different sources for meeting the energy requirement. The energy requirement of P&ED for FY 2015-16, 2016-17 & 2017-18 is proposed to be met from own generation & power purchase from available sources.

Power purchase cost for FY 2015-16, is determined on the following parameters:

- The quantum of power allocated to P&ED from central generating station is based on the declared allocation;
- Power purchases from the CGS stations are accounted at the net energy availability at P&ED periphery;
- PLF is assumed same as per FY 2013-14;
- Fixed cost, energy charges and other charges for CGSs have been considered with an escalation as per 5.98% (WPI) over the previous year levels;
- Power purchase from other sources is considered as per the agreement with suppliers after escalating the same at 5.98% (WPI) year over year to factor in the rise in the rates.

Station-wise power purchase cost projected for control period FY 2015-16 to FY 2017-18 are furnished in table below.

Table 8.13: Power Purchase Cost FY 2015-16 projected by PED

| Sl. No | Station | Power Purchase MU | Variable Charge Rs/ kWh | Fixed Cost (Rs cr) | Variable Cost (Rs cr) | Total Cost (Rs cr) | Average Cost Rs/ kWh |
|--------|-----------------------------|-------------------|-------------------------|--------------------|-----------------------|--------------------|----------------------|
| A | Central Generating Stations | | | | | | |
| I | NTPC | | | | | | |
| 1 | Farakka STPS | 14.37 | 2.91 | 1.24 | 4.18 | 5.42 | 3.77 |
| 2 | Kahalgaon STPS | 6.53 | 2.77 | 0.65 | 1.81 | 2.46 | 3.76 |
| 3 | Talcher STPS | 9.11 | 2.36 | 1.28 | 2.15 | 3.43 | 3.77 |
| | Total | 30.01 | 2.71 | 3.17 | 8.13 | 11.30 | 3.77 |
| II | NHPC | | | - | - | - | - |
| 1 | Loktak HEP | 20.00 | 1.43 | 2.74 | 2.86 | 5.60 | 2.80 |
| | Total | 20.00 | 1.43 | 2.74 | 2.86 | 5.60 | 2.80 |
| III | NEEPCO | | | - | - | - | - |
| 1 | Kopili HEP | 28.00 | 0.47 | 1.43 | 1.32 | 2.74 | 0.98 |
| 2 | Kopili - II HEP | 5.00 | 1.09 | 0.33 | 0.55 | 0.88 | 1.75 |
| 3 | Khandong HEP | 4.00 | 1.27 | 0.49 | 0.51 | 1.00 | 2.50 |
| 4 | Ranganadi HEP | 55.00 | 1.59 | 8.03 | 8.75 | 16.78 | 3.05 |
| 5 | Doyang HEP | 10.00 | 2.36 | 1.74 | 2.36 | 4.10 | 4.10 |
| 6 | AGBPP | 90.00 | 2.02 | 14.22 | 18.18 | 32.40 | 3.60 |
| 7 | AGTPP | 35.00 | 2.69 | 4.58 | 9.42 | 14.00 | 4.00 |
| | Total | 227.00 | 1.81 | 30.83 | 41.09 | 71.91 | 3.17 |
| IV | TSECL | | | - | - | - | - |
| 1 | B'mura - IV | 36.00 | 3.10 | - | 11.16 | 11.16 | 3.10 |
| 2 | B'mura - V | 38.00 | 3.10 | - | 11.78 | 11.78 | 3.10 |
| | Total | 74.00 | 3.10 | - | 22.94 | 22.94 | 3.10 |

| Sl. No | Station | Power Purchase MU | Variable Charge Rs/kWh | Fixed Cost (Rs cr) | Variable Cost (Rs cr) | Total Cost (Rs cr) | Average Cost Rs/kWh |
|--------|------------------------------------|-------------------|------------------------|--------------------|-----------------------|--------------------|---------------------|
| V | OTPC | | | - | - | - | - |
| 1 | Palatana | 78.00 | 1.14 | 12.17 | 8.89 | 21.06 | 2.70 |
| | Total | 78.00 | 1.14 | 12.17 | 8.89 | 21.06 | 2.70 |
| VI | Other Stations/IPPS | | | - | - | - | - |
| 1 | Total | - | - | - | - | - | - |
| B | Deviation / RPO Obligation | 14.00 | 3.45 | - | 4.83 | 4.83 | 3.45 |
| | Deviation / RPO Obligation - Total | 14.00 | 3.45 | - | 4.83 | 4.83 | 3.45 |
| C | Supplementary Bills | | | - | 42.00 | 42.00 | - |
| D | Grand total | 443.01 | 1.74 | 48.90 | 130.74 | 179.64 | 4.05 |

Table 8.14: Power Purchase Cost. FY 2016-17 projected by PED

| Sl. No | Station | Power Purchase MU | Variable Charge Rs/kWh | Fixed Cost (Rs cr) | Variable Cost (Rs cr) | Total Cost (Rs cr) | Average Cost Rs/kWh |
|--------|-----------------------------|-------------------|------------------------|--------------------|-----------------------|--------------------|---------------------|
| A | Central Generating Stations | | | | | | |
| I | NTPC | | | | | | |
| 1 | Farakka STPS | 14.37 | 3.08 | 1.31 | 4.43 | 5.74 | 3.99 |
| 2 | Kahalgaon STPS | 6.53 | 2.94 | 0.69 | 1.92 | 2.60 | 3.99 |
| 3 | Talcher STPS | 9.11 | 2.50 | 1.36 | 2.28 | 3.64 | 3.99 |
| | Total | 30.01 | 2.87 | 3.36 | 8.63 | 11.98 | 3.99 |
| II | NHPC | | | - | - | - | - |
| 1 | Loktak HEP | 20.00 | 1.52 | 2.90 | 3.03 | 5.94 | 2.97 |
| | Total | 20.00 | 1.52 | 2.90 | 3.03 | 5.94 | 2.97 |
| III | NEEPCO | | | - | - | - | - |
| 1 | Kopili HEP | 28.00 | 0.50 | 1.51 | 1.40 | 2.91 | 1.04 |
| 2 | Kopili - II HEP | 5.00 | 1.16 | 0.35 | 0.58 | 0.93 | 1.86 |
| 3 | Khandong HEP | 4.00 | 1.35 | 0.52 | 0.54 | 1.06 | 2.65 |
| 4 | Ranganadi HEP | 55.00 | 1.69 | 8.51 | 9.27 | 17.78 | 3.24 |
| 5 | Doyang HEP | 10.00 | 2.50 | 1.84 | 2.50 | 4.35 | 4.34 |
| 6 | AGBPP | 90.00 | 2.14 | 15.07 | 19.26 | 34.34 | 3.81 |
| 7 | AGTPP | 35.00 | 2.85 | 4.86 | 9.98 | 14.84 | 4.24 |
| | Total | 227.00 | 1.92 | 32.67 | 43.52 | 76.19 | 3.36 |
| IV | TSECL | | | - | - | - | - |
| 1 | B'mura - IV | 36.00 | 3.29 | - | 11.83 | 11.83 | 3.29 |
| 2 | B'mura - V | 38.00 | 3.29 | - | 12.48 | 12.49 | 3.29 |
| | Total | 74.00 | 3.29 | - | 24.31 | 24.31 | 3.29 |

| Sl. No | Station | Power Purchase MU | Variable Charge Rs/kWh | Fixed Cost (Rs cr) | Variable Cost (Rs cr) | Total Cost (Rs cr) | Average Cost Rs/kWh |
|--------|------------------------------------|-------------------|------------------------|--------------------|-----------------------|--------------------|---------------------|
| V | OTPC | | | - | - | - | - |
| 1 | Palatana | 78.00 | 1.21 | 12.90 | 9.42 | 22.32 | 2.86 |
| | Total | 78.00 | 1.21 | 12.90 | 9.44 | 22.33 | 2.86 |
| VI | Other Stations/IPPS | | | - | - | - | - |
| 1 | Total | - | - | - | - | - | - |
| B | Deviation / RPO Obligation | 14.00 | 3.66 | - | 5.12 | 5.12 | 3.66 |
| | Deviation / RPO Obligation - Total | 14.00 | 3.66 | - | 5.12 | 5.12 | 3.66 |
| C | Supplementary Bills | | | - | 42.00 | 42.00 | - |
| D | Grand total | 443.01 | 1.85 | 51.82 | 136.04 | 187.86 | 4.24 |

Table 8.15: Power Purchase Cost. 2017-18 Projected by PED

| SI. No | Station | Power Purchase MU | Variable Charge Rs/ kWh | Fixed Cost (Rs cr) | Variable Cost (Rs cr) | Total Cost (Rs cr) | Average Cost Rs/ kWh |
|--------|-----------------------------|-------------------|-------------------------|--------------------|-----------------------|--------------------|----------------------|
| A | Central Generating Stations | | | | | | |
| I | NTPC | | | | | | |
| 1 | Farakka STPS | 14.37 | 3.27 | 1.39 | 4.70 | 6.09 | 4.24 |
| 2 | Kahalgaon STPS | 6.53 | 3.11 | 0.73 | 2.03 | 2.76 | 4.22 |
| 3 | Talcher STPS | 9.11 | 2.65 | 1.44 | 2.41 | 3.86 | 4.23 |
| | Total | 30.01 | 3.05 | 3.56 | 9.14 | 12.71 | 4.24 |
| II | NHPC | | | - | - | - | - |
| 1 | Loktak HEP | 20.00 | 1.61 | 3.08 | 3.21 | 6.30 | 3.15 |
| | Total | 20.00 | 1.61 | 3.08 | 3.21 | 6.30 | 3.15 |
| III | NEEPCO | | | - | - | - | - |
| 1 | Kopili HEP | 28.00 | 0.53 | 1.60 | 1.48 | 3.09 | 1.10 |
| 2 | Kopili - II HEP | 5.00 | 1.22 | 0.37 | 0.61 | 0.98 | 1.96 |
| 3 | Khandong HEP | 4.00 | 1.43 | 0.55 | 0.57 | 1.12 | 2.81 |
| 4 | Ranganadi HEP | 55.00 | 1.79 | 9.02 | 9.82 | 18.86 | 3.43 |
| 5 | Doyang HEP | 10.00 | 2.65 | 1.95 | 2.65 | 4.60 | 4.60 |
| 6 | AGBPP | 90.00 | 2.27 | 15.97 | 20.42 | 36.40 | 4.04 |
| 7 | AGTPP | 35.00 | 3.02 | 5.15 | 10.57 | 15.72 | 4.49 |
| | Total | 227.00 | 2.03 | 34.62 | 46.13 | 80.70 | 3.56 |
| IV | TSECL | | | - | - | - | - |
| 1 | B'mura - IV | 36.00 | 3.48 | - | 12.53 | 12.53 | 3.48 |

| Sl. No | Station | Power Purchase MU | Variable Charge Rs/ kWh | Fixed Cost (Rs cr) | Variable Cost (Rs cr) | Total Cost (Rs cr) | Average Cost Rs/ kWh |
|--------|------------------------------------|-------------------|-------------------------|--------------------|-----------------------|--------------------|----------------------|
| 2 | B'mura - V | 38.00 | 3.48 | - | 13.23 | 13.22 | 3.48 |
| | Total | 74.00 | 3.48 | - | 25.76 | 25.75 | 3.48 |
| V | OTPC | | | - | - | - | - |
| 1 | Palatana | 78.00 | 1.28 | 13.67 | 9.99 | 23.65 | 3.03 |
| | Total | 78.00 | 1.28 | 13.67 | 9.99 | 23.65 | 3.03 |
| VI | Other Stations/IPPS | | | - | - | - | - |
| 1 | Total | - | - | - | - | - | - |
| B | Deviation / RPO Obligation | 26.50 | 3.87 | - | 10.27 | 10.26 | 3.87 |
| | Deviation / RPO Obligation - Total | 26.50 | 3.87 | - | 10.27 | 10.26 | 3.87 |
| C | Supplementary Bills | | | - | 42.00 | 42.00 | - |
| D | Grand total | 455.51 | 2.00 | 54.92 | 146.51 | 201.43 | 4.42 |

Commission's analysis

In the power purchase bills for control period FY 2015-16 to 2017-18, the PED has projected supplementary bills of Rs.42cr p.a. Proposing supplemental bill without claim from concerned generation stations is not in order and hence not allowed. However if any supplement bills are received the same will be considered while truing up as per audited accounts. Thus, the power purchase cost approved are furnished in table below:

Table 8.16: Power Purchase Cost FY 2015-16 approved by the Commission.

| Sl. No | Station | Power Purchase MU | Variable Charge Rs/kWh | Fixed Cost (Rs cr) | Variable Cost (Rs cr) | Total Cost (Rs cr) | Average Cost Rs/kWh |
|--------|-----------------------------|-------------------|------------------------|--------------------|-----------------------|--------------------|---------------------|
| A | Central Generating Stations | | | | | | |
| I | NTPC | | | | | | |
| 1 | Farakka STPS | 14.37 | 2.91 | 1.24 | 4.18 | 5.42 | 3.77 |
| 2 | Kahalgaon STPS | 6.53 | 2.77 | 0.65 | 1.81 | 2.46 | 3.76 |
| 3 | Talcher STPS | 9.11 | 2.36 | 1.28 | 2.15 | 3.43 | 3.77 |
| | Total | 30.01 | 2.71 | 3.17 | 8.13 | 11.30 | 3.77 |
| II | NHPC | | | - | - | - | - |
| 1 | Loktak HEP | 20.00 | 1.43 | 2.74 | 2.86 | 5.60 | 2.80 |
| | Total | 20.00 | 1.43 | 2.74 | 2.86 | 5.60 | 2.80 |
| III | NEEPCO | | | - | - | - | - |
| 1 | Kopili HEP | 28.00 | 0.47 | 1.43 | 1.32 | 2.74 | 0.98 |
| 2 | Kopili - II HEP | 5.00 | 1.09 | 0.33 | 0.55 | 0.88 | 1.75 |
| 3 | Khandong HEP | 4.00 | 1.27 | 0.49 | 0.51 | 1.00 | 2.50 |
| 4 | Ranganadi HEP | 55.00 | 1.59 | 8.03 | 8.75 | 16.78 | 3.05 |
| 5 | Doyang HEP | 10.00 | 2.36 | 1.74 | 2.36 | 4.10 | 4.10 |
| 6 | AGBPP | 90.00 | 2.02 | 14.22 | 18.18 | 32.40 | 3.60 |
| 7 | AGTPP | 35.00 | 2.69 | 4.58 | 9.42 | 14.00 | 4.00 |
| | Total | 227.00 | 1.81 | 30.83 | 41.09 | 71.91 | 3.17 |
| IV | TSECL | | | - | - | - | - |
| 1 | B'mura - IV | 36.00 | 3.10 | - | 11.16 | 11.16 | 3.10 |
| 2 | B'mura - V | 38.00 | 3.10 | - | 11.78 | 11.78 | 3.10 |
| | Total | 74.00 | 3.10 | - | 22.94 | 22.94 | 3.10 |

| Sl. No | Station | Power Purchase MU | Variable Charge Rs/kWh | Fixed Cost (Rs cr) | Variable Cost (Rs cr) | Total Cost (Rs cr) | Average Cost Rs/kWh |
|--------|------------------------------------|-------------------|------------------------|--------------------|-----------------------|--------------------|---------------------|
| V | OTPC | | | - | - | - | - |
| 1 | Palatana | 78.00 | 1.14 | 12.17 | 8.89 | 21.06 | 2.70 |
| | Total | 78.00 | 1.14 | 12.17 | 8.89 | 21.06 | 2.70 |
| VI | Other Stations/IPPS | | | - | - | - | - |
| 1 | Total | - | - | - | - | - | - |
| B | Deviation / RPO Obligation | 14.00 | 3.45 | - | 4.83 | 4.83 | 3.45 |
| | Deviation / RPO Obligation - Total | 14.00 | 3.45 | - | 4.83 | 4.83 | 3.45 |
| C | Grand total | 443.01 | 1.74 | 48.90 | 88.74 | 137.64 | 3.11 |

Table 8.17: Power Purchase Cost for FY 2016-17 projected by PED

| Sl. No | Station | Power Purchase MU | Variable Charge Rs/ kWh | Fixed Cost (Rs cr) | Variable Cost (Rs cr) | Total Cost (Rs cr) | Average Cost Rs/ kWh |
|--------|-----------------------------|-------------------|-------------------------|--------------------|-----------------------|--------------------|----------------------|
| A | Central Generating Stations | | | | | | |
| I | NTPC | | | | | | |
| 1 | Farakka STPS | 14.37 | 3.08 | 1.31 | 4.43 | 5.74 | 3.99 |
| 2 | Kahalgaon STPS | 6.53 | 2.94 | 0.69 | 1.92 | 2.60 | 3.99 |
| 3 | Talcher STPS | 9.11 | 2.50 | 1.36 | 2.28 | 3.64 | 3.99 |
| | Total | 30.01 | 2.87 | 3.36 | 8.63 | 11.98 | 3.99 |
| II | NHPC | | | - | - | - | - |
| 1 | Loktak HEP | 20.00 | 1.52 | 2.90 | 3.03 | 5.94 | 2.97 |
| | Total | 20.00 | 1.52 | 2.90 | 3.03 | 5.94 | 2.97 |
| III | NEEPCO | | | - | - | - | - |
| 1 | Kopili HEP | 28.00 | 0.50 | 1.51 | 1.40 | 2.91 | 1.04 |
| 2 | Kopili - II HEP | 5.00 | 1.16 | 0.35 | 0.58 | 0.93 | 1.86 |
| 3 | Khandong HEP | 4.00 | 1.35 | 0.52 | 0.54 | 1.06 | 2.65 |
| 4 | Ranganadi HEP | 55.00 | 1.69 | 8.51 | 9.27 | 17.78 | 3.24 |
| 5 | Doyang HEP | 10.00 | 2.50 | 1.84 | 2.50 | 4.35 | 4.34 |
| 6 | AGBPP | 90.00 | 2.14 | 15.07 | 19.26 | 34.34 | 3.81 |
| 7 | AGTPP | 35.00 | 2.85 | 4.86 | 9.98 | 14.84 | 4.24 |
| | Total | 227.00 | 1.92 | 32.67 | 43.52 | 76.19 | 3.36 |
| IV | TSECL | | | - | - | - | - |
| 1 | B'mura - IV | 36.00 | 3.29 | - | 11.83 | 11.83 | 3.29 |
| 2 | B'mura - V | 38.00 | 3.29 | - | 12.48 | 12.49 | 3.29 |
| | Total | 74.00 | 3.29 | - | 24.31 | 24.31 | 3.29 |
| V | OTPC | | | - | - | - | - |

| SI. No | Station | Power Purchase MU | Variable Charge Rs/ kWh | Fixed Cost (Rs cr) | Variable Cost (Rs cr) | Total Cost (Rs cr) | Average Cost Rs/ kWh |
|--------|------------------------------------|-------------------|-------------------------|--------------------|-----------------------|--------------------|----------------------|
| 1 | Palatana | 78.00 | 1.21 | 12.90 | 9.42 | 22.32 | 2.86 |
| | Total | 78.00 | 1.21 | 12.90 | 9.44 | 22.33 | 2.86 |
| VI | Other Stations/IPPS | | | - | - | - | - |
| 1 | Total | - | - | - | - | - | - |
| B | Deviation / RPO Obligation | 14.00 | 3.66 | - | 5.12 | 5.12 | 3.66 |
| | Deviation / RPO Obligation - Total | 14.00 | 3.66 | - | 5.12 | 5.12 | 3.66 |
| | | | | | | | |
| C | Grand total | 443.01 | 1.85 | 51.82 | 94.04 | 145.86 | 3.29 |

Table 8.18: Power Purchase Cost for FY 2017-18 Projected by PED

| SI. No | Station | Power Purchase MU | Variable Charge Rs/ kWh | Fixed Cost (Rs cr) | Variable Cost (Rs cr) | Total Cost (Rs cr) | Average Cost Rs/ kWh |
|--------|-----------------------------|-------------------|-------------------------|--------------------|-----------------------|--------------------|----------------------|
| A | Central Generating Stations | | | | | | |
| I | NTPC | | | | | | |
| 1 | Farakka STPS | 14.37 | 3.27 | 1.39 | 4.70 | 6.09 | 4.24 |
| 2 | Kahalgaon STPS | 6.53 | 3.11 | 0.73 | 2.03 | 2.76 | 4.22 |
| 3 | Talcher STPS | 9.11 | 2.65 | 1.44 | 2.41 | 3.86 | 4.23 |
| | Total | 30.01 | 3.05 | 3.56 | 9.14 | 12.71 | 4.24 |
| II | NHPC | | | - | - | - | - |
| 1 | Loktak HEP | 20.00 | 1.61 | 3.08 | 3.21 | 6.30 | 3.15 |
| | Total | 20.00 | 1.61 | 3.08 | 3.21 | 6.30 | 3.15 |
| III | NEEPCO | | | - | - | - | - |
| 1 | Kopili HEP | 28.00 | 0.53 | 1.60 | 1.48 | 3.09 | 1.10 |
| 2 | Kopili - II HEP | 5.00 | 1.22 | 0.37 | 0.61 | 0.98 | 1.96 |
| 3 | Khandong HEP | 4.00 | 1.43 | 0.55 | 0.57 | 1.12 | 2.81 |
| 4 | Ranganadi HEP | 55.00 | 1.79 | 9.02 | 9.82 | 18.86 | 3.43 |
| 5 | Doyang HEP | 10.00 | 2.65 | 1.95 | 2.65 | 4.60 | 4.60 |
| 6 | AGBPP | 90.00 | 2.27 | 15.97 | 20.42 | 36.40 | 4.04 |
| 7 | AGTPP | 35.00 | 3.02 | 5.15 | 10.57 | 15.72 | 4.49 |
| | Total | 227.00 | 2.03 | 34.62 | 46.13 | 80.70 | 3.56 |
| IV | TSECL | | | - | - | - | - |
| 1 | B'mura - IV | 36.00 | 3.48 | - | 12.53 | 12.53 | 3.48 |

| Sl. No | Station | Power Purchase MU | Variable Charge Rs/ kWh | Fixed Cost (Rs cr) | Variable Cost (Rs cr) | Total Cost (Rs cr) | Average Cost Rs/ kWh |
|--------|------------------------------------|-------------------|-------------------------|--------------------|-----------------------|--------------------|----------------------|
| 2 | B'mura - V | 38.00 | 3.48 | - | 13.23 | 13.22 | 3.48 |
| | Total | 74.00 | 3.48 | - | 25.76 | 25.75 | 3.48 |
| V | OTPC | | | - | - | - | - |
| 1 | Palatana | 78.00 | 1.28 | 13.67 | 9.99 | 23.65 | 3.03 |
| | Total | 78.00 | 1.28 | 13.67 | 9.99 | 23.65 | 3.03 |
| VI | Other Stations/IPPS | | | - | - | - | - |
| 1 | Total | - | - | - | - | - | - |
| B | Deviation / RPO Obligation | 26.50 | 3.87 | - | 10.27 | 10.26 | 3.87 |
| | Deviation / RPO Obligation - Total | 26.50 | 3.87 | - | 10.27 | 10.26 | 3.87 |
| C | Grand total | 455.51 | 2.00 | 54.92 | 104.51 | 159.43 | 3.50 |

The Commission approves power purchase cost of Rs. 137.64cr, Rs. 145.86cr and Rs.159.43cr for FY2015-16, FY2016-17 and FY2017-18 respectively.

8.12.3 Transmission and Other Charges

The Transmission charges payable to PGCIL are estimated based on the quantum of power proposed for wheeling for FY 2015-16, 2016-17 & 2017-18 based on cost actually incurred in FY 2013-14 after escalating the

same by 10% year over year. The transmission charges arrived for FY 2013-14 are escalated by 6% to arrive the charges for FY 2015-16 to FY 2017-18 to factor in the rise in the rates. Based on the above the transmission charges for FY 2015- 16, 2016-17 & 2017-18 are provided in the table below.

Table 8.19: Transmission Charges

(Rs lakh)

| Particulars | FY 2015-16 | FY 2016-17 | FY 2017-18 |
|----------------------|------------|------------|------------|
| Transmission Charges | 1930.50 | 2045.94 | 2168.29 |

The intra-state transmission system is being operated & maintained by PED and transmission charges have been calculated as per The Joint Electricity Regulatory Commission for Manipur and Mizoram (Multi Year Tariff) Regulations, 2014 and attached in Part III of the petition. Details of Annual Transmission charges are provided in the table below.

Table 8.20: Intra-state Transmission

(Rs. lakh)

| Particulars | FY 2015-16 | FY 2016-17 | FY 2017-18 |
|--------------------------|------------|------------|------------|
| Intra State Transmission | 1946.15 | 2020.09 | 2159.22 |

Commission analysis

The Commission has considered the transmission charges for interstate transmission as projected by PED. In respect of Intra State transmission charges, the ARR for transmission is considered.

Accordingly the approved transmission charges are detailed in table below.

Table 8.21: Transmission charges approved by the Commission

(Rs. crore)

| Sl. No | Particulars | FY 2015-16 | FY 2016-17 | FY 2017-18 |
|--------|--------------------------|------------|------------|------------|
| 1 | PGCIL Transmission | 19.31 | 20.46 | 21.68 |
| 2 | Intra State Transmission | 18.55 | 19.73 | 20.93 |
| | Total | 37.86 | 40.19 | 42.61 |

The Commission approves transmission charges at Rs 37.86cr, Rs 40.19cr and Rs.42.61cr for control period FY2015-16, 2016-17 and 2017-18 respectively.

8.12.4 Operation and Maintenance Expenses

Operation & Maintenance expense comprise of the following heads of expenditure viz.

- Employee Expenses
- Administration & General Expenses
- Repairs & Maintenance Expenses

It is submitted that P&ED is now gearing up for meeting the operational requirement of servicing existing and additional new consumers in line with the Standards of performance which the licensees have to adhere to. Hence there would be an increase in O&M expenditure to support full-fledged distribution business operations.

The operation & maintenance expenses have been arrived at in accordance with the Regulation 89.6 of The Joint Electricity Regulatory Commission for Manipur and Mizoram (Multi Year Tariff) Regulations, 2014. Details of Employee Expenses, Administration & General Expenses & Repairs & Maintenance Expenses are discussed in the subsequent paras.

8.12.5 Employee Expenses

The expense head of employee cost consists of salary and allowance, bonus, Leave Travel Concession (LTC) & Honorarium etc. PED has projected the employee cost in accordance with the Regulation 89.6 of The Joint Electricity Regulatory Commission for Manipur and Mizoram (Multi Year Tariff) Regulations, 2014. Accordingly, average of the actual expenses for the FY 2011-12, FY 2012-13 & FY 2013-14 has been considered as the employee expenses for the FY 2012-13 and the same has been escalated at the escalation factor of 4% to arrive at the employee expenses for the FY 2015-16. The employee expense for each subsequent year has been

determined by escalating the base expenses determined for the FY 2015-16, at the escalation factor of 5.72%. PED therefore requested the Commission to approve the employee expenses as projected.

Table 8.22: Employee Expenses projected by P&ED

(Rs. Lakhs)

| Particulars | FY 2015-16 | FY 2016-17 | FY 2017-18 |
|-------------------|------------|------------|------------|
| Employee Expenses | 4101.79 | 4336.41 | 4584.45 |

Commission’s analysis and approval

The Petitioner arrived the employee expenses for control period of FY 2015-16 to FY 2017-18 considering actuals expenses of 2012-13 as baseline and escalated at 5.72%P.A and projected expenses for the control period FY2015-16 to FY2017-18.

Commission approved the employee expenses as projected by PED as detailed in table below:

Table 8.23: Employee Expenses approved by the Commission for control period FY2015-16 to FY2017-18.

(Rs. core)

| Particulars | FY 2015-16 | FY 2016-17 | FY 2017-18 |
|-------------------|------------|------------|------------|
| Employee Expenses | 41.02 | 43.36 | 45.84 |

8.12.6 Administration and General Expenses:

A&G expenses comprise of the following broad subheads of expenditure, viz.

- Domestic Travelling Expenses
- Office Expenses
- Legal, Regulatory & Consultancy Fees
- Insurance etc.

The PED has projected the A&G expenses in accordance with the Regulation of the Joint Electricity Regulatory Commission for Manipur and Mizoram (Multi Year Tariff) Regulations, 2014. Accordingly, average of the actual expenses

for the FY 2011-12, FY 2012-13 & FY 2013-14 have been considered as baseline for the A&G expenses for the FY 2012-13 and the same have been escalated at an escalation factor of 4% to arrive at the A&G expenses for the control period of FY 2015-16 to 2017-18. The A&G expense for each subsequent year has been determined by escalating the base expenses determined for the FY 2015-16, at the escalation factor of 5.72%, as detailed in table below:

Table 8.24: A&G Expenditure projected by PED for control period of FY2015-16 to FY2017-18.

(Rs lakh)

| Particulars | FY 2015-16 | FY 2016-17 | FY 2017-18 |
|-----------------------------------|------------|------------|------------|
| Administration & General Expenses | 101.67 | 107.49 | 113.63 |

Commission's analysis

The Petitioner has arrived the A&G expenses for FY 2015-16 by escalating the average expenses of FY 2011-12, FY 2012-13 & FY 2013-14 at 4%. A&G expenses for FY2015-16, FY 2016-17 and FY 2017-18 are arrived by further escalation at 5.72%. The Commission approves the A&G expenses which is in accordance with the MYT regulations,2014.

Table 8.25: A&G Expenditure approved by the Commission for control period FY2015-16 to FY2017-18.

(Rs. Crore)

| Particulars | FY 2015-16 | FY 2016-17 | FY 2017-18 |
|-----------------------------------|------------|------------|------------|
| Administration & General Expenses | 1.02 | 1.07 | 1.14 |

The Commission approves A&G expenses at Rs 1.02cr, Rs 1.07cr and Rs 1.14cr for control period FY2015-16, FY2016-17 and FY2017-18 respectively as projected by PED.

8.12.7 Repairs and Maintenance Expenses

PED has been undertaking various Repairs and Maintenance activities as a step towards improvement of systems, reduction in breakdowns, reduction in response time and increasing preventive maintenance.

The PED has projected the R&M expenses in accordance with the Regulation of the Joint Electricity Regulatory Commission for Manipur and Mizoram (Multi Year Tariff) Regulations, 2014. Accordingly, average of the actual expenses for the FY 2011-12, FY 2012-13 & FY 2013-14 have been considered as baseline for the R&M expenses for the FY 2012-13 and the same have been escalated at the escalation factor of 4% P.A. to arrive at the R&M expenses for the FY 2015-16. The R&M expense for subsequent years of control period have been determined by escalating the expenses determined for the FY 2015-16, at the escalation factor of 5.72% P.A as detailed in table below.

Table 8.26: Repairs and Maintenance Expenses projected by PED for control period FY2015-16 to FY2017-18.

(Rs. lakh)

| Particulars | FY 2015-16 | FY 2016-17 | FY 2017-18 |
|-------------------------------|------------|------------|------------|
| Repair & Maintenance Expenses | 622.28 | 657.87 | 695.51 |

Commission's analysis

The Petitioner has arrived the R&M expenses for FY 2015-16 by escalating average of actual expenses for FY2011-12 to FY2013-14 at 4% and further escalating at 5.72%. The Commission accepts the proposal and approves R&M charges as follows

Table 8.27: Repairs and Maintenance Expenses approved by the Commission for control period FY2015-16 to FY2017-18.

(Rs. Core)

| Particulars | FY 2015-16 | FY 2016-17 | FY 2017-18 |
|-------------------------------|------------|------------|------------|
| Repair & Maintenance Expenses | 6.22 | 6.58 | 6.96 |

The Commission approves R&M expenses at Rs 6.22cr, Rs 6.58cr and Rs 6.96cr for FY2015-16, FY2016-17 and FY2017-18 respectively as projected by PED.

8.12.8 Summary of O&M Expenditure approved by the Commission

The summary O&M Expenditure approved by the Commission is tabulated below:

Table 8.28: Summary of O&M Expenditure approved by the Commission for control period FY2015-16 to FY2017-18.

(Rs. core)

| Sl. No | Particulars | FY 2015-16 | FY 2016-17 | FY 2017-18 |
|--------|-----------------------------------|--------------|--------------|--------------|
| 1 | Employee Expenses | 41.02 | 43.36 | 45.84 |
| 2 | Administration & General Expenses | 1.02 | 1.07 | 1.14 |
| 3 | Repair & Maintenance Expenses | 6.22 | 6.58 | 6.96 |
| 4 | Total O&M Expenses | 48.26 | 51.01 | 53.94 |

8.13 Capital Expenditure & Capitalisation

PED has undertaken significant capital expenditure during FY 2013-14 & FY 2014-15 and has plans to implement schemes for development of infrastructure during FY 2015- 16, 2016-17 & 2017-18. P&ED has stated that the infrastructure is insufficient to cater to the present load and hence to meet the increasing demand, capital expenditure proposed are absolutely necessary.

The objective of incurring the capital expenditure is to continue the up-gradation and strengthening of the distribution network to meet the desirable standards of performance and provide better network reliability and sustainable performance to the consumers of PED.

Abstract of the capital expenditure plan envisaged will also assist in reducing

system losses. The details of the capital expenditure schemes proposed for control period are outlined in the table below:

Table 8.29: Capital investment projected by PED for control period FY 2015-16 to FY2017-18.

(Rs.lakh)

| Sl. No | Particulars | FY 2015-16 | FY 2016-17 | FY 2017-18 |
|-----------|-----------------------|-----------------|-----------------|----------------|
| 1 | Transformation | 500.00 | 1800.00 | 1500.00 |
| 2 | Distribution | 300.00 | 300.00 | 300.00 |
| 3 | Building | 100.00 | 100.00 | 100.00 |
| 4 | NEC | 2000.00 | 2200.00 | 3000.00 |
| 5 | NLCPR | 1400.00 | 1500.00 | 1500.00 |
| 6 | CSS | 400.00 | 500.00 | 600.00 |
| 7 | REC / PFC | 2400.00 | 0.00 | 0.00 |
| 8 | IPDS | 7015.00 | 5736.00 | 9.58 |
| 9 | DDU Gram Jyoti Yojana | 800.00 | 800.00 | 400.00 |
| 10 | Total | 14915.00 | 12936.00 | 7409.58 |

Summary of capital works in progress are furnished in table below:

Table 8.30: CWIP

(Rs. lakh)

| Sl. No | Particulars | FY 2014-15 | FY 2015-16 | FY 2016-17 | FY 2017-18 |
|--------|-----------------------------|------------|------------|------------|------------|
| 1 | Opening balance of | 370.55 | 376.70 | 456.81 | 562.17 |
| 2 | Investment during the year | 84.57 | 149.15 | 129.36 | 74.10 |
| 3 | Total | 455.12 | 525.85 | 536.17 | 636.27 |
| 4 | Less Investment capitalized | 78.42 | 69.04 | 24.00 | 38.00 |
| 5 | Closing CWIP | 376.70 | 456.81 | 562.17 | 598.83 |

Commission's analysis

As seen from the above table the progress on completion of works is very slow, unless and until the assets are put to use the very purpose of huge capital investment cannot be achieved.

As such the P&ED is directed to review the progress and see that the works are completed within the targeted date.

With this observation the capital investment of Rs.149.15cr, Rs. 129.36cr and Rs.74.10cr and capitalization of Rs 69.04cr, Rs 24.00cr and Rs.38.00cr during control period FY 2015-16, FY 2016-17 and 2017-18 respectively are approved.

8.14 Gross Fixed Assets and Depreciation.

P&ED has projected the Gross Fixed Asset in accordance with the Regulation 23 of The Joint Electricity Regulatory Commission for Manipur and Mizoram (Multi Year Tariff) Regulations, 2014.

It is submitted that opening value of gross fixed assets (GFA) for 2013-14 has been taken from Fixed Asset Register as on 31.03.2013 & the audited accounts for the FY 2012-13 and the same has been increased by addition of assets during the FY 2013-14 and estimated addition during FY 2014-15. Thereafter, planned additions during 2015-16, 2016-17 & 2017-18 have been considered and accordingly, GFA has been computed for FY 2015-16, 2016-17 & 2017-18.

It is further submitted that the assets of the utility have been segregated on the basis of their functions i.e Generation, Transmission & Distribution. Since, Tariff of Generation & Transmission is being considered separately from FY 2015-16 the assets have also been considered accordingly. The Assets and corresponding depreciation are calculated for the integrated utility upto FY 2014-15 and from FY 2015-16 onwards, function wise assets are worked out as detailed in table below.

Table 8.31: Depreciation calculated for distribution function

(Rs. cr)

| Sl. No | Particulars | FY 2015-16 | FY 2016-17 | FY 2017-18 |
|--------|---------------------------|------------|------------|------------|
| 1 | Opening GFA | 424.87 | 462.41 | 486.41 |
| 2 | Additions during the year | 37.54 | 24.00 | 38.93 |
| 3 | Closing GFA | 462.41 | 486.41 | 525.34 |

Commission's analysis

As verified from the above table segregated of GFA among the three functions is not in order for the following reasons:-

The GFA as on 31.3.2013 as per audited accounts is Rs.1022.43 cr. In the same audited accounts the net GFA after progressive depreciation is segregated among the three functions as follows:

| Function | Amount as on 31.3.2013(Rs.cr) |
|--------------|-------------------------------|
| Generation | 286.30 |
| Transmission | 72.06 |
| Distribution | 166.72 |
| Total | 525.08 |

In the same proportion if the total GFA of the respective functions will be as follows:

| | Amount as on 31.3.2013(Rs.cr) |
|--------------|-------------------------------|
| Generation | 577.48 |
| Transmission | 140.31 |
| Distribution | 324.64 |
| Total | 1022.43 |

Further the PED has calculated the GFA of generating stations on normative basis, there by Rs 356.01cr was remaining unallocated as follows:

Segregation of GFA by PED as on 1.4.2015,

Total GFA as on 1.4.2015 is Rs 1112.55cr

| | |
|--------------|----------------------|
| Distribution | Rs. 424.87cr |
| Transmission | Rs 193.46 cr |
| Generation | Rs 138.21cr |
| Total | Rs. 756.54 cr |

Thus, Rs. 356.01cr un allocated (1112.55 – 756.54)

As such GFA for distribution function is considered as per audited accounts at Rs 324.64cr as on 31.3.2013 and growth of GFA as per investment capitalization during subsequent years and depreciation worked out on strait line method on average GFA and considered 10% of total depreciation as 90% of expenditure is funded through grant. Detailed calculation is furnished in table below.

Table 8.32: Growth of GFA and Calculation of depreciation for distribution function.

| | FY14 | FY15 | FY16 | FY17 | FY18 |
|------------------------------|-------------|-------------|-------------|-------------|-------------|
| Opening GFA | 324.64 | 336.34 | 414.77 | 452.31 | 476.31 |
| Additions during the year | 11.70 | 78.43 | 37.54 | 24.00 | 38.93 |
| Closing GFA | 336.34 | 414.77 | 452.31 | 476.31 | 515.24 |
| Average GFA | 330.48 | 375.56 | 230.04 | 464.31 | 495.78 |
| Average rate of depreciation | 4.17% | 4.17% | 4.17% | 4.17% | 4.17% |
| Total depreciation | 13.78 | 15.66 | 9.59 | 19.36 | 20.67 |
| 10% of depreciation | 1.38 | 1.57 | 0.96 | 1.94 | 2.07 |

The Commission approves depreciation for control period of FY 2015-16; 2015-16 and 2017-18 at Rs 0.96cr, Rs 1.94cr and Rs 2.07cr respectively.

8.15 Interest and Financial Charges.

Regulation 27 of The Joint Electricity Regulatory Commission for Manipur and Mizoram (Multi Year Tariff) Regulations, 2014 provides the methodology for

calculation of the Interest & Finance charges. It provides that 30% of the capital employed shall be considered as equity and balance 70% is to be considered as loan. The regulation provides for normative loan irrespective of actual loan availed by the utility. Repayment of loan and interest are also to be considered on normative basis.

In this regard it is submitted that the PED being a Government Department, the entire capital employed till date has been funded through fund infusion by the Government in form of budgetary support which are generally in the nature of grants. Apart from this in order to fund the capital projects, PED has also availed various loans through the State Govt. from LIC, REC and PFC.

It is also submitted that the loans under RGGVY Scheme & RAPDRP are convertible into grants at a future date subject to fulfillment of certain stipulations.

In view of the above, the financial principle of debt-equity ratio of 70:30 as provided in regulation 27 read with regulation 22 may not be applicable to the PED. Therefore PED has only considered the actual loans which are repayable for calculation of interest & finance charges. The total flow of loans from the above mentioned financial institutions as well as the annual interest payments in respect of these loans is provided in table below.

Table 8.33: Interest on Capital loans for FY2015-16

(Rs. Lakhs)

| Sl. No | Particulars | Opening Loan Rs cr | Repayment | Closing loan | Average loan | Rate of unit | Interest |
|--------|-------------|-----------------------|-----------|--------------|--------------|--------------|----------|
| 1 | LIC | 8.67 | 1.33 | 7.33 | 8 | 8.00% | 0.64 |
| 2 | REC | 1.74 | 1.08 | 0.66 | 1.2 | 8.35% | 0.14 |
| 3 | REC(RGGVY) | 21.58 | 2.4 | 19.18 | 20.38 | 11.67% | 2.38 |
| 4 | Total | 31.98 | 4.81 | 23.17 | 29.58 | | 3.16 |

Table 8.34: Interest on Capital loan for 2016-17

| | | | | | | | |
|---|------------|-------|------|-------|-------|--------|------|
| 1 | LIC | 7.33 | 1.33 | 6 | 6.67 | 8.00% | 0.53 |
| 2 | REC | 0.66 | 0.66 | - | 0.33 | 8.35% | 0.05 |
| 3 | REC(RGGVY) | 19.18 | 2.4 | 16.78 | 17.98 | 11.65% | 2.1 |
| 4 | Total | 27.17 | | 22.78 | 24.98 | | 2.68 |

Table 8.35: Interest on capital loan for 2017-18

| | | | | | | | |
|---|------------|-------|-----|-------|-------|----------|------|
| 1 | LIC | 60 | 1 | 5 | 5.5 | 8.00% | 0.44 |
| 2 | REC | 0 | - | - | - | 835.00% | - |
| 3 | REC(RGGVY) | 16.78 | 2.4 | 14.39 | 15.58 | 1169.00% | 1.82 |
| 4 | Total | 22.78 | 3.4 | 19.39 | 21.09 | | 2.26 |

Commission's analysis

As verified from the above table the PED has availed loans from LIC & REC. The interest calculation is in order.

The Commission approves interest and finance charges at Rs 3.16cr, Rs 2.68cr and Rs 2.26cr for control period FY 2015-16, FY 2016-17 and FY 2017-18 respectively as projected by PED.

8.16 Interest on Working Capital

The P&ED has computed the Interest on Working Capital for FY 2015-16, 2016-17 & 2017-18 in accordance with the Regulation 29.4 of The Joint Electricity Regulatory Commission for Manipur and Mizoram (Multi Year Tariff) Regulations, 2014.

As per the Regulations, for the purpose of computation of normative working capital and Interest on working capital, the components of working capital are as follows:

- a) Operation and maintenance expenses for one month; plus
- b) Maintenance spares at one (1) per cent of the historical cost escalated at 6% from the date of commercial operation; plus
- c) Receivables equivalent to one (1) month of the expected revenue from

sale of electricity at the prevailing tariffs; minus

- d) Amount held as security deposits under clause (a) and clause (b) of sub-section (1) of Section 47 of the Act from consumers except the security deposits held in the form of Bank Guarantees;

Interest is required to be calculated at a rate equal to the State Bank Advance Rate (SBAR) as on 1st April of the financial year in which the Petition is filed.

Interest on working capital has been calculated accordingly as detailed in the table below:

Table 8.36: Interest on Working Capital approved by the Commission for FY 2015-16.

(Rs. Crore)

| SI. | Particulars | Tariff Cost | For One Month |
|-----|---|-------------|---------------|
| 1 | O&M Expenses | 48.24 | 4.02 |
| 2 | Maintenance Spares at 1% of historical cost | 414.97 | 4.15 |
| 3 | Receivable for one month | 167.54 | 13.96 |
| 4 | Total | | 22.13 |
| 5 | Interest at 14.75% | | 3.26 |

The Commission approves Interest on Working Capital at Rs 3.26 Crore for FY 2015-16.

Table 8.37: Interest on working capital for FY 2016-17 approved by the Commission.

(Rs cr)

| SI No | Particulars | Total Cost | One month |
|-------|--|------------|-----------|
| 1 | O&M expenses | 51.01 | 4.25 |
| 2 | Maintenance of spares cost 1% on historical cost | 452.31 | 4.52 |
| 3 | Receivables for one month | 176.16 | 14.68 |
| 4 | Total | | 23.55 |

| | | | |
|---|-----------------------------|--|------|
| 5 | Interest @ SBI PLR @ 14.75% | | 3.47 |
|---|-----------------------------|--|------|

The Commission approves interest on working capital at Rs 3.47cr for FY 2016-17.

Table 8.38: Interest on work of Capital for FY 2017-18 approved by the Commission.

(Rs cr)

| SI No | Particulars | Total Cost | One month |
|-------|-----------------------------|------------|--------------|
| 1 | O&M expenses | 53.94 | 4.50 |
| 2 | Maintenance of spray | 476.31 | 4.76 |
| 3 | Receivables | 193.64 | 16.14 |
| 4 | Total | | 25.50 |
| 5 | Interest @ SBI PLR @ 14.75% | | 3.76 |

The Commission approves interest on working capital at Rs 3.76cr for FY 2017-18

8.17 Bad Debts:

Regulation 89.8 of The Joint Electricity Regulatory Commission for Manipur and Mizoram (Multi Year Tariff) Regulations, 2014 provides that bad debts written off may be allowed as a pass through in the ARR. PED has not proposed any provision for bad debts and stated that the same shall be claimed on actuals while truing-up exercise.

8.18 Return on Equity:

Regulation 26 of The Joint Electricity Regulatory Commission for Manipur and Mizoram (Multi Year Tariff) Regulations, 2014 read with Regulation 22 provides the methodology for calculation of the Interest & Finance charges. It provides that 30% of the capital employed shall be considered as equity and balance 70% is to be considered as loan.

In this regard it is submitted that the P&ED being a Government Department, the entire capital employed till date has been funded through fund infusion by the Government in form of budgetary support which are generally in the nature of grants and aids through financial institutions under various schemes like APDRP, RGGVY etc.

In view of the above, the financial principle of debt-equity ratio of 70:30 and return on equity thereon as provided in regulation 26 read with regulation 22 may not be applicable to the PED. Therefore PED has not considered return on equity while computing the ARR.

8.19 Non-Tariff Income:

Regulation 90 of The Joint Electricity Regulatory Commission for Manipur and Mizoram (Multi Year Tariff) Regulations, 2014 provides that the Non-tariff income shall be deducted from the ARR in calculating the Tariff. Non-tariff income includes revenue from Meter Rent, Meter testing Charge, disconnection/Reconnection Charge and other departmental charges. The Non-tariff income for the FY 2015-16, 2016-17 & 2017-18 has been projected by escalating the estimated Non-tariff income of FY 2014-15 by 5% YOY. Accordingly, Non-tariff income for the FY 2015-16, 2016-17 & 2017-18 is provided in the table below.

Table 8.39: Non- Tariff Income projected by PED

(Rs. lakh)

| Particulars | FY 2015-16 | FY 2016-17 | FY 2017-18 |
|--------------------|-------------------|-------------------|-------------------|
| Non -Tarff | 243.50 | 258.06 | 273.49 |

Commission's analysis

Commission after examining the Petitioners request approves non-tariff income as follows:

Table 8.40: Non-Tariff Income approved by the Commission.

| Financial Year | Amount (Rs. crore) |
|-----------------------|---------------------------|
| 2015-16 | 2.44 |

| | |
|---------|------|
| 2016-17 | 2.58 |
| 2017-18 | 2.73 |

8.20 Revenue from Existing Tariff :

Revenue from existing tariff with approved sales is furnished in table below.

Table 8.41: Revenue from Existing Tariff for FY 2015-16

| Sl No | Category | Approved Sales (MU) | Average Revenue (Rs/kWh) | Total Cost (Rs cr) |
|-----------|-----------------------|---------------------|--------------------------|--------------------|
| A | LT Supply | | | |
| 1 | Kutir Jyoti | 4 | 2.00 | 0.80 |
| 2 | Domestic | 242 | 3.25 | 78.54 |
| 3 | Commercial | 28 | 5.07 | 14.20 |
| 4 | Public Lighting | 8 | 4.88 | 3.90 |
| 5 | Public water works | 1 | 5.33 | 0.53 |
| 6 | Agriculture | .01 | 2.40 | - |
| 7 | Industrial | 3 | 4.64 | 1.39 |
| | Total | 292.01 | 3.40 | 99.36 |
| B | HT Supply | | | |
| 8 | Domestic | 2 | 4.74 | 0.95 |
| 9 | Commercial | 1 | 5.99 | 0.60 |
| 10 | Public water works | 46 | 5.64 | 25.93 |
| 11 | Agriculture | 0.10 | 2.28 | 0.02 |
| 12 | Industrial | 3 | 6.39 | 1.92 |
| 13 | Bulk supply | 24 | 5.14 | 12.34 |
| | Total HT | 76.1 | 5.49 | 41.75 |
| | Total LT + HT | 362.11 | 4.35 | 141.12 |
| 14 | Sale of Surplus power | 27.09 | 3.19 | 8.64 |
| 15 | Grand Total | 389.20 | | 149.76 |

8.21 Aggregate Revenue Requirement and Gap:

The Aggregate revenue requirement and gap projected by PED for FY2015-16, 2016- 17 & 2017-18 are furnished in table below.

Table 8.42: Annual Revenue Requirement Projected by P&ED for FY16 to FY18.

(Rs. lakh)

| Sl. No | Particulars | FY 2015-16 | FY 2016-17 | FY 2017-18 |
|--------|---|-----------------|-----------------|-----------------|
| 1 | Cost of Power Purchase | 17963.1 | 18786.1 | 20142.78 |
| 2 | Cost of Generation | 784.14 | 815.08 | 835.81 |
| 3 | Cost of Fuel | 7.00 | 7.00 | 7.00 |
| 4 | Operation & Maintenance Expenses | | | |
| 5 | Transmission charges | 1930.50 | 2045.94 | 2168.29 |
| 6 | Intra- state Transmission Charges | | | |
| 7 | Interest & Finance Charges | 316.08 | 268.05 | 225.53 |
| | Depreciation | 232.44 | 175.08 | 164.42 |
| 8 | Interest on Working Capital | 434.61 | 453.71 | 474.91 |
| 9 | Return on Equity | 0.00 | 0.00 | 0.00 |
| | Prior period expenses | 0.00 | 0.00 | 0.00 |
| 10 | Provision for Bad Debt | 0.00 | 0.00 | 0.00 |
| 11 | Total Revenue | 28439.78 | 29672.8 | 31571.65 |
| 12 | Less: Non-Tariff Income | 243.50 | 258.06 | 273.49 |
| 13 | Less: Revenue from Sale of Power-Exchange | - | - | - |
| 14 | Net Revenue Requirement (11-12-13) | 28196.28 | 29414.82 | 31298.16 |
| 15 | Revenue from existing Tariff | 15010.32 | 15068.84 | 15497.96 |
| 16 | GAP | 13185.96 | 14345.88 | 15800.40 |
| 17 | Energy sales(MU) | 393.14 | 387.42 | 393.46 |
| 18 | Average cost of supply(Rs/kWh) | 7.17 | 7.59 | 7.95 |

Commission analysis

Commission has analyzed various items of expenditure as discussed earlier and approves the expenses and net ARR as shown in the Table below:

Table 8.43: Annual Revenue Requirement approved by the Commission
(Rs cr)

| Sl. No | Particulars | FY 2015-16 | FY 2016-17 | FY 2017-18 |
|--------|---------------------------------------|------------|------------|------------|
| 1 | Power Purchase cost | 137.64 | 145.86 | 159.43 |
| 2 | Cost of Generation | 8.45 | 8.75 | 9.06 |
| 3 | Cost of Fuel | 0.07 | 0.07 | 0.07 |
| 4 | Operation & Maintenance Expenses | 48.24 | 51.01 | 53.94 |
| 5 | Transmission charges | 19.31 | 20.46 | 21.68 |
| 6 | Intra- state Transmission | 18.55 | 19.73 | 20.93 |
| 7 | Interest & Finance Charges | 3.16 | 2.68 | 2.26 |
| 8 | Depreciation | 0.96 | 1.94 | 2.07 |
| 9 | Interest on Working Capital | 3.20 | 3.47 | 3.76 |
| 10 | Return on Equity | - | - | - |
| 11 | Prior period expenses | - | - | - |
| 12 | Provision for Bad Debt | - | - | - |
| 13 | Total Revenue ARR | 239.58 | 253.97 | 273.20 |
| 14 | Less: Non-Tariff Income | 2.44 | 2.58 | 2.73 |
| 15 | Less net surplus in FY2012-13 true up | 37.67 | | |
| | | 37.67 | - | - |
| 16 | Net Average Revenue Requirement | 199.47 | 251.39 | 270.47 |

8.22 Revenue Gap.

Based on the Aggregate Revenue Requirement and revenue from existing tariffs for FY 2015-16, the resultant GAP is as shown in the table below:

Table 8.44: Revenue at Existing Tariff & Gap.

(Rs. cr)

| Sl. No | Particulars | FY 2015-16 | FY 2016-17 | FY 2017-18 |
|--------|-------------|------------|------------|------------|
| 1 | 2 | 5 | 6 | 7 |
| 1 | Net Revenue | 199.47 | 251.39 | 270.47 |

| | | | | |
|---|--|--------|--------|--------|
| 2 | Revenue from Retail Sales at Existing Tariff | 149.76 | | |
| 3 | Net Gap (1-2) | 49.71 | | |
| 4 | Energy sales(MU) | 389.20 | 389.44 | 403.72 |
| 5 | Average cost | 5.13 | 6.46 | 6.70 |

8.23 Recovery of Revenue Gap for FY 2015-16

As seen from para 8.24 above there is a revenue gap of Rs.49.71cr during FY 2015-16 which is about 24.92% of net ARR for FY 2015-16. The existing tariff was fixed with effect from 1.4.2014.

PED does not propose to recover the entire Gap as this may result in huge burden on the consumers. Tariff is a sensitive subject having substantial impact on social, economic and financial well-being of the public at large as well as the viability and growth of power sector. Recovery of entire Gap through tariff increase is not practicable as this would make power unaffordable to the general consumers. PED being a Government Department funded by budgetary support from State Government it proposes to absorb the unrecovered gap. However, PED proposed an average increase in tariff by 5.97% to bridge the gap partially.

As such the Commission considers it to revise the tariffs at an average of 2% under telescopic billing without giving much tariff shock to consumers to bridge the gap partially. Owing to revision of tariffs the PED is expected to get additional revenue of Rs3.16cr as detailed in table below:

Table 8.45: Revenue from revised Tariff for FY 2015-16 approved by the Commission.

| Sl No | Category | Approved Sales (MU) | Average Revenue (Rs/kWh) | Total Cost (Rs/cr) |
|----------|------------------|---------------------|--------------------------|--------------------|
| A | LT Supply | | | |
| 1 | Kutir Jyoti | 4 | 1.82 | 0.80 |

| | | | | |
|-----------|-----------------------|---------------|-------------|---------------|
| 2 | Domestic | 242 | 3.34 | 80.84 |
| 3 | Commercial | 28 | 5.27 | 14.76 |
| 4 | Public Lighting | 8 | 4.96 | 3.96 |
| 5 | Public water works | 1 | 5.65 | 0.57 |
| 6 | Agriculture | .01 | 2.40 | - |
| 7 | Industrial | 3 | 4.91 | 1.47 |
| | Total | 292.01 | 3.51 | 102.40 |
| B | HT Supply | | | |
| 8 | Domestic | 2 | 4.74 | 0.95 |
| 9 | Commercial | 1 | 5.99 | 0.60 |
| 10 | Public water works | 46 | 5.64 | 25.93 |
| 11 | Agriculture | 0.10 | 2.28 | 0.02 |
| 12 | Industrial | 3 | 6.39 | 1.92 |
| 13 | Bulk supply | 24 | 5.19 | 12.46 |
| | Total HT | 76.1 | 5.50 | 41.88 |
| | Total LT + HT | 362.11 | 3.98 | 144.28 |
| 14 | Sale of Surplus power | 27.09 | 3.19 | 8.64 |
| 15 | Grand Total | 389.20 | | 152.92 |

With the revision of tariff the PED will generated additional revenue of Rs 3.16cr. Thereby the revenue gaps is received to Rs 46.55cr (i.e. Rs 49.71 –Rs 3.16) which the PED shall meet from Government subsidy and by improving internal efficiency.

The Commission accordingly approves revenue from revised tariffs at Rs 152.92cr with the energy sales of 389.20MU inclusive of UI sales of 27.09MU.

8.24 Government Subsidy.

Ass seen from the above it is clear that the revenue from sale of power is not sufficient to meet the expenditure of PED. As a result of this the PED shall continue to depend upon the subsidy from government of Mizoram. So, out of the net revenue gap of Rs46.55cr arrived in para 8.23 supra, PED Mizoram

shall generate additional revenue of Rs 0.55cr by comprising internal efficiency and the balance Rs 46cr shall be met from Government subsidy as against Rs 131.85cr proposed by the Government.

9. Tariff Principles and Design

9.1 Background

9.1.1 The Commission in determining the revenue requirement of PED, Mizoram for the year 2015-16 and the retail tariff has been guided by the provisions of the Electricity Act, 2003, the National Tariff Policy (NTP), Regulations on Terms and Conditions of Tariff issued by the Central Electricity Regulatory Commission (CERC) and Regulations on Terms and Conditions of Tariff notified by the JERC. Section 61 of the Act lays down the broad principles, which shall guide determination of retail tariff. As per these principles the tariff should “Progressively reflect cost of supply” and also reduce cross subsidies “within the period to be specified by the Commission”. The Act lays special emphasis on safeguarding consumer interests and also requires that the costs should be recovered in a reasonable manner. The Act mandates that tariff determination should be guided by the factors, which encourage competition, efficiency, economical use of resources, good performance and optimum investment.

The NTP notified by Government of India in January 2006 provides comprehensive guidelines for determination of tariff as also working out the revenue requirement of power utilities. The Commission has endeavored to follow these guidelines as far as possible.

9.1.2 NTP mandates that the Multi-Year-Tariff (MYT) framework be adopted for determination of tariff from 1st April 2006. However the Commission is not in a position to introduce MYT Regime in the State mainly because of lack of requisite and reliable data with the Power and Electricity Department. The present MIS and regulatory reporting system of the PED is very inadequate for any such exercise at this stage. There has been no study to assess voltage wise losses in the absence of metering of all feeders, distribution transformers and consumers. Technical and commercial losses are yet to be segregated and quantified voltage wise. The Commission has issued directives to the PED in the Tariff Order 2010-11 to chalk out action plan for

reduction of T&D losses for both technical and non-technical, maintain correct data energy audit and submit to the Commission by June 2011 which are not complied with. Under these conditions it would not be practicable to implement the MYT framework this year. The Commission taking into account all factors, has decided to introduce MYT in due course, as soon as the data is made available.

9.1.3 The mandate of the NTP on cross subsidy is that tariff should be within plus / minus 20% of the average cost of supply by 2010-11. This could not be achieved due to high cost of power, low paying capacity of the consumers and lack of industrialization. The PED has not furnished the voltage-wise cost of supply. A directive has been issued in this order to build up data to arrive at cost of supply at various voltage levels etc. Hence, in working out the cost of supply, the Commission has gone on the basis of average cost of supply in the absence of relevant data for working out consumer category wise cost of supply. However in this tariff order an element of performance target has been indicated by maintaining the set target for T&D loss reduction for the year 2014-15, 2015-16 and 2017-18. This guides the PED for better performance by reduction of loss level, which will result in substantial reduction in average cost of supply. The existing and proposed tariff of PED is two-part tariff.

9.1.4 Section 8.3 of National Tariff Policy lays down the following principles for tariff design:

1. In accordance with the National Electricity Policy, consumers below poverty line who consume below a specified level, say 30 units per Month, may receive a special support through cross subsidy. Tariffs for such designated group of consumers will be at least 50% of the average cost of supply. This provision will be re-examined after five years.
2. For achieving the objective that the tariff progressively reflects the cost of supply of electricity, the SERC would notify the roadmap, within six Months with a target that latest by the end of the year 2010-11 tariffs are within \pm

20% of the average cost of supply. The road map would have intermediate milestones, based on the approach of a gradual reduction in cross subsidy.

3. For example if the average cost of service is Rs.3 per unit, at the end of year 2010-11 the tariff for the cross subsidized categories excluding those referred to in para-1 above should not be lower than Rs. 2.40 per unit and that for any of the cross subsidizing categories should not go beyond Rs.3.60 per unit.
4. While fixing tariff for agricultural use, the imperatives of the need of using ground water resources in a sustainable manner would also need to be kept in mind in addition to the average cost of supply. The tariff for agricultural use may be set at different levels for different parts of the State depending on the condition of the ground water table to prevent excessive depletion of ground water.”
5. Regulation 16 of JERC (Terms and Conditions for Determination of Tariff) Regulations specifies.
 - a. The cross subsidy for a consumer category means the difference between the average per unit rate based on tariff schedule of the Commission for that Category and the combine average cost of supply per unit expressed in percentage terms as a portion of the combined average cost of supply.
 - b. In the first phase, the Commission shall determine the tariff, so that it progressively reflects the combined average cost of supply of electricity and also reduce cross-subsidies within a reasonable period. In the second phase, the Commission shall consider moving towards category wise cost of supply as a basis for determination of tariff.

9.1.5 NEP aims at increased access to electricity, supply of reliable and quality power at reasonable rates, minimum lifeline consumption, financial turnaround of consumer interest. The Commission has considered factors as far as possible which aim at achieving the objectives of NEP while determining the revenue requirement of the PED and designing the retail tariff for its consumers. The Commission considered for special treatment to Kutir Jyoti

connection and agricultural sector. It has also aimed at to raise the per capita consumption of the State from the existing level of 270 kWh to 350 kWh by the end of 2015. The Commission endeavors that the tariff progressively reflects cost of supply in a shortest period and the government subsidy is reduced gradually. The tariff has been rationalized with regards to inflation, paying capacity and avoid tariff shock.

9.2 Tariff Proposed by PED and Approved by the Commission

9.2.1 Tariff Categories

In the ARR and MYT Tariff Petition of control period FY 2015-16 to FY 2017-18, PED has not proposed any changes in the existing categories of consumers and tariff structure.

The Commission considers retaining the existing categories as stated below:

1. (a) Kutir Jyoti LT
(b) Domestic LT
(c) Domestic HT

2. (a) Non-domestic/Commercial LT
(b) Non-domestic/Commercial HT

3. Public Lighting LT
4. (a) Irrigation & Agriculture LT
(b) Irrigation & Agriculture HT
5. (a) Public Water Works LT
(b) Public Water Works HT
6. (a) Industrial LT
(b) Industrial HT
7. Bulk Supply HT

9.2.2 Existing & Proposed Tariff

PED in its MYT tariff petition for control period FY 2015-16 to FY 2017-18 has

proposed for revision of the existing two part retail tariffs to various categories of consumers to earn additional revenue of Rs. 20.02 crores to meet the gap partially as shown below:

The PED has proposed tariff revision both in energy charges and Fixed Charges., which are in existence since 1.4.2014 with an average increase of 5.97% from the existing tariff. The proposed hike will be within the range varying from 3% to 10% across all categories of consumers to bridge the revenue gap partially.

The summary of the tariff proposal by PED for FY 2015-16 is tabulated below:

Table 9.1: Existing v/s Proposed Tariff

| Sl. No | Type of Installation | Existing Tariff | | Proposed Tariff | |
|----------|-----------------------|-----------------|--------------------------|-----------------|--------------------------|
| | | Energy Charges | Fixed charges | Energy Charges | Fixed charges |
| | | Rs./kWh/Month | (Rupees) | Rs./kWh /Month | (Rupees) |
| | | A | B | A | B |
| 1 | Kutir Jyothi | | | | |
| i) | First 15 Kwh | 1.2 | 10/Connection | 1.3 | 15/Connection |
| ii) | Next 15 Kwh | 1.8 | 10/Connection | 1.9 | 15/Connection |
| iii) | Balance above 30 Kwh | 2.1 | 10/Connection | 2.3 | 15/Connection |
| 2 | Domestic | | | | |
| A | LT Supply | | | | |
| i) | First 50 Kwh | 2.1 | 25/Contracted Load in Kw | 2.3 | 30/Contracted Load in Kw |
| ii) | Next 50 Kwh | 3 | 25/Contracted Load in Kw | 3.2 | 30/Contracted Load in Kw |
| iii) | Next 100 Kwh | 3.8 | 25/Contracted Load in Kw | 3.95 | 30/Contracted Load in Kw |
| iv) | Balance above 200 Kwh | 4.5 | 25/Contracted Load in Kw | 4.7 | 30/Contracted Load in Kw |

| Sl. No | Type of Installation | Existing Tariff | | Proposed Tariff | |
|----------|-------------------------------------|-----------------|--------------------------|-----------------|--------------------------|
| | | Energy Charges | Fixed charges | Energy Charges | Fixed charges |
| | | Rs./kWh/Month | (Rupees) | Rs./kWh /Month | (Rupees) |
| | | A | B | A | B |
| B | HT | 4.5 | 30/Billing Demand in | 4.7 | 30/Billing Demand in |
| 3 | Non-domestic /Commercial | | | | |
| A | LT | | | | |
| i) | First 100 Kwh | 3.3 | 50/Contracted Load in Kw | 3.4 | 60/Contracted Load in Kw |
| ii) | Next 100 Kwh | 4.3 | 50/Contracted Load in Kw | 4.3 | 60/Contracted Load in Kw |
| iii) | Balance above 200 Kwh | 5.2 | 50/Contracted Load in Kw | 5.2 | 60/Contracted Load in Kw |
| B | HT | 5.2 | 60/Billing Demand in | 5.2 | 60/Billing Demand in |
| 4 | Public Lighting | 4.75 | 50/Contracted Load in Kw | 4.8 | 60/Contracted Load in Kw |
| 5 | Irrigation & Agriculture | | | | |
| A | LT | 1.75 | 20/Contracted Load in Kw | 1.8 | 30/Contracted Load in Kw |
| B | HT | 1.75 | 30/Billing Demand in | 1.8 | 30/Billing Demand in |
| 6 | Public Water Works | | | | |
| A | LT | 4.75 | 50/Contracted Load in Kw | 4.9 | 75/Contracted Load in Kw |
| B | HT | 4.75 | 70/Billing Demand in | 4.9 | 75/Billing Demand in |
| 7 | Industrial | | | | |
| A | LT | | | | |

| Sl. No | Type of Installation | Existing Tariff | | Proposed Tariff | |
|----------|-----------------------|-----------------|--------------------------|-----------------|--------------------------|
| | | Energy Charges | Fixed charges | Energy Charges | Fixed charges |
| | | Rs./kWh/Month | (Rupees) | Rs./kWh /Month | (Rupees) |
| | | A | B | A | B |
| i) | First 400 Kwh | 3.45 | 50/Contracted Load in Kw | 3.6 | 60/Contracted Load in Kw |
| ii) | Balance above 400 Kwh | 4.1 | 50/Contracted Load in Kw | 4.3 | 60/Contracted Load in Kw |
| B | HT | 4.1 | 60/Billing Demand in | 4.2 | 60/Billing Demand in |
| 8 | Bulk Supply | 3.85 | 70/Billing Demand in | 4 | 70/Billing Demand in |

Commission's analysis

The Commission after detailed analysis and prudent scrutiny of the aggregate revenue requirement filed by the PED, has arrived at a more realistic revenue requirement.

9.2.3 Tariff Approved by the Commission

Having considered the petition of PED Mizoram for approval of Annual Revenue Requirement (ARR) and determination of Retail Tariff for supply of energy and having approved the Annual Revenue Requirement (ARR) with a gap of Rs. 4.71 crore vide para 8.24 of Chapter-8 the Commission considers to revise the tariffs under Telescopic billing within an average increase of 2% as detailed below:

**Table 9.2: Category wise Tariff approved by the Commission for FY
2015-16**

| Sl. No | Category | Approved | |
|-----------|--|--|------------------------------|
| | | *** Fixed Charges per month (Rs) | Variable Charges (Rs/kwh) |
| 1 | Kutir Jyoti | | |
| i) | First 15 kWh | 10 | 1.20 |
| ii) | Next 15 kWh | 10 | 1.80 |
| iii) | > 30 | 10 | 2.10 |
| 2 | Domestic LT | | |
| i) | First 50 Units | 30 | 2.10 |
| ii) | Next 50 Units | 30 | 3.00 |
| iii) | Next 100 Units | 30 | 3.90 |
| iv) | Balance above 200 Units | 30 | 4.60 |
| 3 | Domestic HT | 30 | 4.50 |
| 4 | Non-domestic/ Commercial LT | | |
| i) | First 100 Units | 60 | 3.35 |
| ii) | Next 100 Units | 60 | 4.35 |
| iii) | Balance above 200 Units | 60 | 5.30 |
| 5 | Commercial HT | 60 | 5.20 |
| 6 | Public Lighting LT | 60 | 4.80 |
| 7 | PWW LT | 75 | 4.80 |
| 8 | PWW HT | 70 | 4.75 |
| 9 | Irrigation & Agri LT | 30 | 1.75 |
| 10 | Irrigation & Agri HT | 30 | 1.75 |
| 11 | Industrial LT | | |
| i) | First 400 Units | 60 | 3.50 |
| ii) | Balance above 400 Units | 60 | 4.20 |
| 12 | Industrial HT | 60 | 4.10 |
| 13 | Bulk Supply HT | 70 | 3.90 |

***** Fixed charge in LT supply except kJ is per kW of contracted load and in HT supply is per kVA of Billing Demand.**

9.2.4 Common Items

PED has proposed for the same changes in rates and general conditions of supply of electricity to consumers. The Commission has approved it as given in Tariff Schedule in Appendix.

9.2.5 Miscellaneous Charges

PED proposed for new rates of charges in some of the miscellaneous items as against the rates approved by the Commission in the Tariff Order of 2014-15. The Commission has approved the same rates for all miscellaneous items of services as proposed by PED as given in the Tariff Schedule in Appendix.

10. Wheeling Charges

10. Wheeling charges

10.1 Wheeling charges

The net distribution ARR as approved in chapter 8 table 8.33 is Rs 239.58 cr, Rs 253.97 cr and Rs 273.20 cr for control period FY 2015-16, FY 2016-17 and FY 2017-18 respectively. The distribution ARR approved is segregated into wire business and retail supply business in accordance with the matrix prescribed in Regulation 72. The allocation matrix is detailed in table below.

Table 10.1: Allocation Matrix

| Sl. | Particulars | Wire Busines | Retail Supply Busines |
|-----|--------------------------------------|-----------------|-----------------------------|
| 1 | 2 | 3 | 4 |
| 1 | Cost of Power Purchase | 0 | 100 |
| 2 | Stand by Charges | 0 | 100 |
| 3 | Employee Expenses | 60 | 40 |
| 4 | Administration & General Expenses | 50 | 50 |
| 5 | Repair & Maintenance Expenses | 90 | 10 |
| 6 | Depreciation | 90 | 10 |
| 7 | Interest & Finance Charges | 90 | 10 |
| 8 | Interest on Working Capital | 10 | 90 |
| 9 | Provision for Bad Debt | 0 | 100 |
| 10 | Income Tax | 90 | 10 |
| 11 | Intra- state Transmission Charges | 0 | 100 |
| 12 | Contribution to contingency reserves | 100 | 0 |
| 13 | Return on Equity | 90 | 10 |
| 14 | Non-Tariff Income | 10 | 90 |

10.2 The total fixed cost excluding power purchase costs and transmission and surplus resulted on true up of ARR for FY 2012-13 are segregated into wire business and retail supply business as per the above matrix as detailed in table below.

Table 10.2 Segregated of wires and Retail Supply costs for FY 2015-16
(Rs.core)

| Sl.No | Particular | Total Cost | Wire cost | Retailed supply cost |
|--------------|-------------------------|-------------------|------------------|-----------------------------|
| 1 | Employee cost | 41.02 | 24.60 | 16.40 |
| 2 | R&M cost | 6.22 | 5.60 | 0.62 |
| 3 | Adm & Gen. expenses | 1.02 | 0.51 | 0.51 |
| 4 | Depreciation | 0.96 | 0.86 | 0.10 |
| 5 | Interest & Fin. Charges | 3.16 | 2.84 | 0.32 |
| 6 | Int. on working capital | 3.26 | 0.32 | 2.88 |
| 7 | Return on equity income | - | - | - |
| 8 | Less Non-tariff income | 2.44 | 0.24 | 2.20 |
| 9 | Total | 53.12 | 34.49 | 18.63 |

Table 10.3: Segregated of wires and Retail Supply costs for Fy2016-17.
(Rs.core)

| Sl.No | Particular | Total Cost | Wire cost | Retailed supply cost |
|--------------|---------------------|-------------------|------------------|-----------------------------|
| 1 | Employee cost | 43.36 | 26.02 | 17.34 |
| 2 | R&M cost | 6.58 | 5.92 | 0.66 |
| 3 | Adm & Gen. expenses | 1.07 | 0.53 | 0.54 |

| | | | | |
|----------|-------------------------|--------------|--------------|--------------|
| 4 | Depreciation | 1.94 | 1.75 | 0.19 |
| 5 | Interest & Fin. Charges | 2.68 | 2.41 | 0.27 |
| 6 | Int. on working capital | 3.47 | 0.35 | 3.12 |
| 7 | Return on equity income | - | - | - |
| 8 | Less Non-tariff income | 2.58 | 0.26 | 2.32 |
| 9 | Total | 56.52 | 36.72 | 19.80 |

Table 10.4: Segregated of wires and Retail Supply costs for FY2017-18.
(Rs.core)

| SI.No | Particular | Total Cost | Wire cost | Retailed supply cost |
|----------|-------------------------|--------------|--------------|----------------------|
| 1 | Employee cost | 45.84 | 27.50 | 18.34 |
| 2 | R&M cost | 6.96 | 6.26 | 0.70 |
| 3 | Adm & Gen. expenses | 1.14 | 0.57 | 0.57 |
| 4 | Depreciation | 2.07 | 1.86 | 0.21 |
| 5 | Interest & Fin. Charges | 2.26 | 2.03 | 0.23 |
| 6 | Int. on working capital | 3.76 | 0.38 | 3.38 |
| 7 | Return on equity income | - | - | - |
| 8 | Less Non-tariff income | 2.73 | 0.27 | 2.46 |
| 9 | Total | 59.30 | 38.33 | 20.97 |

10.3 Wheeling Tariff

The wheeling charges have been computed on the basis of approved costs of Discom for its distribution wire business and the total energy expected to be wheeled through its network. In the absence of segregated data on costs of operation of 33kV and 11kV networks and sales wheeling charges are not segregated voltage wise. Combined wheeling charges determined are given in table below:

Table 10.5: Wheeling Tariff projected by PED.

| SI.No | Particular | FY2015-16 | FY2016-17 | FY2017-18 |
|-------|----------------------------------|-----------|-----------|-----------|
| 1 | ARR for wheeling function(Rs.cr) | 35.85 | 36.66 | 38.05 |
| 2 | Total Energy sold(MU) | 352.64 | 372.49 | 393.46 |
| 3 | Wheeling Tariff (Rs/kWh) | 1.02 | 0.98 | 0.97 |

The Commission has calculated wheeling tariff on approved wire cost energy sales as detailed in table below.

Table 10.6: Wheeling Tariff approved by the Commission

| SI.No | Particular | FY2015-16 | FY2016-17 | FY2017-18 |
|-------|--|-----------|-----------|-----------|
| 1 | ARR for wheeling function approved by the Commission (Rs.cr) | 34.49 | 36.72 | 38.33 |
| 2 | Total Energy sale approved(MU) | 362.11 | 382.11 | 398.12 |

| | | | | |
|---|-----------------------------|------|------|------|
| 3 | Wheeling Tariff (Rs/kWh) | 0.95 | 0.96 | 0.96 |
|---|-----------------------------|------|------|------|

The Commission approves wheeling Tariff at Rs.0.95/kWh, Rs.0.96/kWh and Rs.0.96/kWh for FY2015-16, 2016-17 and FY2017-18 respectively.

11. Fuel and Power Purchase Cost Adjustment

11. Background

11.1 Section 62 sub-section 4 of the Electricity Act, 2003 provides that no tariff or part of any tariff may ordinarily be amended, more frequently than once in every financial year, except in respect of any changes expressly permitted under the terms of any fuel surcharge formula as may be specified. This provision of the Act requires the Commission to specify the formula for fuel surcharge.

11.2 Accordingly, the Commission has specified the formula for working out the Fuel and Power Purchase Cost Adjustment (FPPCA) charges and other terms and conditions of FPPCA. Accordingly, the Commission has distribution licensee to recover the FPPCA charges from specified below.

$$\text{FAC (Rs./kWh)} = \frac{Q_c(RC_2 - RC_1) + Q_0(RO_2 - RO_1) + Q_{pp}(R_{pp2} - R_{pp1}) + V_z + A}{(QP_{g1} + Q_{pp1} + Q_{pp2}) \times \left[1 - \frac{L}{100} \right] - \text{PSE}} \times 100$$

Where,

- Q_c = Quantity of coal consumed during the adjustment period in Metric Tons (MT).
= $(\text{SHR} \times Q_{pg}) (1 + \text{TSL}) \times 1000 / \text{GCV}$, or actual whichever is less.
- R_{c1} = Weighted average base rate of coal supplied ex-power station coal yard as approved by the Commission for the adjustment period in Rs./MT
- R_{c2} = Weighted average base rate of coal supplied ex-power station coal yard for the adjustment period in Rs./MT

- Q_o = Actual Quantity of oil (in KL) consumed during the adjustment period or normative oil consumption as per Tariff order whichever is less.
- R_{o1} = Weighted average base rate of oil ex-power station (Rs./KL) approved by the Commission for the adjustment period.
- R_{o2} = Weighted average actual rate of oil ex-power station supplied (Rs. / KL) during the adjustment period.
- Q_{pp} = Total power purchased from different sources (kWh) = $Q_{pp2} + Q_{pp3}$
- Q_{pp1} = $Q_{pp3} \left[1 - \frac{TL}{100} \right]$ in kWh
- TL = Transmission loss (CTU) (in percentage terms).
- Q_{pp2} = Power Purchase from sources with delivery point within the state transmission or distribution system (in kWh)
- Q_{pp3} = Power Purchase from sources on which CTU transmission loss is applicable (in kWh)
- R_{pp1} = Average rate of Power Purchase as approved by the Commission (Rs./kWh)
- R_{pp2} = Average rate of Power Purchase during the adjustment period (Rs./kWh)
- Q_{pg} = Own power generation (kWh)
- Q_{pg1} = Own Power generation (kWh) at generator terminal – approved auxiliary consumption
- L = Percentage T&D loss as approved by the Commission or actual, whichever is lower.

- SHR = Station Heat Rate as approved by the Commission (Kcal / kWh)
- TSL = Percentage Transit and Stacking Loss as approved by the Commission
- GCV = Weighted average gross calorific value of coal as fired basis during the adjustment period (Kcal / Kg)
- V_z = Amount of variable charges on account of change of cost of unknown factors like water charges, taxes or any other unpredictable and unknown factors not envisaged at the time of Tariff fixation subject to prior approval of the Commission (Rs.)
- A = Adjustment, if any, to be made in the current period to account for any excess / shortfall in recovery of fuel of Power Purchase cost in the past adjustment period, subject to the approval of the Commission (Rs.)

PSE = Power sold to exempted categories (Presently Agriculture and BPL-Kutir Jyoti Consumers)

If there are more than one power stations owned by the Licensee Q_c , R_{c1} , R_{c2} , Q_o , R_{o1} , R_{o2} , Q_{pg} and Q_{pg1} will be computed separately for each power station and sum of the increase/decrease of cost of all power stations shall be taken into consideration. Discom can levy FPPCA charges with prior approval of the Commission. Levy of FPPCA charges shall be subject to the following terms and conditions.

11.3 Terms and conditions for application of the FPPCA formula

- 1) The basic nature of FPPCA is 'adjustment' i.e. passing on the increase or decrease in the fuel costs and power purchase cost, as the case may be, compared to the approved fuel costs and power purchase costs in this Tariff Order.
- 2) The operational parameters / norms fixed by the Commission in the

Tariff Regulations / Tariff Order shall be the basis of calculating FPPCA charges.

- 3) The FPPCA will be recovered every month in the form of an incremental energy charge (Rs/kwh) in proportion to the energy consumption and shall not exceed 10% of the approved avg. cost of supply in the Tariff order and balance amount, if any, in the FPPCA over and above this ceiling shall be carried forward to be billed in subsequent month.
- 4) Incremental cost of power purchase due to deviation in respect of generation mix or power purchase at higher rate shall be allowed only if it is justified to the satisfaction of the Commission.
- 5) Any cost increase by the licensee by way of penalty, interest due to delayed payments, etc. and due to operational inefficiencies shall not be allowed.
- 6) FPPCA charges shall be levied on all categories of consumers.
- 7) Distribution licensee shall file detailed computation of actual fuel cost in Rs./kWh for each month for each of power stations of the state generators as well as cost of power purchase (Fixed and Variable) from each source/station and a separate set of calculations with reference to permitted level of these costs.
- 8) The data in support of the FPPCA claims shall be duly authenticated by an officer of the licensee, not below the rank of Chief Engineer on an affidavit supported with the certified copy of energy bills of power purchase, transmission and RLDC charges, bill for coal purchase and its transportation cost, oil purchase bill and the quantity of coal and oil consumed during the month.
- 9) Levy of FPPCA charge will be allowed only when it is ten (10) paise or more per unit. If it is less than 10 (ten) paise/unit, the same may be carried forward for adjustment in the next month.
- 10) The incremental cost per kWh due to this FPPCA arrived for a month shall be recovered in the energy bill of the month subsequent to the order of the Commission approving FPPCA with full details of rate

and unit(s) on which FPPCA charges have been billed. The Generating Company and the Distribution Companies shall provide along with the proposal of FPPCA (as applicable to them) for a month, a compliance report of the previous order of the Commission in respect of FPPCA.

12. Aggregate Revenue Requirement of Transmission function for control period FY 2015-16 to FY 2017-18.

12.1 Introduction

PED submitted petition for approval of Multi Year Transmission Tariff for the control period FY 2015-16 to FY 2017-18 in accordance with MYT regulations, 2014. For the purpose of projecting the financial and technical parameters PED has considered its actual performance during FY 2010-11 to FY 2013-14 and FY 2014-15 as base and has projected the data for the control period.

12.2 Capacity allocation and Energy Requirement.

The energy requirement for PED is of the range 500 MU to 600 MU P.A. It is having mini hydel stations of total capacity 29.35 MW and diesel set of capacity 0.5 MW and HFO set of capacity 22.92 MW and total own generation is about 66MU. So the P&ED has to draw power from central generating stations and other sources such as NTPC, NEEPCO, NHPC, TSECL and OTPC from whom it has a share of 132.44 MW as detailed in table below.

Table 12.1: Power Availability

| Sl. No | Source | Plant Capacity (MW) | PED Share in % | PED Share in MW |
|--------|-----------------------------|---------------------|----------------|-----------------|
| | | | | |
| A | Central Generating Stations | | | |
| I | NTPC | | | |
| 1 | Farakka STPS | 1600 | 0.14 | 2.24 |
| 2 | Kahalgaon STPS | 840 | 0.14 | 1.18 |
| 3 | Talcher STPS | 1000 | 0.14 | 1.40 |
| | NTPC-Total | 3440 | | 4.82 |
| | | | | |
| II | NHPC | | | |
| 1 | Loktak HEP | 105 | 5.02 | 5.27 |
| | NHPC-Total | 105 | | 5.27 |

| Sl. No | Source | Plant Capacity (MW) | PED Share in % | PED Share in MW |
|--------|---------------------|---------------------|----------------|-----------------|
| III | NEEPCO | | | |
| 1 | Kopili HEP | 200 | 4.618 | 9.24 |
| 2 | Kopili - II HEP | 25 | 6.04 | 1.51 |
| 3 | Khandong HEP | 50 | 3.94 | 1.97 |
| 4 | Ranganadi HEP | 405 | 5.7 | 23.09 |
| 5 | Doyang HEP | 75 | 5.25 | 3.94 |
| 6 | AGBPP | 291 | 5.41 | 15.74 |
| 7 | AGTPP | 84 | 5.98 | 5.02 |
| | NEEPCO-Total | 1130 | | 60.50 |
| IV | TSECL | | | |
| 1 | B'mura - IV | 21 | 25 | 5.25 |
| 2 | B'mura - V | 21 | 25 | 5.25 |
| | TSECL-Total | 42 | | 10.50 |
| V | OTPC | | | |
| 1 | Palatana | 726 | 3.03 | 22.00 |
| | OTPC-Total | 726 | | 22.00 |
| VI | Own Generation | 29.35 | 100 | 29.35 |
| VI | Total | 5472.35 | | 132.44 |

To transmit power within the state, PED has the following transmission network:

Table 12.2: Transmission Network.

| Sl. No | Particulars | Ckt kM | Nos. | Capacity (MVA) |
|--------|-------------|---------|------|----------------|
| 1 | 132 kV | 728.961 | 7 | 121.80 |
| 2 | 66 kV | 117.00 | 2 | 12.60 |
| 3 | 33 kV | 972.26 | 45 | 208.70 |

12.3 Transmission Loss

PED is currently not equipped to measure the energy flow at various levels due to the inadequate metering equipment. So the transmission loss have been considered at 3% as approved by the Commission in its tariff order for FY 2014-15.

12.4 Aggregate Revenue Requirement

Based on the provisions of the tariff regulations, the estimate for Aggregate Revenue Requirement (ARR) will comprise of the following elements.

- Operation and maintenance expenses.
- Depreciation
- Interest and Finance charges on Loan Capital.
- Interest on working capital.
- Return on equity.

The above Aggregate Revenue Requirement (ARR) is netted off with non-tariff income for determining net ARR.

12.5 O & M Expenses.

O & M expenses comprise of

- Employee Expenses.
- R & M expenses
- Adm. & Grant expenses

PED stated that O & M expenses have been arrived in accordance with the regulations 62.5 of JERC (M&M) MYT Regulations, 2014.

P&ED is an integrated utility carrying out three functions of Generation, Transmission and distribution and complete segregation of function wise accounts has not been done yet.

In view of the above O&M expenses have been allocated on the principles approved by the Commission in tariff order for FY 2014-15. The allocated expenses for FY2013-14 have been considered as base and escalated by 5.98% P.API escalation factor to arrive at the expenses for succeeding years.

The expenses projected by the P&ED and approved by the Commission are furnished in the following tables.

**Table 12.3: O&M expenses Projected by P&ED for control period
FY2015-16 to FY2017-18.**

(Rs.core)

| Sl.No | Particulars | FY2015-16 | FY2016-17 | FY2017-18 |
|-------|-----------------------|--------------|--------------|--------------|
| 1 | Employee expenses | 13.68 | 14.50 | 15.37 |
| 2 | R&M expenses | 3.28 | 3.48 | 3.68 |
| 3 | Adm & Grant expenses | 0.29 | 0.31 | 0.33 |
| | Total expenses | 17.25 | 18.29 | 19.38 |

Commission's analysis

The Commission approves the O& M expenses as projected by the PED for control period FY 2015-16 to FY 2017-18.

12.6 Gross Fixed Assets and depreciation.

The PED has furnished segregated GFA for transmission function for the control period and calculated depreciation at 10% of total depreciation as follows.

Table 12.4: Growth of GFA & calculation of depreciation furnished by PED for control period FY 2015-16 to FY 2017-18.

(Rs.cr)

| Sl No | | FY2015-16 | FY2016-17 | FY2017-18 |
|-------|------------------|-----------|-----------|-----------|
| 1 | Opening GFA | 193.46 | 193.46 | 193.46 |
| 2 | Additions | - | - | - |
| 3 | Closing GFA | 193.46 | 193.46 | 193.46 |
| 4 | Depreciation | 9.39 | 5.76 | 7.36 |
| 5 | 10% depreciation | 0.94 | 0.58 | 0.74 |

Commission's analysis

As discussed in para 8.15, GFA as on 1.4.2013 is consider as Rs.140.31cr and addition during FY 2015-16 and FY 2017-18 are considered at Rs 31.50 cr and Rs 38cr respectively as proposed by P&ED and depreciation worked out as detailed in table below.

Table 12.5 Growth of GFA of Transmission Function

| | FY14 | FY15 | FY16 | FY17 | FY18 |
|------------------------------|--------|--------|--------|--------|--------|
| Opening GFA | 140.31 | 140.31 | 140.31 | 171.81 | 171.81 |
| Additions during the year | - | - | 31.50 | - | 38.00 |
| Closing GFA | 140.31 | 140.31 | 171.81 | 171.81 | 209.81 |
| Average GFA | 140.31 | 140.31 | 156.06 | 171.81 | 190.81 |
| Average rate of depreciation | 4.17% | 4.17% | 4.17% | 4.17% | 4.17% |
| Total depreciation | 5.85 | 5.85 | 6.51 | 7.16 | 7.96 |
| 10% of depreciation | 0.59 | 0.59 | 0.65 | 0.72 | 0.80 |

The Commission approves depreciation at Rs 0.65cr, Rs.0.72cr and Rs.0.80cr for FY2015-16, FY2016-17 and FY 2017-18 respectively.

12.7 Interest and Finance charges

As there are no physical loans PED has not considered interest and Finance charges.

12.8 Interest on working Capital.

As per regulation for the purpose of computation of normative interest on working capital, the components of working capital are as follows.

- (a) O&M expenses one month plus
- (b) Maintenance of spares at 1% of Historical cost plus.
- (c) Receivables equivalent to one month or expected revenue minus.
- (d) Security deposit held

Interest is required to be calculated at the rate equal to state bank advance rate (SBAR) as on 1st April of the respective financial year.

Interest on working capital is worked out on approved costs as detailed in table below.

Table 12.6: Interest on working capital approved by the Commission for control period FY2015-16 to FY2017-18.

(Rs cr)

| Sl.No | Particulars | FY16 | FY17 | FY18 |
|-------|-------------------------|--------|--------|--------|
| 1 | (a) O&M exp. Total cost | 17.25 | 18.29 | 19.38 |
| | (b) –do- one month | 1.44 | 1.52 | 1.62 |
| 2 | (a) Total GFA | 140.31 | 171.81 | 171.81 |
| | (b) 1% of GFA | 1.40 | 1.72 | 1.72 |
| 3 | (a) Total Receivables | 18.55 | 19.73 | 20.93 |
| | (b) Receivable 1 month | 1.55 | 1.64 | 1.74 |
| 4 | Security Deposit if any | - | - | - |

| | | | | |
|---|--|--------|--------|-------|
| 5 | Total working Capital(1(b)+2(b)+3(b)-4 | 4.39 | 4.88 | 5.08 |
| 6 | Rate of Interest(SBAR) as on 1.4.2014 | 14.75% | 14.75% | 4.25% |
| 7 | Interest on working capital | 0.65 | 0.72 | 0.75 |

12.9 Aggregate Revenue Requirement (ARR)

Aggregate revenue requirement projected by the PED and approved by the Commission are furnished in the table below.

Table 12.7: Aggregate Revenue Requirement projected by PED for control period FY2015-16 to FY2017-18.

(Rs.lakh)

| Sl. No. | Particulars | FY 2015-16 | FY 2016-17 | FY 2017-18 |
|---------|-------------------------------------|----------------|----------------|----------------|
| 1 | Return on Equity | 0.00 | 0.00 | 0.00 |
| 2 | Interest & Finance Charges | | | |
| 3 | Depreciation | 93.90 | 57.58 | 73.61 |
| 4 | O&M Expenses | 1725.20 | 1828.37 | 1937.70 |
| 5 | Interest on Working Capital | | | |
| 6 | Contribution to Contingency Reserve | 0.00 | 0.00 | 0.00 |
| 7 | Non-Tariff Income | 0.00 | 0.00 | 0.00 |
| 8 | Income from Other Business | | | |
| | Total | 1946.15 | 2020.09 | 2159.32 |

Table 12.8: Aggregate revenue requirement approved by the Commission for control period FY2015-16 to FY2017-18.

(Rs. cr)

| Sl No | Particulars | FY2015-16 | FY2016-17 | FY2017-18 |
|-------|-------------------------------------|-----------|-----------|-----------|
| 1 | Return on equity | - | - | - |
| 2 | Int.& Finance charges | - | - | - |
| 3 | Depreciation | 0.65 | 0.72 | 0.80 |
| 4 | O&M expenses | 17.25 | 18.29 | 19.38 |
| 5 | Int. on working capital | 0.65 | 0.72 | 0.75 |
| 6 | Contribution to contingency reserve | - | - | - |
| 7 | less Non-Tariff income | - | - | - |
| 8 | Other Income | - | - | - |
| 9 | ARR | 18.55 | 19.73 | 20.93 |

12.10 Transmission charges

PED has calculated the transmission charges in accordance with the regulations 65 of JERC(M&M) MYT, Regulations,2014 as detailed in table below:

Table 12.9: Transmission charges projected by PED for control period FY16 to FY18.

| Sl. No. | Particulars | FY 2015-16 | FY 2016-17 | FY 2017-18 |
|---------|--|------------|------------|------------|
| 1 | ARR(Rs.Lakhs) | 1946.15 | 2020.09 | 2159.32 |
| 2 | Total MW Allocation(MW) | 132.44 | 132.44 | 132.44 |
| 3 | Total Energy Transferred at Dist. Periphery (MU) | | | |
| 4 | Transmission Charges (Rs/MW/day) | | | |
| 5 | Transmission Tariff (Rs/unit) | | | |

Commission's analysis

PED calculated transmission charges on energy available of district periphery instead of total allocation of power 132.44MW. The PLF is considered at 80% and the Transmission charges approved by the Commission on approved ARR are furnished in table below:

Table 12.10: Transmission charges approved by the Commission for control period FY2015-16 to FY2017-18.

| SI.No | Particulars | FY2015-16 | FY2016-17 | FY2017-18 |
|-------|---------------------------------|-----------|-----------|-----------|
| 1 | ARR(Rs.cr) | 18.55 | 19.73 | 20.93 |
| 2 | Total MW allocation(MW) | 132.44 | 132.44 | 132.44 |
| 3 | Transmission charges(Rs/MW/Day) | 3837.35 | 4081.46 | 4329.69 |
| 4 | Transmission Tariff(Rs/kWh) | 0.20 | 0.21 | 0.23 |

The Commission approves transmission tariff @ Rs 0.20/kWh, Rs.0.21/kWh and Rs. 0.23/kWh for FY2015-16, FY2016-17 and FY2017-18 respectively.

13. ARR of generation Function.

13. Aggregate Revenue Requirement for Generation Function for FY 2015-16 to FY 2017-18.

13.1 INTRODUCTION

The PED has filed this petition to approve generation ARR and generation tariff under JERC M&M (MYT) Regulations, 2014 for the control period FY 2015-16 to FY 2017-18.

PED owns 10 mini hydel stations of below 5 MW capacity each with a total installed capacity of 17.35 MW and one hydel station at Serlui 'B' with installed capacity of 12 MW which is yet to be Commissioned. Thus, after Commissioning of this Serlui 'B' station, the total installed capacity of hydel stations will be 29.35 MW.

The station wise details are furnished in the table below.

Tables 13.1: Details of SHPS

| Sl. No. | Name of Station | Installed Capacity (MW) | Date of COD |
|---------|-----------------|-------------------------|----------------------|
| 1 | Serlui 'A' | 1.00 | 24.04.1984 |
| 2 | Tuirivang | 0.30 | 14.08.1989 |
| 3 | Khawiva | 1.05 | 08.12.1988 |
| 4 | Tuipui | 0.50 | 15.12.1991 |
| 5 | Maicham-I | 2.00 | 05.01.1996 |
| 6 | Teirei | 3.00 | 12.10.1999 |
| 7 | Tuipanglui | 3.00 | 17.12.2004 |
| 8 | Kau-Tlabung | 3.00 | 05.05.2005 |
| 9 | Lamsial | 0.50 | 26.08.2008 |
| 10 | Maicham-II | 3.00 | 11.11.2009 |
| 11 | Serlui 'B' | | Not yet Commissioned |

13.2 Capital Cost & Depreciation

- (i) The PED has projected the capital cost of the SHPS on normative basis of Rs. 770 lakhs/MW for SHPS whose installed capacity is below 5 MW and Rs. 700 lakhs/MW whose installed capacity is 5 MW to 25 MW as per Regulation 28 of the JERC M&M (Terms and Conditions for Determination of Tariff from Renewable energy Sources) Regulations, 2014.
- (ii) The capital cost for subsequent years shall be determined on the basis of indexation formula as outlined in Regulation 29.

Thus, the PED has projected capital cost of 10 SHPS at Rs. 138.21 cr.

Commission's analysis

As per the audited annual accounts for FY 2012-13, the net value of fixed assets as on 31.3.2013 has been segregated among the three functions of generation, transmission and distribution and the same have been prorated to gross value of fixed assets as detailed below.

Table 13.2: Segregation of GFA as on 31.3.2013

| Function | Net value of fixed assets (Rs cr.) | Total value of GFA (Rs. cr.) |
|-----------------|---|-------------------------------------|
| Generation | 286.30 | 577.48 |
| Transmission | 72.06 | 140.31 |
| Distribution | 166.72 | 324.64 |
| Total | 525.08 | 1022.43 |

The Commission considers it appropriate to adopt the total value of GFA of Rs. 577.48 Cr. for generation function and depreciation worked out on average rate of depreciation of 4.17% and considered 10% of the total value of depreciation as 90%

of expenditure is funded through grant which works out to Rs. 2.41cr P.A. for the FY 2015-16 to FY 2017-18 as detailed in the table below:

Table 13.3:Growth of GFA & depreciation in generation function approved by the Commission

| Sl.No | | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 |
|-------|------------------------------|---------|---------|---------|---------|---------|
| 1 | Opening GFA | 577.48 | 577.48 | 577.48 | 577.48 | 577.48 |
| 2 | Additions during the year | - | - | - | - | - |
| 3 | Closing GFA | 577.48 | 577.48 | 577.48 | 577.48 | 577.48 |
| 4 | Average depreciation | 577.48 | 577.48 | 577.48 | 577.48 | 577.48 |
| 5 | Average rate of depreciation | 4.17% | 4.17% | 4.17% | 4.17% | 4.17% |
| 6 | Total depreciation | 24.08 | 24.08 | 24.08 | 24.08 | 24.08 |
| 7 | 10% of depreciation | 2.41 | 2.41 | 2.41 | 2.41 | 2.41 |

The Commission approves depreciation at Rs. 2.418 P.A. during the control period FY 2015-16 to FY 2017-18.

13.3 Interest and finance charges

The PED stated that no outside loans are availed by it as entire capital expenditure is availed through grant or budgetary support from Govt. As such interest on capital loans is not considered by PED.

13.4 Interest as working capital

As per Regulation 29.1 (iii) of JERC M&M (MYT) Regulations, 2014 in case of hydro generation stations, working capital shall cover

- (a) Operation and maintenance expenses for one month.
- (b) Maintenance of spares at 1% of the historical cost escalated by 6% from the date of commercial operation and
- (c) Receivables equivalent to one 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.

- (d) Interest on working capital shall be allowed at a rate equal to the State Bank Advance Rate (SBAR) as on 1st April of the financial year in which the petition is filed.

Accordingly, the interest on working capital is worked out on the approved costs as detailed in the table below.

Table 13.4 Interest on working capital for FY 2015-16 to FY 2017-18.

(Rs cr)

| SI.No. | Particulars | 2015-16 | | 2016-17 | | 2017-18 | |
|--------|-----------------------|------------|--------------------|------------|--------------------|------------|--------------------|
| | | Total cost | One month interest | Total cost | One month interest | Total cost | One month interest |
| 1. | O&M costs | 5.13 | 0.43 | 5.42 | 0.45 | 5.73 | 0.48 |
| 2. | Maintenance of spares | 577.48 | 5.77 | 577.48 | 5.77 | 577.48 | 5.77 |
| 3. | Total working capital | | 6.20 | | 6.22 | | 6.25 |
| 4. | Rate of interest of | | 14.75% | | 14.75% | | 14.75% |

| | | | | | | | |
|----|------------------------|--|------|--|------|--|------|
| | SBAR as on 1.4.2014 | | | | | | |
| 5. | Interest on W.C. | | 0.91 | | 0.92 | | 0.92 |

The Commission approves interest on working capital at Rs. 0.91 Cr, Rs. 0.92 Cr and Rs. 0.92 Cr for FY 2015-16, FY 2016-17 and FY 2017-18 respectively.

13.5 Return on equity

The fixed assets of PED are funded through budgetary support by the Govt. of Mizoram and grants and aids through financial institutions under various schemes like RGGVY, APDRP, etc. Approximately 90% of the funding is done through the Govt. funding/grants. As such, return on equity has not been considered by the PED.

13.6 O&M expenses

The PED has calculated O&M expenses in accordance with Regulation 18 of the JERC M&M (Terms and conditions for tariff determination for renewable energy sources) Regulations, 2010 along with amendments. The O&M expenses of SHPS for FY2016 to FY18 are furnished in the table below.

Table 13.5 O&M expenses Generating Stations projected by PED

| Sl. No. | Name of Station | Capacity (MW) | Normative O&M Expense /MW | Normative O&M Expense /MW | Escalation Rate / Annum | Escalated O&M Exp | | | | |
|---------|-----------------|---------------|---------------------------|---------------------------|-------------------------|-------------------|-------|-------|-------|-------|
| | | | | At base FY13 | | FY 14 | FY 15 | FY 16 | FY 17 | FY 18 |
| 1 | Serlui 'A' | 1.00 | 25 | 25 | 5.72% | 26.43 | 27.94 | 29.5 | 31.23 | 33.02 |

| | | | | | | | | | | |
|----|-------------|------|----|-------|-------|-------|-------|-----------|-------|-------|
| 2 | Tuirivang | 0.30 | 25 | 7.5 | 5.72% | 7.93 | 8.38 | 8.8 | 9.37 | 9.90 |
| 3 | Khawiva | 1.05 | 25 | 26.25 | 5.72% | 27.75 | 29.34 | 31.0 | 32.79 | 34.67 |
| 4 | Tuipui | 0.50 | 25 | 12.5 | 5.72% | 13.22 | 13.97 | 14.7 | 15.61 | 16.51 |
| 5 | Maicham-I | 2.00 | 25 | 50 | 5.72% | 52.86 | 55.88 | 59.0 | 62.46 | 66.03 |
| 6 | Teirei | 3.00 | 25 | 75 | 5.72% | 79.29 | 83.83 | 88.6 | 93.69 | 99.05 |
| 7 | Tuipanglui | 3.00 | 25 | 75 | 5.72% | 79.29 | 83.83 | 88.6 | 93.69 | 99.05 |
| 8 | Kau-Tlabung | 3.00 | 25 | 75 | 5.72% | 79.29 | 83.83 | 88.6 2 | 93.69 | 99.05 |
| 9 | Lamsial | 0.50 | 25 | 12.5 | 5.72% | 13.22 | 13.97 | 14.7 | 15.61 | 16.51 |
| 10 | Maicham-II | 3.00 | 25 | 75 | 5.72% | 79.29 | 83.83 | 88.6 | 93.69 | 99.05 |

The Commission approves O&M expenses of the existing ten (10) generation stations at Rs. 5.13 Cr, Rs. 5.42 Cr and Rs. 5.73 Cr for FY 2015-16, FY 2016-17 and FY 2017-18 respectively as projected by PED.

13.7 Aggregate Revenue Requirement

The Aggregate Revenue Requirement for the generating function for FY 2015-16 to FY 2017-18 projected by the PED and approved by the Commission are detailed in the tables below.

Table 13.6 Aggregate Revenue Requirement for Generation function projected by the PED for FY 2015-16 to FY 2017-18.

| SI. No. | Particulars | FY2015-16 | FY2016-17 | FY2017-18 |
|---------|------------------------------|-----------|-----------|-----------|
| 1. | O&M expenses | 5.13 | 5.42 | 5.73 |
| 2. | Depreciation | 0.47 | 0.47 | 0.37 |
| 3. | Returns on equity | - | - | - |
| 4. | Interest & financial charges | - | - | - |
| 5. | Interest on W.C. | 0.39 | 0.41 | 0.40 |
| 6. | Total ARR | 5.99 | 6.30 | 6.50 |

Commission Analysis

The Commission has approved the Aggregate Revenue Requirement for FY16 to FY18 based on approval costs as detailed in table below.

Table 13.7 Aggregate Revenue Requirement of generation function for FY 2015-16 to FY 2017-18 approved by the Commission.

| Sl. No. | Particulars | FY2015-16 | FY2016-17 | FY2017-18 |
|---------|------------------------------|-----------|-----------|-----------|
| 1. | O&M expenses | 5.13 | 5.42 | 5.73 |
| 2. | Depreciation | 2.41 | 2.41 | 2.41 |
| 3. | Returns on equity | - | - | - |
| 4. | Interest & financial charges | - | - | - |
| 5. | Interest on W.C. | 0.91 | 0.92 | 0.92 |
| 6. | Total ARR | 8.45 | 8.75 | 9.06 |

The Commission approves ARR for the generation function for control period FY 2015-16, FY 2016-17 and FY 2017-18 at Rs. 8.45 Cr, Rs. 8.75 Cr and Rs. 9.06 Cr respectively.

14.Directives

14 General Status and Compliance of Directives issued in the Tariff Order for FY2010-11

Directive 4: Management Information System

Compliance Status

As it was already pointed out in the previous compliance report, the department is evolving IT enable information system under R-APDRP scheme. This project is already implemented at Kolasib town as a pilot project and it is likely to cover the remaining part of the project within a short span of time. Therefore, when this project is fully implemented, it is envisaged that the Department could effectively utilize cutting edge technology for improvement of whole sector to manage itself efficiently and effectively. In the meantime, to set up full-fledged MIS, the Department needs to invest huge amount of money for hardware, software, data for decision making, design & develop for documentation etc. for which the Department would require separate funding.

Further, a new scheme named Integrated Power Development Scheme (IPDS) is in the pipe line for 23 statutory towns of Mizoram which was not covered under R-APDRP. This Scheme is envisaged for implementation of IT enablement of distribution sector to supplement the area covered under R-APDRP. Since these two schemes are designed to enable the sector for fully implementation of MIS, the whole Department will be switched over to MIS application in its day to day activities in more efficient manner.

Commission's comments

PED shall ensure the data updation as required for Regulatory system and also make use of data for Management review at E-in-C's level and submit the latest position. Directive is not complied with.

Directive 5: Pilferage of Energy

Compliance Status

One of the on-going activities of the Department is to minimize the pilferage of energy and realize revenue from theft. As stated above, it is expected that with the help of IT under R-ARDP and other Schemes, the Department could drastically mitigate losses. Necessary report will be submitted shortly.

Commission's comments

PED has been sustaining huge T&D losses due to non-fixing of high accuracy energy meters for high consumption categories, non-replacement of dysfunctional meters and, at the same time theft and pilferage of energy. Theft and pilferage of energy shall be effectively dealt. Commission directs the PED to report the progress quarterly. The directive is complied partially.

Directive 6: Metering of Consumer installations / Replacement of non-functional defective meters and providing meters to un-metered connections

Compliance Status

As stated in the previous Compliance report, constant efforts were being given to maintain all Energy Meters installed at the consumer premises are 100% in good condition. No new connections were released without correct energy meter. However, due to crunch of fund, the department could not make this inventory available at all time as a revolving E/M; instead, the consumers normally bear the cost of replacement of defective energy meters and they are exempted monthly rental charge for energy meter. Further, there is a provision for replacement of energy meter under R-APDRP and IPDS scheme. It is expected that this project can take care the replacement of defective consumer energy meters at large.

Commission's comments

The Directive is partially complied with. Compliance report on 100% metering and replacement of defective meters may be submitted by 31.12.2015.

Directive 7: Contribution by Consumers for Capital investment

Compliance Status

It is submitted that the cost of Asset reflected in the petition and for calculation of depreciation does not include any consumer contribution.

Commission's comments

Section 46 of Electricity Act 2003 provides for, Recovery of Expenditure reasonably incurred by the Licensee (PED Mizoram) in providing any electric line or electrical plant to any person requiring supply of electricity in pursuance of Section 43 of Electricity Act 2003.

Thus the expenditure so recovered will be classified as Consumer's Contribution towards Capital investment. The costs so recovered as per the Reg. 3.5 of JERC (electricity Supply Code) Regulation 2010 shall be capitalised after the service connections are released. The total sum recovered, and capitalized during the year, will not be considered for calculation of Depreciation on assets during that year and the sum will be reduced while calculating the interest on Debt Capital. Action may be taken for recovery of such expenditure from the consumers and maintain such details.

PED shall maintain the books of accounts with specific classification as required for ARR Format-23. Directive is not complied with.

Directive 8: Transmission and Distribution Losses

Compliance Status

It is submitted that the P&ED is taking all the steps and measures directed by the Commission to reduce the Transmission and Distribution Loss.

Commission's comments

Commission directed to get energy audit conducted by providing meters in all 132kV, 33 kV and 11 kV feeders and distribution transformers to identify the high loss areas and take appropriate measures to reduce the loss. PED has

not complied with the direction. The loss level is still as high as 39%. PED Mizoram shall expedite the measures initiated like replacement of dysfunctional meters, providing high accuracy energy meters, while continuing the process of providing AB cables.

Directive 9: Consumers bills

Compliance Status

It is submitted that the Department has initiated various measures to make the billing and collection system efficient. However, more time would be required to implement the measures across the state. Attempt is being made for introducing the spot billing with the PDRP scheme and the project like IPSD which is likely to be executed in the near future.

Commission's comments

As per Section 56 (1) of electricity Act 2003, the PED may allow 15 days time to consumers for Payment of Charges for supply of Electricity and in lieu of the notice the same may be displayed on the monthly bills. PED Mizoram may consider outsourcing the activity of spot billing by which the collection of Consumer bills will be realized within 15 days of issue of bill. Many utilities are implementing spot billing and found beneficial in avoiding delays in taking readings, preparation of manual bills and serving of such bills. PED may review & analyze the cost effect benefits for implementation of the spot billing system and take action on priority. The existing system of billing entails delay in collection of revenue by two months for the energy consumed. The directive is not complied with.

Directive 10: Investment and Capping of Capital Expenditure

Compliance Status

It is submitted that PED has projected the investment plan for the control period in line with the 5 year perspective plan of the department and achievable targets.

Commission's comments

The investment plan for the FY 2012-13, as per the document is Rs. 183.59 crore covering 22 Hydel Projects (spill over works) new works, R&M of existing projects, 3 Nos. Transmission schemes (New works), 7 Nos Transmission line works and 7 Nos. Transformation works. The plan envisages the Distribution works which includes erection of 33 kV lines DTRs Metering etc. The projected plan seems to be herculean task since achievement of physical progress is stated to be subject to fund tie up. PED may consider realistic investments in the FY 2015-16. Directive is complied partially.

Directive 11: High Employee Cost of the Department**Compliance Status**

It is submitted that the PED being a government department employee cost cannot be reduced in short run. However, new recruitments are done after proper analysis of requirement vis-a-vis cost. Further steps have been taken rationalizing the workforce for effective utilization.

Commission's comments

The total No. of employee at the end of March 2011 is 4642. Necessity for such huge strength may be critically examined so as to reduce high costs on continuous basis. Directive is not complied with.

Directive 12: Metering of H.T services with MD Indicators**Compliance Status**

Required fund may be provided in the scheme/budget if possible for purchase of energy meters. It is submitted that the PED is taking steps to introduce MDIs in all high consumption consumers. HT Consumers are being encouraged to provide MDIs.

Commission's comments

HT consumers are high revenue yielding units. For such consumers PED can procure and provide meters instead of requesting consumers for procurement.

Cost of metering equipment can be compensated by increase in revenue.
Directive is partially complied.

Directive 14: Fixation of last date of payment

Compliance Status

PED stated that the Due Date of Payment and Last Date of Payment were treated as same. As such the due date of payment is fixed as due date for disconnection process.

Commission's comments

As per Section 56 (1) of Electricity Act 2003, the PED may allow 15 days time to consumers for payment of Charges for supply of Electricity and in lieu of the notice the same may be displayed on the monthly bills.

The PED is allowing the consumers for payment of Electricity bills 45 days (approximately) from the date of issue of the bill whereas the Generators / suppliers of Power to PED are claiming interests at 1.25% of the bill amount for delay beyond stipulated one month. PED may consider and initiate expeditious action on this Directive, which will improve cash flow crunch. Action taken shall be reported within three (3) months of the Order.

Directive 15: Contract Demand

Compliance Status.

As per this office letter No. T-23011/02/13/EC (p)/Com/61 dated 17.06.2014, the Subordinate Offices (CE-SO & CE-Distribution) were also informed to submit monthly action taken report on inspection of consumers installation to ascertain that actual consumers connected/contracted load and categories are updated/ recorded in the data base for billing and to ensure that the inspection is completed within October, 2014. The number of Consumers survey conducted so far is 133400. It is requested that the department may kindly be allowed more time to comply with the direction and submit the report.

Commission's comments

The licensee is directed to complete the survey at the earliest and report compliance.

Directive 16: Restructuring of Staff

Compliance Status

As per this office letter No. T-23011/02/13/EC (p)/Com/61 dated 17.06.2014, the Subordinate Offices (CE-SO & CE-Distribution) were also requested to submit re-structuring plan under their jurisdiction within November, 2014 so as a whole could prepare consolidated re-structuring plan for the whole Department within the time line. It is requested that the department may kindly be allowed more time to comply with direction and submit the report.

Commission's comments

Restructuring of the staff shown be done at the earliest for best utilization of available manpower.

Directive 17: Tariff Petition for Small Hydro Power Stations.

The Tariff petition for small Hydro Power Stations has been filed in accordance with JERC for M&M (Terms & Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2010 read along with the First Amendments Regulations, 2014.

Commission's comments

The directives is fully complied with.

Directive 19: Survey and physical verification of consumers connections.

Compliance Status

Necessary instructions were given vide this office letter vide No. T-23011/02/13/EC (p)/Com/61 dated 17.06.2014, to the concerned offices (CE-SO & CE-Distribution) for necessary compliance and submit the report. As

submitted in reply to Directive-15 above, P&ED is has initiated an exercise to collect the details. The same shall be analysed and report shall be submitted to the Commission as directed. It is requested that the department may kindly be allowed more time to comply with the direction and submit the report.

Commission's comments

The PED has been allowed sample time to complete the survey. The PED shall feel the importance of the work and complete at the earliest by 30.9.2015 and report compliance with details.

14.1 Fresh Directives.

Directive 20: Introduction of spot billing system

PED should introduce spot billing system at least for the 9 (nine) town covered under R-APDRP. This will also enable the consumers to pay up-to-date consumption bill.

Directive 21: Introduction of Energy meter with MDI facility

By introducing MDI facility, consumer fixed charge can be levied based on the maximum demand. It can avoid recorded physical verification of connected load and to initiate action to regularise unauthorised loads if any.

Directive 23: To introduce Instrumental reading system of Energy Meter

Most of the billing complaints are attributable to the reliability of Reader. PED is advised to introduce a system to avoid human interface in meter readings.

Directive 24: Scraping of Idle outlay:-

Heavy fuel plant of capacity 22.93 MW at Bairabi is lying idle, PED is advised either to operate the generator or write off the plant and utilise the man power elsewhere in the Department for better output.

Directive 25: Power & Electricity Department should file Tariff petition for 2016-17 under MYT Regulations with True-up of 2014-15 and APR of 2015-16 within stipulated time.

Directive 26: Power & Electricity Department should formulate Terms and Conditions (Guidelines) for levy of pole / tower usage charges for supporting or stringing of telephone cable, internet cable, visual media cable and placing of advertisement hoardings for approval of the Commission.

Directive 27: Reconciliation of value of Gross Fixed Assets

As verified from schedule 19 of Annual accounts, the growth of GFA is as detailed in table below.

Growth of GFA gap of PED (Schedule 19)

(Rs. Cr)

| SI.No | Particulars | FY2010-11 | FY2011-12 | FY2012-13 |
|-------|---------------------------|-----------|-----------|-----------|
| 1 | Opening GFA | 734.80 | 947.84 | 963.36 |
| 2 | Additions during the year | 213.04 | 155.17 | 59.06 |
| 3 | Closing GFA | 947.84 | 963.36 | 1022.42 |

But as verified from function wise break up of Net fixed Assets of PED as per schedule 20, the position is as detailed in table below.

Function wise breakup of Net fixed Assets of PED(Schedule 20)

(Rs. Cr)

| SI.No | Assets | FY2010-11 | FY2011-12 | FY2012-13 |
|-------|--------------|-----------|-----------|-----------|
| 1 | Generation | 329.98 | 306.81 | 286.30 |
| 2 | Transmission | 55.37 | 51.24 | 72.06 |
| 3 | Distribution | 146.40 | 149.36 | 166.72 |
| 4 | Total | 531.75 | 507.41 | 525.08 |

As seen from the above table, there is YoY growth in GFA. But as per table 2 the set value of generation assets are decreasing and in respect of Transmission there is no definite growth. The PED is directed to reconcile the same and intimate the reasons for such fluctuations in set value of assets in the next ARR and tariff petition.

Directives 28: Filling of ARR and tariff petition with full details.

As verified from the MYT ARR and Tariff petition filed by the PED for FY16 to FY18 it is observed that most of the crucial information to be submitted in the petition is furnished in formats only.

For example- the category wise, year wise connected load to be submitted in the petition is not furnished in the main text of the petition. The formats are prescribed to give detailed information to the main text. The main text of the petition should be elaborated clearly with support of formats. Thus the petition should be self-explanatory. The PED is directed to file the next ARR & Tariff petition with full details as indicated supra.

TARIFF SCHEDULE

Tariff Schedule

1. General Conditions of Supply (For all categories of Consumers):

1.1 Rebate/Surcharge for availing supply at voltage higher/lower than base voltage: In spite of feasibility/availability of voltage as in the classified supply voltage for corresponding load as per clause 3.2 of the JERC for Manipur and Mizoram(Electricity Supply Code) Regulations, 2013;

(i) For consumers having contracted load up to 50 kW – If the supply is given at HV/EHV, a rebate of 5 % would be admissible on the rate of energy charge of the applicable tariff.

(ii) For consumers having contracted load above 50 kW – If supply is given at voltage lower than the base voltage for corresponding load as per clause mentioned above, the consumer shall be required to pay an extra charge of 10 % on the bill amount calculated at the applicable tariff.

(iii) All voltages mentioned above are nominal rated voltages as per clause 3.2 of the JERC for Manipur & Mizoram (Electricity Supply Code) Regulations, 2013.

1.2 Payment: All payments shall be made by way of Cash (up to the amount as acceptable to the licensee), Banker's Cheque, Demand Draft or Money Order or e-transfer on line. Cheques and demand drafts shall be payable at any branch of a scheduled commercial bank that is a member of the clearing house for the area where the concerned Sub Divisional Office is located.

However, part payment is subjected to acceptance by the competent authority. Bank commission/charges, if any, should be borne by the consumers.

1.3 Surcharge for late payment of bills: If payment is not received within due date surcharge @ 2% at simple interest on the outstanding principal amount for each

30 days successive period or part thereof will be charged, until the amount is paid in full.

1.4 Single Point Delivery: This tariff is based on the supply being given through a single point of delivery and metering at one voltage. Supply at other points at other voltage shall be separately metered and billed for and shall be considered as separate connection.

1.5 Voltage and frequency: All voltages and frequency shall be as per clause 3.1 and 3.2 of the JERC for Manipur & Mizoram (Electricity Supply Code) Regulations, 2013.

1.6 Power Factor Incentive / Surcharge :-

a) If the average monthly power factor of the consumer increases above 95%, he shall be paid an incentive at the following rate:

| | |
|--|---|
| For each one percent increase by which his average monthly power factor is above 95%, up to unity power factor | One percent (1%) of the total amount of the bill under the head 'energy charge' |
|--|---|

b) If the average monthly power factor of the consumer falls below 90%, he shall pay a surcharge in addition to his normal tariff, at the following rate:

| | |
|--|---|
| For each one percent by which his average monthly power factor falls below 90% up to 85% | One percent (1%) of the total amount of the bill under the head 'energy charge' |
|--|---|

c) If average monthly power factor of the consumer falls below 85%, he shall pay a surcharge in addition to his normal tariff at the following rate :

| | |
|--|---|
| For each one percent by which his average monthly power factor falls below 85% | Two percent (2%) of the total amount of the bill under the head 'energy charge' |
|--|---|

d) If the average monthly power factor of the consumer falls below 70%, then the utility shall have the right to disconnect supply to consumer's installation after serving a notice of 15 days. Supply may be restored only after steps are taken to improve the power factor to the satisfaction of the Utility. This is, however, without prejudice to the levy of surcharge for low power factor in the event of supply not being disconnected.

e) For this purpose, the "average monthly power factor" is defined as the ratio of total 'Kilo Watt hours' to the total 'Kilo Volt Ampere hours' recorded during the month. This ratio will be rounded off to two figures after decimal. Figure 5 or above, in the third place after decimal being rounded off to the next higher figure in the second place after decimal.

f) Notwithstanding the above, if the average monthly power factor of a new consumer is found to be less than 90% at any time during the first 6 (six) months from the date of connection, and if he maintains the average monthly power factor in subsequent three months at not less than 90%, then the surcharge billed on account of low power factor during the said period, shall be withdrawn and credited in next month's bill

1.7 Transformation loss: The consumers getting their supply at HT and metered on the LT side shall be charged transformation loss in kWh as per clause 5.7 JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013. The same is reproduced for convenience sake:

(1) The average losses in the transformer shall be calculated as follows and added to the energy consumption indicated by the meter :

$$\text{Average loss (kWh)} = \frac{730 \times 1.0 \times C}{100} \quad \text{Units per month}$$

where C = KVA rating of the transformer.

(2) The transformer loss arrived at by the above formula shall be added to the energy consumption, even when the recorded energy consumption is nil.

(3) 1% of the transformer capacity for transformer above 63 KVA will be added to the recorded maximum demand on the Low Tension side to arrive at the equivalent High Tension demand.

1.8 Rounding of Contracted Load/billing demand: For the purpose of calculation of fixed/demand charge in the monthly billing, the contracted load/billing demand shall be taken on actual basis (not to be rounded), except for load less than 500 W. Load less than 500 W shall be taken as 0.5 kW for calculation of fixed/demand charge in the monthly billing. Fixed/Demand charge in the monthly billing shall be calculated as follows:- Fixed/Demand charge per month = Contracted load (in kW) / Billing demand (in kVA) x Rate of fixed charge per month per kW/kVA (as the case may be).

Sample calculation for Domestic Purpose (1) 1.24KW (2) 0.36 kW, Fixed charge for Domestic is Rs 30.00 per kW of contracted load. Sample 1;- Fixed charge = $1.24 \times 30 = \text{Rs } 37.20 = \text{Rs } 37.00$. Sample 2 ;- Fixed charge = $0.36 \text{ kW} (=0.50 \text{ kW after rounding}) \times 30 = \text{Rs } 15.00$. *Note Fraction of rupees is rounded as per clause 1.9 of this tariff schedule and load below 0.5 kW is rounded to 0.5 kW as per clause 1.8 of this tariff schedule.*

1.9 Rounding of Rupees: Each components of bill, such as energy charge, fixed/demand charge, meter rent, surcharge, rebate of any kind, etc, including interest, involving fraction of a rupee should be individually round off to nearest rupee (fraction of 50 paise and above to be round off to the next higher rupee and fraction less than 50 paise to be ignored). In case of non-availability/scarcity of small change of rupees less the Rs. 10, consumer may be allowed to tender next higher amount divisible by 10. Such over tendered amount shall be carried to next bill as credit and shall not earn interest whatsoever.

1.10 System of LT supply

1.10.1 LT supply

- i) Alternating current, 50 Hz, single phase 230 Volts up to 8kW
- ii) Alternating current, three phase, 400 Volts for loads above 8 kW, subject to the availability of supply. Wherever 3-phase connection is required for load less than or equal to 8 kW, necessary justification shall be provided along with such request for consideration of licensee for extending such supply.

1.10.2 HT Supply;- Supply of Electricity to the Consumers at voltage above 400V as per clause 3.2 of JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013.

1.11 The maximum demand:- The maximum demand means the highest load measured in average kVA or kW at the point of supply of a consumer during any consecutive period of 30 (thirty) minutes during the month or the maximum demand recorded by the MDI during the month.

1.12 Billing demand: The billing demand shall be the maximum demand or 75% of the contracted demand whichever is higher.

1.13 Tax or Duty

The tariff does not include any tax or duty, etc, on electrical energy that may be payable at any time in accordance with any law / State Government Rules in force. Such charges, if any, shall be payable by the consumer in addition to tariff charges.

1.14 Contingency :- In case of any inconsistency between this Tariff schedule and the prevailing JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013, the provision, meaning and content of the said Code shall prevail.

2. LT Supply

2.1 LT Category-1: Kutir Jyoti

Applicability: Applicable to all household who has been given connection under

Kutir Jyoti Scheme or similar connection under any scheme of the State Government or Central Government for the benefit of poorer section for domestic purpose. If the total consumption in three months exceed 45 kWh, as per existing norms of KJS unless superseded by other new norms, the connection should be converted to Category-2.

Tariff Rates:

- a) Fixed charge : Rs 10.00 per month per connection.
- b) Energy charge per month:-
 - 1) First 15 kWh : @ Rs 1.20 per kWh.
 - 2) Next 15 kWh : @ Rs 1.80 per kWh.
 - 3) Above 30 kWh : @ Rs 2.10 per kWh.

2.2 LT Category - 2: Domestic.

Applicability: Applicable for supply of energy exclusively for domestic purposes only in domestic premises. The Tariff is applicable to supplies for general domestic purposes such as Light, Fans, Heating devices, Television, VCR/VCP, Radio, Refrigerator, Air-conditioner, lift motors and all others appliances only for bona-fide residential used. This tariff is also applicable to orphanage/recognized charitable institutions where no fees/rental of any kind are charged whatsoever. This will not be applicable to institutions conducting commercial activities of any nature.

Tariff Rates:

- a) Fixed charge : Rs 30.00 per month per kW of contracted load.
- b) Energy charge per month:-
 - 1) First 50 kWh : @ Rs 2.10 per kWh.
 - 2) Next 50 kWh : @ Rs 3.00 per kWh.
 - 3) Next 100 kWh : @ Rs 3.90 per kWh.
 - 4) Above 200 kWh : @ Rs 4.60 per kWh.

Note: *If any part of the domestic connection is utilized for any use other than dwelling purpose like commercial, industrial, etc., a separate connection should be taken for such loads under appropriate category, failing which the entire consumption shall be treated as the case may be, in the corresponding category with applicable tariff.*

2.3 LT Category - 3: Non-Domestic/Commercial

Applicability: This tariff is applicable to all lights, all types of fans, heating devices, Television, VCR/VCP, Radio, Refrigerator, Air Conditioner, lift motors, pump and all other appliances for the purpose of private gain including other small power. This tariff includes power loads for non-domestic purposes like Government/semi-government/non-government offices, shops, hospitals, nursing homes, clinics, dispensaries, health centers, restaurants, bars, hotels, clubs, guest houses, circuit houses/rest houses, tourist lodges, picnic spots, resorts, farm/garden houses, clubs, markets, optical houses, public buildings, community halls/YMA halls, stadiums, meeting/conference halls, religious premises like churches, temples, mosques, gurudwaras, religious offices, all types of studios, tea stalls, professional chambers (like Advocates, chartered Accountants, consultants, Doctors, etc.), private trusts, marriage houses, public halls, show rooms, centrally air-conditioning units, commercial establishments, X-ray plants, diagnostic centers, pathological labs, carpenters and furniture makers, repair workshops, laundries, typing institutes, internet cafes, STD/ISD PCO's, FAX/photocopy shops, tailoring shops, Government/Non-Government Institutions, schools, colleges, libraries, research institutes, boarding/lodging houses, railway stations, fuel/oil stations/pumps, bottling or filling stations /plants, service stations, Railway/Bus stations/terminals, All India radio/T.V. installations, printing presses, commercial trusts, societies, banks, financial institutions, theatres, cinema halls, circus, coaching institutes, common facilities in multistoried commercial offices/buildings, public museums, crematoriums, graveyards, orphanages/recognized charitable institutions where rental or fees of any kind are charged, non-recognized charitable institutions, power supply to tele-

communication system/towers and others applications not covered under any other categories.

Tariff Rates:

a) Fixed charge : Rs 60.00 per month per kW of contracted load.

b) Energy charge per month:-

- 1) First 100 kWh : @ Rs 3.35 per kWh..
- 2) Next 100 kWh : @ Rs 4.35 per kWh..
- 3) Above 200 kWh : @ Rs 5.30 per kWh..

2.4 LT Category - 4: Public Lighting

Applicability: Applicable to Public Street Lighting System in municipality, Town, Committee, Sub-Town/Village, etc. including Signal system and Road and Park lighting in areas of Municipality Town/Committee, Sub-Town/Village, etc.

Tariff Rates:

a) Fixed charge : Rs 60.00 per month per kW of contracted load.

b) Energy charge per month:-

All kWh : @ Rs 4.80 per kWh.

2.5 LT Category - 5: Public Water Works

Applicability: Applicable to all public water supply system.

Tariff Rates:

a) Fixed charge : Rs75.00 per month per kW of contracted load.

b) Energy charge per month:-

All kWh : @ Rs 4.80 per kWh

2.6 LT Category - 6: Irrigation & Agriculture

Applicability: This tariff is applicable to irrigation/pumping for agricultural purpose only.

Tariff Rates:

a) Fixed charge : Rs 30.00 per month per kW of contracted load.

b) Energy charge per month:-

All kWh : @ Rs 1.75 per kWh

2.7 LT Category - 7: Industrial

Applicability: Applicable for supply of energy for Industrial purposes, such as manufacturing/ processing of goods, cold storage plants/units, sewerage pumping stations, all types of workshops using electrical energy for such works, power looms, weaving houses, carpentry works, steel fabrication works, tyre rethreading works, black-smithy, Gold-smithy, saw mills, flour/rice mills, oil mills, re-rolling mills, motor body building works, coffee/ginger/turmeric processing units, winery plants, fruits processing plants, Ice candy units, fodder cutting units, poultry farming/ hatchery units, silk rearing/processing units, pisciculture, prawn culture units, mushroom production units, floriculture in green houses, sugarcane crushing, milk/meat processing units, bamboo processing units, paper/ steel/aluminum recycling units, construction of power generating stations/substations and power supply to any generating stations.

Tariff Rates:

a) Fixed charge : Rs 60.00 per month per kW of contracted load.

b) Energy charge per month:-

- 1) First 400 kWh : @ Rs 3.50 per kWh..
- 2) Above 400 kWh : @ Rs 4.20 per kWh..

3. HT Supply:- The tariffs are applicable for Consumer availing supply at voltage above 400 V irrespective of connected load/contracted demand. It is mandatory to supply with voltage above 400 V, to consumer having a contracted Load of above 50 kW or Contract Demand of above 59 kVA, as per clause 3.2 of JERC for M&M (Electricity Supply Code) Regulations, 2013

3.1 HT Category - I: Domestic

Applicability: This tariff is applicable to similar purposes as defined in LT category-2 as below:

Tariff Rates:

- a) Demand charge : Rs 30.00 per month per kVA of Billing demand.
- b) Energy charge per month:-

All kWh : @ Rs 4.50 per kWh

3.2 HT Category - 2: Non- domestic/Commercial

Applicability: This tariff is applicable to similar purposes defined in LT Category-3 as below:

Tariff Rates:

- a) Demand charge : Rs 60.00 per month per kVA of Billing demand.
- b) Energy charge per month:-

All kWh : @ Rs 5.20 per kWh

3.3 Category 3 : Public Water Works(PWW)

Applicability: This tariff is applicable to similar purposes defined in LT Category-5 as below:

Tariff Rates:

- a) Demand charge : Rs 70.00 per month per kVA of Billing demand.

b) Energy charge per month:-

All kWh : @ Rs 4.75 per kWh

3.4 HT Category - 4: Irrigation & Agriculture

Applicability: This Tariff is applicable to irrigation / pumping for agricultural purpose only as below:

Tariff Rates:

a) Demand charge : Rs 30.00 per month per kVA of Billing demand.

b) Energy charge per month:-

All kWh : @ Rs 1.75 per kWh

3.5 HT Category - 5: Industrial

Applicability: This Tariff is applicable to similar purpose defined in LT Category – 7 as below:

Tariff Rates:

a) Demand charge : Rs 60.00 per month per kVA of Billing demand.

b) Energy charge per month:-

All kWh : @ Rs 4.10 per kWh

3.6 HT Category - 6: Bulk supply within the State

Applicability: Applicable for HT Consumers having single point metering of mixed load of housing complex, multistoried building, Military Engineering Service (MES), Border Road Task Force (BRTF), etc. where the supply is used predominantly for domestic purpose (with domestic load not less than 85 % of the total load) and internal maintenance of power supply is carried out by the bulk consumers. Tariff Rates are as below:

Tariff Rates:

a) Demand charge : Rs 70.00 per month per kVA of Billing demand.

b) Energy charge per month:-

All kWh : @ Rs 3.80 per kWh

4. Temporary Supply:

Applicability: Temporary power supply shall be given through correct meter and carried out as per procedure laid down in clause 4.56 to 4.70 of the JERC for Manipur & Mizoram (Electricity Supply Code) Regulations, 2013. Bill shall be served at the following rates:

Tariff Rates:

a) Fixed / Demand charge : 1.5 times the rate of fixed/demand charge of the applicable tariff category for which power supply is given.

b) Energy charge per month: 1.5 times the rate of the highest rated slab of the applicable tariff category for which energy is supplied.

5. Computation of un-metered energy:

(1) This shall be applicable to consumer (inclusive of street lightings) without meter from initial connection and have not been covered under any of the metering schemes. The monthly energy consumption shall be computed as below which shall be evaluated as per tariff of the applicable category of consumer:

Energy Consumption = L x H x F x D

Where

L = Contracted load in kW/Billing Demand in kVA, (as per clause 1.8 of this tariff schedule)

H = (a) For consumer in general:- Total number of hours in a month during which power is actually supplied to that consumer through that feeder / through that DT concerned, whichever is less, (after taking into account all interruptions of power feeding that) or (730 minus total hours interruptions of power feeding that consumer). where 730 is average number of hours in a month in a non-leap year. (Note:- Interruption shall mean breakdowns of Feeders, Part of feeder, Distribution Transformer, load sheddings, all types of shut downs which should be recorded and informed to concerned billing station)

(b) For street lights:- Total number of hours in a month during which power is actually supplied to street lights through that feeder / through that DT concerned, whichever is less, (after taking into account all interruptions of power feeding that) or (365 minus total hours interruptions of power feeding that street light). where 365 is average number of hours between 5 pm to 5 am in a month in a non-leap year. (Note:- Interruption shall mean breakdowns of Feeders, Part of feeder, Distribution Transformer, load sheddings , all types of shut downs which occurs between 5 pm and 5 am. which should be recorded and informed to concerned billing station)

F = Load Factor shall be as stipulated for theft cases in ANNEXURE 11.19 of the Joint Electricity Regulatory Commission for Manipur & Mizoram (Electricity Supply Code) Regulations, 2013. Which is reproduced for convenience sake:-

| S. No. | Particulars | Load factor |
|--------|---------------------------------|-------------|
| 1. | Domestic (LT/HT) | 40% |
| 2. | Non-domestic/Commercial (LT/HT) | 50% |
| 3. | Industrial (LT/HT) | 75% |
| 4. | Public Water supply(LT/HT) | 50% |
| 5. | Bulk supply | 50% |
| 6. | Agriculture/Irrigation(LT/HT) | 50% |
| 7. | Street light | 50% |
| 8. | Direct theft – All categories | 100% |

D = Demand factor which shall be taken as (1) 50 %. In case of street lighting, (2) 35 % in case of other consumption.

(2) **Short period of unmetered supply:-** For un-meter (meter not available) supply as a result of defective, burnt, lost meter shall be treated as per 6.11 – 6.13 Of the JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013.

Note: The licensee shall install energy meter within three (3) months from the effective date of this Tariff Order 2015-16 and shall regularized the assessed consumption based on average three (3) months record of metered consumption and adjustment of bill shall be done accordingly.

(3) **For Un-authorized consumer/theft (includes by-pass of meter)/pilferage and cases cover by section 135 of the Act:-** The energy consumed shall be computed as per Annexure 11.1.19 Of the JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013. The energy so computed shall be evaluated as follows:-

(a) Load less than 10 kW

(1) First instance:- Three (3) times of the rate of the applicable tariff (fixed and variable charges) for which the stolen energy was utilized.

(2) Second and subsequent instance:- Six (6) times of the rate of the applicable tariff (fixed and variable charges) for which the stolen energy was utilized.

(b) Load exceeding 10 kW

(1) First instance:- Three (3) times of the rate of the applicable tariff (fixed and variable charges) for which the stolen energy was utilized.

(2) Second and subsequent instance:- Six (6) times of the rate of the applicable tariff (fixed and variable charges) for which the stolen energy was utilized.

Note:- Additional punishment of theft shall be as per Electricity Act 2003 (with latest amendment) and as per the JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013.

6. Miscellaneous Charges (Part of Non-Tariff Income)

6.1 Meter Rent for non-prepaid meters: Monthly charges for hiring of the meter, indicator shall be as follows:

6.1.1 LT Metering:

- a) AC ,Single phase Energy meter whole current : Rs.20.00 per Month.
- b) AC, Three phase Energy meter, whole current : Rs.35.00 per Month.
- c) AC, Three phase Energy meter, CT operated : Rs.50.00 per Month.
- d) Any other type of meter/indicator : Rs.100.00 per Month.

6.1.2 HT Metering:

- a) AC, Three phase Energy meter, CT & PT operated : Rs.200.00 per Month.
- b) Any other type of meter/indicator : Rs.300.00 per Month.

6.2. Pole/Tower usage charge per month

6.2.1 For supporting of internet/media/telephone cables:-

This charge shall be borne by Operator/Distributor of visual media network.

- a) Rs 2.50 per pole per cable per month in case of internet cable/ media cables/visual media cables
- b) Rs 3.00 per pole per month per cable in case of landline telephone cable. (a cable having up to 5 pair of lines shall be taken as one cable for this purpose) Telephone cable having more than 5 pairs shall be considered as 2, 3 etc, by dividing actual number of pairs by 5 to arrive at equivalent number of cables. Any fraction shall be rounded to next higher integer.

6.2.2 For Hoarding for display of Advertisement (Maximum size 3'x2').

This charge shall be borne by the interested party.

- a) Commercial area of city/town @ Rs 60.00 per hoarding per month per pole/tower.

- b) Residential area of city/town @ Rs 30.00 per hoarding per month per pole/tower.
- c) National/State highway (outside city/town limit) @ Rs 20.00 per hoarding per month per pole/tower.

6.3. Other charges for meter:

(a) Meter shifting charge:

- i) Rs. 200.00 per shifting if resulted from reconstruction/modification of building by consumer or at consumer's request.
- ii) Free of cost if shifting is done in the interest of work.

Meter shifting shall be carried out as per Chapter – 5 of the JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013.

(b) The cost of replacement and execution charge:

Utility shall have stock of energy meter as per clause 5.51 of the JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013. Replacement of meter shall be carried out as per clause 5.31 to 5.50 of the same code mentioned above. Charges for other materials will be extra.

i) Execution charge for re-installation/installation of meter:-

- a) For existing consumer shall be Free of cost.
- b) For disconnected consumer with meter removed:- Rs 100.00
- c) For new consumer, it shall be included in the cost of service connection as under execution charges.

ii) Cost of Energy Meters supplied by Licensee:

As per the Licensee's purchase rate plus 15% Licensee's charge if supplied from the Licensee (energy meters approved / tested by the Licensee only shall be used. However, when the cause leading to subsequent replacement is either manufacturing defect or fault of licensee then, it shall be free of cost.

c) Testing charge of Meter at the request of consumers: (Testing charge is inclusive of costs of meter re-sealing materials/equipment).

- i) For AC single phase LT energy meter: Rs.75.00 per meter per testing.
- ii) For AC three phase LT energy meter, whole current: Rs.100.00 per meter per testing.
- iii) For AC three phase LT energy meter, CT operated: Rs.200.00 per meter per testing.
- iv) For energy meter AC three phase, CT & PT operated: Rs.300.00 per meter per testing.
- v) For any other type of meter HT supply: Rs.300.00 per meter per testing.

In case the meter supplied by the Licensee fitted to the consumer premises is found to be defective from initial fitting, testing and replacement of meter shall be carried out as per clause 5.31 to 5.50 of the JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013.

6.4 Testing charge of Consumer's Installation:

The first test and inspection will be carried out free of cost as per Clause 4.47 of JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013. Should any further test or inspection is necessitated due to fault in the installation or due to non-compliance with the condition of supply by the consumer an extra charge of Rs.150.00 per test, payable in advance, shall be levied. In the event of the consumer failing to pay the testing charge in advance within stipulated time, the Licensee will be at liberty to disconnect the consumer's premise from the supplier's main.

6.5 Disconnection and Reconnection:

(1) **Disconnection:-** Disconnection of an installation in all cases will be free of charges.

(2) **Reconnection;-** Reconnection charge shall be as follow:-

(a) Disconnected consumer due to safety measures shall be free of charge.

(b) Disconnection due to non-payment any kind of liabilities shall be:-

- (i) For AC single phase LT supply : Rs.100.00
- (ii) For AC three phase LT supply : Rs.150.00

(iii) For AC HT supply : Rs.400.00

Note: - Extra material required will be chargeable.

6.6 Change of category:

Change of category will be carried out as per clause 4.72 to 4.80, clause 4.85 to 4.86 and 4.90 to 4.93 of the Joint Electricity Regulatory Commission for Manipur and Mizoram (Electricity supply Code) Regulations, 2013.

6.7 Mutation Fee:- Mutation fee i.e fee for change of name shall be Rs 50.00 per change. This shall be carried out as per clause 4.81 to 4.84 of the Joint Electricity Regulatory Commission for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013.

6.8 Charges for Replacement of Connection Wire, Cut-out, Fuse, etc.:

Cost of replacement after initial fixation of connection wire, cut-out, fuses, etc. will be borne by the consumers and shall be payable by the consumer in advance as per purchase rate of the Licensee plus 15% Licensee's charges if the Licensee supplies the materials, or the consumer may arranged required materials as per the required specifications of the Licensee. The execution charge shall be as follows:

(1) For Cable and wire:-

- (a) Single phase connection: Rs.400.00 per connection.
- (b) LT three phase connection: Rs.600.00 per connection.
- (c) HT three phase connection: Rs.900.00 per 100 meters of the HT line.

(2) For Cut out & Fuse:-

- (a) Rs 10.00 per cut out.
- (b) Rs 3.00 per fuse

6.9 Re-rating of Installation: This charge is for meeting expenses toward spot verification of load and other connected recording works. Charge for re-rating of

the consumer's installation at the request of the consumer shall be Rs. 150.00 per rerating per connection.

These charges shall be payable by the consumer in advance. The aforesaid charges do not include the charges payable by the consumer for other works connected due to change of connected load. Rerating shall be carried out as per clause 4.94 to 4.107 of the JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013.

6.10 Meter Security (if Licensee's meter is used):

The amount of Security deposit for meter security shall normally be the price of the meter as fixed by the licensee from time to time.

6.11 Charges for Replacement of temper proof Meter Housing Box:

For AC single phase LT or three phases LT without CT or with CT, the energy meter box if replaced from Licensee's store: The charge will be as per Licensee's purchase rate plus 15% towards Licensee's charge.

6.12 Charges for Testing of Transformer Oil:

- (a) For first sample of oil: Rs.150.00 per sample.
- (b) For the next additional sample of oil of the equipment received at the same time of the first sample: Rs.100.00 per sample.

6.13 Service Lines & Service Connection:

(a) Type of Service Connection: Type of service connection and distance for service connection line length will be as per clause 4.2 read with clause 5.10 of the JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013.

(b) Cost of Service Connection: As stipulated in Clause 4.37 & 4.131 of the JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013. If the consumer desires to arrange service connection materials, the Licensee (not below rank of Junior Engineer concerned) will check all the materials.

6.14 Cost of Application Form: The application form shall be free of cost vide clause 4.14 of the Joint Electricity Regulatory Commission for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013.

6.15 Load Security:

The amount of load/meter security shall be calculated as per the procedure prescribed in clause 4.123 – 4.127 and determine as per Annexure 11.18 of the JERC for M&M (Electricity Supply Code) Regulations, 2013.

ANNEXURES



No. H.11019/27/12-JERC
JOINT ELECTRICITY REGULATORY COMMISSION
FOR MANIPUR AND MIZORAM
AIZAWL : : : MIZORAM

TBL Bhawan, 2nd – 5th Floor, E – 18, Peter Street, Khatla, Aizawl, Mizoram-796001

Tel. No. : 0389-2333625/2335625, Fax: 0389-2336299 / 2335523

Website : www.jerc.mizoram.gov.in Email : jerc.mm@gmail.com

Dated Aizawl, the 26th February, 2015.

MINUTES OF THE 17th MEETING OF THE STATE ADVISORY
COMMITTEE OF MIZORAM

Venue : I&PR Department Conference Hall, Aizawl, Mizoram

Date & Time : 16th February, 2015, 11:00 a.m.

The Chairman of the Advisory Committee, Mr A.Chhawnmawia IDES (Rtd.), and Chairperson of the Commission took the Chair and Er. L.Pachau, Engineer-in-Chief, P& E Department was on the dais with him.

List of participants is appended.

1. **Confirmation on the Minutes of the 16th Meeting of the SAC Mizoram held on 3rd December, 2014 at I&PR Conference Hall, Aizawl, Mizoram:**

The Chairman welcomed the members and informed them that the Meeting was convened specifically to discuss and obtain the views of the Members on the Tariff Petition submitted by the P&E Department for the FY 2015 – 16. Then, he requested the members to give their comments on the Minutes of the 16th SAC

Meeting which was held on 3rd December 2014. After obtaining nod from the members, the Minutes of the Meeting was declared as confirmed.

The E-in-C, P&E Department give an action taken report on the decisions taken on the 16th Meeting of the SAC Mizoram as:

On 100% metering under R-APDRP Scheme covering 9 (nine) towns in Mizoram installation of meters is as per the schedule even though there is fund constraint. The meters installed also confirms to the Commission's specifications. Also, towns not covered by R-APDRP scheme, installation of meters are also being done as per the Commission's direction.

On street light metering, proposal to convert the present street lights to LED tubes conforming to Bureau of Energy Efficient criteria on Aizawl street lights is being considered, the cost of repairing and maintenance of street light in other towns is also being considered which will be submitted to concerned Department / Bodies.

On updating of consumers' load, as it is a part of item under R-APDRP scheme, covering 9 (nine) towns, consumers load updating is being completed soon and also step to other towns is being taken up.

On RGGVY, the project is on the stage of completion except 5 (five) depopulated villages under Lawngtlai district. The project will be completed by the end of March 2015.

On REDB Scheme, infrastructure, augmentation is being taken up. Tenders and contracts are being floated and contract agreements are on the process of being signed with the selected contractors.

On World Bank funded scheme on improvement of transmission lines, the Power Grid Corporation of India who has taken the project has taken the matter with them and hoped that action will be taken from their side soon.

On independent running of SLDC and Electrical Inspectorate even though the 2 (two) organisations are under the umbrella of Department no pressure has been given

from the Department to these 2 (two) organisations. Hence, they are both working efficiently to their assigned jurisdictions.

On ZEDA, as the Agency is working as an autonomous organisation managed by a Managing Board, the Department is not involved in the functioning of the Agency.

On creation of post(s) for deployment of experts in commercial accounting, a proposal has been submitted to the Government of Mizoram for creation of post(s). As and when approval is received the engagement would be taken up.

On queries raised by Mr. Vanlalruata, General Secretary, CYMA he urged the Department to see that the independent functioning of SLDC and the Electrical Inspectorate are not compromised. And he also supplemented that many street lights are still put on even during day time. And also further stated that there are some distribution boxes are seen burning which could cause serious damages to consumers and requested the Department to urgently take up this issue. The E-in-C replied that the fault found in the present distribution boxes is due to too many plastic elements used in the boxes. And hence a new design has been made which will be used very soon and hoped that this will rectify the present problem faced in the distribution boxes.

Agenda 2: Determination of Retail Tariff for Power & Electricity Department, Mizoram FY 2015 – 16.

As requested by the Chairman, Mr. L.Pachau, E-in-C, P&E Department gave a brief outline on the Tariff Petition filed by the Department and then the E-in-C requested Er. V.Rodingliana, SE (Commercial) P&E Department to highlight the brief outline of the petition. Er. V.Rodingliana, SE (Commercial) explained that the Tariff Petition was filed on the basis of the Multi-year Tariff Regulations, 2014 framed by the Commission and explained that the average proposed tariff hike is only of Rs. 0.25 per unit and that this small hike will not be a heavy burden to the consumers. Mr.

Vanlalruata, Gen. Secretary, CYMA stated that the public notice issued by the P&E Department, the time given for soliciting comments from the public was too short and that it seems that the general public are not aware of the public notice. Er. Benjamin L.Tlumtea, Sr. EE (Comm.) P&E Department also commented that a small printing mistake was made by the publishers on the published earlier public notice and that an immediate corrected public notice was published subsequently with no loss of time and also added that no public / organisation has come forward to get detailed information on The Tariff Petition.

Er. F.Lalliantluanga, SE, PHE Department stated that the raising cost on public water works tariff proposed by the Department could be a burden to the public and also on the fixed charges, the Department is paying huge amount. The P&E Department stated that there is a nominal increase on the energy charge proposed and also that most of the PHE Department connections are on HT Lines where there is no increase on the contracted demand charge.

Mr. R.Laltluanga, Secretary, AMFU also stated with increase in power charges there is constant load shedding and hence the Organisation is against the hike in the Tariff. Mr. Vanlalruata, General Secretary, CYMA also stated that the hike in fixed charge is too much. Mr. Lalpekhlua from Chamber of Commerce and Industries also stated that the fixed charge increase is too high and that it would be burden to the consumers and requested to lower the charges of the Tariff used by the Industries.

Mr. A.Biaklawma, Director, LAD also commented that the percentage increase on the proposed Tariff is not high but the services rendered by the Department needs much improvement. The CYMA also proposed that more public awareness on the functioning of the Department is required and that the Department needs to take economical measures as the employee cost for the running of the Department is too high and also the correct facts and figures needs to be given on the ARR. The P&E

Department replied that all the figures stated in the ARR are audited by competent authority and it could be verified by any Organisation.

Mr. Lalrinsanga, Deputy Secretary, Food & Civil Supplies Department also stated that the Department needs to improve their services and that corruption of any kind like theft of power needs to be checked even amongst the employees of the P&E Department. The CYMA also stated the need for checking on the ARR by other competent body and the need for transparency should be maintained on the ARR. Er. V. Rodingliana, SE (Comm) P&E Department also added that the Department is ever willing to assist any Organisation / Person who is interested to know the facts and figures of the Department and welcomed the members to take the opportunity.

The Meeting ended at 12:55 pm with vote of thanks from the Chairman.

Sd/- A.CHHAWNMAWIA

Chairperson

Memo No.H.11019/27/12-JERC : Dated Aizawl, the 26th February, 2015.

Copy to:

1. P.S to Hon'ble Chief Minister, i/c P&E Department, Govt. of Mizoram for kind information to the Hon'ble Chief Minister.
2. PS to Secretary, P&E Department, Govt. of Mizoram for kind information to the Secretary and for taking necessary action on the Minutes of the Meeting.
3. All Members / Invitees of the State Advisory Committee for kind information and for taking necessary action on the Minutes of the Meeting.
4. Guard File.

(RICHARD ZOTHANKIMA)

Assistant Secretary

List of persons who attended 17th Meeting of SAC of Mizoram
held on 16th February, 2015 at I&PR Department Conference Hall,
Treasury Square, Aizawl

| Sl. No. | Name | Designation/Profession |
|----------------|--------------------------------|---|
| 1 | Mr. A.Chhawnmawia, IDES (Rtd.) | Chairperson, JERC (M&M) |
| 2 | Mr. Lalrinsanga | Secretary, Food, Civil Supplies & Consumer Affairs Department |
| 3 | Mr. F. Liantluangi | SE, PHE Department |
| 4 | Mr. C. Lalzirliana | Director, Trade & Commerce |
| 5 | Er. Lalrinmawia | Director, Zoram Energy Development Agency |
| 6 | Mr. Lalpekhlua | Secretary, Mizoram Chamber of Industries and Commerce |
| 7 | Dr. Chawngsailova Sailo | General Secretary, Mizoram Consumers' Union |
| 8 | Mr. Vanlalruata | General Secretary, Central Young Mizo Association |
| 9 | Mr. R. Laltluanga | Secretary, All Mizoram Farmers' Union |
| 10 | Mr. Zahlira Ralte | Secretary, Mizoram Upa Pawl Gen. Hqrs. |
| 11 | Mr. L. Biakthanga | Director, Transport Department |
| 12 | Mr.A. Biaklawma, MCS | Director, Local Administration Department |
| 13 | Mr. Richard Zothankima | Assistant Secretary, JERC (M&M) |
| 14 | Er. L. Pachuau | E-in-C, Power & Electricity Department |
| 15 | Er. L. Pachuau | Chief (Engineering), JERC (M&M) |
| 16 | Er. R. Vanlalhruaia | C.E., Power & Electricity Department |
| 17 | Er. V. Rodingiana, | SE, Design, Power & Electricity Department |

| | | |
|----|---------------------------|---|
| 18 | Er. H. Thanthianga, | Asst Chief (Engineering), JERC (M&M) |
| 19 | Mr. Lala Khobung, | Consultant (Legal), JERC (M&M). |
| 20 | Er. B. L. Tlumtea, | Sr. EE, Power & Electricity Department |
| 21 | Er. Lalhminghlua, | AE, Power & Electricity Department. |
| 22 | Er. Lalramlien F. Tusing, | AE, Power & Electricity Department. |
| 23 | Mr. Arvind Tewari, | Consultant, Power & Electricity Department |

Annexure-II

**List of persons who attended Public Hearing on ARR & Tariff proposal for
FY2015-16 in respect of P&E Deptt., Govt. of Mizoram on 17.02.2015 from 11:00
am – 2:00 pm, Conference Hall of I&PR Deptt., Aizawl**

| SI No. | Name | Designation / Profession |
|---------------|-----------------------------|---|
| 1 | Mrs. Elizabeth Remsangzuali | Business Development, Eternity Partners LLP |
| 2 | Mr. T. Vanlalkima | Business Development, Eternity Partners LLP |
| 3 | Mr. Ngursangliana Sailo | Research Analyst, Eternity Partners LLP |
| 4 | Mr. Zoengmawia Pachuau | Research Analyst, Eternity Partners LLP |
| 5 | Mr. Rosangzela | General Secretary, PRISM |
| 6 | Er. Vulmawia | S.E. (Civil), P&E Department |
| 7 | Mr. Zahlira Ralte | Asst. Gen. Secretary, MUP |
| 8 | Mr. H. Rammawi | MNF |
| 9 | Mr. Lalropuia Pachuau | MNF |
| 10 | Mr. Lala Khobung | Consultant (Legal) JERC (M&M) |
| 11 | Er. H. Thanthianga | Asst. Chief (Engg), JERC (M&M) |
| 12 | Mr. Y. Satyanarayan | Consultant (ASCI), JERC (M&M) |
| 13 | Er. L. Pachuau | Chief (Engg.), JERC (M&M) |
| 14 | Er. Vanlalruata | Gen. Secretary, CYMA |
| 15 | Mr. RL. Zomawia | CEC, CYMA |
| 16 | Mr. Lalpekhlua | Gen. Secretary, MCI |
| 17 | Mr. Vanlalruata | President, PRISM |
| 18 | Mr. R. Laltluanga | Treasurer, AMFU |
| 19 | Mr. C.Lalsawmliana | Vice President, AMFU |
| 20 | Er. R.Vanlalhruaia | C.E. (SO), P&E Deptt. |
| 21 | Er. Lalhminghlua | Assistant Engg, P&E Deptt. |
| 22 | Mr. Arvind Tewari | Consultant, P&E Deptt. |

| | | |
|----|-------------------------------|--------------------------------|
| 23 | Er. Benjamin L.Tlumtea | Sr. EE (Commercial) P&E Deptt. |
| 24 | Er. V.Rodingliana | SE (Commercial) |
| 25 | Mr. David Lalrintluanga Ralte | GM, Eternity Partners |
| 26 | Mr. Joy Lalrindika | GM, Eternity Partners |
| 27 | Ms. Anne Biakdiki Ralte | Comms (EP) |
| 28 | Mr. Tushar Jain | Manager Legal (Advocate) |
| 29 | Mr. Lalnunfima Fanai | B.D. Eternity Partners |
| 30 | Mr. Richard Zothankima | Asst. Secretary, JERC (M&M) |
| 31 | Er. L. Pachuau | E-in-C, P&E Deptt. |
| 32 | Er. Lalramlien F.Tusing | AE, P&E Deptt. |
| 33 | Mr. F.Lalliansanga | News Reporter, ZONET |
| 34 | Mr. Divyansmu Mishra | Eternity Partner |
| 35 | Mr. Lallianzuala | PAO, JERC (M&M) |
| 36 | Mr. Zodinsanga | ZNP |

| | | | Annexure-III |
|---|------------------------|------------|--------------|
| 2010-11 | | | |
| ACTUAL METERED TRANSMISSION LOSS IN NER | | | |
| Week No. | WEEK | | % loss |
| | From | to | |
| 1 | 29-03-2010 | 04-04-2010 | 3.57 |
| 2 | 05-04-2010 | 11-04-2010 | 3.24 |
| 3 | 12-04-2010 | 18-04-2010 | 3.49 |
| 4 | 19-04-2010 | 25-04-2010 | 4.31 |
| 5 | 26-04-2010 | 02-05-2010 | 3.66 |
| 6 | 03-05-2010 | 09-05-2010 | 3.08 |
| 7 | 10-05-2010 | 16-05-2010 | 3.83 |
| 8 | 17-05-2010 | 23-05-2010 | 3.94 |
| 9 | 24-05-2010 | 30-05-2010 | 3.24 |
| 10 | 31-05-2010 | 06-06-2010 | 4.07 |
| 11 | 07-06-2010 | 13-06-2010 | 3.61 |
| 12 | 14-06-2010 | 20-06-2010 | 3.03 |
| 13 | 21-06-2010 | 27-06-2010 | 3.26 |
| 14 | 28-06-2010 | 04-0-2010 | 3.21 |
| 15 | 05-07-2010 | 11-07-2010 | 2.96 |
| 16 | 12-07-2010 | 18-07-2010 | 2.87 |
| 17 | 19-07-2010 | 25-07-2010 | 3.04 |
| 18 | 26-07-2010 | 01-08-2010 | 2.80 |
| 19 | 02-08-2010 | 08-08-2010 | 2.87 |
| 20 | 09-08-2010 | 15-08-2010 | 2.96 |
| 21 | 16-08-2010 | 22-08-2010 | 3.24 |
| 22 | 23-08-2010 | 29-08-2010 | 3.09 |
| 23 | 30-08-2010 | 05-09-2010 | 2.96 |
| 24 | 06-09-2010 | 12-09-2010 | 3.04 |
| 25 | 13-09-2010 | 19-09-2010 | 3.04 |
| 26 | 20-09-2010 | 26-09-2010 | 3.27 |
| 27 | 27-09-2010 | 03-10-2010 | 3.07 |
| 28 | 04-10-2010 | 10-10-2010 | 3.26 |
| 29 | 11-10-2010 | 17-10-2010 | 2.87 |
| 30 | 18-10-2010 | 24-10-2010 | 2.80 |
| 31 | 25-10-2010 | 31-10-2010 | 2.83 |
| 32 | 01-11-2010 | 07-11-2010 | 2.91 |
| 33 | 08-11-2010 | 14-11-2010 | 3.02 |
| 34 | 15-11-2015 | 21-11-2010 | 3.18 |
| 35 | 22-11-2010 | 28-11-2010 | 3.24 |
| 36 | 29-11-2010 | 05-12-2010 | 3.34 |
| 37 | 06-12-2010 | 12-12-2010 | 3.16 |
| 38 | 13-12-2010 | 19-12-2010 | 3.44 |
| 39 | 20-12-2010 | 26-12-2010 | 3.13 |
| 40 | 27-12-2010 | 02-01-2011 | 3.18 |
| 41 | 03-01-2011 | 09-01-2011 | 3.28 |
| 42 | 10-01-2011 | 16-01-2011 | 3.48 |
| 43 | 17-01-2011 | 23-01-2011 | 3.37 |
| 44 | 24-01-2011 | 30-01-2011 | 3.50 |
| 45 | 31-01-2011 | 06-02-2011 | 3.68 |
| 46 | 07-02-2011 | 13-02-2011 | 3.90 |
| 47 | 14-02-2011 | 20-02-2011 | 4.18 |
| 48 | 21-02-2011 | 27-02-2011 | 3.38 |
| 49 | 28-02-2011 | 06-03-2011 | 3.53 |
| 50 | 07-03-2011 | 13-03-2011 | 3.83 |
| 51 | 14-03-2011 | 20-03-2011 | 3.94 |
| 52 | 21-03-2011 | 27-03-2011 | 3.45 |
| | 52 Week Average Loss | | 3.32% |
| | Total ISGS Generation: | | 5608 MU |
| | Total Loss: | | 227 MU |

Annexure-IV

ACTUAL METERED TRANSMISSION LOSS IN NER

| Week No. | Week | | % loss |
|----------|------------|------------|--------|
| | From | To | |
| 1 | 2/4/2012 | 8/4/2012 | 3.40 |
| 2 | 9/4/2012 | 15-04-2012 | 3.00 |
| 3 | 16-04-2012 | 22-04-2012 | 2.90 |
| 4 | 23-04-2012 | 29-04-2012 | 3.10 |
| 5 | 30-04-2012 | 6/5/2012 | 3.70 |
| 6 | 7/5/2012 | 13-05-2012 | 3.00 |
| 7 | 14-05-2012 | 20-05-2012 | 3.10 |
| 8 | 21-05-2012 | 27-05-2012 | 3.20 |
| 9 | 28-05-2012 | 3/6/2012 | 3.20 |
| 10 | 4/6/2012 | 10/6/2012 | 4.00 |
| 11 | 11/6/2012 | 17-06-2012 | 4.00 |
| 12 | 18-06-2012 | 24-06-2012 | 3.60 |
| 13 | 25-06-2012 | 1/7/2012 | 4.70 |
| 14 | 2/7/2012 | 8/7/2012 | 3.70 |
| 15 | 9/7/2012 | 15-07-2012 | 3.60 |
| 16 | 16-07-2012 | 22-07-2012 | 3.50 |
| 17 | 23-07-2012 | 29-07-2012 | 3.50 |
| 18 | 30-07-2012 | 5/8/2012 | 2.80 |
| 19 | 6/8/2012 | 12/8/2012 | 2.60 |
| 20 | 13-08-2012 | 19-08-2012 | 2.10 |
| 21 | 20-08-2012 | 26-08-2012 | 2.90 |
| 22 | 27-08-2012 | 2/9/2012 | 2.50 |
| 23 | 3/9/2012 | 9/9/2012 | 2.40 |
| 24 | 10/9/2012 | 16-09-2012 | 3.00 |
| 25 | 17-09-2012 | 23-09-2012 | 3.50 |
| 26 | 24-09-2012 | 30-09-2012 | 2.90 |
| 27 | 1/10/2012 | 7/10/2012 | 3.20 |
| 28 | 8/10/2012 | 14-10-2012 | 3.10 |
| 29 | 15-10-2012 | 21-10-2012 | 2.50 |
| 30 | 22-10-2012 | 28-10-2012 | 2.70 |
| 31 | 29-10-2012 | 4/11/2012 | 2.20 |
| 32 | 5/11/2012 | 11/11/2012 | 2.60 |
| 33 | 12/11/2012 | 18-11-2012 | 2.80 |
| 34 | 19-11-2012 | 25-11-2012 | 3.30 |
| 35 | 26-11-2012 | 2/12/2012 | 3.60 |
| 36 | 3/12/2012 | 9/12/2012 | 4.00 |
| 37 | 10/12/2012 | 16-12-2012 | 3.20 |
| 38 | 17-12-2012 | 23-12-2012 | 3.70 |
| 39 | 24-12-2012 | 30-12-2012 | 3.50 |
| 40 | 31-12-2012 | 6/1/2013 | 5.50 |
| 41 | 7/1/2013 | 13-01-2013 | 5.70 |
| 42 | 14-01-2013 | 20-01-2013 | 3.50 |
| 43 | 21-01-2013 | 27-01-2013 | 3.60 |
| 44 | 28-01-2013 | 3/2/2013 | 5.60 |
| 45 | 4/2/2013 | 10/2/2013 | 5.60 |
| 46 | 11/2/2013 | 17-02-2013 | 4.10 |
| 47 | 18-02-2013 | 24-02-2013 | 3.70 |
| 48 | 25-02-2013 | 3/3/2013 | 4.00 |
| 49 | 4/3/2013 | 10/3/2013 | 4.50 |
| 50 | 11/3/2013 | 17-03-2013 | 3.90 |
| 51 | 18-03-2013 | 24-03-2013 | 3.70 |
| 52 | 25-03-2013 | 31-03-2013 | 3.40 |
| | Av : 3.48% | | |

Annexure-V

2013-14

ACTUAL METERED TRANSMISSION LOSS IN NER

| Week No. | WEEK | | % loss |
|----------|------------------|------------|--------|
| | From | To | |
| 1 | 01-04-2013 | 07-04-2013 | 3.3 |
| 2 | 08-04-2013 | 14-04-2013 | 3.3 |
| 3 | 15-04-2013 | 21-04-2013 | 3.2 |
| 4 | 22-04-2013 | 28-04-2013 | 2.8 |
| 5 | 29-04-2013 | 05-05-2013 | 3.8 |
| 6 | 06-05-2013 | 12-05-2013 | 3.4 |
| 7 | 13-05-2013 | 19-05-2013 | 3.3 |
| 8 | 20-05-2013 | 26-05-2013 | 2.4 |
| 9 | 27-05-2013 | 02-06-2013 | 2.8 |
| 10 | 03-06-2013 | 09-06-2013 | 2.6 |
| 11 | 10-06-2013 | 16-06-2013 | 1.8 |
| 12 | 17-06-2013 | 23-06-2013 | 2.4 |
| 13 | 24-06-2013 | 30-06-2013 | 2.9 |
| 14 | 01-07-2013 | 07-07-2013 | 2.5 |
| 15 | 08-07-2013 | 14-07-2013 | 2.7 |
| 16 | 15-07-2013 | 21-07-2013 | 2.9 |
| 17 | 22-07-2013 | 28-07-2013 | 3.0 |
| 18 | 29-07-2013 | 04-08-2013 | 2.2 |
| 19 | 05-08-2013 | 11-08-2013 | 3.5 |
| 20 | 12-08-2013 | 18-08-2013 | 2.6 |
| 21 | 19-08-2013 | 25-08-2013 | 2.2 |
| 22 | 26-08-2013 | 01-09-2013 | 2.8 |
| 23 | 02-09-2013 | 08-09-2013 | 3.4 |
| 24 | 09-09-2013 | 15-09-2013 | 2.4 |
| 25 | 16-09-2013 | 22-09-2013 | 3.4 |
| 26 | 23-09-2013 | 29-09-2013 | 2.5 |
| 27 | 30-09-2013 | 06-10-2013 | 2.3 |
| 28 | 07-10-2013 | 13-10-2013 | 2.5 |
| 29 | 14-10-2013 | 20-10-2013 | 3.0 |
| 30 | 21-10-2013 | 27-10-2013 | 2.7 |
| 31 | 28-10-2013 | 03-11-2013 | 2.6 |
| 32 | 04-11-2013 | 10-11-2013 | 3.0 |
| 33 | 11-11-2013 | 17-11-2013 | 3.2 |
| 34 | 18-11-2013 | 24-11-2013 | 2.6 |
| 35 | 25-11-2013 | 01-12-2013 | 2.5 |
| 36 | 02-12-2013 | 08-12-2013 | 2.7 |
| 37 | 09-12-2013 | 15-12-2013 | 2.7 |
| 38 | 16-12-2013 | 22-12-2013 | 2.7 |
| 39 | 23-12-2013 | 29-12-2013 | 2.8 |
| 40 | 30-12-2013 | 05-01-2014 | 2.9 |
| 41 | 06-01-2014 | 12-01-2014 | 3.3 |
| 42 | 13-01-2014 | 19-01-2014 | 3.6 |
| 43 | 20-01-2014 | 26-01-2014 | 3.4 |
| 44 | 27-01-2014 | 02-02-2014 | 3.4 |
| 45 | 03-02-2014 | 09-02-2014 | 3.6 |
| 46 | 10-02-2014 | 16-02-2014 | 3.7 |
| 47 | 17-02-2014 | 23-02-2014 | 4.0 |
| 48 | 24-02-2014 | 02-03-2014 | 4.0 |
| 49 | 03-03-2014 | 09-03-2014 | 3.6 |
| 50 | 10-03-2014 | 16-03-2014 | 3.6 |
| 51 | 17-03-2014 | 23-03-2014 | 3.5 |
| 52 | 24-03-2014 | 30.03.2014 | 3.7 |
| | 52 Week Average: | 2.99% | |
| | Total ISGS + IR: | 8271 MU | |
| | Total Loss: | 243 MU | |

Annexure-VI

2012-13

Loss percentage for ER Transmission System

| Week | FROM DATE | TO DATE | Update Date | SEM LOSS % | APPLICABLE PoC LOSS% | | |
|-----------------|-------------------|-------------------|-------------------|-----------------|----------------------|--------|------|
| | | | | | High | Normal | Loss |
| 1 | 02 April 2012 | 08 April 2012 | 30 March 2012 | 2.7 | 1.65 | 1.35 | 1.05 |
| 2 | 09 April 2012 | 15 April 2012 | 06 April 2012 | 2.6 | 1.60 | 1.30 | 1.00 |
| 3 | 16 April 2012 | 22 April 2012 | 13 April 2012 | 2.7 | 1.65 | 1.35 | 1.05 |
| 4 | 23 April 2012 | 29 April 2012 | 20 April 2012 | 2.5 | 1.55 | 1.25 | 0.95 |
| 5 | 30 April 2012 | 06 May 2012 | 27 April 2012 | 2.8 | 1.70 | 1.40 | 1.10 |
| 6 | 07 May 2012 | 13 May 2012 | 04 May 2012 | 2.3 | 1.45 | 1.15 | 0.85 |
| 7 | 14 May 2012 | 20 May 2012 | 11 May 2012 | 2.7 | 1.65 | 1.35 | 1.05 |
| 8 | 21 May 2012 | 27 May 2012 | 18 May 2012 | 2.7 | 1.65 | 1.35 | 1.05 |
| 9 | 28 May 2012 | 03 June 2012 | 25 May 2012 | 2.5 | 1.55 | 1.25 | 0.95 |
| 10 | 04 June 2012 | 10 June 2012 | 01 June 2012 | 2.6 | 1.60 | 1.30 | 1.00 |
| 11 | 11 June 2012 | 17 June 2012 | 08 June 2012 | 2.6 | 1.60 | 1.30 | 1.00 |
| 12 | 18 June 2012 | 24 June 2012 | 15 June 2012 | 2.5 | 1.55 | 1.25 | 0.95 |
| 13 | 25 June 2012 | 01 July 2012 | 22 June 2012 | 2.9 | 1.75 | 1.45 | 1.15 |
| 14 | 02 June 2012 | 08 July 2012 | 29 June 2012 | 2.7 | 1.65 | 1.35 | 1.05 |
| 15 | 09 July 2012 | 15 July 2012 | 06 July 2012 | 2.7 | 1.65 | 1.35 | 1.05 |
| 16 | 16 July 2012 | 22 July 2012 | 13 July 2012 | 2.8 | 1.70 | 1.40 | 1.10 |
| 17 | 23 July 2012 | 29 July 2012 | 20 July 2012 | 2.7 | 1.65 | 1.35 | 1.05 |
| 18 | 30 July 2012 | 05 August 2012 | 27 July 2012 | 3.0 | 1.80 | 1.50 | 1.20 |
| 19 | 06 August 2012 | 12 August 2012 | 03 August 2012 | 3.0 | 1.80 | 1.50 | 1.20 |
| 20 | 13 August 2012 | 19 August 2012 | 10 August 2012 | 2.8 | 1.70 | 1.40 | 1.10 |
| 21 | 20 August 2012 | 26 August 2012 | 17 August 2012 | 3.0 | 1.80 | 1.50 | 1.20 |
| 22 | 27 August 2012 | 02 September 2012 | 24 August 2012 | 2.9 | 1.75 | 1.45 | 1.15 |
| 23 | 03 September 2012 | 09 September 2012 | 31 August 2012 | 2.8 | 1.70 | 1.40 | 1.10 |
| 24 | 10 September 2012 | 16 September 2012 | 07 September 2012 | 2.7 | 1.65 | 1.35 | 1.05 |
| 25 | 17 September 2012 | 23 September 2012 | 14 September 2012 | 2.6 | 1.60 | 1.30 | 1.00 |
| 26 | 24 September 2012 | 30 September 2012 | 21 September 2012 | 2.7 | 1.65 | 1.35 | 1.05 |
| 27 | 01 October 2012 | 07 October 2012 | 28 September 2012 | 2.7 | 1.65 | 1.35 | 1.05 |
| 28 | 08 October 2012 | 14 October 2012 | 05 October 2012 | 2.4 | 1.50 | 1.20 | 0.90 |
| 29 | 15 October 2012 | 21 October 2012 | 12 October 2012 | 2.5 | 1.55 | 1.25 | 0.95 |
| 30 | 22 October 2012 | 28 October 2012 | 19 October 2012 | 2.5 | 1.55 | 1.25 | 0.95 |
| 31 | 29 October 2012 | 04 November 2012 | 26 October 2012 | 2.4 | 1.50 | 1.20 | 0.90 |
| 32 | 05 November 2012 | 11 November 2012 | 02 November 2012 | 2.3 | 1.45 | 1.15 | 0.85 |
| 33 | 12 November 2012 | 18 November 2012 | 09 November 2012 | 2.8 | 1.70 | 1.40 | 1.10 |
| 34 | 19 November 2012 | 25 November 2012 | 16 November 2012 | 2.7 | 1.65 | 1.35 | 1.05 |
| 35 | 26 November 2012 | 02 December 2012 | 23 November 2012 | 2.6 | 1.60 | 1.30 | 1.00 |
| 36 | 03 December 2012 | 09 December 2012 | 30 November 2012 | 2.7 | 1.65 | 1.35 | 1.05 |
| 37 | 10 December 2012 | 16 December 2012 | 07 December 2012 | 2.7 | 1.65 | 1.35 | 1.05 |
| 38 | 17 December 2012 | 23 December 2012 | 14 December 2012 | 2.7 | 1.65 | 1.35 | 1.05 |
| 39 | 24 December 2012 | 30 December 2012 | 21 December 2012 | 3.1 | 1.85 | 1.55 | 1.25 |
| 40 | 31 December 2012 | 06 January 2013 | 28 December 2012 | 3.2 | 1.90 | 1.60 | 1.30 |
| 41 | 07 January 2013 | 13 January 2013 | 04 January 2013 | 3.2 | 1.90 | 1.60 | 1.30 |
| 42 | 14 January 2013 | 20 January 2013 | 11 January 2013 | 3.0 | 1.80 | 1.50 | 1.20 |
| 43 | 21 January 2013 | 27 January 2013 | 18 January 2013 | 3.2 | 1.90 | 1.60 | 1.30 |
| 44 | 28 January 2013 | 03 February 2013 | 25 January 2013 | 3.1 | 1.85 | 1.55 | 1.25 |
| 45 | 04 February 2013 | 10 February 2013 | 01 February 2013 | 3.1 | 1.85 | 1.55 | 1.25 |
| 46 | 11 February 2013 | 17 February 2013 | 08 February 2013 | 3.0 | 1.80 | 1.50 | 1.20 |
| 47 | 18 February 2013 | 24 February 2013 | 15 February 2013 | 3.0 | 1.80 | 1.50 | 1.20 |
| 48 | 25 February 2013 | 03 March 2013 | 22 February 2013 | 3.0 | 1.80 | 1.50 | 1.20 |
| 49 | 04 March 2013 | 10 March 2013 | 01 March 2013 | 2.5 | 1.55 | 1.25 | 0.95 |
| 50 | 11 March 2013 | 17 March 2013 | 18 March 2013 | 2.4 | 1.50 | 1.20 | 0.90 |
| 51 | 18 March 2013 | 24 March 2013 | 15 March 2013 | 2.3 | 1.45 | 1.15 | 0.85 |
| 52 | 25 March 2013 | 31 March 2013 | 22 March 2013 | 2.4 | 1.50 | 1.20 | 0.90 |
| MAX 3.20 | | MIN 2.30 | | AVG 2.73 | | | |

Annexure-VII

2014-15

Loss Percentage for ER Transmission System

| Week | FROM DATE | TO DATE | Update Date | SEM Loss % | APPLICABLE PoC LOSS % | | |
|-------------------------------------|-------------------|-------------------|-------------------|------------|-----------------------|--------|------|
| | | | | | High | Normal | Low |
| 1 | 31 March 2014 | 06 April 2014 | 28 March 2014 | 2.08 | 1.34 | 1.04 | 0.74 |
| 2 | 07 April 2014 | 13 April 2014 | 04 April 2014 | 2.10 | 1.35 | 1.05 | 0.75 |
| 3 | 14 April 2014 | 20 April 2014 | 11 April 2014 | 1.92 | 1.26 | 0.96 | 0.66 |
| 4 | 21 April 2014 | 27 April 2014 | 18 April 2014 | 2.06 | 1.33 | 1.03 | 0.73 |
| 5 | 28 April 2014 | 04 May 2014 | 25 April 2014 | 1.84 | 1.22 | 0.92 | 0.62 |
| 6 | 05 May 2014 | 11 May 2014 | 02 May 2014 | 1.94 | 1.27 | 0.97 | 0.67 |
| 7 | 12 May 2014 | 18 May 2014 | 09 May 2014 | 2.36 | 1.48 | 1.18 | 0.88 |
| 8 | 19 May 2014 | 25 May 2014 | 16 May 2014 | 2.08 | 1.34 | 1.04 | 0.74 |
| 9 | 26 May 2014 | 01 June 2014 | 23 May 2014 | 1.92 | 1.26 | 0.96 | 0.66 |
| 10 | 02 June 2014 | 08 June 2014 | 30 May 2014 | 2.08 | 1.34 | 1.04 | 0.74 |
| 11 | 09 June 2014 | 15 June 2014 | 06 June 2014 | 2.20 | 1.40 | 1.10 | 0.80 |
| 12 | 16 June 2014 | 22 June 2014 | 13 June 2014 | 2.04 | 1.32 | 1.02 | 0.72 |
| 13 | 23 June 2014 | 29 June 2014 | 20 June 2014 | 2.12 | 1.36 | 1.06 | 0.76 |
| 14 | 30 June 2014 | 06 July 2014 | 27 June 2014 | 2.02 | 1.31 | 1.01 | 0.71 |
| 15 | 07 July 2014 | 13 July 2014 | 04 July 2014 | 1.96 | 1.28 | 0.98 | 0.68 |
| 16 | 14 July 2014 | 20 July 2014 | 11 July 2014 | 2.28 | 1.44 | 1.14 | 0.84 |
| 17 | 21 July 2014 | 27 July 2014 | 18 July 2014 | 1.90 | 1.25 | 0.95 | 0.65 |
| 18 | 28 July 2014 | 03 August 2014 | 25 July 2014 | 2.24 | 1.42 | 1.12 | 0.82 |
| 19 | 04 August 2014 | 10 August 2014 | 01 August 2014 | 1.98 | 1.29 | 0.99 | 0.69 |
| 20 | 11 August 2014 | 17 August 2014 | 08 August 2014 | 1.94 | 1.27 | 0.97 | 0.67 |
| 21 | 18 August 2014 | 24 August 2014 | 14 August 2014 | 2.26 | 1.43 | 1.13 | 0.83 |
| 22 | 25 August 2014 | 31 August 2014 | 22 August 2014 | 2.22 | 1.41 | 1.11 | 0.81 |
| 23 | 01 September 2014 | 07 September 2014 | 29 August 2014 | 2.10 | 1.35 | 1.05 | 0.75 |
| 24 | 08 September 2014 | 14 September 2014 | 05 September 2014 | 2.30 | 1.45 | 1.15 | 0.85 |
| 25 | 15 September 2014 | 21 September 2014 | 12 September 2014 | 2.34 | 1.47 | 1.17 | 0.87 |
| 26 | 22 September 2014 | 28 September 2014 | 19 September 2014 | 2.20 | 1.40 | 1.10 | 0.80 |
| 27 | 29 September 2014 | 05 October 2014 | 26 September 2014 | 2.40 | 1.50 | 1.20 | 0.90 |
| 28 | 06 October 2014 | 12 October 2014 | 03 October 2014 | 2.36 | 1.48 | 1.18 | 0.88 |
| MAX 2.36 MIN 1.8 AVG 2.12 | | | | | | | |

Annexure - VIII

Mizoram - Expected Revenue from Existing Tariff effective from 01.04.2014

| Sl. No. | Category | Consumers | Connected Load (in kW) | Annual energy Sales (in MU) | Sales/Consumer/Month (in kWh) | Existing Tariff | | Revenue /month | | | | Annual Revenue (in Rs lakh) | Av. realisation (Rs/kWh) |
|----------|-------------------------|---------------|------------------------|-----------------------------|-------------------------------|----------------------|-------------------------|----------------------------------|------------------------------------|----------------------------------|-----------------------------|-----------------------------|--------------------------|
| | | | | | | Fixed Charge (Rs/kW) | Energy charge (Rs./kWh) | Total Fixed Charges (in Rs lakh) | Energy charge per Consumer (in Rs) | Total energy charge (in Rs lakh) | Total Revenue (in Rs lakhs) | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 1 | KJ(Domestic) | | | | | | | | | | | | |
| i) | First 15 kWh | 9004 | | 1.00 | 9.26 | | 1.20 | | 11.11 | 1.00 | | | |
| ii) | Next 15 kWh | 4109 | | 1.00 | 20.28 | | 1.80 | | 27.50 | 1.13 | | | |
| iii) | Balance above 30 kWh | 3293 | | 2.00 | 50.61 | | 2.10 | | 88.28 | 2.91 | | | |
| | Sub Total | 16406 | 2856.00 | 4.00 | 20.32 | 10/connection | | 1.64 | 126.89 | 5.04 | 6.68 | 80.16 | 2.00 |
| 2 | Domestic | | | | | | | | | | | | |
| i) | First 50 kWh | 76027 | | 40.00 | 43.84 | | 2.10 | | 92.06 | 69.99 | | | |
| ii) | Next 50 kWh | 58700 | | 60.00 | 85.18 | | 3.00 | | 210.54 | 123.59 | | | |
| iii) | Next 100 kWh | 37900 | | 74.00 | 162.71 | | 3.80 | | 493.30 | 186.96 | | | |
| iv) | Balance above 200 kWh | 17300 | | 68.00 | 327.55 | | 4.50 | | 1208.98 | 209.15 | | | |
| | Sub Total | 189927 | 259090.00 | 242.00 | 106.18 | 25 | | 64.77 | 2004.88 | 589.69 | 654.46 | 7853.52 | 3.25 |
| 3 | Domestic HT | 6 | 1327.00 | 2.00 | 27777.78 | 30 | 4.50 | 0.40 | 125000.01 | 7.50 | 7.90 | 94.80 | 4.74 |
| | Total Domestic | 206339 | 263273.00 | 248.00 | 100.16 | | | 66.81 | 127131.78 | 602.23 | 669.04 | 8028.48 | 3.24 |
| 4 | Commercial | | | | | | | | | | | | |
| i) | First 100 kWh | 3474 | | 4.10 | 98.35 | | 3.30 | | 324.56 | 11.28 | | | |
| ii) | Next 100 kWh | 1454 | | 3.45 | 197.73 | | 4.30 | | 750.24 | 10.91 | | | |
| iii) | Balance above 200 kWh | 2438 | | 20.45 | 699.00 | | 5.20 | | 3354.80 | 81.79 | | | |
| | Sub Total | 7366 | 28679.00 | 28.00 | 316.77 | 50 | | 14.34 | 4429.60 | 103.98 | 118.32 | 1419.84 | 5.07 |
| 5 | Commercial HT | 63 | 1096.00 | 1.00 | 1322.75 | 60 | 5.20 | 0.66 | 6878.30 | 4.33 | 4.99 | 59.88 | 5.99 |
| | Total Commercial | 7429 | 29775.00 | 29.00 | 325.30 | | | 15.00 | 11307.9 | 108.31 | 123.31 | 1479.72 | 5.10 |
| 6 | Public Lighting | 780 | 1733.00 | 8.00 | 854.70 | 50 | 4.75 | 0.87 | 4059.83 | 31.67 | 32.54 | 390.48 | 4.88 |
| 7 | PWS LT | 13 | 953.00 | 1.00 | 6410.26 | 50 | 4.75 | 0.48 | 30448.74 | 3.96 | 4.44 | 53.28 | 5.33 |
| 8 | PWS HT | 40 | 48569.00 | 46.00 | 95833.33 | 70 | 4.75 | 34.00 | 455208.32 | 182.08 | 216.08 | 2592.96 | 5.64 |
| 9 | AgI LT | 20 | 25.00 | 0.01 | 41.67 | 20 | 1.75 | 0.01 | 72.92 | 0.01 | 0.02 | 0.24 | 2.40 |
| 10 | AgI HT | 1 | 130.00 | 0.10 | 8333.33 | 30 | 1.75 | 0.04 | 14583.33 | 0.15 | 0.19 | 2.28 | 2.28 |
| 11 | Industrial LT | | | | | | | | | | | | |
| i) | First 400 kWh | 570 | | 1.70 | 248.54 | | 3.45 | | 857.46 | 4.89 | | | |
| ii) | Balance above 400 kWh | 150 | | 1.30 | 722.22 | | 4.10 | | 2701.10 | 4.05 | | | |
| | Total Industrial | 720 | 5321.00 | 3.00 | 347.22 | 50 | | 2.66 | 3558.56 | 8.94 | 11.60 | 139.20 | 4.64 |
| 12 | Industrial HT | 14 | 9530.00 | 3.00 | 17857.14 | 60 | 4.10 | 5.72 | 73214.27 | 10.25 | 15.97 | 191.64 | 6.39 |
| 13 | Bulk Supply HT | 267 | 36853.00 | 24.00 | 7490.64 | 70 | 3.85 | 25.80 | 28838.96 | 77.00 | 102.80 | 1233.60 | 5.14 |
| | Grand Total | 215623 | 396162.00 | 362.11 | 139.95 | | | 151.39 | 748424.61 | 1024.6 | 1175.99 | 14111.88 | 3.90 |

Annexure - IX

Mizoram - Expected Revenue from Revised Tariff effective from 01.04.2015

| Sl. No. | Category | Consumers | Connected Load (in kW) | Annual energy Sales (in MU) | Sales/Consumer/Month (in kWh) | Existing Tariff | | Revenue /month | | | | Annual Revenue (in Rs lakh) | Av. realisation (Rs/kWh) |
|----------|-------------------------|---------------|------------------------|-----------------------------|-------------------------------|----------------------|-------------------------|----------------------------------|------------------------------------|----------------------------------|-----------------------------|-----------------------------|--------------------------|
| | | | | | | Fixed Charge (Rs/kW) | Energy charge (Rs./kWh) | Total Fixed Charges (in Rs lakh) | Energy charge per Consumer (in Rs) | Total energy charge (in Rs lakh) | Total Revenue (in Rs lakhs) | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 1 | KJ(Domestic) | | | | | | | | | | | | |
| i) | First 15 kWh | 9004 | | 1.00 | 9.26 | | 1.20 | | 11.11 | 1.00 | | | |
| ii) | Next 15 kWh | 4109 | | 1.00 | 20.28 | | 1.80 | | 27.50 | 1.13 | | | |
| iii) | Balance above 30 kWh | 3293 | | 2.00 | 50.61 | | 2.10 | | 88.28 | 2.91 | | | |
| | Sub Total | 16406 | 2856.00 | 4.00 | 20.32 | 10/connection | | 1.64 | 126.89 | 5.04 | 6.68 | 80.16 | 2.00 |
| 2 | Domestic | | | | | | | | | | | | |
| i) | First 50 kWh | 76027 | | 40.00 | 43.84 | | 2.10 | | 92.06 | 69.99 | | | |
| ii) | Next 50 kWh | 58700 | | 60.00 | 85.18 | | 3.00 | | 210.54 | 123.59 | | | |
| iii) | Next 100 kWh | 37900 | | 74.00 | 162.71 | | 3.90 | | 499.57 | 189.34 | | | |
| iv) | Balance above 200 kWh | 17300 | | 68.00 | 327.55 | | 4.60 | | 1231.73 | 213.09 | | | |
| | Sub Total | 189927 | 259090.00 | 242.00 | 106.18 | 30 | | 77.73 | 2033.90 | 596.01 | 673.74 | 8084.88 | 3.34 |
| 3 | Domestic HT | 6 | 1327.00 | 2.00 | 27777.78 | 30 | 4.50 | 0.40 | 125000.01 | 7.50 | 7.90 | 94.80 | 4.74 |
| | Total Domestic | 206339 | 263273.00 | 248.00 | 100.16 | | | 79.77 | 127160.8 | 608.55 | 688.32 | 8259.84 | 3.33 |
| 4 | Commercial | | | | | | | | | | | | |
| i) | First 100 kWh | 3474 | | 4.10 | 98.35 | | 3.35 | | 329.47 | 11.45 | | | |
| ii) | Next 100 kWh | 1454 | | 3.45 | 197.73 | | 4.35 | | 760.13 | 11.05 | | | |
| iii) | Balance above 200 kWh | 2438 | | 20.45 | 699.00 | | 5.30 | | 3414.70 | 83.25 | | | |
| | Sub Total | 7366 | 28679.00 | 28.00 | 316.77 | 60 | | 17.21 | 4504.30 | 105.75 | 122.96 | 1475.52 | 5.27 |
| 5 | Commercial HT | 63 | 1096.00 | 1.00 | 1322.75 | 60 | 5.20 | 0.66 | 6878.30 | 4.33 | 4.99 | 59.88 | 5.99 |
| | Total Commercial | 7429 | 29775.00 | 29.00 | 325.30 | | | 17.87 | 11382.6 | 110.08 | 127.95 | 1535.4 | 5.29 |
| 6 | Public Lighting | 780 | 1733.00 | 8.00 | 854.70 | 60 | 4.80 | 1.04 | 4102.56 | 32.00 | 33.04 | 396.48 | 4.96 |
| 7 | PWS LT | 13 | 953.00 | 1.00 | 6410.26 | 75 | 4.80 | 0.71 | 30769.25 | 4.00 | 4.71 | 56.52 | 5.65 |
| 8 | PWS HT | 40 | 48569.00 | 46.00 | 95833.33 | 70 | 4.75 | 34.00 | 455208.32 | 182.08 | 216.08 | 2592.96 | 5.64 |
| 9 | AgI LT | 20 | 25.00 | 0.01 | 41.67 | 30 | 1.75 | 0.01 | 72.92 | 0.01 | 0.02 | 0.24 | 2.40 |
| 10 | AgI HT | 1 | 130.00 | 0.10 | 8333.33 | 30 | 1.75 | 0.04 | 14583.33 | 0.15 | 0.19 | 2.28 | 2.28 |
| 11 | Industrial LT | | | | | | | | | | | | |
| i) | First 400 kWh | 570 | | 1.70 | 248.54 | | 3.50 | | 869.89 | 4.96 | | | |
| ii) | Balance above 400 kWh | 150 | | 1.30 | 722.22 | | 4.20 | | 2753.32 | 4.13 | | | |
| | Total Industrial | 720 | 5321.00 | 3.00 | 347.22 | 60 | | 3.19 | 3623.21 | 9.09 | 12.28 | 147.36 | 4.91 |
| 12 | Industrial HT | 14 | 9530.00 | 3.00 | 17857.14 | 60 | 4.10 | 5.72 | 73214.27 | 10.25 | 15.97 | 191.64 | 6.39 |
| 13 | Bulk Supply HT | 267 | 36853.00 | 24.00 | 7490.64 | 70 | 3.90 | 25.80 | 29213.50 | 78.00 | 103.80 | 1245.60 | 5.19 |
| | Grand Total | 215623 | 396162.00 | 362.11 | 139.95 | | | 168.15 | 749330.76 | 1034.21 | 1202.36 | 14428.32 | 3.98 |