



**TARIFF ORDER**  
**TRUE UP FOR FY 2015-16**  
**REVIEW FOR FY 2016-17**  
**REVISED AGGREGATE REVENUE REQUIREMENT**  
**&**  
**TARIFF FOR FY 2017-18**

**FOR**

**POWER & ELECTRICITY DEPARTMENT**  
**GOVERNMENT OF MIZORAM**

Petition (ARR & Tariff) No.3 of 2016

**28<sup>TH</sup> FEBRUARY, 2017**

**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
IEGC	Indian Electricity Grid Code
IEX	Indian Energy Exchange
IR	Inter Regional
ISGS	Inter State Generating Station
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
MYT	Multi Year Tariff
NEEPCO	North Eastern Electric Power Corporation
NHPC	National Hydro Electric Power Corporation
NLDC	National Load Despatch Centre
NTI	Non-Tariff Income
NTPC	National Thermal Power Corporation
O&M	Operation and Maintenance
P&ED	Power & Electricity Department, Mizoram
PGCIL	Power Grid Corporation of India Ltd
PLF	Plant Load Factor
PLR	Prime Lending Rate
POSO	Power System Operation System
PPA	Power Purchase Agreement
PWW	Public Water Works
R&M	Repair and Maintenance
RAPDRP	Restructured Accelerated Power Development and Return Programme
RE	Revised Estimate
RoE	Return of Equity
SBAR	State Bank Advance Rate

SLDC	State Load Despatch Centre
T&D	Transmission and Distribution
UI	Unscheduled Interchange
YOY	Year On Year



**JOINT ELECTRICITY REGULATORY COMMISSION FOR MANIPUR AND MIZORAM**

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

**Petition (ARR & Tariff) No.3 of 2016**

In the matter of

True up for FY 2015-16 and Review for FY 2016-17 and Determination of Revised Aggregate Revenue Requirement (ARR) and Tariffs for FY 2017-18 for P&ED Mizoram.

FOR

Power & Electricity Department, Government of Mizoram----- Petitioner  
(herein after referred to as P&ED).

**Present**

Mr. R.K. Kishore Singh  
Chairperson

**ORDER  
(28/2/2017)**

1. The Power and Electricity Department, Government of Mizoram (herein after referred to as P&ED or petitioner) is a deemed licensee in terms of section 14 of the Electricity Act 2003 (hereinafter referred to as Act), engaged in the business of generation, transmission and distribution of electricity in the State of Mizoram.
2. Regulation 17 of the JERC (M&M) (MYT) Regulations, 2014 specify that the distribution licensee shall file ARR and Tariff Petition with all relevant data along with requisite fee as specified in Commission's Fees, Fines and Charges Regulations on or before 30<sup>th</sup> November of the preceding year. As per the directive of the Commission, the P&ED has filed the ARR and Tariff Petition for true up for FY 2015-16 and review for FY 2016-17 and determination of revised ARR and retail tariff for FY 2017-18.

### 3. **ARR and Tariff Petition**

P&ED, 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 is required to submit the ARR and tariff petition for Third Control Period of FY 2015-16 to FY 2017-18 and file the Petition in the month of November of preceding year for fixing the Tariff for the next financial year. The P&ED has filed the revised ARR and MYT Tariff Petition for FY 2017-18 along with true up petition for FY 2015-16 and review petition for FY 2016-17. In the petition P&ED estimated an ARR of Rs. 378.84 Crore and projected a gap of Rs. 160.63 Crore for FY2017-18.

### 4. **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 (MYT) Regulations 2014.

P&ED was asked to submit the required information vide Commission's letter Nos.H.20013/10/15-JERC Dt. 28.12.2016, 29.12.2016, 3.1.2017 and 18.1.2017. Pending receipt of additional information, the ARR and Tariff Petition was admitted on 5.1.2017 and marked as Petition (ARR & Tariff) No. 3 of 2016 to avoid delay in processing of ARR and directed the P&ED to publish the summary of the ARR and tariff proposal in an abridged form and manner as approved in accordance with section 64 of the Electricity Act 2003 to ensure public participation vide Commission's letter No.H.20013/14/16-JERC, dt. 9.1.2017.

The notification of the proposed ARR and the tariff schedule for FY 2017-18 was published by the P&ED in the following newspapers.

Sl.No.	Name of the newspaper	Language	Date of publication
1	Highlander	English	16.1.2017
2	Vanglaini	Mizo	16.1.2017

Through the public notice, the stakeholders/public were invited to file their objections and suggestions on the petition on or before 27.01.2017.

**5. Notice for Public Hearing:**

The Commission, to ensure transparency in the process of tariff determination and providing proper opportunity to all stakeholders and general public and consumers for making suggestions/objections on the tariff petition, has decided to hold a public hearing at the headquarters of the state. Accordingly, 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 09.02.2017.

Sl. No.	Name of the News-	Language	Date of Publication
1	The Aizawl Post	Mizo	4 <sup>th</sup> and 6 <sup>th</sup> February, 2017
2	Highlander	English	2 <sup>nd</sup> and 3 <sup>rd</sup> February, 2017

**6. Public Hearing:**

Public hearing was held as scheduled on 09.02.2017 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 P&ED before the Commission. The main issues raised by the objectors during the public hearing along with response of P&ED and Commission comments there on are briefly reproduced in Chapter - 4.

**7. Meeting of State Advisory Committee**

The proposal of the P&ED Mizoram was placed before the State Advisory Committee in its meeting held on 08.02.2017 in the Conference Hall of I & PR Department, Aizawl and discussed the ARR & Tariff proposal for FY 2017-18 of P&ED, Mizoram. The minutes of the State Advisory Committee meeting are given in Annexure – I

8. The Commission has reviewed the directives issued earlier to P&ED (the petitioner) in the Tariff orders for FY 2010-11 to FY 2016-17 and noted that some of the

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directives have already been compiled with and hence dropped the directives which are partly compiled with and the remaining directives are now consolidated and fresh directives issued.

9. In exercise of the powers vested under section 62(1) read with section 62(3) and 64 3(a) of the Electricity Act 2003 and Regulation 5.2 JERC (M&M) MYT Regulations, 2014 (Notified on 09.06.2014) (hereinafter referred to as “Tariff Regulations 2014”, and other enabling provisions in this behalf ,the Commission issues this order for true up of the ARR and revenues for FY 2015-16 and Annual Performance Review for FY 2016-17 and approval of the revised ARR and determination of retail Tariff for FY 2017-18 for supply of electricity in the State of Mizoram, duly taking into consideration of the facts presented by P&ED Mizoram in its petition and subsequent filings, the suggestions/objections received from stake holders, consumer organizations, general public and the minutes of the State Advisory Committee and the response of the P&ED Mizoram to the suggestions/objections.
10. This Order contains thirteen chapters as detailed below:
  1. Chapter 1: Introduction.
  2. Chapter 2: Summary of ARR and Tariff petition for FY 2017-18.
  3. Chapter 3: Power Sector in Mizoram-An over view.
  4. Chapter 4: Public hearing process.
  5. Chapter 5: True up of ARR for FY 2015-16.
  6. Chapter 6: Review of ARR for FY2016-17.
  7. Chapter 7: Analysis of ARR for FY 2017-18 and approval of the Commission.
  8. Chapter 8: Tariff principles and design and determination of tariffs for FY 2017-18
  9. Chapter 9: Wheeling charges for FY2017-18.
  10. Chapter 10: Fuel and Power purchase cost Adjustment.
  11. Chapter 11: ARR of Transmission Function and Transmission charges.
  12. Chapter 12: ARR of Generation Function.
  13. Chapter 13: Directives.



11. The P&ED should ensure implementation of the 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.
12. This order shall be effective from 1<sup>st</sup> April, 2017 and shall remain in force till 31<sup>st</sup> March, 2018 or till the next Tariff Order is issued by the Commission, whichever is later.



(R. K. KISHORE SINGH)  
Chairperson

Place : Aizawl  
Date : 28.02.2017

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## 1. Introduction

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### 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 has constituted 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 tariffs for generation, supply, transmission and wheeling of electricity, wholesale or 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 by 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 Standards 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 shall also advise 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 the State Government.

**1.1.3 The State Commission shall ensure 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 Power & Electricity Department (PED) and Tariff Petition**

P&ED, being an integrated utility, is responsible for generation, Transmission and Distribution of electricity in the State of Mizoram and it also discharges trading functions through its SLDC. As per the Tariff regulations, the utility was required to submit the ARR and file the Petition in the month of November for fixing the Tariff for the next financial year.

The objectives of the P&ED are:

1. Focuses on demand and distribution net work growth.
2. Lays emphasis on metering to help reduce distribution losses (100% metering)
3. Focuses on metering to raise correct demand.
4. Focuses on collection of revenue to reduce commercial losses and improve cash flow.
5. Concentrated efforts into computerization of billing for efficient billing and in turn better and faster recovery.
6. Focuses on power theft and correct metering and energy audit to improve efficiency.

## 2. Summary of Revised ARR & Tariff Petition

### 2.1 Revised Aggregate Revenue Requirement (ARR)

The P&ED in its petition has projected the Revised Aggregate Revenue Requirement (ARR) and Tariff Proposal for FY 2017-18, and expected revenue with the existing tariff and resultant gap. The ARR and revenue gap are shown in Table 2.1 below.

**Table 2.1: Revised Aggregate Revenue Requirement for the FY 2017-18**

(Rs. Crores)

Sl. No.	Item of Expense	Approved by Commission in its Order dated 27.2.2015	Projected by P&ED
1	2	3	4
1	Cost of Fuel	0.07	0.07
2	Cost of Generation	9.06	9.06
3	Cost of Power Purchase	159.43	260.55
4	Transmission Charges	21.68	30.58
5	Intra State Transmission	20.93	20.93
6	Cost of DSM Program		1.52
7	Employee Costs	45.84	45.84
8	Repair & Maintenance Expenses	6.96	7.08
9	Administration and General Expenses	1.14	1.33
10	Depreciation	2.07	1.58
11	Interest charges	2.26	2.26
12	Interest on Working Capital	3.76	3.87
13	Provision for bad debts		
14	Return on NFA /Equity		
<b>15</b>	<b>Total Revenue Requirement</b>	<b>273.20</b>	<b>384.67</b>
16	Less: Non Tariff Income	2.73	2.73
<b>17</b>	<b>Less surplus in FY 2014-15 True up</b>	<b>3.10</b>	<b>3.10</b>
<b>18</b>	<b>Net Revenue Requirement</b>	<b>403.74</b>	<b>378.74</b>
19	Less: Revenue from Sale of Power at existing Tariff	218.21	218.21
<b>20</b>	<b>Net Gap</b>	<b>185.53</b>	<b>163.63</b>

Source: Table 2.22 of Petition.

### 2.2 Tariff

The P&ED in its petition has submitted the proposed tariff for the FY 2017-18 as per the table 2.2 below:

Table 2.2: Existing V/s. Proposed Tariff for FY 2017-18

Sl. No.	Category	Existing		Proposed	
		Energy Charges (Rs./Kwh)	Fixed Charges (Rs./con./contracted load/Billing demand)	Energy Charges (Rs./Kwh)	Fixed Charges (Rs./con./contracted load/Billing demand)
		A	B	C	D
1	Kutir Jyothi				
i)	First 15 Kwh	1.40	12/Conn.	1.50	15/Conn.
ii)	Next 15 Kwh	2.05	12/Conn.	2.15	15/Conn.
iii)	Balance above 30 Kwh	2.35	12/Conn.	2.55	15/Conn.
2	Domestic				
A	LT				
i)	First 50 Kwh	2.35	35/ Kw	2.45	45/ Kw
ii)	Next 50 Kwh	3.25	35/ Kw	3.40	45/ Kw
iii)	Next 100 Kwh	4.20	35/ Kw	4.40	45/ Kw
iv)	Balance above 200 Kwh	4.80	35/ Kw	5.00	45/ Kw
B	HT	4.70	35/ KVA	4.80	45/ KVA
3	Commercial				
A	LT				
i)	First 100 Kwh	3.60	65/Kw	3.80	75/ Kw
ii)	Next 100 Kwh	4.60	65/Kw	4.80	75/ Kw
iii)	Balance above 200 Kwh	5.50	65/Kw	5.80	75/ Kw
B	HT	5.30	65/KVA	5.50	75/ KVA
4	Public Lighting	5.00	65/Kw	5.20	70/ Kw
5	Irrig. & Agriculture				
A	LT	1.85	35/ Kw	2.00	45/ Kw
B	HT	1.80	35/ KVA	1.95	45/ KVA
6	Public Water Works				
A	LT	5.00	75/ Kw	5.10	85/ Kw
B	HT	4.80	75/ KVA	4.90	85/ KVA
7	Industrial				
A	LT				
i)	First 400 Kwh	3.75	65/ Kw	4.00	75/ Kw
ii)	Balance above 400 Kwh	4.45	65/ Kw	4.75	75/ Kw
B	HT	4.30	65/KVA	4.55	75/ KVA
8	Bulk Supply	4.15	70/ KVA	4.30	70/ KVA

(Source: Table 3.1 of Petition)

### **2.3 Prayer**

- Approve True-up Petition for FY 2015-16 and APR for the FY 2016-17 and ARR & Tariff for FY 2017-18 in respect of distribution function, transmission function and generation function for P&ED formulated in accordance with the guide lines out lined in the regulations of Joint Electricity Regulatory Commission (JERC) and the principles contained therein.
- Condone any inadvertent delay / omissions / errors / rounding off / differences / short comings and the P&ED may please be permitted to add / change / modify / alter the petition during its process.
- Permit P&ED to file additional data / information as may be necessary
- Pass such other orders as the Hon'ble Commission may deem fit and proper keeping in view the facts and circumstances of the case.

### 3. Power Sector in Mizoram- An over view

#### 3.1 Geographical Reality

The P&ED is responsible for supply and distribution of electricity in the State of Mizoram which has a total area of 21087 Sq KM with 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 311 kWh during FY 2015-16. P&ED served about 2,15,570 consumers of various categories at the end of March, 2016.

#### 3.2 Power supply

##### 3.2.1 Own Generation

P&ED has its own generating plants. The total installed capacity of the State-owned generating stations and the actual energy generated during 2015-16 as furnished by P&ED is as in Table 3.1 below:

**Table 3.1: Own Generating Stations as on 31.03.2016**

Sl. No.	Station	Installed Capacity (MW)	Net Generation (MU) 2015-16
<b>I</b>	<b>Hydel</b>	<b>29.35</b>	
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	
<b>II</b>	<b>Diesel</b>		
1	Lengpui	0.50	
<b>III</b>	<b>HFO</b>		
1	Bairabi	22.92	
	<b>Total (I+II+III)</b>	<b>52.77</b>	28.36

P&ED has stated that out of the installed capacity of 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, P&ED 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)
<b>A</b>	<b>Central Generating</b>			
<b>I</b>	<b>NTPC</b>			
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
<b>II</b>	<b>NHPC</b>			
1	Loktak HEP	105	5.02	5.27
	NHPC-Total	105		5.27
<b>III</b>	<b>NEEPCO</b>			
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
	NEEPCO-Total	1130		60.50
<b>IV</b>	<b>TSECL</b>			
1	B'mura - IV	21	.5	5.25
2	B'mura - V	21	25	5.25
	TSECL-Total	42		10.5
<b>V</b>	<b>OTPC</b>			
1	Palatana	726	3.03	22
	OTPC-Total	726		22
<b>VI</b>	<b>Total</b>	<b>5443</b>		<b>103.09</b>

(Source: Format – F1 of ARR Petition)

The energy drawn from various central generating stations and Tripura during 2015-16 is given in Table 3.3 below:

**Table: 3.3: Energy draws from Sources outside the State and Own Generation for FY 2015-16.**

SI No	Source	FY 2015-16
<b>A</b>	<b>Central Generating Stations</b>	
<b>I</b>	<b>NTPC</b>	
1	Farakka STPS	13.61
2	Kahalgaon STPS	8.57
3	Talcher STPS	9.44
	<b>NTPC-Total</b>	<b>31.62</b>
<b>II</b>	<b>NHPC</b>	
1	Loktak HEP	25.99
	<b>NHPC-Total</b>	<b>25.99</b>
<b>III</b>	<b>NEEPCO</b>	
1	Kopili HEP	30.97
2	Kopili - II HEP	5.65
3	Khandong HEP	6.64
4	Ranganadi HEP	75.15
5	Doyang HEP	8.04
6	AGBPP	83.38
7	AGTPP	45.28
	<b>NEEPCO-Total</b>	<b>255.11</b>
<b>IV</b>	<b>TSECL</b>	
1	B`mura -IV	37.62
2	B`mura -V	38.65
	<b>TSECL-Total</b>	<b>76.26</b>
<b>V</b>	<b>OTPC</b>	
1	Palatana	103.57
	<b>OTPC-Total</b>	<b>103.57</b>
<b>VI</b>	<b>Other Stations/IPPs</b>	
	<b>Others-total</b>	
	<b>State Generating Stations</b>	
1	All Units	28.36
	<b>State Generating Stations-Total</b>	<b>28.36</b>
<b>C</b>	<b>UI/ Deviation</b>	<b>73.01</b>
<b>D</b>	<b>Supplementary Bills</b>	
<b>E</b>	<b>Grand Total</b>	<b>595.53</b>

(Source: Format F1 of Petition)

### 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 P&ED.

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

The details of transmission and distribution network, owned & operated by P&ED as on 31/03/2016 are given in Table below:

**Table 3.4: Network Details as on 31.03.2016**

Sl. No	Voltage	Transmission & Distribution 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 Transformers		79	358.40
7	Distribution Transformers		1648	188.323

### 3.4 Distribution Losses

The distribution losses of P&ED system were 29.38% during the year 2015-16. 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 2015-16 are given in Table below:

**Table 3.5: Consumer Profile and Energy Sales for FY 2015-16**

Sl. No	Category	FY 2015-16		
		Energy Sales	No. of Consumers	Connected Load (MW)
		(MU)	(Nos.)	(MW)
1(a)	Kutir Jyothi - LT	4.17	12702	2781
1(b)	Domestic - LT	214.19	185782	271695
1(c)	Domestic - HT	3.91	36	
2(a)	Commercial - LT	29.49	14272	51454
2(b)	Commercial - HT	7.99	128	
3	Public Lighting - LT	6.50	1524	1609
4(a)	Irrigation & Agriculture –LT	0.012	20	104
4(b)	Irrigation & Agriculture –HT	0.042	1	
5(a)	Public Water Works - LT	0.23	10	37723
5(b)	Public Water Works - HT	48.96	47	
6(a)	Industrial - LT	1.96	875	4843
6(b)	Industrial - HT	7.21	21	9848
7	Bulk Supply - HT	14.13	152	14346
8	Temp connection & Theft			
9	UI Sales			
	<b>TOTAL</b>	<b>338.79</b>	<b>215570</b>	<b>394403</b>

(Source: Form No: R1 of petition)

### 3.6 Demand

As per annual report of NERLDC, Shillong for FY 2015-16 the peak power demand of P&ED during FY 2015-16 was 86 MW. The allocation of power (firm and infirm) from various central generating stations and NEC funded Baramura Gas Based Thermal Power Plant is 103.09 MW.

The energy procured by P&ED during the year 2015-16 was 595.53 MU including own generation of 28.36 MU.

### 3.7 Energy Audit

P&ED is not conducting Energy Audit. At present, the P&ED does the calculation of losses by taking the energy input at 132kV and energy sales at consumer end and the difference is shown as distribution loss, instead conducting energy audit. Voltage-wise and computed with standard norms. The distribution licensee shall take action to identify and analyze the losses to bring down them to the permissible limits. To achieve this all the line feeders, transformers and consumers should be provided with standard meters.

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## 4. Public Hearing Process

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### 4.1 Introduction:

On admitting the ARR and Tariff Petition for FY 2017-18, the Commission directed the P&ED to make available the 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/suggestions from them.

One written objection is received from Dr. Chawngsailova, General Secretary, Mizoram Consumers Union Hqrs., Mizoram.

### 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 9.2.2017 as scheduled in the Conference Hall of I&PR Deptt., Aizawl from 11:00 A.M. to 1:00 P.M. During the Public Hearing those who submitted objections in writing and the participants from general public were given an opportunity to offer their views in respect of the ARR and Tariff Petition for FY 2017-18 of P&ED.

The list of stakeholders who attended the Public Hearing is given in Annexure-II.

The Officers of P&ED who attended the Public Hearing have responded on the issues raised by the objectors.

### 4.3 Proceedings of Public Hearing:

#### 4.3.1 Objector-1: Vanlalruata, President, PRISM and R.C. Rohmingthanga, General Secretary, PRISM

**Objection:** As the employee cost of Rs. 4584.45 lakh is included in ARR, it is not acceptable for the public in our opinion. It is suggested not to include employee cost in determination of tariff.

**Reply of P&ED:** In pursuance of the Regulations, P&E Department follows standard commercial accounting for filing of petitions for determination of tariff every year, wherein employee cost is the integral part of the component along with cost of power purchase, transmission charges, R&M expenses, Admin & general expenses, interest charges on loans and working capitals, depreciation etc.

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In spite of being a Government department, there is no other competent authority to determine tariffs other than Joint Electricity Regulatory Commission for Manipur and Mizoram.

To elaborate the impact of employee costs in the size of Aggregate Revenue Requirement (ARR), approved ARR for the year 2016-17 may be revisited.

- i) Out of total ARR of Rs 255.51 crores, employee costs constitutes Rs 43.36 crores.
- ii) Meantime, after hike of tariff, the remaining gap of Rs 89.83 crores is expected to be subsidized from the state as Government subsidy. (Government subsidy is never received in the form of gap funding).
- iii) Without Government subsidy, the average cost per unit is Rs 6.44 whereas after government subsidy of Rs 89.83 crores as received, the average cost becomes Rs 4.14 per unit
- iv) If we exclude employee costs of Rs 43.36 crores and Government subsidy of Rs 89.83 crores from the ARR component, per unit cost the public has to pay is Rs 7.64. This clearly shows that removal of employee costs is very irrelevant and the amount of calculated gap is great determinant of tariff rates.

The state used to prepare Receipt Budget on yearly basis. Revenue from sale of energy forms major portion of non-tax revenue for the state. Hence, revenue target is fixed for all revenue collecting departments.

The revenue targets of P&E Department for 3 years are:

FY 2015-16 (RE) – Rs 162.00 crores

FY 2016-17 (BE) – Rs 172 crores

FY 2017-18 (BE) – Rs 180 crores

The department is striving to achieve the targeted revenue by pulling up all resources including operation efficiency, improving revenue collection, Reduction of technical and commercial losses etc.

**4.3.2 Objector-2:** Prof. Chawngsailova, General Secretary, Mizoram Consumers Union.**Objection:**

- i) In the Aggregate Revenue Requirement component the rate of increase for two items are too high.
- ii) The projected amount for cost of power is Rs. 26,055.31 lakhs whereas the amount as approved by the Commission for FY 2016-17 is Rs. 14586.00 lakhs. The duration is (26055.31 – 14586.00) 11469.31 lakhs or 78.6% 2016-17.
- iii) The projected amount for Transmission charge is Rs. 3058.44 lakhs as against Rs. 2046.00 lakhs in the FY 2016-17 the difference is (3058.44 – 2046.00) 1012.00 lakhs 49.5 & of FY 2016-17 project.
- iv) In the tariff schedule some items are charged higher than the notified proposed tariff for FY 2016-17, as shown below.
- v) From the above points it is clear that the proposed increase in the ARR components for two items are too high – say 78.6% and 49.5% respectively.

Sl. No.	Categories	Energy charge		Extra charge per unit
		Proposed per unit	Charged per unit	
1	Kurti Jyoti			
	i) Next 15 Kwh	2.00	2.05	.05
	ii) Balance above 30 Kwh	2.30	2.35	.05
2	Domestic L.T.			
	i) First 50 Kwh	2.30	2.35	.05
	ii) Next 100 Kwh	4.15	4.20	.05
3	Commercial L.T.			
	i) First 100 Kwh	3.50	3.60	.10
	ii) Next 100 Kwh	4.50	4.60	.10
	iii) Balance above 200 Kwh	5.45	5.50	.05
4	Irrigation & Agriculture LT	1.80	1.85	.05
5	Industrial HT. Bulk supply	4.10	4.15	.05

- vi) It is also found that the Commission determined the tariff in some categories of energy charge higher than the proposed for FY 2016-17 as

notified to the public or consumers. The MCU considers the matter very seriously and regards it as intentional cheating of the public and service deficiency.

- vii) As per Electricity Act, 2003, all the State Government have to corporatize the Power & Electricity Departments and almost all the States Governments in India (including N.E. States) have been corporatized and Tariff revision is part 7 parcel of the corporate policy and as per JERC regulations. But Mizoram State Government put the Power Electricity under Govt. Department is corporatize, revision of Power Tariff should not be made/justified. Yearly revision of Tariff is only applicable and a component of corporation in Power sector only. On this ground, MCU object the proposed upward revision of tariff for the interest of the public.

**Reply of P&ED:**

- i) In the ARR of 2017-18, the rate of increases of two components are clarified in the following para.
- ii) Rs 26055.31 lakhs is an estimated expenditure for power purchase cost of 2017-18, whereas Rs 14586.00 lakhs is the approved provisional cost for the year 2016-17 (JERC provisional approved cost for the year 2017-18 is Rs 15943.00 lakhs). However, petitions are being filed based on True-up of Rs 16697.19 lakhs for 2015-16 and review for 2016-17 is Rs 22745.20 lakhs. So, the actual percentage increase will be 14.5% only.
- iii) Rs 3058.44 lakhs is an estimated expenditure for transmission charges of 2017-18, whereas Rs 2045.94 lakhs is the approved provisional charges for the year 2016-17 (JERC provisional approved cost for the year 2017-18 is Rs 2168.29 lakhs). However, petitions are being filed based on True-up of Rs 3058.44 lakhs for 2015-16 and review for 2016-17 is Rs 3058.44 lakhs. So, the actual percentage increase will be nil.
- iv) The difference in the tariff rates approved from proposal in various categories is understood. However, determination and final decision is at the discretion of the Commission.



- v) As already clarified under reply to para 2&3.
- vi) Same as reply to para-4.
- vii) Corporatization of Power and Electricity Department, Government of Mizoram is the sole prerogative of State Government. Tariff petitions are filed to Joint Electricity Regulatory Commissions (JERC M&M) every year in compliance with Multi Year Tariff Regulation-2014.

**Commission's comments**

The objections raised by the stakeholders/public and reply of the P&ED are noted.

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## 5. True-up of ARR of 2015-16

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### 5.1 Back ground

The Commission had approved ARR for FY 2015-16 on 27.2.2015 based on the petition filed by P&ED. The Commission had carried out the review exercise for FY 2015-16 in Tariff Order for FY 2016-17 dated 29-02-2016 based on revised estimates of P&ED.

Now the P&ED has submitted true-up Petition along with ARR and Tariff Petition for FY 2017-18, along with annual accounts for FY 2015-16.

As per Regulation 5.2 (ii) of the MYT Regulations, 2014 the true up exercise for FY 2015-16 has been undertaken by the Commission on the basis of accounts for FY 2015-16. 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 Petition for FY 2015-16

The P&ED Mizoram in its petition for true-up for FY 2015-16 has furnished actual energy sales, expenditure based on the annual accounts for FY 2015-16. Accordingly the petitioner claimed revised ARR, Revenue and consequent gap for FY 2015-16. The Commission has analyzed all components of actual energy sales, expenses and gap under true-up for FY 2015-16 based on accounts as under:

### 5.3 Energy sales

The P&ED in its True Up Petition has furnished the actual energy sales at 339.20 MU as against 362.11 MU approved by the Commission for the FY 2015-16. The Category wise actual sales during the FY 2015-16 as reported by the P&ED and now approved by the Commission are given in table below:

**Table 5.1: Energy Sales approved by the Commission for FY 2015-16**

(MU)				
Sl. No	Category	Approved by Commission in Tariff Order dated 27.02.2015 (MU)	Actuals furnished by P&ED (MU)	Now approved by Commission
1	(a) Kutir Jyothi	4.01	4.17	4.17
	(b) Domestic	242.00	214.20	214.19
	Domestic HT	2.00	3.91	3.91
2	Commercial	28.00	29.49	29.49
	Commercial HT	1.00	7.99	7.99
3	Public lighting	8.00	6.50	6.50
	Irrigation & Agriculture LT	0.01	0.01	0.01
4	Irrigation & Agriculture HT	0.10	0.04	0.04
	Public Water Works LT	1.00	0.23	0.23
5	Public Water Works HT	46.00	48.96	48.96
	LT Industrial	3.00	1.97	1.97
6	(HT Industrial)	3.00	7.20	7.20
7	Bulk Supply	24.00	14.13	14.13
8	Temp. Supply	-	0.41	0.41
9	Total sales within States	362.11	339.20	339.20

**Commission's Analysis**

The Petitioner in additional information has furnished actual sales at 339.20 MU.

**The Commission approves energy sales within the State at 339.20 MU as per actuals for FY 2015-16.**

**5.4 Distribution Losses**

The Commission in its order dated 27.2.2015 had approved Distribution Loss at 20.40 % for FY 2015-16. The P&ED has furnished actual distribution losses at 29.43% for FY 2015-16

**Commission's analysis**

The P&ED Mizoram has not furnished detailed calculation as to how the Distribution losses are arrived at. Further the P&ED has included 1.62 MU purchased through power exchange in power purchase from NER generating stations. There by power purchase from NER generating stations is shown as 462.54 MU instead of 460.92 MU (462.54-1.62) and UI purchases are shown as 73.01 instead of 74.63 (73.01+1.62). As

such the losses are recalculated duly considering the energy availability, average inter-state pool loss at 3.22% in NER being the average actual weekly transmission losses from 30.03.2015 to 27.03.2016 and the ER transmission loss at 2.34% being the average weekly transmission loss in ER from 30.03.2015 to 27.03.2016. The intrastate transmission losses are considered at 3%. Considering the above the Distribution Losses in Mizoram are worked out as detailed in Table below:

**Table 5.2: T&D loss calculation of P&ED for FY 2015-16 approved by the Commission**

Sl. No.	Source	Unit	Energy
1	Own generation	MU	28.37
2	Energy from ER		31.62
3	ER Tr. Loss	%	2.34%
4	Less ER Tr. Loss	MU	0.74
5	Net Energy from ER(2-4)	MU	30.88
6	Energy from NER		460.92
7	Total energy in NER(5+6)		411.80
8	NER Tr. Loss	%	3.22%
9	Less NER Tr. Loss	MU	15.84
10	Net energy in NER (8-9)		475.96
11	UI purchases		74.63
12	UI sales		83.76
13	Net energy available at state periphery (1+10+11-12)	MU	495.20
14	Less instate transmission loss @ 3%		14.86
15	Net energy available for sale (13-15)	MU	480.34
16	Energy sales within the state	MU	339.20
17	Distribution loss	MU	141.14
18	Distribution loss	%	29.38%

**Commission accordingly approves actual Distribution Loss within the state at 29.38% for FY 2015-16, after true-up.**

## 5.5 Energy Requirement

The energy requirement approved by the Commission for FY 2015-16 in its order dated 27.02.2015, actuals furnished by P&ED in its true-up petition of FY 2015-16 and now approved by the Commission are detailed in table below:

**Table 5.3: Energy Requirement for FY 2015-16 approved by the Commission in true-up**

Sl. No.	Particulars	Unit	Approved In T.O dt.27.2.15	Actuals for FY 2014-15	Now approved by Commission
1	Energy Sales	MU	362.11	338.87	339.20
2	Distribution Loss	%	20.40%	29.43%	29.38%
3	Distribution Loss	MU	92.80	141.32	141.14
4	Energy Requirement at State periphery	MU	454.91	480.19	480.34

### 5.6 Own Generation

The Commission in its order dated 27.02.2015 for FY 2015-16 had approved net own generation at 66.52 MU.

P&ED has furnished net own generation at 28.36 MU for the FY 2015-16.

**The Commission now approved P&ED own generation of 28.36 MU for FY 2015-16 as per actuals.**

### 5.7 Purchase of Power.

The Commission in its order dated 27.02.2015 had approved power purchase of 443.01 MU for FY 2015-16. The P&ED in its true-up petition for 2015-16 has furnished actual power purchase at 567.17 MU including UI purchase of 74.63 Mu as detailed in table below:

**Table 5.4: Power Purchase during FY 2015-16 approved by the Commission in true-up.**

Sl. No	Source	Power Purchase Approved in Order dated 27.02.2015	Actuals furnished by P&ED	Now Approved by the Commission
A	Central Generating			
I	NTPC			
1	Farakka STPS	14.37	13.61	13.61
2	Kahalgaon STPS	6.53	8.57	8.57
3	Talcher STPS	9.11	9.44	9.44
	<b>NTPC-Total</b>	<b>30.01</b>	<b>31.62</b>	<b>31.62</b>
II	NHPC			

Sl. No	Source	Power Purchase Approved in Order dated 27.02.2015	Actuals furnished by P&ED	Now Approved by the Commission
4	Loktak HEP		25.99	25.99
	<b>Sub-Total</b>		25.99	25.99
III	NEEPCO			
5	Kopili HEP	28.00	30.97	30.97
6	Kopili - II HEP	5.00	5.65	5.65
7	Khandong HEP	4.00	6.64	6.64
8	Ranganadi HEP	55.00	75.15	75.15
9	Doyang HEP	10.00	8.04	8.04
	<b>Sub Total NEEPCO – Gas based</b>	<b>102.00</b>	<b>125.45</b>	<b>125.45</b>
10	AGBPP	90.00	83.38	83.38
11	AGTPP	35.00	45.28	45.28
	<b>Sub-Total</b>	<b>152.00</b>	<b>128.66</b>	<b>128.66</b>
IV	TSECL			
12	B'mura - IV	36.00	37.62	37.62
13	B'mura - V	38.00	38.65	38.65
	<b>Sub-Total</b>	<b>74.00</b>	<b>76.26</b>	<b>76.26</b>
V	OTPC			
14	Palatana	78.00	103.57	103.57
	<b>Sub-Total</b>	<b>78.00</b>	<b>103.57</b>	<b>103.57</b>
B	UI Purchase / RPO	14.00	74.63	74.63
<b>C</b>	<b>Grand Total</b>	<b>443.01</b>	<b>567.17</b>	<b>567.17</b>

The Commission approves power purchase of 567.17 MU including UI purchase of 74.63 MU during FY 2015-16 after true-up as per actuals.

## 5.8 Energy Balance

The details of energy requirement and availability of power approved by the Commission FY 2015-16 in its order dated 27.02.2015 and actuals furnished by the P&ED in its true-up petition for FY 2015-16 and now approved by the Commission are furnished in Table below:

**Table 5.5: Energy Balance for FY 2015-16 approved by the Commission**

Sl. No.	Particulars	Approved in the order dated 27.02.15	Actuals furnished by P&ED	Now approved by Commission
A	Energy Requirement			
1	Energy Sales	362.11	338.87	339.20
2	Distribution Loss %	20.40%	29.43%	29.38%

Sl. No.	Particulars	Approved in the order dated 27.02.15	Actuals furnished by P&ED	Now approved by Commission
3	Distribution Loss MU	92.80	141.32	141.14
4	Energy Requirement	92454.91	480.20	480.34
B	Energy Availability			
5	Own Generation	66.52	28.36	28.37
6	Energy from ER	30.01	31.62	31.62
7	Less ER Tr loss %	2.12%	2.20	2.34
8	-do (MU)	0.64	0.70	0.74
9	Net Energy for ER	29.37	30.92	30.88
10	Energy from NER	399.00	462.54	460.92
11	Total energy in NER(9+10)	428.37	493.46	491.80
12	Less NER Tr loss %	2.99%	3.25	3.22
13	-do- MU	12.81	16.04	15.84
14	Net energy(11-13)	415.56	477.42	475.96
15	UI Purchases	14.00	73.01	74.63
16	Total energy available(5+14+15)	496.08	578.80	578.96
17	Intrastate transmission loss 3%	14.88	14.85	17.37
18	Energy available for sale (16-17)	481.20	463.95	561.58
19	Surplus (18-4)	26.29		81.25
20	Surplus grossed-up by 3%	27.10	83.75	83.76

### 5.8.1 Fuel Cost.

The Commission in its T.O for FY 2015-16 had approved fuel cost at Rs. 0.07 Crore

Actual Fuel Cost furnished by P&ED is Rs. 0.02 Crore during the FY 2015-16. But fuel cost as per accounts is NIL.

**The Commission accordingly approves fuel cost at Rs. NIL for FY 2015-16.**

### 5.8.2 Power Purchase Cost.

The Commission in its order dated 27.2.2015 had approved Rs. 137.64 Crore towards power purchase cost during FY 2015-16 for purchase of 443.01 MU. The P&ED in its true-up petition for FY 2015-16 has furnished actual power purchase cost during FY 2015-16 at Rs. 166.97 Crore for purchase of 567.17 MU.

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**Commission's analysis**

**The Commission accordingly approves power purchase cost of Rs. 166.97 Crore for FY 2015-16 for purchase of 567.17 MU as per actuals based on accounts after true-up.**

**5.8.3 Inter State Transmission Charges**

The Commission in its order dated 27.02.2015 had approved Inter State Transmission Charges (PGCIL Charges) at 19.31 Cr for FY 2015-16. The P&ED in its True up Petition has furnished Rs. 30.58 Cr as per actual for FY 2015-16. But as per Annual Accounts the Transmission Charges are Rs. 30.60 Cr.

**The Commission approves Inter State Transmission Charges (PGCIL Charges) at Rs. 30.60 Cr for FY 2015-16 as per actuals after True up.**

**5.8.4 Intra State Transmission Charges**

The Commission in its order dated 27.02.2015 had approved Intra State Transmission Charges at Rs. 18.55 Cr for FY 2015-16. The P&ED in its True up Petition has furnished actual amount of Rs. NIL based on Annual Accounts.

**The Commission approves Intra State Transmission Charges at Rs. NIL for FY 2015-16 after True up.**

**5.8.5 O & M Expenses****a) Employee Cost**

The Commission in its order dated 27.02.2015 had approved Rs. 41.02 Crore for the year 2015-16 to meet the employee expenses of P&ED Mizoram.

P&ED has now reported the actual employee expenses at Rs. 87.35 Crore for FY 2015-16 as per audited accounts.

**The Commission accordingly approves employee expenses at Rs. 87.35 Crore for the FY 2015-16 as per actuals after True up.**



**b) Repairs & Maintenance**

The Commission in its order dated 27.02.2015 had approved R&M expenses at Rs. 6.22 Crore for FY 2015-16. P&ED has now furnished the actual R&M expenses at Rs. 9.97 Crore for the FY 2015-16 as per accounts.

**The Commission accordingly approves the R&M expenses at Rs. 9.97 Crore for the FY 2015-16 as per actuals after True up.**

**c) Administrative & General Expenses**

The Commission in its order dated 27.02.2015 had approved Rs. 1.02 Crore for the FY 2015-16. P&ED has now reported the actual Administrative and General expenses at Rs. 2.44 Crore in its true-up petition for FY 2015-16 based on accounts.

**The Commission approves Administrative and General Expenses at Rs. 2.44 Crore for the FY 2015-16 as per actuals after True up.**

**d) O&M Expenses**

Abstract O&M Expenses are furnished in Table below:

**Table 5.6: O&M Expenses approved by the Commission for FY 2015-16**

<b>S. No.</b>	<b>Particulars</b>	<b>Amount</b>
1	Employee Cost	87.35
2	R&M Expenses	9.97
3	Admn. and General Expenses	2.44
<b>4</b>	<b>Total O&amp;M Expenses</b>	<b>99.76</b>

**5.8.6 Depreciation.**

The Commission had approved depreciation at Rs. 0.96 Crore for FY 2015-16 in its order dated 27.02.2015.

The P&ED in its true-up petition for FY 2015-16 has furnished depreciation for FY 2015-16 at Rs. 6.00 Crore being 10% of depreciation worked out as per accounts.

### Commissions Analysis

As per audited accounts for FY 2015-16 the average rate of depreciation worked out to 5.27% and with this rate the depreciation for 10% of average GFA worked out to Rs. 6.00 Crore.

**The Commission accordingly now approves depreciation of Rs. 6.00 Crore for the FY 2015-16, being the 10% of depreciation as per actuals.**

#### 5.8.7 Interest & Finance Charges

The Commission had approved Rs. 3.16 Crore for the FY 2015-16 in its order dated 27.2.2015.

P&ED in its true-up petition for FY 2015-16 has now furnished the Interest & Finance charges at Rs. 3.16 Crore for FY 2015-16 as per actuals.

**The Commission approves Interest & Finance charges at Rs. 3.16 Crore for the FY 2015-16 as per actuals after true-up.**

#### 5.8.8 Interest on Working Capital

Interest on working capital worked out as per Regulation 29(4) of JERC, M&M (Terms and Conditions for determination of Tariff) Regulations 2014, on approved costs as detailed in Table below:

**Table 5.7: Interest on working capital approved by the Commission for FY 2015-16 for true-up**

(Rs. Crore)			
Sl. No	Particulars	Total Cost	One Month
1	O&M Expenses	99.76	8.31
2	Maintenance of spares at 1% of Historical cost of GFA	1117.17	11.17
3	Received one month	160.81	13.40
4	Total		32.88
5	Rate of Interest (SABR As on 01.04.2015)		14.75%
6	Interest on Working Capital		4.85

**The Commission approves Interest on Working Capital at Rs. 4.85 Crore for FY 2015-16 after true-up.**

### 5.8.9 Provision for Bad Debts

The Commission had not considered any Provision for Bad Debts for the FY 2015-16, since P&ED has not submitted the amount written off during FY 2015-16.

### 5.8.10 Return on Equity

Commission had not considered any Return on Equity Capital for the FY 2015-16 as the P&ED is a Government Department.

### 5.8.11 Non-Tariff Income

The Commission had approved Rs. 2.44 Crore as Non-tariff Income for the FY 2015-16. P&ED has reported the Non-tariff Income at Rs. 14.57 Crore for the FY 2015-16 as per accounts.

**The Commission accordingly approves Rs. 14.57 Crore towards Non-tariff Income for the FY 2014-15, as per actuals.**

## 5.9 Revenue from approved tariffs

The P&ED has reported the energy sales at 368.55 MU, including UI Sales of 83.76 MU and Revenue from sale of power as per annual accounts is Rs. 179.22 Crore including of UI sales amount of Rs. 18.41 Crore as detailed in Table below:

**Table 5.8: Revenue from energy Sales FY 2015-16**

Sl. No	Category	Sales (MU)	Amount (Rs. Crore)	Average Revenue (Rs/kWh)
1	a. Kutir Jyoti	4.17	1.03	2.47
	b. Domestic (LT)	214.19	77.03	3.60
	c. Domestic (HT)	3.91	1.96	5.01
2	a. Commercial (LT)	29.49	17.63	5.98
	b. Commercial (HT)	7.99	7.23	9.05
3	Public Lighting	6.50	3.64	5.60
4	a. Irrigation & Agriculture (LT)	0.01	-	-
	b. Irrigation & Agriculture (HT)	0.04	0.01	2.50
5	a. Public Water Works (LT)	0.23	0.16	6.96
	b. Public Water Works (HT)	48.96	35.87	7.33
6	a. Industrial (LT)	1.97	1.20	6.12
	b. Industrial (HT)	7.20	4.53	6.29
7	Bulk Supply	14.13	10.37	7.51
8	Temporary supply	0.41	0.15	3.66
9	Total Sales within State	339.20	160.81	4.74
10	Outside Sales UI	83.76	18.41	2.20
11	<b>Total</b>	<b>422.96</b>	<b>179.22</b>	<b>4.24</b>

The Commission accordingly approves the revenue from sale of energy at 179.22 Crore during FY 2015-16 as per actuals after true-up.

#### 5.10 Summary of ARR after review with actuals and approvals.

Table 5.9: Aggregate Revenue Requirement for FY 2015-16 for true-up

(Rs. Crore)				
Sl. No.	ARR Elements	Approved in Order dated 27.02.2015	Actuals Now furnished by P&ED	Now approved by the Commission
1	Fuel Cost	0.07	0.02	-
2	Cost of Generation	8.45	-	-
3	Power Purchase Cost	137.64	160.97	166.97
4	Inter State Transmission	19.31	30.58	30.60
5	Intra State Transmission	18.55	-	-
6	O&M Expenses	48.26	99.76	99.76
7	Depreciation	0.96	6.00	6.00
8	Int. & Fin charges	3.16	3.16	3.16
9	Int. on Working Capital	3.20	4.04	4.85
10	Prov. for Bad Debts	-	-	-
11	Return on Equity	-	-	-
12	<b>Total ARR</b>	239.60	310.54	311.34
13	Less: Non-Tariff Income	2.44	14.57	14.57
14	<b>Net ARR</b>	237.16	295.97	296.77
15	Surplus from True up of 2012-13	37.67	37.67	37.67
16	Net ARR	199.49	258.30	259.10
17	Less: Revenue from sale of power	144.28	160.81	160.81
18	Less Revenue from sale of surplus power	8.28	18.41	18.41
19	Revenue Gap	46.57	79.08	79.88
20	Government Subsidy	-	141.88	141.88
21	Surplus	-	-	62.00
22	Energy sale	382.11	339.20	339.20
23	Average Cost of supply (Rs./kWh)	5.00	7.07	7.10
24	Average Realisation (Rs./kWh)	3.93	7.74	4.74

#### 5.11 Revenue gap/surplus after true up

As seen above there is a revenue surplus of Rs. 62.00 Crore during FY 2015-16 after taking into consideration the Government Subsidy of Rs. 141.88 Crore.

As per regulation 13.1(i) of the JERC for M&M (MYT) Regulations, 2014, one third of gain shall be passed on as a rebate in the tariffs.

Accordingly Rs. 20.67 Crore being the one third of the surplus amount of Rs. 62.00

Crore resulted in True Up of FY 2015-16, is being passed on as rebate in the present ARR for FY 2017-18.

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## 6 Annual Performance Review for 2016-17

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### 6.1 Back ground

The Commission had approved the ARR for FY 2016-17 vide Tariff Order dt 29.02.2016 based on the projected data by the P&ED. Now the P&ED in its petition for FY 2017-18 has submitted data as per Revised Estimate for FY2016-17. There are differences in certain items of costs as well as revenue between the approvals granted by the Commission and estimates now furnished by P&ED.

The Commission considers it appropriate and fair to revisit and review the approvals granted by it in the tariff order of FY 2016-17 with reference to estimates now made available by the P&ED but without altering the Principles and norms adopted earlier. These matters are discussed in the succeeding paragraphs.

### 6.2 Energy sales

The P&ED has reported the estimated energy sales at 353.02 MU as against 382.11 MU approved by the Commission for the FY 2016-17 in Tariff Order dated 29.02.2016.

#### **Commission's Analysis**

Energy sales estimated by P&ED for Kutir Jyothi are in line with already approved sales by the Commission. Hence the same are retained at 4 MU. For domestic (LT), the sales are reduced probably due to fixing of LED lights. As such the estimated sales are adopted at 222 MU.

In respect of domestic HT and commercial LT already approved sales of 4 MU and 31 MU respectively are retained.

Regarding Commercial HT energy sales recorded at higher level. As such the estimated sales of 9 MU are adopted. In respect of Public lighting, Irrigation (LT), Irrigation (HT), PWS(LT), PWS(HT) and Industrial (LT) the Commission retained already approved sales as no substantial growth is noticed.

However Industrial (HT) substantial growth is observed. As such P&ED estimated sales of 8 MU are considered.

In respect of Bulk Supply the energy consumption is declined probably due to usage of LED bulbs. Hence P&ED estimated sales of 16 MU is approved. Thus the total sales approved by the Commission are 357.11 MU as against 353.02 MU estimated by P&ED.

The Category wise estimated sales during the FY 2016-17 and now approved by the Commission are given in table below:

**Table 6.1: Energy Sales as approved by the Commission for FY 2016-17 after review**

Sl. No.	Category	Approved by the Commission in T.O dt.27.2.15 (MU)	Estimated by P&ED (MU)	Now approved by the Commission
1	(a) Kutir Jyothi	4.00	4.44	4.00
	(b) Domestic	250.00	221.55	222.00
	Domestic HT	4.00	4.26	4.00
2	Commercial	31.00	31.91	31.00
	Commercial HT	2.00	9.43	9.00
3	Public lighting	9.00	9.13	9.00
	Irrigation & Agriculture LT	0.01	0.01	0.01
4	Irrigation & Agriculture HT	0.10	0.04	0.10
	Public Water Works LT	1.00	0.23	1.00
5	Public Water Works HT	50.00	53.83	50.00
	LT Industrial	3.00	2.02	3.00
6	(HT Industrial)	3.00	7.66	8.00
7	Bulk Supply	25.00	15.71	16.00
	<b>Total</b>	<b>382.11</b>	<b>353.02</b>	<b>357.11</b>

**The Commission approves energy sales at 357.11 MU for FY2016-17 after review.**

### 6.3 Distribution Losses

The Commission in its order dated 29.2.2016 had approved distribution loss at 19.40% for FY 2016-17. The P&ED has estimated distribution loss at the same level of 19.40% as approved in tariff order dated 29.2.2016.

**Commission accordingly approves distribution loss at 19.40% for FY 2016-17 as estimated by the P&ED.**

### 6.4 Energy Requirement

The energy requirement approved by the Commission for FY 2016-17 in its Tariff Order dated 29.2.2016, Revised Estimate furnished by P&ED in its review petition for

FY 2016-17 and now approved by the Commission are detailed in table below:

**Table 6.2: Energy Requirement as approved by the Commission for FY 2016-17 after review**

Sl. No	Particulars	Units	Approved by the Commission	Estimated by P&ED	Now approved by Commission
1	Energy Sales	MU	382.11	353.02	357.11
2	Distribution Loss	MU	91.97	84.98	85.95
3	Distribution Loss	%	19.40%	19.40%	19.40%
4	Energy Requirement at State periphery	MU	474.08	439.00	443.06

### 6.5 Own Generation

The Commission in its order dated 29.2.2016 had approved own generation at 66.52 MU for FY 2016-17. Now the P&ED has estimated own generation at the same level of 66.52 MU for FY 2016-17.

**The Commission accordingly approves own generation at 66.52 MU for FY 2016-17 as estimated by P&ED.**

### 6.6 Purchase of Power

Power purchase approved by the Commission in Tariff Order for FY 2016-17, estimated by the P&ED for FY 2016-17 in its review petition for 2016-17 and now approved by the Commission are furnished in table below:

**Table 6.3: Power Purchase approved by the Commission for FY 2016-17 after review**

Sl. No.	Stations	Approved in the Tariff Order dt.29.2.2016	Estimated by the P&ED	Now approved by Commission
	<b>Bongaigaon</b>	-	<b>76.39</b>	<b>76.39</b>
<b>A</b>	<b>NTPC</b>			
1	Farakka	14.37	13.10	13.10
2	Kahalgam	6.53	7.62	7.62
3	Talcher	9.11	9.46	9.46
	<b>Sub Total</b>	<b>30.01</b>	106.58	106.57
<b>B</b>	<b>NEEPCO –Hydro</b>			
4	Koppili I	<b>28</b>	40.73	40.73
5	Koppili II	5	6.28	6.28
6	Khandong	4	6.34	6.34
7	Rangamati	55	71.06	71.06



Sl. No.	Stations	Approved in the Tariff Order dt.29.2.2016	Estimated by the P&ED	Now approved by Commission
8	Doyang	10	11.31	11.31
9	<b>Sub Total</b>	<b>102</b>	135.72	135.72
<b>C</b>	<b>NEEPCO – Gas based</b>			
10	AGBPP	90	79.87	79.87
11	AGTPP	35	47.65	47.65
	<b>Sub Total</b>	<b>125</b>	127.52	127.52
	<b>NHPC</b>			
12	NHPC loktak	20	33.13	33.13
<b>D</b>	<b>Others</b>			
13	<b>OTPC- Pallatana</b>	78	114.94	114.94
14	Baramura – IV	36	37.62	37.62
15	Baramura – V	38	41.72	41.72
	<b>Sub total</b>	<b>152</b>	79.34	79.34
16	<b>UI purchase / RPO</b>	<b>14</b>	<b>66.47</b>	-
17	<b>Grand Total</b>	<b>443.01</b>	<b>663.71</b>	<b>597.22</b>

### Commission's Analysis

Since surplus power is available UI power purchase is not considered. However in case of exigencies the P&ED may resort to UI purchases which will be considered while Truing up.

**The Commission approves power purchase of 597.22 MU during FY 2016-17 as against 663.71 MU estimated by P&ED, excluding U.I. purchases after review**

### 6.7 Energy Balance

The details of energy requirement, availability of power approved by the Commission for FY 2016-17 in its tariff order dated 29.2.2016, estimated by the P&ED in its review petition for FY 2016-17 and now approved by the Commission are furnished in Table below:

**Table 6.4: Energy Balance of Approved by the Commission for FY 2016-17 after review (MU)**

Sl. No.	Particulars	Approved by the Commission in to dated 29.2.2016	Estimates by P&ED	Now approved by Commission
A	Energy Requirement			
1	Energy Sales	382.11	353.02	357.11
2	Distribution loss (%)	19.40%	19.40%	19.40%
3	Distribution loss (MU)	91.47	84.98	85.95

Sl. No.	Particulars	Approved by the Commission in to dated 29.2.2016	Estimates by P&ED	Now approved by Commission
4	Energy Requirement	474.08	438.00	443.06
B	Energy Availability			
5	Own Generation	66.52	66.52	66.52
6	Energy from ER	30.01	106.58	106.57
7	Less ER Tr. Loss %	2.20%	2.20%	2.10%
8	-do- MU	0.96	2.34	2.24
9	Net energy for ER	29.05	104.24	104.33
10	Energy from NER	399.00	490.65	490.65
11	Sub Total(9+10)	428.05	594.49	594.99
12	Less NER Tr Loss (%)	3.25%	3.25%	2.65%
13	Less NER Tr Loss (MU)	13.91	19.33	15.77
14	Net Energy at NERLDC	414.14	575.55	579.22
15	UI purchases / RPO	14.00	66.47	-
16	Total energy available(5+14+15)	494.66	708.54	645.74
17	Intra State Tr. Loss (%)	3.00%	3.00%	3.00%
18	Intra State Tr. Loss (MU)	14.84	21.26	19.37
19	Energy available for sale (16-18)	480.13	687.28	626.37
20	Surplus	5.74	249.28	183.31
21	Surplus grossed up by 3%	5.91	257.00	188.81

The Commission has considered the latest inter-state transmission losses in ER and NER as follows. As per weekly transmission losses from 04.04.2016 to 09.12.2016, the average weekly transmission loss in ER is 2.10% while in NER the average weekly transmission loss is 2.65% as per weekly losses from 04.04.2016 to 09.12.2016. Accordingly the energy balance has been modified as detailed in table above, which resulted in surplus power of 188.81 MU to be sold under U.I.

## 6.8 Fuel Cost

The Commission in its order dated 29.02.2016 had approved Fuel Cost at Rs. 0.07 Crore for FY 2016-17 for DG set generation at Lengpui. The P&ED has now estimated the same fuel cost of Rs. 0.07 Crore.

### Commission's Analysis

**As verified from Annual Accounts for FY 2015-16, the fuel cost is Nil. As such, a token amount of Rs. 0.01 Crore is considered for FY 2016-17.**

**The Commission accordingly approves Fuel Cost at Rs. 0.01 Crore for FY 2016-17.**

### 6.9 Generation Cost

The Commission in its order dated 29.02.2016 had approved generation cost at Rs. 8.75 Crore for FY 2016-17.

The P&ED in its review petition has stated that generation costs are not proposed to be revised at this stage.. As such already approved cost of Rs. 8.75 Crore is adopted.

**The Commission accordingly approves generation cost at Rs. 8.75 Crore for FY 2016-17.**

### 6.10 Power Purchase Cost

The Hon'ble Commission in the tariff order for the FY 2016-17 had approved a power purchase quantum of 443.01 MUs at a total cost of ` 14,586.00 Lakhs. As submitted above the estimate of power purchase quantum for the FY 2016-17 is proposed to be revised to 663.70 MUs. Accordingly, the power purchase cost is also proposed to be revised. Power purchase cost for the FY 2016-17 has been arrived at in following manner-

- i. Actual power purchase cost for the H1 of the FY 2016-17 has been considered.
- ii. For estimating the power purchase cost of H2, the estimated quantum of power purchase units for H2 has been taken and source wise average cost of September, 2016 has been applied.
- iii. Additional supplementary bill 1,000.00 Lakhs has been considered based on the actual bills for the H1 of the year.

The cost towards RPO has been arrived at in accordance with the RPO targets prescribed in the RPO regulations. The target for solar & non-solar for the FY 2016-17 is 10% (9.70% for non-solar & 0.30% for solar). P&ED shall meet the requirement of non-solar RPO from its own hydro generation which is estimated at 66.52 MUs for the FY 2016-17. The RPO for solar has been calculated based on the actual consumption (excluding outside the state sale but including T&D loss). Further,

procurement of power from hydro sources has been reduced to arrive at the base figure for calculation of RPO. The prescribed target of 0.30 % has been applied on the base figure of 282.69 MUs. Accordingly, 848.07 MWh (0.85 MUs) is computed as the solar RPO for the FY 2016-17. The rate as prescribed by CERC has been considered to arrive at the cost of RPO of Rs. 113.64 Lakhs.

The comparison of the approved power purchase cost and the revised estimate as arrived above is given in the table below.

**Table 6.5: Power Purchase Cost estimated by P & ED FY 2016-17**

(Rs. Lakhs)

Sl. No.	Particulars	Approved by Commission	As per Revised Estimate	Deviation
1	Power Purchase	14586.00	22745.20	8159.20
	<b>Total</b>	<b>14586.00</b>	<b>22745.20</b>	<b>8159.20</b>

#### Commissions Analysis

As seen from the station-wise power purchase cost estimated by the P&ED, the average hike in the cost is about 5.97% which is on high side. The Commission considers it reasonable to allow an average hike in variable costs at 5%. The P&ED has projected arrear bill of Rs. 10.00 Cr during FY 2016-17 but no payment is reported in the first half of FY 2016-17. As such the arrear amount is not considered. If any arrear payment is made the same will be considered at the time of True up based on actuals. Accordingly the power purchase bill is recalculated as detailed in Table below, which works out to Rs. 205.38 Cr for purchase of 597.22 MU during FY 2016-17 as detailed in table below.

Table 6.6: Power Purchase cost approved by the Commission for FY 2016-17

Sl. No	Source	Energy Purchased (MU)	Fixed Charges (Rs. Crore)	Variable Costs (Rs./kWh)	Variable Charges (Rs. Crore)	Total Amount (Rs. Crore)	Average Rate (Rs/kWh)
1	2	3	4	5	$6=(3*5/10)$	$7=4+6$	$8=(7/3)*10$
<b>A</b>	<b>Central Generating Stations</b>						
<b>I</b>	<b>NTPC</b>						
1	Bongaigaon	76.39	19.81	3.49	25.36	45.17	5.91
2	Farakka STPS	13.10	1.21	3.05	3.80	5.01	3.82
3	Kahalgaon	7.62	0.74	2.73	1.98	2.72	3.57
4	Talcher STPS	9.46	0.83	1.48	1.34	2.17	2.30
	<b>NTPC-Total</b>	<b>106.57</b>	<b>22.59</b>		<b>32.49</b>	<b>55.08</b>	<b>5.17</b>
<b>II</b>	<b>NHPC</b>						
1	Loktak HEP	33.13	3.76	1.64	5.17	8.93	2.69
	<b>NHPC-Total</b>	<b>33.13</b>	<b>3.76</b>		<b>5.17</b>	<b>8.93</b>	<b>2.69</b>
<b>III</b>	<b>NEEPCO</b>						
1	Kopili HEP	40.73	1.54	0.44	1.71	3.25	0.80
2	Kopili - II HEP	6.28	0.56	1.04	0.62	1.18	1.88
3	Khandong HEP	6.34	0.82	0.75	0.45	1.27	2.00
4	Ranganadi HEP	71.06	11.35	1.32	8.95	20.30	2.86
5	Doyang HEP	11.31	2.14	2.30	2.48	4.62	4.08
6	AGBPP	79.87	14.05	2.86	21.72	35.77	4.48
7	AGTPP	47.65	5.49	2.69	12.20	17.69	3.71
	<b>NEEPCO-Total</b>	<b>263.24</b>	<b>35.95</b>		<b>48.14</b>	<b>84.09</b>	<b>3.19</b>
<b>IV</b>	<b>TSECL</b>						
1	B'mura - IV	37.62	0.00	3.32	11.89	11.89	3.16
2	B'mura - V	41.72	0.00	3.16	13.18	13.18	3.16
	<b>TSECL-Total</b>	<b>79.34</b>	<b>0.00</b>		<b>25.07</b>	<b>25.07</b>	<b>3.16</b>
<b>V</b>	<b>OTPC</b>						
1	Palatana	114.94	15.79	1.40	15.29	31.08	2.70
	<b>OTPC-Total</b>	<b>114.94</b>	<b>15.79</b>		<b>15.29</b>	<b>31.08</b>	<b>2.70</b>
<b>B</b>	<b>RPO Obligation / REC Certificate</b>		<b>1.14</b>			<b>1.14</b>	
<b>C</b>	<b>GRAND TOTAL</b>	<b>597.22</b>	<b>79.23</b>		<b>126.15</b>	<b>205.38</b>	<b>3.44</b>

The Commission accordingly approves power purchase cost of Rs. 205.38 Crore for FY 2016-17 for purchase of 597.22 MU after review.

**6.11 Inter-state Transmission Charges**

The Commission in its order dated 29.02.2016 had approved inter-state transmission charges (PGCIL Charges) at Rs. 20.46 Crore for FY 2016-17. The P&ED in its review petition has estimated an amount of Rs. 30.58 Crore for FY 2016-17.

**The Commission approves inter-state transmission charges (PGCIL charges) at Rs. 30.58 Crore for FY 2016-17 after review.**

**6.12 Intra-state Transmission Charges**

The Commission in its order dated 29.02.2016 had approved intra-state transmission charges at Rs. 19.73 Crore for FY 2016-17. The P&ED in its review petition has estimated the same amount of Rs. 19.73 Crore towards intra-state transmission charges for FY 2016-17.

**The Commission accordingly approves intra-state transmission charges at Rs. 19.73 Crore for FY 2016-17.**

**Cost of DSM Program**

The P&ED in its letter No T-20067/01/16 – EC (P)/P/8 dated 4.11.2016 informed that the DSM proposal at is not vetted by Government of Mizoram in the mean time the P&ED has signed an now to take up another programme such as Unnat Jyoti by affordable LEDS (UJALA) Tube Light programme and Distribution of 50w energy efficient tan. Government Mizoram decided to consider the draft energy saving Agreement after resultants effect of the UJALA schemer are studied.

**As such the proposed expenditure of Rs. 1.54 Cr is not considered by the commission.**

**6.13 O & M Expenses****6.13.1 Employee Cost:**

The Commission in its order dated 29.02.2016 had approved Rs. 43.36 Crore for the year 2016-17 towards employee expenses of P&ED Mizoram.

P&ED has now estimated the same amount of Rs. 43.36 Crore towards employee expenses for FY 2016-17 in its review petition for FY 2016-17.

**The Commission accordingly approves employee expenses at Rs. 43.36 Crore for the FY 2016-17 as estimated by P&ED.**

#### **6.13.2 Repairs & Maintenance**

The Commission had approved R&M expenses at Rs. 6.58 Crore in its tariff order dt 27.2.2015 for FY 2016-17. P&ED has now estimated R&M expenses at Rs. 6.58 Crore for the FY 2016-17 in its review petition for FY 2016-17.

**The Commission accordingly approves the R&M expenses at Rs.6.58 Crore for the FY 2016-17 as estimated by P&ED.**

#### **6.13.3 Administrative & General Expenses**

The Commission had approved Rs. 1.07 Crore for the FY 2016-17 in its Tariff Order dt 29.2.2016. P&ED has now estimated Administrative and General Expenses at Rs. 1.07 Crore in its review petition for FY 2016-17.

**The Commission accordingly approves Administrative and General Expenses at Rs. 1.07 Crore for the FY 2016-17 as estimated by P&ED.**

#### **6.13.4 O&M Expenses**

Abstract of O&M Expenses are furnished in Table below:

**Table 6.7: O&M Expenses approved by the Commission for FY 2016-17 after Review**

<b>S. No.</b>	<b>Details</b>	<b>Amount</b>
1	Employee Cost	43.36
2	R&M Expenses	6.58
3	Admn. and General expenses	1.07
<b>4</b>	<b>Total</b>	<b>51.01</b>

#### **6.14 Depreciation**

The Commission had approved depreciation at Rs. 1.94 Crore for the FY 2016-17.

The P&ED in its review Petition for FY 2016-17 has estimated total depreciation at Rs.1.61 Crore for FY 2016-17.

**The Commission approves depreciation at Rs. 1.61 Crore for FY 2016-17 as estimated by P&ED.**

**6.15 Interest & Finance Charges**

The Commission had approved Rs. 2.68 Crore for the FY 2016-17 in its Tariff Order dated 29.02.2016.

P&ED in its review petition for FY 2016-17 has estimated Interest & Finance charges at Rs. 2.68 Crore for FY 2016-17.

**The Commission accordingly approves Interest & Finance charges at Rs. 2.68 Crore for the FY 2016-17 as estimated by P&ED.**

**6.16 Interest on Working Capital****Petitioner's Submission**

The P&ED has projected interest on working capital at Rs. 3.73 Cr for FY 2016-17 as against Rs. 3.47 Cr approved by the Commission in its Order dated 29.02.2016.

**Commission's Analysis**

The Commission in its Order dated 29.02.2016 had approved interest on working capital at Rs. 3.47 Cr at then SABR of 14.75% as on 01.04.2014. Now the State Bank has reduced the interest rates and the SABR as on 01.04.2016 is 14.05%. Accordingly the interest on working capital has been revised based on approved costs as detailed in Table below:

**Table 6.8: Interest on working capital approved by the Commission for FY 2016-17**

S. No.	Particulars	Total Cost	One month Cost
1	O&M Expenses	51.01	4.25
2	Maintenance of Spares	491.62	4.92
3	Receivables	159.60	13.30
4	Total	645.78	17.55
5	Interest at SABR of 14.05%		2.47

**The Commission approves Interest on Working Capital for FY 2016-17 at Rs. 2.47 Cr. after review.**

**6.17 Provision for Bad Debts**

The Commission had not considered any Provision for Bad Debts for the FY 2016-17, since P&ED has not submitted the amount written off during FY 2016-17.



**6.18 Return on Equity**

The Commission had not considered any Return on Equity Capital for the FY 2016-17 as the P&ED is a Government Department.

**6.19 Non-tariff Income**

The Commission had approved Rs. 2.58 Crore as Non-tariff Income for the FY 2016-17. P&ED in his review petition for FY 2016-17 has estimated the Non-tariff Income at Rs. 2.58 Crore for the FY 2016-17.

**The Commission accordingly approves Rs. 2.58 Crore towards Non-tariff Income for the FY 2016-17.**

**6.20 Revenue from approved tariffs**

The Commission in its order dated 27.2.2016 had approved revenue from approved tariff at Rs. Crore including revenue from sale of surplus power of 5.91% MU. The P&ED in its review petition estimated a revenue of Rs. 212.02 Crore for FY 2016-17 including sale of surplus power of 257 MU, as detailed in table below:

**Table 6.9: Revenue from sale of power at approved tariff projected by P&ED by FY 2016-17**

**(Rs. Lakh)**

Sl. No.	Category	As Approved by Commission	As per Revised Estimate	Deviation
	<b>LT Consumers</b>			
1	Domestic	9071.00	8721.84	-349.16
2	Commercial	1858.00	2458.20	600.20
3	Public Lighting	463.00	109.08	-353.92
4	Agriculture	2.40	1.44	-0.96
5	Public Water Works	2798.00	2947.20	149.20
6	LT Industrial	155.00	119.52	-35.48
	<b>Total LT</b>	<b>14347.40</b>	<b>14357.28</b>	<b>9.88</b>
	<b>HT Consumers</b>			
7	HT Industrial	187.00	414.12	227.12
8	Bulk Supply	1278.00	780.72	-497.28
	<b>Total HT</b>	<b>1465.00</b>	<b>1194.84</b>	<b>-270.16</b>
	Outside State	188.00	5650.50	5462.50
	<b>Total</b>	<b>16000.40</b>	<b>21202.62</b>	<b>5202.22</b>

Source Table 1.24 of Petition

### Commission Analysis

Owing to change in inter-state transmission losses the surplus power has been revised 188.81 MU. Thus the revenue from approved Tariffs worked out to Rs. 187.04 as detailed in table below:

**Table 6.10 Revenue from approved Tariff approved by the Commission for FY 2016-17 after review**

Sl No	Category	Approved Sales (MU)	Average Revenue (Rs/kWh)	Total Cost (Rs Crore)
<b>A</b>	<b>LT Supply</b>			
1	Kutir Jyoti	4	2.23	0.89
2	Domestic	222	3.77	83.69
3	Commercial	31	5.65	17.52
4	Public Lighting	9	5.41	4.87
5	Public water works	1	5.79	0.58
6	Agriculture	0.01	2.14	0.002
7	Industrial	3	6.00	1.80
	<b>Total</b>	<b>270.01</b>	<b>3.82</b>	<b>109.35</b>
<b>B</b>	<b>HT Supply</b>			
8	Domestic	4	5.54	2.22
9	Commercial	9	6.33	5.70
10	Public water works	50	5.67	28.35
11	Agriculture	10	1.98	1.98
12	Industrial	8	5.03	4.02
13	Bulk supply	16	4.99	7.98
	<b>Total HT</b>	<b>87.10</b>		<b>50.25</b>
	<b>Total LT + HT</b>	<b>357.11</b>		<b>159.60</b>
14	Sale of Surplus power	188.81	2.20	41.54
<b>15</b>	<b>Grand Total</b>	<b>545.92</b>		<b>201.14</b>

The Commission accordingly approves revenue from existing tariffs at Rs. 201.14 Crore for FY 2016-17.

#### 6.21 Summary of ARR after review with estimates and approvals.

**Table 6.11: Aggregate Revenue Requirement approved by the Commission for FY 2016-17 after review**

(Rs. Crore)				
Sl. No.	Item of Expense	As Approved by Commission on Tariff Order dated 27.02.2015	As per Revised Estimate	Now Approved by the Commission
1	2	3	4	5
1	Cost of Fuel	0.07	0.07	0.01
2	Cost of Generation	8.75	8.75	8.75

Sl. No.	Item of Expense	As Approved by Commission on Tariff Order dated 27.02.2015	As per Revised Estimate	Now Approved by the Commission
3	Cost of Power Purchase	145.86	227.45	205.38
4	Transmission Charges	20.46	30.58	30.58
5	Intra State Transmission	19.73	19.73	19.73
6	Cost of DSM	-	1.54	-
7	O&M Expenses	51.01	51.01	51.01
8	Depreciation	1.94	1.61	1.61
9	Interest charges	2.68	2.68	2.68
10	Interest on Working Capital	3.47	3.73	2.47
11	Provision for bad debts	0.00	0.00	0.00
12	Return on NFA /Equity	0.00	0.00	0.00
13	<b>Total Revenue Requirement</b>	253.97	347.16	322.22
14	Less: Non Tariff Income	2.58	2.58	2.58
15	Less surplus from True-up 2014-15	-	3.10	-
16	Add gap in FY 2015-16	-	79.08	-
17	<b>Net Revenue Requirement</b>	251.39	420.56	319.64
18	Less: Revenue from Sale of Power	160.00	212.03	201.14
	<b>Net Gap</b>	92.93	208.53	118.50

Source 1.35 of Petition

As seen from the above, the net ARR for FY 2016-17 works out to Rs. 320.33 Cr with revenue gap of Rs. 118.50 as against P&ED estimate of Rs. 420.56 Cr and Rs. 208.53 Cr respectively after review.

## 6.22 Govt. Subsidy

As against the gap of Rs. 118.50 Crore the P&ED shall generate additional revenue of Rs. 0.50 Crore by improving internal efficiency and the balance Rs. 118 Crore shall be met from Govt. subsidy.

## 7 Revised Aggregate Revenue Requirement (ARR) for FY 2017-18

### 7.1 Background

The Commission had determined the Multi Year Aggregate Revenue Requirement for FY 2015-16 to FY 2017-18 in the Multi Year Tariff Order dated 27.02.2015.

P&ED has submitted the Petition seeking determination of revised ARR and retail tariff for FY 2017-18.

In this chapter the Commission has analysed the energy sales and components of expenditure and revenue projected by P&ED for FY 2017-18 and approval accorded as detailed below:

#### Commission's Analysis

P&ED has revised the category-wise consumers and their connected load and energy sales approved by the Commission in its MYT Order dated 27.02.2015 for FY 2017-18 based on revised estimated and usage of LED lights, as detailed in table below:

**Table 7.1: Category wise consumers and connected load**

Sl. No.	Particulars	Consumers (Nos.)	Connected Load (MW)
1(a)	Kutir Jyothi - LT	12,702	4.324
1(b)	Domestic - LT	2,01,832	320.340
1(c)	Domestic - HT	36	6.856
2(a)	Commercial - LT	20,696	59.920
2(b)	Commercial - HT	138	14.841
3	Public Lighting - LT	2,905	1.927
4(a)	Irrigation & Agriculture - LT	22	0.019
4(b)	Irrigation & Agriculture - HT	1	0.085
5(a)	Public Water Works - LT	12	0.083
5(b)	Public Water Works - HT	58	40.390
6(a)	Industrial - LT	1,099	5.402
6(b)	Industrial - HT	30	11.957
7	Bulk Supply - LT	264	16.215
8	Temporary Connection & Theft - HT		
9	Total Sales		
10	Outside State Sale - UI / Trading		
	<b>TOTAL</b>	<b>2,39,796</b>	<b>482.359</b>

Based on the revised scenario the sales projection for FY 2017-18 is revised in respect of the following categories.

Domestic LT – Sales are revised from 255 MU to 230 MU.

Commercial HT – Sales are revised from 2 MU to 11 Mu.

PWS – HT – Sales are revised from 3 MU to 8 MU.

Bulk Supply – Sales are revised from 27 MU to 17 MU.

In respect of other categories, the sales as projected in Tariff Order dated 27.2.2015 are retained.

Thus the total sales are revised from 398.12 MU to 382.12 MU as detailed in the above Table below:

**Table 7.2: Energy Sales approved by the Commission for FY 2017-18**

Sl.No	Category	Energy Sales approved in MYT Order dated 27.02.2015 for FY 2017-18 (MU)	Projected by P&ED (MU)	Now approved by the Commission (MU)
1 (a)	Kutir Jyothi - LT	4	4.72	4
1 (b)	Domestic - LT	255	229.14	230
1 (c)	Domestic - HT	4	4.64	4
2 (a)	Commercial - LT	35	34.54	35
2 (b)	Commercial - HT	2	11.13	11
3	Public Lighting - LT	10	2.11	10
4 (a)	Irrigation & Agriculture - LT	0.02	0.01	0.02
4 (b)	Irrigation & Agriculture -HT	0.1	0.04	0.10
5 (a)	Public Water Works – LT	1	0.23	1.00
5 (b)	Public Water Works – HT	54	59.19	59.00
6 (a)	Industrial – LT	3	2.07	3
6 (b)	Industrial – HT	3	8.15	8
7	Bulk Supply - LT	27	17.37	17
	<b>Total</b>	<b>398.12</b>	<b>373.35</b>	<b>382.12</b>

**The Commission approves energy sales at 382.12 MU for FY 2017-18 as against 373.35 MU projected by P&ED.**

## 7.2 Distribution Loss

P&ED has projected the distribution loss at 18.40% for FY 2017-18 as approved by the Commission in its MYT order dated 27.02.2015.

**The Commission approves distribution loss at 18.40% for FY2017-18.**

## 7.3 Energy requirement for FY 2017-18

The energy requirement for FY 2017-18 approved by the Commission in its MYT order dated 27.02.2015 and projected by P&ED based on the retail sales projections and distribution loss level for FY 2017-18 are detailed in table below.

**Table 7.3: Energy requirement projected by P&ED for FY 2017-18**

Energy Balance	Unit	Approved in TO dated 27.02.2015	Projected by P&ED	Now Approved by the Commission
ENERGY REQUIREMENT				
Energy Sales within State	MU	398.12	373.35	382.12
Overall Distribution Losses %	%	8.40%	18.40%	18.40%
Overall Distribution Loss(MUs)	MU	89.77	84.19	86.16
Total Energy Requirement	MU	487.89	457.54	468.28

**The Commission approves energy requirement of 468.28 MU for FY 2017-18.**

## 7.4 Energy Availability

### 7.4.1 Own Generation

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

**Table 7.4 : Details of Own Generating Stations**

Sl.No.	Name of Station	Capacity (MW)
<b>I</b>	<b>Hydel</b>	
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

	<b>Sub Total</b>	29.35
<b>II</b>	<b>Diesel</b>	
12	Lengpui	0.50
<b>III</b>	<b>HFO</b>	
	Bairabi	22.92
	<b>Total (I+II+III)</b>	<b>52.77</b>

Own generation approved by the Commission in its MYT dated 27.02.2015 and projected by the P&ED and now approved by the Commission for FY 2017-18 are detailed in Table below:

**Table 7.5: P&ED Own Generation for FY 2017-18**

Particulars	(MU)		
	Approved in TO dated 27.02.2015	Projected by P&ED	Now Approved by the Commission
Units Generated	67.88	67.88	67.88
Auxiliary	1.36	1.36	1.36
Net Generation	66.52	66.52	66.52

**The Commission approves own generation (Net) at 66.52 MU for FY 2017-18**

#### 7.4.2 Power Purchase

P&ED 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 generating stations as given below:

**Table 7.6: Allocation of power from Central Sector and other Generating Stations**

Sl. No.	Source	Plant Capacity (MW)	P&ED Share in %	P&ED Share in MW
A	Central Generating			
1	Bongaigaon	250	5.415	13.54
2	NTPC			
3	Farakka STPS	1600	0.14	2.24
4	Kahalgaon STPS	840	0.14	1.18
5	Talcher STPS	1000	0.14	1.40
	NTPC-Total	3690		18.35
II	NHPC			
6	Loktak HEP	105	5.02	5.27
	NHPC-Total	105		5.27
III	NEEPCO			
7	Kopili HEP	200	4.618	9.24

Sl. No.	Source	Plant Capacity (MW)	P&ED Share in %	P&ED Share in MW
8	Kopili - II HEP	25	6.04	1.51
9	Khandong HEP	50	3.94	1.97
10	Ranganadi HEP	405	5.7	23.09
11	Doyang HEP	75	5.25	3.94
12	AGBPP	291	5.41	15.74
13	AGTPP	148	6.00	8.88
	NEEPCO-Total	1194		64.36
IV	TSECL			
14	B'mura - IV	21	25	5.25
15	B'mura - V	21	25	5.25
	TSECL-Total	42		10.50
V	OTPC			
16	Palatana	726	3.03	22.00
	OTPC-Total	726		22.00
VI	Own Generation	29.35	100	29.35
<b>VI</b>	<b>Total</b>	<b>5786.35</b>		<b>149.83</b>

(Source: Extract of Form F1)

#### 7.4.3 Assumption for Power Purchase Projection:

The merit order dispatch principles are to be adopted while 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, P&ED has considered purchase of the entire power available from all the possible sources during the period to meet the demand to the extent possible.

#### 7.4.4 Energy draws from CGS and other Stations:

Power Purchase approved by the Commission in its MYT Order dated 27.02.2015, projected by P&ED and now approved by the Commission for FY 2017-18 is detailed in Table below:

**Table: 7.7: Power Purchase approved by the Commission for FY 2017-18**

(MU)

Sl. No	Source	Approved in TO dated 27.02.2015	Projected by P&ED	Now Approved by the Commission
<b>A</b>	<b>Central Generating Stations</b>			
<b>I</b>	<b>NTPC</b>			
1	Bongaigaon	-	76.39	76.39
2	Farakka STPS	14.37	13.10	13.10
3	Kahalgaon STPS	6.53	7.62	7.62



Sl. No	Source	Approved in TO dated 27.02.2015	Projected by P&ED	Now Approved by the Commission
4	Talcher STPS	9.11	9.46	9.46
	<b>NTPC-Total</b>	<b>30.01</b>	106.58	106.58
<b>II</b>	<b>NHPC</b>			
5	Loktak HEP	20.00	33.13	33.13
	<b>NHPC-Total</b>	<b>20.00</b>	33.13	33.13
<b>III</b>	<b>NEEPCO</b>			
6	Kopili HEP	28.00	40.73	40.73
7	Kopili - II HEP	5.00	6.28	6.28
8	Khandong HEP	4.00	6.34	6.34
4	Ranganadi HEP	55.00	71.06	71.06
5	Doyang HEP	10.00	11.31	11.31
6	AGBPP	90.00	79.87	79.87
7	AGTPP	35.00	47.65	47.65
	<b>NEEPCO-Total</b>	<b>227.00</b>	263.25	263.25
<b>IV</b>	<b>TSECL</b>			
8	B`mura -IV	36.00	37.62	37.62
9	B`mura -V	38.00	41.72	41.72
	<b>TSECL-Total</b>	<b>74.00</b>	79.34	79.34
<b>V</b>	<b>OTPC</b>			
10	Palatana	78.00	114.94	114.94
	<b>OTPC-Total</b>	<b>78.00</b>	114.94	114.94
<b>VI</b>	<b>Other Stations/IPPs</b>			
<b>C</b>	<b>UI Purchases</b>	26.50	66.47	-
	<b>Total UI Purchase</b>	<b>26.50</b>	66.47	-
<b>F</b>	<b>Grand Total</b>	<b>468.71</b>	663.71	597.24

Source: Extract of Form F1 of petition

Since there is surplus power UI purchases are not considered. However in case of exigencies the P&ED may resort to UI purchase which will be considered while Truing up.

**The Commission approves power purchase of 597.24 MU for FY 2017-18.**

#### 7.5 Energy Balance:

The Energy balance approved by the Commission in its MYT Order dated 27.02.2015 and projected by P&ED are detailed in Table below:

Table 7.8: Energy Balance projected by P&amp;ED for FY 2017-18

			(MU)	
Sl. No.	Energy Balance	As Approved by Commission dated 27.02.2015	As Projected by P&ED	
<b>A</b>	<b>Energy Requirement</b>			
1	Energy Sales	393.46	373.35	
2	Distribution Loss (%)	18.40%	18.40%	
3	Distribution Loss (MUs)	89.77	84.19	
<b>4</b>	<b>Total Energy Requirement</b>	<b>487.89</b>	<b>457.54</b>	
<b>B</b>	<b>Energy Availability</b>			
5	Own Generation	66.52	66.52	
6	Energy Purchase from ER	30.01	106.58	
7	Less: ER Pool Loss (%)	2.12%	2.20	
8	Less: ER Pool Loss (MUs)	0.65	2.34	
9	Net Energy for ER (6-8)	29.36	104.28	
10	Energy Purchase from NER	399.00	490.65	
11	Sub Total (9+10)	428.36	594.89	
12	Less: NER Pool Loss (%)	2.99%	3.25	
13	Less: NER Pool Loss (MUs)	12.81	19.33	
14	Net Energy at NERLDC (11-13)	415.55	525.54	
15	UI / RPO Purchase	26.50	66.47	
16	Energy Available (5+14+15)	508.57	708.53	
17	Less: Intra State Tr. Loss (%)	3.00%	3.00%	
18	Less: Intra State Tr. Loss (MUs)	15.25	21.26	
19	Net Energy Available (18-20)	493.32	687.27	
<b>20</b>	<b>Less: Energy requirement</b>	<b>487.89</b>	<b>457.54</b>	
<b>21</b>	<b>ENERGY SURPLUS/(DEFICIT)</b>	<b>5.43</b>	<b>229.73</b>	
<b>22</b>	<b>Grossed up by 3%</b>	<b>5.60</b>	<b>236.85</b>	

### Commission's Analysis

P&ED has considered inter-state transmission loss in ER at 2.20% and NER at 3.25%.

But as per weekly losses in ER during the period from 04.04.2016 to 09.12.2016 the average transmission loss in ER region is 2.10% and in respect of NER the average transmission loss is 2.65% as per weekly loss during the period from 04.04.2016 to 09.12.2016.

After considering the revised losses and sales, the energy balance has been revised as detailed in table below:

**Table 7.9: Energy Balance Approved by the Commission for 2017-18**

		(MU)
Sl. No.	Energy Balance	Now Approved by Commission
<b>A</b>	<b>Energy Requirement</b>	
1	Energy Sales	382.12
2	Distribution Loss (%)	18.40%
3	Distribution Loss (MUs)	86.16
<b>4</b>	<b>Total Energy Requirement</b>	<b>468.28</b>
<b>B</b>	<b>Energy Availability</b>	
5	Own Generation	66.52
6	Energy Purchase from ER	106.57
7	Less: ER Pool Loss (%)	2.10%
8	Less: ER Pool Loss (MUs)	2.24
9	Net Energy for ER (6-8)	104.33
10	Energy Purchase from NER	490.65
11	Sub Total (9+10)	594.99
12	Less: NER Pool Loss (%)	2.65%
13	Less: NER Pool Loss (MUs)	15.77
14	Net Energy at NERLDC (11-13)	579.22
15	UI / RPO Purchase	-
16	Energy Available (5+14+15)	645.74
17	Less: Intra State Tr. Loss (%)	3%
18	Less: Intra State Tr. Loss (MUs)	19.37
19	Net Energy Available (16-18)	626.37
<b>20</b>	<b>Less: Energy requirement (4)</b>	<b>468.28</b>
<b>21</b>	<b>ENERGY SURPLUS/(DEFICIT)</b>	<b>158.09</b>
<b>22</b>	<b>Surplus at State Periphery (grossed up by 3%)</b>	<b>162.83</b>

As seen from the above, there is a surplus power of 162.83 MU during FY 2017-18 which the P&ED shall sell outside the state under U.I.

#### 7.6 Aggregate Revenue Requirement for FY 2017-18

P&ED has projected Aggregate Revenue Requirement (ARR) for FY 2017-18 as detailed in table below:

**Table 7.10 ARR Projected by P&ED for FY 2017-18**

		(Rs.Crore)	
Sl No	Particulars	Approved by the Commission in MYT order dated 27.02.2015	Projected by P&ED
1	Cost of Fuel	0.07	0.07
2	Cost of Generation	9.06	9.06
3	Cost of Power Purchase	159.43	260.55
4	Transmission Charges	21.68	30.58
5	Intrastate Transmission	20.93	20.93

Sl No	Particulars	Approved by the Commission in MYT order dated 27.02.2015	Projected by P&ED
6	Cost of DSM Program	-	1.52
7	Employee Cost	45.84	45.84
8	R&M Expenses	6.96	7.08
9	Admn & General Expenses	1.14	1.33
10	Depreciation	2.07	1.58
11	Interest Charges	2.26	2.26
12	Interest on Working Capital	3.76	3.87
13	Provision for Bad Debts	-	-
14	Return on Equity	-	-
15	Total ARR	273.20	384.67
16	Less Non Tariff Income	2.73	2.73
17	Less surplus in FY 2014-15 true up		3.10
<b>18</b>	<b>Net ARR</b>	<b>270.47</b>	<b>378.84</b>
19	Less revenue from sale of power at existing tariff	-	218.21
<b>20</b>	<b>Gap</b>	<b>270.47</b>	<b>160.63</b>

Source table 2.22 of petition

### Commissions Analysis

Item wise expenses are analysed as under:

#### 7.6.1 Cost of Fuel

P&ED has not proposed any change in fuel cost of Rs. 0.07 Cr already approved. But as verified from annual accounts of FY 2015-16, no amount is incurred under this head. As such, a token amount of Rs. 0.01 Cr is considered.

**The Commission approves fuel cost at Rs. 0.01 Cr for FY 2017-18.**

#### 7.6.2 Cost of Generation

P&ED has not proposed any changes in cost of generation, such already approved amount of Rs. 9.06 Cr is retained.

**The Commission approves generation cost at Rs. 9.06 Cr for FY 2017-18.**

#### 7.6.3 Cost of Power Purchase

##### Petitioners submission

The Hon'ble Commission in the tariff order for the FY 2016-17 had approved a power purchase quantum of 455.51 MUs at a total cost of Rs. 15,943.00 Lakhs. As submitted above the estimate of power purchase quantum for the FY 2016-17 is proposed to be revised to 663.70 MUs. It is submitted that the power purchase cost

for the FY 2017-18 has been revised based on the actual purchase for the FY 2015-16 & revised estimate for the FY 2016-17. Accordingly, the power purchase cost is also proposed to be revised. Power purchase cost for the FY 2016-17 has been arrived at in following manner.

- i. Additional supplementary bill Rs. 1,000.00 Lakhs has been considered based on the actual bills for the H1 of the year.
- ii. The cost towards RPO has been arrived at in accordance with the RPO targets prescribed in the RPO regulations. The target for solar & non-solar for the FY 2017-18 is 14.50% (9.00% for non-solar & 5.50% for solar).

P&ED shall meet the requirement of non-solar RPO from its own hydro generation which is estimated at 66.52 MUs for the FY 2017-18. The RPO for solar has been calculated based on the actual consumption (excluding outside the state sale but including T&D loss). Further, procurement of power from hydro sources has been reduced to arrive at the base figure for calculation of RPO. The prescribed target of 5.50% has been applied on the base figure of 302.83 MUs. Accordingly, 16,655.65 MWh (16.66 MUs) is computed as the solar RPO for the FY 2017-18. The rate as prescribed by CERC has been considered to arrive at the cost of RPO of Rs. 2,231.86 Lakhs.

The comparison of the approved power purchase cost and the revised estimate as arrived above is given in the table below:

**Table: Power Purchase Cost FY 2017-18**

(In Lakhs)				
Sl. No.	Particulars	Approved by Commission	Proposed by P&ED	Deviation
1	Power Purchase Cost	15943.00	26044.31	10112.31
	<b>Total</b>	<b>15943.00</b>	<b>26055.31</b>	<b>10112.31</b>

#### **Commission's analysis**

As seen from the Power Purchase cost, the P&ED has proposed an increase in average cost by 15.38% over FY 2015-16 and further increase by 14.58% over FY

2016-17 which are on very high side. The Commission considers it reasonable to increase the variable cost by 5% P.A over the actual cost during FY 2015-16. Since there is surplus of power the UI purchases of 66.47 MU projected are not considered. However in case of exigencies the P&ED may resort to UI purchase which will be considered while Truing up. The arrear payment of Rs. 10.00 Cr project is also not considered as it is a projection. Thus the power purchase cost is recalculated which works out to Rs. 211.85 Cr ad detailed in Table below:

**Table 7.11: Power Purchase Cost approved by the Commission for FY 2017-18**

Sl. No	Source	Energy Purchased (MU)	Fixed Charges (Rs. Crore)	Variable Costs (Rs./kWh)	Variable Charges (Rs. Crore)	Total Amount (Rs. Crore)	Average Rate (Rs./kWh)
1	2	3	4	5	6=(3*5/10)	7=4+6	8=(7/3)*10
<b>A</b>	<b>Central Generating Stations</b>						
<b>I</b>	<b>NTPC</b>						
1	Bongaigaon	76.39	19.81	3.49	26.66	46.47	6.08
2	Farakka STPS	13.10	1.21	3.05	4.00	5.21	3.97
3	Kahalgaon	7.62	0.74	2.73	2.08	2.82	3.70
4	Talcher STPS	9.46	0.83	1.48	1.40	2.23	2.36
	<b>NTPC-Total</b>	<b>106.57</b>	<b>22.59</b>		<b>34.14</b>	<b>56.73</b>	<b>5.32</b>
<b>II</b>	<b>NHPC</b>						
1	Loktak HEP	33.13	3.76	1.64	5.43	9.19	2.77
	<b>NHPC-Total</b>	<b>33.13</b>	<b>3.76</b>		<b>5.43</b>	<b>9.19</b>	<b>2.77</b>
<b>III</b>	<b>NEEPCO</b>						
1	Kopili HEP	40.73	1.54	0.44	1.79	3.33	0.82
2	Kopili - II HEP	6.28	0.56	1.04	0.65	1.21	1.93
3	Khandong HEP	6.34	0.82	0.75	0.48	1.30	2.04
4	Ranganadi HEP	71.06	11.35	1.32	9.38	20.73	2.92
5	Doyang HEP	11.31	2.14	2.30	2.60	4.74	4.19
6	AGBPP	79.87	14.05	2.86	22.84	36.89	4.62
7	AGTPP	47.65	5.49	2.69	12.82	18.31	3.84
	<b>NEEPCO-Total</b>	<b>263.24</b>	<b>35.95</b>		<b>50.56</b>	<b>86.51</b>	<b>3.29</b>
<b>IV</b>	<b>TSECL</b>						
1	B'mura - IV	37.62	0.00	3.32	12.49	12.49	3.32
2	B'mura - V	41.72	0.00	3.32	13.85	13.85	3.32
	<b>TSECL-Total</b>	<b>79.34</b>	<b>0.00</b>		<b>26.34</b>	<b>26.34</b>	<b>3.32</b>
<b>V</b>	<b>OTPC</b>						
1	Palatana	114.94	15.79	1.40	16.09	31.88	2.77
	<b>OTPC-Total</b>	<b>114.94</b>	<b>15.79</b>		<b>16.09</b>	<b>31.88</b>	<b>2.77</b>

Sl. No	Source	Energy Purchased (MU)	Fixed Charges (Rs. Crore)	Variable Costs (Rs./kWh)	Variable Charges (Rs. Crore)	Total Amount (Rs. Crore)	Average Rate (Rs./kWh)
B	RPO Obligation / REC Certificate		1.20			1.20	
C	GRAND TOTAL	597.22	79.29		132.56	211.85	3.55

The Commission approves power purchase cost of Rs. 211.85 Cr as against Rs. 260.55 Cr projected by the P&ED.

#### 7.6.4 Transmission Charges

The Commission in its Tariff Order dated 27.02.2015 had approved Transmission Charges of Rs. 21.68 Cr for FY 2017-18.

P&ED now projected Rs. 30.58 Cr towards Transmission Charges for FY 2017-18.

##### Commission's analysis

As there is increase in Power Purchase, transmission charges of Rs. 30.58 Cr as proposed by P&ED are approved for FY 2017-18.

The Commission approves Inter State transmission charges at Rs. 30.58 Cr as projected by P&ED for FY 2017-18.

#### 7.6.5 Intra State Transmission Charges

P&ED has not proposed any change. As such the Commission retained already approved amount of Rs. 20.98 Cr for FY 2017-18.

#### 7.6.6 Cost of DSM Program

The Commission in its order dated 29.2.2016 had approved Rs. 1.54 Cr P.A for a period of three years from FY 2016-17 towards implementation of DSM program.

The P&ED in its letter No T-20067/01/16-EC(P)/P/8 dated 4.1.2016 has stated that Government Mizoram has not vetted the DSM proposal. In the meantime the P&ED has signed an MOU to take up another programme such as unnat Jyoti by affordable

LED (UJALA), tube light programme and distribution 50w energy efficient for Government Mizoram has decided to consider the draft energy savings agreement after the resultant effect of the UJALA schemes are studied.

**As such the commission has not considered the proposed expenditure of Rs. 1.54 Cr during FY 2017-18**

#### 7.6.7 O&M Expenses

Operation and Maintenance expenses comprises the following leads of expenditure viz.,

- Employee Expenses
- Administrative and General Expenses
- Repairs and Maintenance Expenses

##### a) Employee Expenses

P&ED has projected Employee Expenses of Rs. 45.84 Cr for FY 2017-18 as approved in MYT Order dated 27.02.2015. **The Commission accordingly approves employee expenses at Rs. 45.84 Cr for FY 2017-18 as projected by P&ED.**

##### b) Administrative and General Expenses

The Hon'ble Commission has approved the Administrative & General expenses for the FY 2017-18. In this regard it is submitted that the P&ED is required to pay Licence fee & Tariff filing fee of ` 9.00 Lakhs & ` 10.00 Lakhs respectively in accordance with the Regulations issued by the Hon'ble Commission. These expenses are regulatory expenses but was not included in the A&G expenses proposed in the MYT filings.

It is requested that the Hon'ble Commission may kindly consider & approve the additional cost as proposed. The A&G expenses for the FY 2017-18 as approved by the Hon'ble Commission and the revised proposal is submitted in the table below:



**Table 7.12: Administrative & General Expenses FY 2017-18**

(Rs. Lakh)				
Sl. No.	Particulars	As Approved by Commission	Proposed by P&ED	Deviation
1	Administrative & General Expenses	113.64	132.64	19.00
	<b>Total</b>	<b>113.64</b>	<b>132.64</b>	<b>19.00</b>

**The Commission approves Administrative and General Expenses at Rs. 1.33 Cr as projected by P&ED for FY 2017-18.**

**c) Repairs and Maintenance Expenses**

The Hon'ble Commission has approved the Repair & Maintenance expenses for the FY 2017-18. In this regard it is submitted that the P&ED has entered into a maintenance contract of SCADA/EMS system and the cost implication for the FY 2017-18 shall be ₹ 11.99 Lakhs. The cost towards the same was not proposed in the Business Plan & MYT petition as the same was taken up subsequently.

It is requested that the Hon'ble Commission may kindly consider & approve the additional cost as proposed. The Repair & Maintenance expenses for the FY 2017-18 as approved by the Hon'ble Commission and the revised proposal is submitted in the table below.

**Table 7.13: Repair and Maintenance Expenses FY 2017-18**

(Rs. Lakh)			
Particulars	As Approved by Commission	Proposed by P&ED	Deviation
Repair & Maintenance Expenses	696.00	707.50	11.50
<b>Total</b>	<b>696.00</b>	<b>707.50</b>	<b>11.50</b>

**The Commission approved R&M Expenses of Rs. 7.08 Cr for FY 2017-18 as projected by P&ED.**

**d) Abstract of O&M Expenses****Table 7.14: Abstract of O&M expenses for FY 2017-18 approved by the Commission**

<b>S. No.</b>	<b>Particulars</b>	<b>Amount (Rs. Cr)</b>
1	Employee Expenses	45.84
2	Admn. and General Expenses	1.33
3	R&M Expenses	7.08
4	Total O&M Expenses	54.25

**7.6.8 Depreciation**

The P&ED has proposed depreciation of Rs. 1.58 Cr for FY 2017-18 as against Rs. 2.07 Cr approved in Tariff Order dated 27.02.2015.

**The Commission now approves depreciation of Rs. 1.58 Cr as projected P&ED for FY 2017-18.**

**7.6.9 Interest and Finance Charges**

P&ED has not proposed any change.

**As such the Commission retains already approved amount of Rs. 2.26 Cr for FY 2017-18.**

**7.6.10 Interest on Working Capital**

P&ED has claimed interest on working capital at Rs. 3.87 Cr for FY 2017-18

**Commission Analysis**

Interest on Working Capital is calculated on the revised O&M charges now approved as detailed in Table below:

**Table 7.15: Interest on working capital approved by the Commission for FY 2017-18**

<b>S. No.</b>	<b>Particulars</b>	<b>Total cost</b>	<b>One month Cost</b>
1	O&M Expenses one month	54.25	4.52
2	Maintenance and Spares at 1% of GFA	503.62	5.04
3	Receivables one month	170.17	14.18
4	Total		23.74
5	Rate of interest at SABR as on 01.04.2016		14.05%
6	Interest on Working Capital		3.34

**The Commission approves interest on working capital at Rs. 3.34 Cr as against 3.87 Cr project by P&ED for FY 2017-18.**

**7.6.11 Non Tariff Income**

P&ED has not proposed any change for FY 2017-18.

**As such already approved amount of Rs. 2.73 Cr is retained for FY 2017-18.**

**7.7 Revenue from Existing Tariff**

Based on the approved sales at 382.12 MU, the revenue from existing Tariff works out to Rs. 207.09 Crore which includes revenue of Rs. 35.82 Cr from sale of surplus power of 162.83 MU as detailed in table below.

The average rate of realisation of revenue from surplus power is considered at Rs. 2.20 per kWh being the average rate arrived during FY 2015-16 based on actuals.

**Table 7.16: Revenue from Existing Tariff for FY 2017-18 approved by the Commission**

(Rs. Crore)				
Sl.No	Category	Sales (MU)	Average Revenue	Total Revenue
<b>A</b>	<b>LT Supply</b>			
1	Kutir Jyothi	4.00	2.22	0.89
2	Domestic	232.00	3.82	88.56
3	Commercial	35.00	5.86	20.50
4	Public Lighting	8.00	5.17	4.14
5	Public Water Works	1.00	5.08	0.51
6	Irrigation & Agriculture	0.02	2.40	0.005
7	Industrial	3.00	5.49	1.65
	<b>Total LT</b>	<b>283.02</b>		<b>116.26</b>
<b>B</b>	<b>HT Supply</b>			
1	Domestic	4.00	5.42	2.17
2	Commercial	11.00	6.35	6.98
3	Public water works	59.00	5.42	31.95
4	Irrigation & Agriculture	0.10	2.16	0.02
5	Industrial	8.00	5.47	4.37
6	Bulk Supply	17.00	4.95	8.42
<b>7</b>	<b>Total HT</b>	<b>99.10</b>		<b>53.91</b>
<b>8</b>	<b>Total (HT + LT)</b>	<b>382.12</b>	<b>4.45</b>	<b>170.17</b>
<b>9</b>	<b>Outside Sales</b>	<b>162.83</b>	<b>2.20</b>	<b>35.82</b>
<b>10</b>	<b>Total (8+9)</b>	<b>544.95</b>	<b>3.78</b>	<b>205.99</b>

**7.8 Aggregate Revenue Requirement**

As verified from the Net ARR of Rs. 587.37 Cr projected by P&ED vide table 7.10 supra, surplus arrived on account of true up of FY 2014-15 which was already considered in ARR for FY 2016-17 vide Tariff Order dt. 29.2.2016 is again proposed in

FY 2017-18. As such, the same has to be deleted. Secondly, the resultant gap arrived on account of annual performance review of FY 2016-17 is also considered in FY 2017-18 which is not in order for the reason that the JERC (MYT) Regulations, 2014 does not provide annual performance review of the previous year but only true up based on audited annual accounts. As such, this needs to be deleted.

Now, after considering approved costs by the Commission and the 1/3 surplus of Rs. 20.67 Cr resulted in true up of FY 2015-16, the revised ARR approved by the Commission is as detailed in table below.

**Table 7.17: Aggregate Revenue Requirement approved by the Commission for FY 2017-18**

Sl. No	Particulars	Projected by P&ED	Approved by the Commission
1	Fuel cost	0.07	0.01
2	Power Purchase cost	260.55	211.85
3	PGCIL Transmission charges	30.58	30.58
4	Intra state Transmission charges	20.93	20.93
5	Generation cost	9.06	9.06
6	Cost of DSM programme	1.52	0.00
7	Employee Cost	45.84	45.84
8	R&M expenses	7.08	7.08
9	Adm& Genl expenses	1.33	1.33
10	Depreciation	1.58	1.58
11	Interest charges	2.26	2.26
12	Interest on working capital	3.87	3.34
13	Provision for bad debts	0.00	0.00
14	Return on equity	0.00	0.00
15	ARR	384.67	333.86
16	Less Non Tariff Income	2.73	2.73
17	Less Surplus in 2014-15	3.10	0.00
18	Net ARR	378.84	331.13
19	Less: 1/3 Surplus on true up of FY 2015-16	0.00	20.67
<b>20</b>	<b>Net ARR</b>	<b>378.84</b>	<b>310.46</b>

## 7.9 Revenue Gap

Based on the Net Aggregate Revenue Requirement and revenue from existing tariffs for FY 2017-18, the resultant GAP is as shown in the table below:

**Table 7.18: Revenue Gap with Existing Tariff for FY 2017-18**

(Rs. Crore)				
Sl. No	Particulars	Unit	Projected by P&ED	Approved by the Commission
1	2	3	4	5
1	Net Revenue Requirement	Rs. Crore	378.84	310.46
2	Revenue from sale of power with existing tariff	Rs. Crore	166.14	170.17
3	Revenue from sale of surplus power	Rs. Crore	52.07	35.82
4	Total Revenue (2+3)	Rs. Crore	218.21	205.99
5	<b>Net Gap (1-4)</b>	Rs. Crore	160.63	104.47
6	Energy sales(MU)	MU	373.35	382.12
7	Surplus Power	MU	236.85	162.83
8	Total sales (6+7)	MU	610.20	544.95
9	Average cost (1 - 3) ÷ 6	Rs. kWh	6.20	7.19
10	Average realisation on (2 ÷ 6) ÷ 10	Rs. kWh	4.45	4.45

## 7.10 Recovery of Revenue Gap for FY 2017-18

As seen from Para 7.8 above as against revenue gap of Rs. 160.63 Crore projected by P&ED, after Commission's analysis the revenue gap works out to Rs. 104.47 Crore during FY 2017-18 which is about 34% of net ARR for FY 2017-18. The previous tariffs are revised from 01.04.2016.

P&ED 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 feasible as this would make power unaffordable to the general consumers. P&ED being a Government Department is funded by budgetary support from State Government. Hence P&ED does not propose to absorb the unrecovered gap but proposed an average increase in tariff by 6.74% to bridge the gap partially.

**Commission's analysis**

As discussed in chapter 8, the Commission decided to revise the tariff by 3.6%. Accordingly, the revenue from revised tariff works out to Rs. 175.97 Cr as detailed in table below.

**Table 7.19: Revenue from revised Tariff for FY 2017-18 approved by the Commission**

Sl No	Category	Approved Sales (MU)	Average Revenue (Rs/kWh)	Total Cost (Rs/Crore)
<b>A</b>	<b>LT Supply</b>			
1	Kutir Jyoti	4.00	2.33	0.93
2	Domestic	232.00	3.96	91.93
3	Commercial	35.00	6.10	21.34
4	Public Lighting	8.00	5.37	4.30
5	Public water works	1.00	5.17	0.52
6	Agriculture	102.00	2.40	0.005
7	Industrial	3.00	5.76	1.73
	<b>Total</b>	<b>283.02</b>		
<b>B</b>	<b>HT Supply</b>			
8	Domestic	4.00	5.52	2.21
9	Commercial	11.00	6.55	7.21
10	Public water works	59.00	5.52	32.55
11	Agriculture	0.10	2.28	0.02
12	Industrial	8.00	5.72	4.57
13	Bulk supply	17.00	5.10	8.67
	<b>Total HT</b>	<b>94.10</b>		
	<b>Total LT + HT</b>	<b>382.12</b>	<b>4.61</b>	<b>175.97</b>
14	Sale of Surplus power	162.83	2.20	35.82
<b>15</b>	<b>Grand Total</b>	<b>544.95</b>	<b>3.88</b>	<b>211.79</b>

Note: Detailed calculation is given in Annexure - III

With the revision of tariffs the P&ED will generate additional revenue of Rs. 5.80 Crore as against Rs. 11.24 Crore projected by P&ED. Thereby the revenue gap is reduced to Rs 98.67 Crore (i.e. Rs 104.47 – 5.80) which the P&ED shall meet from Government subsidy.

**7.11 Government Subsidy**

As seen from the above it is clear that the revenue from sale of power is not sufficient to meet the expenditure and the P&ED shall continue to depend upon the subsidy from Government of Mizoram. So, the net revenue gap of Rs. 98.67 Crore

arrived in para 7.9 supra, shall be met from Government subsidy as against Rs. 149.38 Crore projected by P&ED.

**Table 7.20: Average cost of electricity supply within Mizoram**

<b>Sl. No.</b>	<b>Particulars</b>	<b>Units</b>	<b>Projected by P&amp;ED</b>	<b>Approved by the Commission</b>
1	Net overall ARR	Rs. Crore	378.84	310.46
2	Sale of surplus power	Rs. Crore	52.07	35.82
3	Net ARR within the state (1-2)	Rs. Crore	326.77	274.64
4	Govt. subsidy	Rs. Crore	149.38	98.67
5	Net ARR after Govt. subsidy (3-4)	Rs. Crore	177.39	175.97
6	Energy sale within the state	MU	382.12	382.12
7	Average cost of supply before Govt. subsidy (3/6)	Rs./Unit	8.55	7.21
8	Average cost of supply after Govt. subsidy (5/6)	Rs./Unit	4.64	4.61

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## 7 Tariff Principles and Design

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### 8.1 Background

The Commission, while determining the revenue requirement and retail tariff of P&ED, Mizoram for the year 2017-18 has been guided by the provisions of the Electricity Act, 2003, the National Tariff Policy (NTP), CERC Regulations on Terms and Conditions of Tariff and JERC Regulations for Manipur and Mizoram (Multi Year Tariff) Regulation, 2014. Section 61 of the Act lays down the broad principles, which shall guide determination of retail tariff. As per these statutory provisions, the tariff shall “Progressively reflect cost of supply” and also reduce cross subsidies “within the period to be specified by the Commission”. The Act also lays special emphasis on safeguarding consumer interests and 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 and also in 2011 provides comprehensive guidelines for determination of tariff and working out the revenue requirement of power utilities. The Commission has endeavoured to follow these guidelines as far as possible.

NTP mandates that the Multi-Year-Tariff (MYT) framework be adopted for determination of tariff from 1st April 2006. Accordingly the Commission has introduced MYT Regime in the State from 2015-16.

The mandate of the NTP on cross subsidy is that the 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 P&ED has not furnished the voltage-wise cost of supply. A directive has been issued 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 taken the average cost of supply as basis in the absence of relevant data to work out consumer category wise cost of supply. In this tariff order an element of



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performance target has been indicated to maintain the set target for distribution loss reduction for the year 2017-18. The P&ED shall show better performance by reduction of loss level, which will result in substantial reduction in average cost of supply. The existing and proposed tariff of P&ED is a two-part tariff under telescopic billing.

**8.1.1 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 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 shall 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 2017-18 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.”

NEP aims at increased access to electricity, supply of reliable and quality power at reasonable rates, minimum lifeline consumption, financial

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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 P&ED 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 311 kWh to 350 kWh by the end of 2018. The Commission endeavours 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 of consumers and avoid tariff shock.

## **8.2 Tariff Proposed by P&ED and Approved by the Commission**

### **8.2.1 Tariff Categories**

In the ARR and Tariff Petition of FY 2017-18, P&ED has not proposed any changes in the existing categories of consumers and tariff structure.

The Commission considers to retain the existing categories as follows:

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

### **8.2.2 Existing & Proposed Tariff**

P&ED in its tariff petition for 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. 11.24 Crore to meet the gap partially.

The P&ED has proposed tariff revision of both energy charges and Fixed Charges, which are in existence since 1.4.2016 with an average increase of 3.6% over the existing charges. The proposed hike will be within the range varying from 2% to 6%

across all categories of consumers to bridge the revenue gap partially.

The summary of the tariff proposal by P&ED for FY 2017-18 is furnished in table below:

**Table 8.1: Existing v/s Proposed Tariff for FY 2017-18**

Sl. No.	Category	Existing		Proposed	
		Energy Charges (Rs./Kwh)	Fixed Charges (Rs./con./contracted load/Billing demand)	Energy Charges (Rs./Kwh)	Fixed Charges (Rs./con./contracted load/Billing demand)
		A	B	C	D
1	Kutir Jyothi				
i)	First 15 Kwh	1.40	12/Conn.	1.50	15/Conn.
ii)	Next 15 Kwh	2.05	12/Conn.	2.15	15/Conn.
iii)	Balance above 30 Kwh	2.35	12/Conn.	2.55	15/Conn.
2	Domestic				
A	LT				
i)	First 50 Kwh	2.35	35/ Kw	2.45	45/ Kw
ii)	Next 50 Kwh	3.25	35/ Kw	3.40	45/ Kw
iii)	Next 100 Kwh	4.20	35/ Kw	4.40	45/ Kw
iv)	Balance above 200 Kwh	4.80	30/ Kw	5.00	45/ Kw
B	HT	4.70	30/ KVA	4.80	45/ KVA
3	Commercial				
A	LT				
i)	First 100 Kwh	3.60	65/Kw	3.80	75/ Kw
ii)	Next 100 Kwh	4.60	65/Kw	4.80	75/ Kw
iii)	Balance above 200 Kwh	5.50	65/Kw	5.80	75/ Kw
B	HT	5.30	65/KVA	5.50	75/ KVA
4	Public Lighting	5.00	65/Kw	5.20	70/ Kw
5	Irrig. & Agriculture				
A	LT	1.85	35/ Kw	2.00	45/ Kw
B	HT	1.80	35/ KVA	1.95	45/ KVA
6	Public Water Works				
A	LT	5.00	75/ Kw	5.10	85/ Kw
B	HT	4.80	75/ KVA	4.90	85/ KVA
7	Industrial				
A	LT				
i)	First 400 Kwh	3.75	65/ Kw	4.00	75/ Kw
ii)	Balance above 400 Kwh	4.45	65/ Kw	4.75	75/ Kw
B	HT	4.30	65/KVA	4.55	75/ KVA
8	Bulk Supply	4.15	70/ KVA	4.30	70/ KVA

### 8.2.3 Tariffs Approved by the Commission

Having considered the petition of P&ED Mizoram for approval of Aggregate Revenue Requirement (ARR) and determination of Retail Tariff for supply of energy and having approved the Aggregate Revenue Requirement (ARR) with a gap of Rs. 104.47 Crore vide para 7.8 of Chapter–7, the Commission considers to revise the tariffs under Telescopic billing within an average increase of 3.6% from current average rate of Rs 4.45 per unit as detailed below:

**Table 8.2: Category wise Tariff approved by the Commission for FY 2017-18**

Sl.No	Category	Approved	
		*** Fixed Charges per month (Rs)/kW	Variable Charges (Rs/kwh)
<b>1</b>	<b>Kutir Jyoti</b>		
i)	First 15 kWh	12	1.50
ii)	Next 15 kWh	12	2.15
iii)	> 30	12	2.45
<b>2</b>	<b>Domestic LT</b>		
i)	First 50 Units	35	2.45
ii)	Next 50 Units	35	3.40
iii)	Next 100 Units	35	4.40
iv)	Balance above 200 Units	35	5.00
3	Domestic HT	35/KVA	4.80
<b>4</b>	<b>Non-domestic/ Commercial LT</b>		
i)	First 100 Units	65	3.80
ii)	Next 100 Units	65	4.80
iii)	Balance above 200 Units	65	5.80
5	Commercial HT	65/KVA	5.50
6	Public Lighting LT	60	5.20
7	PWW LT	75	5.10
8	PWW HT	75/KVA	4.90
9	Irrigation & Agri LT	35	2.00
10	Irrigation & Agri HT	35/KVA	1.95
<b>11</b>	<b>Industrial LT</b>		
i)	First 400 Units	65	4.00
ii)	Balance above 400 Units	65	4.75
12	Industrial HT	65/KVA	4.55
13	Bulk Supply HT	70/KVA	4.30

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

## 9. Wheeling Charges

### 9.1 Background

The net distribution expenses as approved in chapter 7 table 7.18 is, Rs 59.52 Crore. The distribution ARR needs to be segregated into wire business and retail supply business in accordance with the matrix prescribed in Regulation 3.3 of JERC for Manipur and Mizoram (Multi Year Tariff) Regulation, 2014. The allocation matrix is detailed in table below.

**Table 9.1: Allocation Matrix**

Sl. No	Particulars	Wire Business	Retail Supply Business
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%

The net distribution expenses are segregated into wire business and retail supply business as per the above matrix as detailed in table below.

**Table 9.2: Segregated of wires and Retail Supply costs for FY 2017-18**

Sl. No	Particular	Total Cost	Wire cost	Retail supply cost
1	Employee cost	45.84	27.50	18.34
2	R&M cost	7.08	6.37	0.71
3	Adm & Gen. expenses	1.33	0.67	0.66
4	Depreciation	1.58	1.42	0.16
5	Interest & Fin. Charges	2.26	2.03	0.23
6	Int. on working capital	3.34	0.33	3.00
7	Less Non-tariff income	2.73	0.27	2.46
<b>8</b>	<b>Total</b>	<b>58.69</b>	<b>38.05</b>	<b>20.64</b>

## 9.2 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 approved are given in table below:

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

**Table 9.3: Wheeling Tariff approved by the Commission**

Sl. No	Particular	FY2017-18
1	ARR for wheeling function approved by the Commission (Rs. Crore)	38.05
2	Total Energy available for Distribution(MU)	468.28
3	Wheeling Tariff (Rs/kWh)	0.81

**The Commission approves wheeling Tariff at Rs.0.81/kWh for FY 2017-18.**

## 10 Fuel and Power Purchase Cost Adjustment

### 10.1 Background

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 a financial year, except in respect of any changes expressly permitted under the terms of any fuel surcharge formula as may be specified. This provision in the Act requires the Commission to specify the formula for fuel surcharge.

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

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

Where,

$Q_c$  = Quantity of coal consumed during the adjustment period in Metric Tons (MT).

=  $(SHR \times Q_{pg}) (1 + TSL) / GCV$ , or actual whichever is less.

$R_{c1}$  = Weighted average of 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 of base rate of coal supplied ex-power station coal yard for the adjustment period in Rs./MT

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- $Q_o$  = 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 of base rate of oil ex-power station (Rs./KL) approved by the Commission for the adjustment period.
- $R_{o2}$  = Weighted average of 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



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- L = Percentage of 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 of Transit and Stacking Loss as approved by the Commission
- GCV = Weighted average of gross calorific value of coal as fired basis during the adjustment period (Kcal / Kg)
- V<sub>Z</sub> = Amount of variable charges on account of change of cost of unknown factors like water charges, taxes or any other unpredictable factors not envisaged at the time of Tariff fixation as approved by the Commission (Rs.)
- A = Adjustment, if any, to be made in the current period for any excess / shortfall in recovery of fuel of Power Purchase cost in the past adjustment period, as approved by 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 Qc, Rc1, Rc2, Qo, Ro1, Ro2, Qpg and Qpg1 the cost will be computed separately for each power station and the sum of the increase/ decrease in 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 which shall be subject to the following terms and conditions detailed here under.

## 10.2 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 to the consumer , 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 the ceiling shall be carried forward to be included in the 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 to the satisfaction of the Commission.
- 5) Any cost increase by the licensee by way of penalty, interest due to delayed payments, etc. 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 the power stations in the state 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 through an affidavit supported with the certified copy of energy bills of power purchase, transmission charges, RLDC charges, 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 up to a maximum ten (10) paise per unit. If it is less than 10 (ten) paise/unit, the same shall be carried forward for adjustment in the next month.

- 10) The Incremental cost per kWh due to the FPPCA arrived at 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 to be billed.
- 11) 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 levy of FPPCA.

## 11 Revised Aggregate Revenue Requirement of Transmission function for FY 2017-18

### 11.1 Background

The P&ED has not proposed changes to the transmission Tariff approved by the Commission in its MYT order for FY 2015-16 to FY 2017-18.

### 11.2 Capacity allocation and Energy Requirement

The energy requirement for P&ED 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 from these station is about 66.52 MU. 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 149.83 MW to meet its energy requirement as detailed in table below.

**Table 11.1: Power Availability**

Sl. No	Source	Plant Capacity (MW)	P&ED Share in %	P&ED Share in MW
A	Central Generating Stations			
I	NTPC Bongaigaon	250	5.41	13.54
1	Farakka STPS	1600	0.14	2.24
2	Kahalgaon STPS	840	0.14	1.18
3	Talcher STPS	1000	0.14	1.40
	<b>NTPC-Total</b>	<b>3690</b>		<b>18.35</b>
II	NHPC			
1	Loktak HEP	105	5.02	5.27
	<b>NHPC-Total</b>	<b>105</b>		<b>5.27</b>
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	148	5.98	8.88

Sl. No	Source	Plant Capacity (MW)	P&ED Share in %	P&ED Share in MW
	<b>NEEPCO-Total</b>	1194		64.36
IV	TSECL			
1	B'mura - IV	21	25	5.25
2	B'mura - V	21	25	5.25
	<b>TSECL-Total</b>	42		10.50
V	OTPC			
1	Palatana	726	3.03	22.00
	<b>OTPC-Total</b>	726		22.00
VI	Own Generation	29.35	100	29.35
	<b>Total</b>	5786.35		149.83

To transmit power within the State, P&ED has the following transmission network:

**Table 11.2: 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

### 11.3 Transmission Loss

P&ED is currently not equipped to measure the energy flow at various levels due to the inadequate metering equipment. So the transmission loss has been considered at 3% as approved by the Commission in its MYT order for FY control period FY 2015-16 to FY 2017-18.

### 11.4 Aggregate Revenue Requirement

Based on the provisions of the tariff regulations, the 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 Aggregate Revenue Requirement (ARR) is netted off with non- tariff income for determining net ARR.

Aggregate Revenue Requirement for FY 2017-18 approved by the Commission in MYT Order dated 27.02.2015 is Rs. 20.93 Cr. The same is retained as proposed by P&ED for FY 2017-18 as detailed in table below.

**Table 11.3: Aggregate Revenue Requirement approved by the Commission for FY2017-18 (Rs. Crore)**

SI No	Particulars	FY2017-18
1	Return on equity	-
2	Depreciation	0.40
3	O&M expenses	18.98
4	Int. on working capital	0.80
5	Interest & Finance Charges	0.75
6	Contribution to contingency reserve	-
7	less Non-Tariff income	-
8	Other Income	-
9	ARR	20.93

Transmission tariff approved by the Commission for FY 2017-18 with allocated capacity of 149.83 MW is furnished in table below:

**Table 11.4: Transmission charges approved by the Commission for FY2017-18**

Sl. No	Particulars	FY2016-17
1	ARR(Rs.Crore)	20.93
2	Total MW allocation(MW)	149.83
3	Energy Input at State Periphery	482.91
4	Transmission charges (Rs/MW/month)	1,16,410
5	Transmission charges(Rs/MW/Day)	3827
6	Transmission Tariff(Rs/kWh)	0.43

**The Commission approves transmission tariff at Rs.0.43/kWh for FY2017-18.**

## 12 Revised ARR of Generation Function for FY 2017-18

### 12.1 Background

The Commission had approved Aggregate Revenue Requirement for Generation Function at Rs. 9.06 Crore for FY 2017-18 in its MYT Order dated 27.02.2015. The P&ED has projected the same ARR already approved.

### 12.2 Own Generating Stations

P&ED 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 12.1: 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

### 12.3 Aggregate Revenue Requirement

The Aggregate Revenue Requirement for the generating function for FY 2017-18 approved by the Commission is detailed in the table below:

**Table 12.2 Aggregate Revenue Requirement of generation function for FY 2017-18  
approved by the Commission**

<b>Sl. No.</b>	<b>Particulars</b>	<b>FY2017-18</b>
1.	O&M expenses	6.73
2.	Depreciation	0.38
3.	Returns on equity	-
4.	Interest & financial charges	-
5.	Interest on W.C.	1.95
6.	Total ARR	9.06

**The Commission approves ARR for the generation function for FY 2017-18 at Rs. 9.06 Crore.**



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## 13 Directives

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### 13.1 General

While examining the information and data contained in the proposed ARR and Tariff Petition for the FY 2017-18, it is observed that the computation and compilation of the data have been done based on assumptions only and as a result, there has been difficulties in finalization of the ARR and determination of retail tariff also. The above observation itself substantiates the fact that the administrative, technical and commercial performances of the P&ED require substantial improvement within a specified time frame.

Similar situation was noticed in the ARR & Tariff petition for the FY 2016-17. The Commission had observed that while there is ample scope for reducing cost and increasing efficiency in the operation of the department, serious efforts appear to be lacking. It is in the above context that 14 directives were given for compliance in the Tariff Order 2010-11 out of which some directives were fully complied with. Seven fresh Directives were issued in tariff order for FY 2012-13. The Commission expected that P&ED would take prompt action on the directives and monitor their implementation. Unfortunately, action is yet to be taken on most of the important directives, which could make significant difference to operational efficiency and cost. In some cases action has no doubt been initiated, but overall seriousness with which the directives were issued by the Commission does not appear to have been realized by the P&ED Mizoram.

In the above background, the Commission is constrained to repeat the directives which have not been fully complied with and also issues specific new directives.

#### **Directive 4: Management Information System**

The PED has not maintained proper data in respect of sales, revenue and revenue expenses as also the category wise / slab wise number of consumers, connected load / demand etc. for proper analysis of the past data based on actual

and estimate of proper projections for consideration in the ARR and Tariff Petition.

The PED is directed to take steps to build credible and accurate data base and management information system to meet the requirements for filing ARR & Tariff Petition as per regulatory requirement and also suit the Multi Year Tariff principles which the Commission may consider at the appropriate time under Regulation 11 of JERC (Terms and Conditions for Determination of Tariff) Regulations, 2008. The formats software and hardware may synchronize with the Regulatory Information and Management System (RIMS) circulated by Central Electricity Regulatory Commission (CERC).

The PED should get a study conducted on computerized data base, on electronic media and shall give a proposal as to how the department proposes to achieve this.

The PED is directed to provide age wise analysis before the next ARR and initiate measures to liquidate the arrears by 31/03/2011.

#### **Compliance Status**

It is submitted that the department is making all efforts to complete the project of IT enabled information system but is unable to do so due to fund constraint. However, steps would be taken for early implementation so that the data updating as required for Regulatory information is available. The Hon'ble Commission may kindly allow time for the same.

#### **Commission's comment**

Till such time 100% computerisation is achieved, P&ED can collect data manually by prescribed uniform formats to all divisions and circles. This may be ensured.

#### **Directive 5: Pilferage of Energy**

The PED has furnished the T&D losses at 41.7% during 2009-10 and projected the losses at 39.5% for 2010-11. The Department has not segregated the losses into technical and commercial losses. It is feasible that the

losses projected may include commercial losses on account of pilferage.

Pilferage of energy may be by illegal tapings from electrical lines, tampering meters etc. The Commission feels that there is need to launch an extensive drive to revoke illegal connections, if any, check meter tampering replacement of defective meters proper account of consumer of un-metered services and keep constant vigil so that corrective measures could be taken to reduce the AT & C losses. Requisite action may be taken as per the provisions under sections 135 and 138 of Electricity Act, 2003.

The PED is directed to furnish an action plan to arrest the pilferage.

### **Compliance Status**

It is submitted that the department is consistently making efforts to reduce the theft & pilferage by streamlining the metering system, especially for high consumption category. The quarterly report on theft for FY 2015-16 (3<sup>rd</sup> and 4<sup>th</sup> quarter) and for FY 2016-17 (1<sup>st</sup> and 2<sup>nd</sup> quarter) are submitted herewith as follows:

### **DETAILS OF THEFT OF ENERGY FOR FY 2015-16**

#### **Quarter : 2nd and 3rd Quarter of FY 2015-16**

<b>Details</b>	<b>APC</b>	<b>LPC</b>	<b>PC-I</b>	<b>TC</b>	<b>CPC</b>	<b>TOTAL</b>
No of consumers premises checked	4589	5492	443	4837	972	<b>16333</b>
No of Defaulters Detected	32	61	49	12	9	<b>163</b>
Amount Imposed as penalty (Rs)	30,165.00	20,562.00	9,385.00	5,360.00	1,562.00	<b>67,034.00</b>
Amount realized (Rs)	30,165.00	20,562.00	9,385.00	5,360.00	1,562.00	<b>67,034.00</b>

**DETAILS OF THEFT OF ENERGY for 1st & 2nd QUARTER for FY 2016-17**

Particulars	Nature of Default				TOTAL
	Meter by pass	Hooking System	Un-authorized Extension	Tempering of Energy Meter	
No of Consumers premises checked	9358	3382	3406	3270	<b>19416</b>
No of defaulter	67	12	12	8	<b>99</b>
Amount imposed as penalty (Rs)	63,376.00	-	1,500.00		<b>64,876.00</b>
Amount realized (Rs)	63,376.00		1,500.00		<b>64,876.00</b>

The remaining quarter will also be submitted.

**Commission's comment**

As verified, the actual distribution loss stood at 29.38% during FY 2015-16. This should be further brought down to the targeted loss by providing 100% metering and zero pilferage.

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

It is observed that there are several defective meters remained unchanged for years together and 4023 services are without meters. The PED must not encourage un-metered supply.

Under section 55 (1) of Electricity Act, 2003, no licensee shall supply electricity after expiry of two years from the appointed date except through installation of correct meter in accordance with the regulation to be made in this behalf by the Authority. Accordingly metering is required to be done in line with Central Electricity Authority (installations and operation of meters) Regulations 2006 to all consumers.

Power & Electricity Department is directed to provide meters to all un-metered consumers.

The present status of metering and action plan to meter the un-metered services and replacement of defective meters shall be reported to the Commission before 31<sup>st</sup> March 2011.

In addition the electromagnetic meters in service, particularly, in high value domestic, commercial and industrial consumers shall be replaced with static meters as per the Regulations of CEA to have correct consumption recorded.

The number and category of consumer installations in which the electromagnetic meters are in service and the action plan to replace such meters with static meters shall be reported by 31<sup>st</sup> March 2011.

Power & Electricity Department is directed to report to the Commission by 31<sup>st</sup> March 2011 the details of such defective meters category-wise in the system as on 31.12.2010, with an action plan to replace them.

#### **Compliance Status**

As stated in the compliance report under directive 5, various measures are yet taken to install and to maintain all Energy Meters installed at the Consumer premises in good condition. No new connection be released without meter. Further, as provided under R-APDRP, replacement of existing energy meters is being carried out within the Department.

#### **Commission's comments**

The Directive is partially complied with. Compliance report on 100% metering and replacement of defective meters shall be submitted by 30.09.2017.

#### **Directive 7: Contribution by Consumers for Capital investment**

It is submitted that the cost of Asset reflected in the petition and for calculation of depreciation does not include any consumer contribution. Further while calculating depreciation for ARR in the petition, consumer's contribution has to be excluded and only net cost to be considered. Appropriate action may be taken to maintain books of accounts as per ARR Format-23.

**Compliance Status**

It is to state that as submitted earlier the Assets reflected in the petition and for calculation of depreciation does not include any consumer contribution. However, if any capital investment is incurred from contribution of consumers, P&ED shall compile the details as directed and submit the same to the Hon'ble Commission along with the next petition.

**Commission's comment**

The information may be furnished along with next tariff petition invariably.

**Directive 8: Transmission and Distribution Losses**

The PED has projected the transmission and distribution loss at 39.5% (35% Distribution loss + 4.5% Transmission losses) for the year 2010-11.

The PED is directed to get Energy Audit conducted by providing meters on all the feeders (132 kV, 66 kV, and 11 kV) and at distribution transformers to identify the high loss areas and take appropriate measures to reduce both technical and commercial losses to the level fixed by the Commission. The PED shall also comply with loss reduction trajectory for T&D losses for the next three years.

The investment required to reduce the losses shall be included in the investment plan for augmentation of T&D system be submitted to the Commission. Effective technical and administrative measures shall be taken to reduce the commercial losses. The action plan for energy audit and loss reduction measures shall be furnished to the Commission by June 2011.

**Compliance Status**

As already pointed out scheme for 'Renovation of System Metering for improvement of Circle wise Energy Accounting' under SPA is still going on with physical completion around 70%. Besides, under R-APDRP, 11kV system metering and DT metering are completed 100%. However, consumer metering completion is upto 20% approximately. The Department extend strong push to improve operation efficiency by reviewing performance of Feeder Manager at regular interval whereas drawbacks and shortcomings are resolved.

**Commission's comments**

Commission directs 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. P&ED has not complied with this direction. The loss level is still as high as 29%. P&ED Mizoram shall expedite the measures initiated like replacement of disfunctional meters, providing high accuracy energy meters, while continuing the process of providing AB cable. The directive is partially complied

**Directive 9: Consumers bills**

At present current Month consumption bill is being served to the consumer while taking meter reading of next Month, thereby collection postponed by one Month. It is high time to introduce spot billing with handheld computers and advance revenue realization by one Month. PED is directed to take action accordingly and report action taken by June 2011.

Commission should establish the consumer grievances redressal forum immediately And give wide publicity of functioning of the said forum and report compliance.

**Compliance Status**

It is submitted that P&ED has made efforts to improve the billing and collection efficiency, however more time would be required to completely achieve the desired result of billing & collection efficiency. The issue of spot billing is under serious consideration in the department including its various implications.

**Commission's comments**

As per Section 56 (1) of electricity Act 2003, the P&ED 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. P&ED 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 to be beneficial in avoiding delays in taking readings, preparation of manual bills and serving of such bills. P&ED may review & analyze the cost effective

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**

Annual Investment Plan should submit to the Commission. And approval of Commission should be obtained for all major capital works costing ₹5.00 crore and above before execution of the works.

**Compliance Status**

P&ED shall report the status actual implementation vis-à-vis investment plan at the end of the financial year i.e 31.03.2017 and the revised plan would be submitted if required.

**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 include erection of 33 kV lines DTRs, Metering etc. The projected plan seems to be a difficult task since achievement of physical progress is stated to be subject to fund tie up. P&ED shall consider realistic investments in the FY 2017-18. Directive is complied partially.

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

The employee cost projected by the PED is on very high side and alarming. PED is therefore directed to take measures to control the high.

**Compliance Status**

It is submitted that the department is making efforts to rationalise the employee cost and judiciously utilise the workforce so as to increase efficiency and reduce per unit employee cost. The number of employee keeps reducing due to non-filling up of vacant post on account of superannuation pension.



**Commission's comments**

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

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

Maximum Demand Meters should be provided for HT Consumers.

**Compliance Status**

It is submitted that P&ED is taking steps to introduce MDIs in all high consumption consumers. The status report shall be submitted to the Hon'ble Commission.

**Commission's comments**

HT consumers are high revenue yielding cases. For such consumers P&ED can procure and provide meters.

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

**Directive 15: Contract Demand**

With the introduction of two-part tariff in the Tariff Order of 2010-11 the consumers feel the impact of connected load in the Electricity bill is high. The PED stated that connected load and contract demand are the same in Mizoram. If so, the Commission has observed that the contract demand is high. PED is therefore directed to reassess the contract demand by December, 2014 and submit a report.

**Compliance Status**

It is submitted that the inspection as to check the contracted/connected demand of the consumer premises is an ongoing process. Total no of doubtful consumers premises raid during FY 2015-16 (3<sup>rd</sup> and 4<sup>th</sup> quarter) is 16333, and during FY 2016-17 (1<sup>st</sup> and 2<sup>nd</sup> quarter) is 19416.

**Commission's comments**

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

The directive is partially complied

**Directive 16: Restructuring of Staff**

PED has stated that the number of employee as on 31<sup>st</sup> March, 2012 is 4575. It is very high. The Department however, has pleaded shortage of staff for poor performance. The Commission has observed that deployment of the existing staff is not rational. PED is directed to prepare a restructuring plan by 31<sup>st</sup> December, 2014 and submit a report.

**Compliance Status**

The Department is working on the restructuring of staff and give serious concern on segregation and placement of staff to facilitate working on functional basis of the organisation.

**Commission's comments**

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

The directive is partially complied

**Directive 19: Survey and physical verification of consumers connections.**

to conduct survey and physical verifications to find out their actual connected load and category in which supply is being availed and to analyse category wise single phase and 3 phase connections with their annual energy consumption and status of meters. This work should be completed by 31.10.2014 and details be furnished in next tariff petition invariably.

**Compliance Status**

Action is being taken by the department. However, report will be submitted as and when the reports of compliance are received from field offices. 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 to submit the report.

**Commission's comments**

The P&ED has been allowed ample time to complete the survey. Keeping in view the importance of the work the P&ED shall complete it at the earliest by 30.09.2017 and report compliance with details. The directive is partially complied.

**Directive 20: Introduction of spot billing system**

P&ED should introduce spot billing system at least in 9 (nine) towns covered under R-APDRP. This will also enable the consumers to pay up-to- date consumption bill.

**Compliance Status**

10 Nos. of Spot Billing Machines were received by the Department under R-APDRP scheme. The Department will evolve utilization of this machine shortly.

**Commission Comments**

Immediate steps shall be initiated to get the software to operate the spot billing machines and put them into operation at once besides procuring required machines to implement spot billing throughout the state. Progress on implementation should be reported quarterly from 30.06.2017 onwards

The directive is partially complied.

**Directive 21: Introduction of Energy meter with MDI facility**

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

**Compliance Status**

At present, the energy meter with MDI facility is mainly insisted to install in the new connection and defective meter of existing consumers. The number of installation could not progress as the department has to collect nominal cost against new energy meter for the existing consumers with working meters.

**Commission's Comments**

All high value LT industrial and commercial connections be provided with MDI compatible energy meters wherever the Discom feels it necessary. Progress on providing MDI meter be reported quarterly from 30.06.2017 onwards.

The directive is partially complied.

**Directive 23: To introduce Instrumental reading system of Energy Meter.**

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

**Compliance Status**

Introduction of instrumental reading system like Spot Billing machine is being started as mentioned in the directive no. 20 above. Is under serious considered of the department.

**Commission's Comments**

Instrumental reading system is different from spot billing. However spot billing may be introduced in the 1<sup>st</sup> instance to all consumers and report compliance quarterly from 30.06.2017 onwards. The directive is partially complied with.

**Directive 24: Scraping of Heavy fuel plants lying idle :-**

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

**Compliance Status**

The Department had written to Central Electricity Authority (CEA) to exclude Bairabi HFO based power plant from total installed capacity and declare as non operational vide this office letter No G.20015/3/15-E-in-C(P)/T&R/39 dated 20.05.16. Official scrapping is under process.

**Commission's Comments**

This may be expedited. The directive is partially complied with.

**Directives 25: Filling of ARR and tariff petition with full details.**

As verified from the MYT ARR and Tariff petition filed by the P&ED 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 is furnished in the formats but not 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 P&ED is directed to file the next ARR & Tariff petition with full details as indicated supra.

**Compliance Status**

It is submitted that the details as required have been provided in the petition as directed.

**Commission's Comments**

The Directive is fully complied.

**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.

**Compliance Status**

The proposal is on the final stage of completion for obtaining approval from the State Government. The same will be submitted to the Commission after due approval from the Government.

**Commission's Comments**

The directive is partially complied.

**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 P&ED (Schedule 19)****(Rs. Crore)**

Sl.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 P&ED as per schedule 20, the position is as detailed in table below.

**Function wise breakup of Net fixed Assets of P&ED (Schedule 20)****(Rs. Crore)**

Sl.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

**The above discrepancies may be reconciled**

**Compliance Status**

It is submitted that the value of additions to various functions is not uniform over the years while the same is being depreciated at uniform rate depending on the category of Assets. In certain cases depreciation for the year is more than the addition during the period. Therefore YOY growth for GFA and NFA is not uniform. The GFA and NFA for the FY 2010-11, 2011-12 & 2012-13 is reconciled in the tables below:

**Gross Fixed Assets**

Function	GFA As On 01-04-2010	Additions during period	Total GFA at the end of the year	Accumulated Depr. as on 01-04-2010	Depr. during period	NDV as at 31-03-2011
Total Distribution	33934	1159	35093	19337	1116	14640
Total Generation	24840	19722	44561	9281	2283	32997
Total Transmission	14707	424	15131	9100	494	5537
Grand Total	73480	21304	94785	37717	3893	53175
Function	GFA As On 01-04-2011	Additions during period	Total GFA at the end of the year	Accumulated Depr. as on 01-04-2011	Depr. during period	NDV as at 31-03-2012
Total Distribution	35093	1459	36552	20453	1163	14936

Total Generation	44561	10	44571	11564	2326	30681
Total Transmission	15131	83	15213	9593	496	5124
Grand Total	94785	1552	96336	41610	3985	50741
<b>Function</b>	<b>GFA As On 01-04-2012</b>	<b>Additions during period</b>	<b>Total GFA at the end of the year</b>	<b>Accumulated Depr. as on 01-04-2012</b>	<b>Depr. during period</b>	<b>NDV as at 31-03-2013</b>
Total Distribution	36552	2969	39522	21616	1233	16673
Total Generation	44571	244	44815	13890	2295	28630
Total Transmission	15213	2693	17906	10089	610	7206
Grand Total	96336	5906	102243	45595	4139	52509

### Commission's Comments

Function wise year wise gross fixed assets from FY 2013-14 to date may also be finalized and submitted to the Commission and should be continued Year on Year. The directive is partially complied with.

### Directive 28: Segregation of expenses among generation, transmission and distribution.

From annual accounts of FY 2015-16 onwards all expenses such as employee cost, R&M expenses and Administration & General expenses and interest charges and depreciation shall be segregated among the three functions, viz generation, transmission and Distribution.

### Compliance Status

It is submitted that the actual segregation of employee & expenses has still not been done. However, steps have been taken towards same but the exercise is not yet completed. The function wise segregation of depreciation is already done and submitted in the petition. P&ED may kindly be allowed to submit the function wise segregated expenses as employee cost, R&M expenses and Administration & General expenses and interest charges after the exercise is completed. The Hon'ble Commission may kindly allow the same.

**Commission's comment**

Separate account numbers may be allotted to the employees working in transmission, distribution and generation and consolidate the expenditure which will solve the problem.

**Directive 29: Function-wise segregation of capital investment and capitalization.**

In future ARR & Tariff petitions capital investment and capitalization shall be segregated function-wise, viz generation, transmission and Distribution.

**Compliance Status:**

It is submitted that function wise capitalisation is provided in the petition.

**Commission's comments**

The directive is fully complied with.

**Directive 30: Reduction of billing slabs.**

The Power & Electricity Department, Mizoram is directed to reduce the billing slabs of the following categories as indicated in the next ARR Petition for FY 2017-18.

1. Kurti Jyoti category from three to two slabs
2. LT Domestic category from four to three slabs
3. LT Non-domestic/commercial category from three to two slabs
4. LT Industrial category from two to one slab

**Compliance Status:**

It is submitted that P&ED has not been able to reduce the billing slabs for the FY 2017-18, however proposal shall be made for approval of the competent authority in this regard and P&ED shall take steps for compliance of the directive in future. The Hon'ble Commission may kindly allow the same.

**Commission's comment**

The Commission has decided to reduce the slabs from FY 2018-19 onwards. The licensee should prepare for that without any option.



**Directive 31: Inhouse development of IT enabled system:**

The Power & electricity Department, Mizoram is directed to take steps for development of inhouse IT enabled system so that all software issues can be attended departmentally instead of depending on consultants.

**Compliance Status:**

The issue is under serious consideration with a view of long term prospect of the department.

**Directive 32: Metering of all incoming and outgoing feeders from 132 kV to 11 kV**

The P&ED, Mizoram is directed to provide meters to all feeders right from 132 kV to 11 kV both at incoming and outgoing ends before submission of next tariff petition for FY 2017-18. In respect of towns covered under RAPDRP metering of all the DT's and 11 kV feeders be completed by 30.09.2016. Sample study should be conducted to know the highest feeder loss and highest DT loss and report compliance. This will facilitate to measure the energy flow and to arrive at actual transmission losses. In the next ARR petition the actual transmission loss arrived based on feeder readings should be furnished.

**Compliance Status:**

It is submitted that P&ED has taken steps to provide meters to all feeders right from 132 kV to 11 kV both at incoming and outgoing ends and the same is under progress. Metering of incoming and outgoing feeders from 132kV to 11kV are initially 100% at all Sub-stations and were perfectly functional. But as of now, it is found that upto 5% in the meter and metering equipments are defective. Action is being taken to rectify and make 100% functional for proper accounting of energy flow.

**Commission's comment**

The directive is not fully complied.

**Directive 33: Installation of meters with MDI facility**

P&ED should start using meters having MDI facility as CEA Meter Regulation, 2006. Contracted load/demand as well as connected load/demand should be recorded for consumers and fixed charge billed based on contracted load/demand. Contracted load/demand should be reviewed annually based on MDI record and supply code,

2013. All consumers under RAPDRP towns should be completed by 30.09.2016. Quarterly progress should be submitted to the Commission.

**Compliance Status:**

Quarterly progress on using meters having MDI facility shall be submitted shortly.

**Commission's comment**

The directive is not fully complied.

**Directive 34: Updating of software programmes**

P&ED should update computerised billing programmes to facilitate adoption of power factor rebate/surcharge as indicated in the tariff schedule.

**Compliance Status:**

P&ED is taking steps for updating computerised billing programmes to facilitate adoption of power factor rebate/surcharge as indicated in the tariff schedule. The status report shall be submitted after the completion of the exercise.

**Commission's comment**

The directive is not fully complied.

**New Directive**

**Directive 35**

As per Regulations 2 (19) of JERC (M&M) (MYT) Regulations, 2014 the Second Control Period shall be five years from 01.04.2018. The P&ED is directed to submit the next ARR for Control Period from FY 2018-19 to FY 2022-23 and Tariff Petition for FY 2018-19 and true up petition for FY 2016-17 along with audited annual accounts for FY 2016-17 invariably.

**Directive 36**

The Commission is of the view to introduce KVAH billing in energy charges to all HT categories and LT categories with contracted load 20 kWh and above with effect from FY 2018-19 onwards. The licensee is directed to see that all HT connections are provided with trivector/MDI meters for such connections without fail.

**Directive 37**

The P&ED Mizoram is directed to conduct energy audit and AT&C Loss calculation division wise and furnish the data in the formats P2, P3 and P4 of JERC (M&M)(MYT) Regulations, 2014. If division wise is not feasible, circle wise may be submitted from next ARR.

**Directive 38**

As per Form No.11 of JERC (M&M) (MYT) regulations, 2014, non tariff income comprises of:

	<b>Particulars</b>
<b>A</b>	<b>Income from Investment, Fixed and Call Deposits</b>
1	Interest income from Investments other than Contingency Reserve
2	Interest on fixed deposits
3	Interest from Banks other than Fixed Deposits
4	Interest on (any other items)
	<b>Sub-Total</b>
<b>B</b>	<b>Other Non Tariff Income</b>
1	Interest on loans and Advances to staff
2	Interest on loans and Advances to other Licensee
3	Interest on loans and Advances to Leasors
4	Interest on Advances to Suppliers / Contractors
5	Gain on Sale of Fixed Assets
6	Income/Fee/Collection against staff welfare activities
7	Miscellaneous receipts
8	Meter Rent
9	Recovery from theft of energy
10	Surcharge and Additional Surcharge
11	Incentive due to Securitisation of CPSU Dues
12	Misc. charges from consumers
13	Delayed payment surcharge from consumers
14	Any other subsidies / grants other than those u/s 65
15	Commission on collection of Electricity Duty for MCD
	<b>Sub-Total</b>
	<b>Total (A+B)</b>

The P&ED is directed to account for the income relating to above heads in the respective heads and furnish the information in the format without omissions from next ARR.

**Directive 39**

The P&ED is directed to verify all consumers load physically and fresh agreement of contracted load should be got executed by each consumer. On completion of the agreements and installation of MDI meters, review of fixed charges on contracted load/demand can be considered along with annual tariff petition.

**Directive 40**

The P&ED is directed to examine the feasibility of installation of pre-paid meters/smart meters in a phased manner so as to improve revenue collection and reduce leakages in power consumption which will cause reduction in distribution losses.

## **TARIFF SCHEDULE**



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## APPENDIX Tariff Schedule

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### 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 and fixed 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 (Energy charge + Fixed charge) 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.

**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'
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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'
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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'
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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 staid 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:

$$\text{Average transformer loss} = \frac{730 \times 1.0 \times C}{100} = \text{kVAh per month}$$

where C = KVA rating of the transformer. For conversion of kVAh to kWh or vice versa, latest power factor as per JERC (M&M) (Electricity Supply Code) Regulations, 2013 with latest amendment is to be used.

(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 35.00 per kW of contracted load.** Sample 1;- Fixed charge =1.24 x 35 = Rs 43.40 = Rs 43.00. Sample 2 ;- Fixed charge = 0.36 kW (=0.50 kW after rounding) x 35 = Rs 17.50 = Rs. 18.00. *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 recorded 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 LT Category-2 (Domestic).

**Permitted Load:** Initially single light point connection which can be extended by one or two light points or as per norms specified by the competent authority from time to time.

**Tariff Rates:**

a) Fixed charge : Rs 12.00 per month per connection.

b) Energy charge per month:-

1) First 15 kWh : @ Rs 1.50 per kWh.

2) Next 15 kWh : @ Rs 2.15 per kWh.

3) Above 30 kWh : @ Rs 2.45 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 35.00 per month per kW of contracted load.

b) Energy charge per month:-

- |                  |   |                    |
|------------------|---|--------------------|
| 1) First 50 kWh  | : | @ Rs 2.45 per kWh. |
| 2) Next 50 kWh   | : | @ Rs 3.40 per kWh. |
| 3) Next 100 kWh  | : | @ Rs 4.40 per kWh. |
| 4) Above 200 kWh | : | @ Rs 5.00 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 multi-storeyed 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 telecommunication system/towers and others applications not covered under any other categories.

**Tariff Rates:**

a) Fixed charge : Rs 65.00 per month per kW of contracted load.

b) Energy charge per month:-

- |                  |   |                   |
|------------------|---|-------------------|
| 1) First 100 kWh | : | @ Rs 3.80 per kWh |
| 2) Next 100 kWh  | : | @ Rs 4.80 per kWh |
| 3) Above 200 kWh | : | @ Rs 5.80 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 5.20 per kWh.

### 2.5 LT Category - 5: Public Water Works

**Applicability:** Applicable to all public water supply system and sewerage pumping.

#### Tariff Rates:

a) Fixed charge : Rs75.00 per month per kW of contracted load.

b) Energy charge per month:-

All kWh : @ Rs 5.10 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 35.00 per month per kW of contracted load.

b) Energy charge per month:-

All kWh : @ Rs 2.00 per kWh

### 2.7 LT Category - 7: Industrial

**Applicability:** Applicable for supply of energy for Industrial purposes, such as manufacturing/ processing / preserving of goods as such, cold storage plants/units, 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/aluminium recycling units, construction of power generating stations/substations and power supply to any generating stations.

**Tariff Rates:**

- a) Fixed charge : Rs 65.00 per month per kW of contracted load.
- b) Energy charge per month:-
- 1) First 400 kWh : @ Rs 4.00 per kWh
  - 2) Above 400 kWh : @ Rs 4.75 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 35.00 per month per kVA of Billing demand.
- b) Energy charge per month:-
- All kWh : @ Rs 4.80 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 65.00 per month per kVA of Billing demand.
- b) Energy charge per month:-
- All kWh : @ Rs 5.50 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 75.00 per month per kVA of Billing demand.
- b) Energy charge per month:-

All kWh : @ Rs 4.90 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 35.00 per month per kVA of Billing demand.
- b) Energy charge per month:-

All kWh : @ Rs 1.95 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 65.00 per month per kVA of Billing demand.
- b) Energy charge per month:-

All kWh : @ Rs 4.55 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, multi-storeyed 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 4.30 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) P&ED has achieved 100% metering of all consumers as per report on 18<sup>th</sup> State Advisory Committee meeting. Hence, computation guide is no longer required and it is deleted. Billing under defective, burnt, lost meter shall be as per the JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013 with latest amendment.

(2) **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.

**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 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) is

connection 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.

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**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 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.250.00 per connection.
- (b) LT three phase connection : Rs.400.00 per connection.
- (c) HT three phase connection : Rs.700.00 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

Works shall be executed only on production of payment receipt from concerned office.

**6.9 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.

**6.10 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**





ANNEXURE - I



**JOINT ELECTRICITY REGULATORY COMMISSION  
FOR MANIPUR AND MIZORAM  
AIZAWL : MIZORAM**

*TBL Bhawan 2<sup>nd</sup> – 5<sup>th</sup> Floor, E-18, Peter Street, Khatla Aizawl, Mizoram - 796001  
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No. H.11019/27/12-JERC

Dated Aizawl, the 22<sup>nd</sup> February, 2017

**MINUTES OF THE 19<sup>TH</sup> MEETING OF THE STATE ADVISORY COMMITTEE OF MIZORAM**

Venue : I & PR Department Conference Hall, Aizawl, Mizoram  
Date & Time : 8<sup>th</sup> February, 2017, 11:00 a.m.

The Chairman of the Committee and Chairperson of the Commission, Er. R. K. Kishore Singh was on the chair and he started the programme by welcoming new Members of the State Advisory Committee viz. Er. F.Rualzakhuma, retired, Chief Engineer, P&E Department and Prof.(retired) Tlanglawma Economics Department, Mizoram University.

The list of Members and Participants who attended the Committee is appended.

**Agenda 1: Confirmation on the Minutes of the SAC Mizoram held on 15<sup>th</sup> February, 2016.**

The Chairman stated that the minutes of the Meeting was circulated earlier to all Members and that they may have gone through the Minutes and requested for their comments, after obtaining nods from the Members, the minutes was declared as confirmed.

**Agenda 2: Determination of Tariff of Power & Electricity Department, Mizoram for FY 2017-18.**

The Chairman requested Er. L. Pachuau, E-in-C, P & E Department to highlight the main points of Tariff Petition. The E-in-C stated that the Department is moving ahead in its preparation for corporatization and separating the Departments into various entities like Transmission, Distribution and Generation. A proposal in this regard to be headed each by Chief Engineer has been submitted to the Government. Also the Department has engaged a consultant for

starting corporate accounting as the present practice of the Department using CPWD manual and code could not reflect the various requirements on corporate accounting.

As requested by E-in-C, Er. Benjamin L. Tlumtea, Sr. EE (Commercial) briefly explained that the Tariff proposal is a mandatory requirement as per the Electricity Act 2003 and MYT Regulations, 2014. He further stated that the Department's proposal on hiking the tariff is very nominal and that Mizoram has one of the lowest in tariff rates in the North East States.

Mr. Vanlalruata representing President, CYMA stated in the Committee that it is now necessary that the Department should be made into a corporatization and further mentioned that interest charges and interest on working capital should not be included unless the Department is corporatized. Prof. Chawngsailova representing President, Mizoram Consumers Union also stated that the association view is that the Department should be corporatized and that in the present scenario the tariff especially the domestic consumers should not be hiked as it caused great hardship to the consumers.

Mr. L. Pachuau, E-in-C stated that Interest charges and Interest on working capital needs to be included as all the Tariff petitions are filed from view angle of corporations.

### **Agenda 3. T&D Losses**

The Transmission and Distribution loss especially Transmission loss, the Department is preparing various improvement systems in this regard through RADPRP by changing all conductors and putting more transformers in the system. The E-in-C further stated that Mizoram has achieved 100% consumer metering with a damaged or doubtful meters which needs replacement of around 3.5% which is around 7000 consumer meters. Energies being injected in all circles are now being accounted and metering of transformers from 132KV upto 11 KV is also being proposed. As a trial package at Thingsulthliah and Vairengte, energy meter having modem and sim card is being taken up where manual reading will not be required and the energy consumed by the consumer could be known from the computer system. Computerised billing system is also being taken up in various towns in Mizoram. Maintenance of transmission line has become great problem to the Department as the earlier transmission lines were put on EGS roads now the poles has to be shifted to PMGSY roads for better maintenance of the Transmission lines and requested the SAC to recommend funds for maintenance of the transmission line to the Government. The MCU stated that while the Consumers are paying their bills regularly but the employees in the Department are misusing electricity by by-passing the electric meters and use electric heaters etc. The Committee proposed to

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set up a Vigilance Committee on electricity which shall include prominent NGOs of the locality to conduct raids and inspect buildings in their area. A formal request is to be submitted by the Commission to the Government in this regard.

Mr. L. Pachuau, E-in-C stated that System meters will be installed at various level of voltages, And the P&E Department will be able to furnished actual losses in, 132kv level, 32kv level , 11kv level and low tension level base on proper energy accounting by March, 2018.

The Meeting ended at 1:30 p.m. with the vote of thanks from the Chair.

Sd/-R.K. KISHORE SINGH

**Chairperson**

**Memo No.H.11019/27/12-JERC**

**:Dated Aizawl, the 22<sup>nd</sup> February, 2017**

Copy to:

1. P.S to Hon'ble Chief Minister, i/c P&E Department, Gov't of Mizoram for kind information to the Hon'ble Chief Minister.
2. PS to Secretary, P&E Department, Gov't 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.



**JOINT ELECTRICITY REGULATORY COMMISSION  
FOR MANIPUR AND MIZORAM  
AIZAWL : MIZORAM**

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**List of Members and Participants who attended the 19<sup>th</sup> Meeting of State Advisory  
Committee of Mizoram.**

**Date & Time :** 8<sup>th</sup> February, 2017 (Wednesday) 11:00 a.m.

**Venue :** I & PR Department Conference Hall, Treasury Square, Aizawl.

Sl. No.	Name	Designation
1	Er. R.K. KISHORE SINGH	Chairperson, JERC(M&M)
2	Er. C. LALHMACHHUANA	Secretary, Power & Electricity Department
3	Er. L. PACHUAU	Engineer-in-Chief, Power & Electricity Department
4	Pi LALSANGPUII	Dy. Director (Commerce Wing) Commerce & Industries
5	Er. LALRINMAWIA	Director, Zoram Energy Development Agency
6	Pu LALPEKHLUA	General Secretary, Mizoram Chamber of Industries and Commerce
7	Pu LALHMANGAIHA	Mizoram Chamber of Industries and Commerce
8	PROF. CHAWNGSAILOVA	President, Mizoram Consumers' Union
9	Pu VANLALRUATA	Vice President, Central Young Mizo Association
10	Pu R. THANKIMA	Finance Secretary Mizoram Upa Pawl Gen. Hqrs.
11	Pu C. LALSANGLUAIA	Dy. Director, Local Administration Department
12	Er. DAVID RAMNUNSANGA	SE (Commercial), Power & Electricity Department
13	Er. BENJAMIN L. TLUMTEA	Sr. Executive Engineer,

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		E- in- C, P&E Department
14	Pu VANLALTHLENGLIANA	JE (Commercial), E -in- C
15	Er. C.C. LALRIMAWIA	AE, E –in- C
16	Er.LALCHHARLIANA PACHUAU	Chief (Engineering), JERC(M&M)
17	Er. H. THANTHIANGA	Assistant Chief (Engineering), JERC(M&M)
18	Pu LALA KHOBUNG	Legal Adviser, JERC(M&M)
19	Pu Y. SATYANARAYANA	Consultant, ASCI
20	Pu SANJIB MAJHI	Consultant, P&E Department
21	Pu ARVIND TEWAN	Consultant, P&E Department
22	Pu LALLIANZUALA	PAO, JERC (M&M)
23	Pu RICHARD ZOTHANKIMA	Assistant Secretary, JERC (M&M)

## ANNEXURE- II



## JOINT ELECTRICITY REGULATORY COMMISSION

## FOR MANIPUR AND MIZORAM

## AIZAWL : MIZORAM

LIST OF PERSONS WHO ATTENDED PUBLIC HEARING ON ARR & TARIFF PROPOSAL FOR FY 2017-18 IN  
RESPECT OF POWER & ELECTRICITY DEPARTMENT, GOVT OF MIZORAM

Venue : I&PR Department Conference Hall, Treasury Square, Aizawl, Mizoram

Date & Time : 9<sup>th</sup> February, 2017 (Thursday) from 11:00 a.m

SI.NO.	NAME	DESIGNATION & ORGANISATION
1	Shri R.K. Kishor Singh	Chairperson, JERC (M&M)
2	Er. Lalchharliana pachuau	Chief (Engg.), JERC (M&M)
3	Mr. Richard Zothankima	Asst. Secretary, JERC (M&M)
4	Er. H. Thanthianga	Asst. Chief (Engg.), JERC (M&M)
5	Mr. Lala Khobung	Legal Advisor, JERC (M&M)
6	Y.Satyanarayana	Consultant ASCI for JERC
7	R. Vanramchhuanga	Vice President, MCU
8	Vanlalruata	Vice President, CYMA
9	Darchungnunga	Vice President, MCU
10	C. Rohnuna	Exec. Committee Member, MCU
11	C. Lalhmachhuana	Press
12	Dr. Lallawmkima	IPRO
13	Vanlallura Hnamte	A.E., P&E Deptt.
14	Sanjib Majhi	Consultant, P&E Deptt.
15	Arvind Tewari	Consultant, P&E Deptt.
16	C.C. Lalrinmawia	A.E. (Commercial), P&E Deptt.
17	Vanlalthlengliana	J.E. (Commercial), P&E Deptt.
18	David Ramnunsanga	S.E. (Commercial), P&E Deptt.
19	Benjamin L. Tlumtea	Sr. E.E. (Commercial), P&E Deptt.
20	Lalramliana	C.E. (S.O.), P&E Deptt.

## ANNEXURE - III

Table: Mizoram - Expected Revenue from Existing Tariff effective from 01.04.2016

Contracted 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)		
4	5	6	7	8	9	10	11	12	13	14
	0.50	10.93		1.40		15.30	0.58			
	1.50	22.89		2.05		37.17	2.03			
	2.00	48.59		2.35		95.44	3.27			
<b>4324.00</b>	<b>4.00</b>	26.24	<b>12/connection</b>		<b>1.52</b>	<b>147.91</b>	<b>5.88</b>	<b>7.40</b>	<b>88.80</b>	<b>2.22</b>
	25.00	26.47		2.35		62.20	48.96			
	48.00	73.40		3.25		193.55	105.48			
	74.00	145.49		4.20		471.06	199.66			
	85.00	269.96		4.80		1035.81	271.78			
<b>320340.00</b>	<b>232.00</b>	95.79	<b>35</b>		<b>112.12</b>	<b>1762.62</b>	<b>625.88</b>	<b>738.00</b>	<b>8856.00</b>	<b>3.82</b>
6856.00	4.00	9259.26	<b>35</b>	4.70	2.40	43518.52	15.67	<b>18.07</b>	216.84	<b>5.42</b>
<b>331520.00</b>	<b>240.00</b>	<b>93.21</b>			<b>116.04</b>	<b>45429.05</b>	<b>647.43</b>	<b>763.47</b>	<b>9072.84</b>	<b>3.78</b>
	5.00	32.47		3.60		116.89	15.00			
	8.00	161.07		4.60		640.92	26.53			
	22.00	492.17		5.50		2426.94	90.40			
<b>59920.00</b>	<b>35.00</b>	140.93	<b>65</b>		<b>38.95</b>	<b>3184.75</b>	<b>131.93</b>	<b>170.88</b>	<b>2050.56</b>	<b>5.86</b>

Contracted 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)		
14841.00	11.00	6642.51	65	5.30	9.65	35205.30	48.58	<b>58.23</b>	698.76	<b>6.35</b>
<b>74761.00</b>	<b>46.00</b>	183.99			<b>48.60</b>	<b>38390.05</b>	<b>180.51</b>	<b>229.11</b>	<b>2749.32</b>	<b>5.98</b>
1927.00	8.00	229.49	60	5.00	1.16	1147.45	33.33	<b>34.49</b>	413.88	<b>5.17</b>
83.00	1.00	6944.44	75	5.00	0.06	34722.20	4.17	<b>4.23</b>	50.76	<b>5.08</b>
40390.00	59.00	84770.11	75	4.80	30.29	406896.53	236.00	<b>266.29</b>	3195.48	<b>5.42</b>
19.00	0.02	75.76	35	1.85	0.01	140.16	0.03	<b>0.04</b>	0.48	<b>2.40</b>
85.00	0.10	8333.33	35	1.80	0.03	14999.99	0.15	<b>0.18</b>	2.16	<b>2.16</b>
	1.00	85.21		3.75		319.54	3.13			
	2.00	1377.41		4.45		5849.47	7.08			
<b>5402.00</b>	<b>3.00</b>	227.48	<b>65</b>		<b>3.51</b>	<b>6169.01</b>	<b>10.21</b>	<b>13.72</b>	<b>164.64</b>	<b>5.49</b>
11957.00	8.00	22222.22	65	4.30	7.77	95555.55	28.67	<b>36.44</b>	437.28	<b>5.47</b>
16215.00	17.00	5366.16	70	4.15	11.35	22269.56	58.79	<b>70.14</b>	841.68	<b>4.95</b>
<b>482359.00</b>	<b>382.12</b>	132.79			<b>218.82</b>	<b>665719.55</b>	<b>1199.29</b>	<b>1418.11</b>	<b>17017.32</b>	<b>4.45</b>



## ANNEXURE - IV

Table: Mizoram - Expected Revenue from Revised Tariff effective from 01.04.2017

Sl. No.	Category	Consumers	Contracted Load (in kW)	Annual Energy Sales (in MU)	Sales/Consumer/Month (in kWh)	Revised 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
<b>1</b>	<b>KJ(Domestic)</b>												
i)	First 15 kWh	3811		0.50	10.93		1.50		16.40	0.63			
ii)	Next 15 kWh	5462		1.50	22.89		2.15		39.46	2.16			
iii)	Balance above 30 kWh	3430		2.00	48.59		2.45		100.30	3.44			
	<b>Sub Total</b>	<b>12702</b>	<b>4324.00</b>	<b>4.00</b>	26.24	<b>12/connection</b>		<b>1.52</b>	<b>156.16</b>	<b>6.23</b>	<b>7.75</b>	<b>93.00</b>	<b>2.33</b>
<b>2</b>	<b>Domestic</b>												
i)	First 50 kWh	78714		25.00	26.47		2.45		64.85	51.05			
ii)	Next 50 kWh	54495		48.00	73.40		3.40		202.06	110.11			
iii)	Next 100 kWh	42385		74.00	145.49		4.40		492.66	208.81			
iv)	Balance above 200 kWh	26238		85.00	269.96		5.00		1082.30	283.97			
	<b>Sub Total</b>	<b>201832</b>	<b>320340.00</b>	<b>232.00</b>	95.79	<b>35</b>		<b>112.12</b>	<b>1841.87</b>	<b>653.94</b>	<b>766.06</b>	<b>9192.72</b>	<b>3.96</b>
3	Domestic HT	36	6856.00	4.00	9259.26	<b>35</b>	4.80	2.40	44444.45	16.00	<b>18.40</b>	220.80	<b>5.52</b>
	<b>Total Domestic</b>	<b>214570</b>	<b>331520.00</b>	<b>240.00</b>	93.21			<b>116.04</b>	<b>46442.48</b>	<b>676.17</b>	<b>792.21</b>	<b>9413.52</b>	<b>3.92</b>
<b>4</b>	<b>Commercial</b>												
i)	First 100 kWh	12832		5.00	32.47		3.80		123.39	15.83			
ii)	Next 100 kWh	4139		8.00	161.07		4.80		673.14	27.86			
iii)	Balance above 200 kWh	3725		22.00	492.17		5.80		2554.59	95.16			

Sl. No.	Category	Consumers	Contracted Load (in kW)	Annual Energy Sales (in MU)	Sales/Consumer/Month (in kWh)	Revised 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)		
	<b>Sub Total</b>	<b>20696</b>	<b>59920.00</b>	<b>35.00</b>	140.93	<b>65</b>		<b>38.95</b>	<b>3351.12</b>	<b>138.85</b>	<b>177.80</b>	<b>2133.60</b>	<b>6.10</b>
5	Commercial HT	138	14841.00	11.00	6642.51	65	5.50	9.65	36533.81	50.42	<b>60.07</b>	720.84	<b>6.55</b>
	<b>Total Commercial</b>	<b>20834</b>	<b>74761.00</b>	<b>46.00</b>	183.99			<b>48.60</b>	<b>39884.93</b>	<b>189.27</b>	<b>237.87</b>	<b>2854.44</b>	<b>6.21</b>
6	Public Lighting	2905	1927.00	8.00	229.49	60	5.20	1.16	1193.35	34.67	<b>35.83</b>	429.96	<b>5.37</b>
7	PWS LT	12	83.00	1.00	6944.44	75	5.10	0.06	35416.64	4.25	<b>4.31</b>	51.72	<b>5.17</b>
8	PWS HT	58	40390.00	59.00	84770.11	75	4.90	30.29	415373.54	240.92	<b>271.21</b>	3254.52	<b>5.52</b>
9	Agl LT	22	19.00	0.02	75.76	35	2.00	0.01	151.52	0.03	<b>0.04</b>	0.48	<b>2.40</b>
10	Agl HT	1	85.00	0.10	8333.33	35	1.95	0.03	16249.99	0.16	<b>0.19</b>	2.28	<b>2.28</b>
11	Industrial LT												
i)	First 400 kWh	978		1.00	85.21		4.00		340.84	3.33			
ii)	Balance above 400 kWh	121		2.00	1377.41		4.75		6242.70	7.55			
	<b>Total Industrial</b>	<b>1099</b>	<b>5402.00</b>	<b>3.00</b>	227.48	<b>65</b>		<b>3.51</b>	<b>6583.54</b>	<b>10.88</b>	<b>14.39</b>	<b>172.68</b>	<b>5.76</b>
12	Industrial HT	30	11957.00	8.00	22222.22	65	4.55	7.77	101111.10	30.33	<b>38.10</b>	457.20	<b>5.72</b>
13	Bulk Supply HT	264	16215.00	17.00	5366.16	70	4.30	11.35	23074.49	60.92	<b>72.27</b>	867.24	<b>5.10</b>
	<b>Grand Total</b>	<b>239795</b>	<b>482359.00</b>	<b>382.12</b>	132.79			<b>218.82</b>	<b>685481.58</b>	<b>1247.6</b>	<b>1466.42</b>	<b>17597.04</b>	<b>4.61</b>

