



# **TARIFF ORDER**

**TRUE UP FOR FY 2017-18**

**REVIEW FOR FY 2018-19**

**AND**

**DETERMINATION OF AGGREGATE REVENUE REQUIREMENT**

**&**

**TARIFF FOR FY 2019-20**

**FOR**

**POWER & ELECTRICITY DEPARTMENT  
GOVERNMENT OF MIZORAM**

**Petition (ARR & Tariff) No. 3 of 2019**

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



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**ABBREVIATIONS**

<b>Abbreviation</b>	<b>Description</b>
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
kVAh	Kilovolt-Ampere hours
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
POSOCO	Power System Operation Corporation Limited



<b>Abbreviation</b>	<b>Description</b>
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**

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

**Petition (ARR & Tariff) No. 3 of 2019**

In the matter of

True up for FY2017-18, Annual Performance Review for FY 2018-19 and  
Determination of Aggregate Revenue Requirement (ARR) and Tariff for FY 2019-20  
for P&ED, Mizoram.

**FOR**

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

**Present**

**Mr. LALCHHARLIANA PACHUAU  
CHAIRPERSON**

**Mr. NGANGOM SARAT SINGH  
MEMBER**

**ORDER**

1. The Power and Electricity Department, Government of Mizoram (herein after referred to as P&ED (Mizoram 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.

**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 30th

November of the preceding year. As per the directive of the Commission, the P&ED Mizoram has filed the ARR and Tariff Petition for true up for FY 2017-18 and Annual Performance review for FY 2018-19 and determination of ARR and retail tariff for FY 2019-20.

## **2. ARR and Tariff Petition for FY 2019-20**

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.

The P&ED has filed the Petition for determination of ARR and tariff petition for FY 2019-20 along with true-up petition for FY2017-18 and Annual Review Petition for FY2018-19. In the petition P&ED estimated ARR and projected a gap of Rs 283.47 Crores for FY 2019-20 at the prevailing Tariffs and with proposed tariffs the gap is at Rs.267.28 crores in their ARR filings.

## **3. Admission of Petition and Public Hearing Process**

The Commission observed that the ARR filed by the petitioner was incomplete and lacking crucial and vital information required as was specified in Commission's (MYT) Regulations 2014.

P&ED was asked to submit the required additional information vide Commission's letter H.20013/26/18-JERC, Dt. 23.01.2019, 30.01.2019 & 8.02.2019. Pending receipt of additional information, the ARR and Tariff Petition was admitted on and marked as Petition (ARR & Tariff) No.3 of 2019 in order to avoid delay in processing of ARR submission 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.20013/26/18-JERC, dt: 23.01.2019. The P & ED department submitted the replies to the additional information vide their Letter No.T-23012/01/19-EC(P)/Com/13,

dt: 5.02.2019, letter No.T-23012/01/15-EC(P)/Com/44, dt: 6.02.2019 and letter No.T-23012/01/19-EC(P)/Com/15, dt: 11.02.2019.

The notification of the proposed ARR and the proposed tariff schedule for FY 2019-20 was published by the P&ED in the following newspapers.

Sl. No	Name of the newspaper	Language	Date of publication
1	Newslink	English	31.01.2019 & 01.02.2019
2	Venglaini	Mizo	1.02.2019 & 02.02.2019

Through the public notice, the stakeholders/public was invited to file their objections and suggestions on the petition on or before **15-02-2019**.

#### **4. Notice for Public Hearing:**

The Commission, to ensure transparency in the process of determination of ARR and tariffs for 2019-20 and providing proper opportunity to all stakeholders and public in general and consumers for making suggestions/objections on the ARR and Tariff petition, has also 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 giving due intimation to all stakeholders, general public, interested parties, and consumers about the public hearing to be held at 11 AM at Aijal club, Aizawl on 22.02.2019.

Sl. No.	Name of the News-paper	Language	Date of Publication
1	The Aizawl Post	Mizo	<b>11/02/2019 &amp; 12/02/2019</b>
2	Highlander	English	<b>16/02/2019 &amp; 19/02/2019</b>

#### **5. Public Hearing:**

Public hearing was held as scheduled on 22.02.2019 in the Aijal Club Hall, Aizawl. During the public hearing each objector was provided a time slot for presenting his/her views on the petition of P&ED, Mizoram before the Commission. The main issues raised by the

objectors during the public hearing along with response of P&ED and Commission's comments there on are briefly reproduced in Chapter - 4.

**6. Meeting of State Advisory Committee (SAC)**

The proposal of the P&ED Mizoram was placed before the State Advisory Committee in its meeting held on 21-02-2019 in the Conference Hall of Aijal Club, Aizawl and discussed the ARR & Tariff proposal for FY 2019-20 of P&ED, Mizoram. There were no objections from any of the members participated in the SAC meeting held on 21.02.2019 with regard to the upward revision of the existing tariff by the Commission for the FY 2019-20. The minutes of the SAC meeting held could not be annexed to this Order by the Commission as the same was not submitted to commission before finalisation of this Tariff Order for FY 2019-20 and it is still pending with the Licensee. Soon on receipt of the minutes of the SAC meeting in full shape, they will be uploaded to the commission website as well as a copy will be communicated to all the members of the SAC individually.

7. The Commission has reviewed the directives issued earlier to P&ED (the petitioner) in the Tariff orders from FY 2010-11 to FY 2018-19 and noted that some of the directives those have already been complied with are dropped. The directives which are partly complied with and the remaining directives are now consolidated and fresh directives are being issued.
8. 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 truing up of the ARR and revenues for FY 2017-18 and Annual Performance Review for FY 2018-19 and approving of the ARR Tariffs for FY 2019-20 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, are as follows.

**9. True-up for FY 2017-18**

The P&ED has submitted true-up petition for FY 2017-18 along with audited annual accounts for FY 2017-18. The Commission, its tariff order dated 28.02.2017 had approved the net ARR to be Rs. 331.13 Crs. With the actuals furnished by P&ED based on the annual accounts for FY 2017-18, the true-up resulted in net ARR of Rs. 375.02 as against Rs. 376.58 Cr furnished by P&ED with surplus amount of Rs. 109.16 Cr. As per Regulations 12.1(i) of the JERC for Manipur and Mizoram (MYT) Regulation 2014 one third of the surplus amount of Rs. 36.38 Cr is being passed on as rebate in the ARR for FY 2019-20.

**10. Annual Performance Review for FY 2018-19**

The P&ED has submitted review petition for FY 2018-19 based on its revised estimate for FY 2018-19. The Commission has reviewed the net ARR of Rs. 307.37 Crs approved in its tariff order dated 12.03.2018 with reference to estimated figures furnished by P&ED which resulted in net ARR of Rs.153.07Crs as against Rs.249.80 Cr furnished by P&ED without Government subsidy.

**11. ARR & Tariffs for FY 2019-20**

The P&ED has submitted ARR petition for FY 2019-20 with net revenue gap of Rs. 283.47 Crs without Government subsidy. The Commission after detailed examination and analysis arrived at the net revenue gap of **Rs. 129.20 Crs** at the existing tariff without Government subsidy.

**12. This Order contains thirteen chapters as detailed below:**

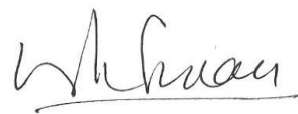
1. Chapter 1: Introduction.
2. Chapter 2: Summary of proposed ARR and Tariffs for FY 2019-20
3. Chapter 3: Power Sector in Mizoram-An over view.
4. Chapter 4: Public hearing process.
5. Chapter 5: True up of ARR for FY2017-18.
6. Chapter 6: Annual performance Review of ARR for FY 2018-19.

7. Chapter 7: Analysis of ARR for FY 2019-20 and approvals of the Commission.
  8. Chapter 8: Tariff principles and design and determination of tariffs for FY2019-20.
  9. Chapter 9: Wheeling charges for FY 2019-20.
  10. Chapter 10: Fuel and Power purchase cost Adjustment.
  11. Chapter 11: ARR of Transmission Function and Transmission charges for FY2019-20.
  12. Chapter 12: ARR of Generation Function for FY2019-20.
  13. Chapter 13: Directives.
13. 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.
14. This order shall be effective from 1st April, 2019 and shall remain in force until the issue of next Tariff Order by the Commission.



**(NGANGOM SARAT SINGH)**

**MEMBER**



**(LALCHHARLIANA PACHUAU)**

**CHAIRPERSON**

**Place : Aizawl**

**Date : 22/03/2019**



## 1.Introduction

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

In exercise of the powers conferred as per Electricity Act 2003, (hereinafter referred to as Act) the Government of India has constituted 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.

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

- a. Determine the tariffs for generation, transmission, distribution of power supply whole sale/ bulk or retail and wheeling of electricity, 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 the wheeling charges and surcharge thereon, if any, for the said category of consumers;
- b. Regulate electricity purchase and procurement process of distribution licensees including the price at which electricity shall be procured from the generating companies or licensees or from other sources through agreements for purchase of power for distribution and supply within the State;
- c. Facilitate intra-State transmission and wheeling of electricity;

- d. Issue licences 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 of the Act;
- 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.

**1.1.1 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.

**1.1.2** The State Commission shall ensure transparency while exercising its powers and discharging its functions.

**1.1.3** 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 (P & ED) 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 is required to submit the ARR and 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 network 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 to arrest power theft and correct metering and energy audit to improve efficiency.

## 2. Summary of ARR & Tariff Petition for FY 2019-20

### 2.1 Aggregate Revenue Requirement (ARR)

The P&ED Mizoram, in its petition has projected the Aggregate Revenue Requirement (ARR) and Tariffs for FY 2019-20 and expected revenue with the existing tariffs and resultant gap. The ARR and revenue gap are shown in Table below.

**Table 2.1: Aggregate Revenue Requirement projected by P & ED for FY 2019-20**

(Rs. Cr)				
Sl. No.	Item of Expense	Approved in T.O. dated 12.03.2018	Proposed by P&ED	Deviation
1	2	3	4	5
1	Cost of Fuel	0.01	0.01	0.00
2	Cost of Generation	8.93	8.93	0.00
3	Cost of Power Purchase	201.44	352.43	150.99
4	Transmission Charges	49.49	44.80	-4.69
5	Intra State Transmission	30.87	30.87	0.00
6	Employee Costs	51.23	121.66	70.43
7	Repair & Maintenance Expenses	7.50	5.62	-1.88
8	Administration and General Expenses	1.49	5.78	4.29
9	Depreciation	5.69	1.98	-3.71
10	Interest charges	1.44	1.54	0.10
11	Interest on Working Capital	4.99	5.55	0.56
12	Provision for bad debts	0.00	0.00	0.00
13	Return on NFA /Equity	0.00	0.00	0.00
14	<b>Total Revenue Requirement</b>	<b>363.08</b>	<b>579.17</b>	<b>216.09</b>
15	Less: Non-Tariff Income	2.71	2.35	-0.36
16	<b>Net Revenue Requirement</b>	<b>360.37</b>	<b>576.82</b>	<b>216.45</b>
17	Less: Revenue from Sale of Power at existing Tariff		293.35	293.35
18	<b>Net Gap</b>	<b>360.37</b>	<b>283.47</b>	<b>-76.90</b>

### 2.2 Tariff

The P&ED, Mizoram in its petition has submitted the existing and proposed tariffs for the FY 2019-20 as detailed in the table below.

Table 2.2: Existing V/s. Proposed Tariff for FY 2019-20

Sl. No.	Categories	Existing		Proposed	
		Energy Charges (Rs. /Month)	Fixed Charges (In Rs. )	Energy Charges (Rs. /Month)	Fixed Charges (In Rs. )
		A	B	A	B
1	<b>Kutir Jyothi</b>				
i)	First 20 kWh	1.75/kWh	15/Connection	2.50/kWh	30/Connection
ii)	Balance > 20 kWh	2.40/kWh	15/Connection	3.35/kWh	30/Connection
2	<b>Domestic</b>				
	<b>A.Low Tension</b>				
i)	First 100 kWh	2.90/kWh	40/Contracted Load in kW	3.40/kWh	50/Contracted Load in kW
ii)	Next 100 kWh	4.45/kWh	40/Contracted Load in kW	4.90/kWh	50/Contracted Load in kW
iii)	Balance >200kWh	5.05/kWh	40/Contracted Load in kW	5.30/kWh	50/Contracted Load in kW
	<b>B.High Tension</b>	4.80/kVAh	40/Billing Demand in kVA	4.80/kVAh	50/Billing Demand in kVA
3	<b>Non-Domestic</b>				
	<b>A.Low Tension</b>				
i)	First 150 kWh	4.35/kWh	70/Contracted Load in kW	3.90/kWh	55/Contracted Load in kW
iii)	Balance >150kWh	5.40/kWh	70/Contracted Load in kW	4.30/kWh	55/Contracted Load in kW
	<b>B.High Tension</b>	5.50/kVAh	70/Billing Demand in kVA	4.40/kVAh	55/Billing Demand in kVA
4	<b>Commercial</b>				
	<b>A.Low Tension</b>				
i)	First 150 kWh	4.35/kWh	70/Contracted Load in kW	4.35/kWh	70/Contracted Load in kW
iii)	Balance >150kWh	5.40/kWh	70/Contracted Load in kW	5.40/kWh	70/Contracted Load in kW
	<b>B.High Tension</b>	5.50/kVAh	70/Billing Demand in kVA	4.55/kVAh	70/Billing Demand in kVA
5	<b>Public Lighting</b>	5.30/kWh	65/Contracted Load in kW	5.40/kWh	70/Contracted Load in kW
6	<b>Irrigation &amp; Agriculture</b>				
	<b>A.Low Tension</b>	2.10/kWh	40/Contracted Load in kW	4.20/kWh	50/Contracted Load in kW
	<b>B.High Tension</b>	2.00/kVAh	40/Billing Demand in kVA	4.10/kVAh	50/Billing Demand in kVA
7	<b>Public Water Works</b>				
	A.Low Tension	5.20/kWh	80/Contracted Load in kW	5.20/kWh	80/Contracted Load in kW
	B.High Tension	4.90/kVAh	80/Billing Demand in kVA	4.40/kVAh	80/Billing Demand in kVA
8	<b>Industrial</b>				
	<b>A.Low Tension</b>				
i)	First 400 kWh	4.10/kWh	70/Contracted Load in kW	4.10/kWh	70/Contracted Load in kW
ii)	Balance >400kWh	4.80/kWh	70/Contracted Load in	4.80/kWh	70/Contracted Load in kW

Sl. No.	Categories	Existing		Proposed	
		Energy Charges (Rs. /Month)	Fixed Charges (In Rs. )	Energy Charges (Rs. /Month)	Fixed Charges (In Rs. )
			kW		
	<b>B.High Tension</b>	4.55/kVAh	70/Billing Demand in kVA	4.40/kVAh	70/Billing Demand in kVA
9	<b>Bulk Supply</b>	4.30/kVAh	80/Billing Demand in kVA	5.10/kVAh	80/Billing Demand in kVA
10	<b>Temporary Connection &amp; Theft</b>				

### 2.3 Prayer

- Approve True-up Petition for FY 2017-18 and APR for the FY 2018-19, Business plan and ARR and Tariffs FY 2019-20 in respect of distribution function, transmission function and generation function for P&ED, Mizoram 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, Mizoram 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, Mizoram 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 Lakhs as per 2011 census. The per capita consumption is about 323 kWh during FY 2017-18. P&ED serves about 2,25,299 consumers of various categories as on 31<sup>st</sup> of March, 2018.

#### 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 2017-18 as furnished by P&ED is as in Table below:

**Table 3.1: Own Generating Stations as on 31.03.2018**

Sl. No.	Station	Installed Capacity (MW)	Net Generation (MU) 2017-18
<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(Not Yet Commissioned)	
<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>	<b>51.18</b>



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 87.98 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 120.48 MW as depicted in the Table below:

**Table 3.2: Share from Central Generating Stations (CGS)**

Sl. No	Source	Plant Capacity (MW)	Licensee's Share in (%)	(MW)
				Licensee's Share in (MW)
<b>A</b>	<b>Central Generating</b>			
<b>I</b>	<b>NTPC</b>			
1	Bongaigon TPS	250	5.42	13.54
2	Farakka STPS	1600	0.14	2.24
3	Kahalgao	840	0.14	1.18
4	Talcher STPS	1000	0.14	1.4
	NTPC-Total	3690		18.35
<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	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	8.85
	NEEPCO-Total	1194		64.33
<b>IV</b>	<b>TSECL</b>			

Sl. No	Source	Plant Capacity (MW)	Licensee's Share in (%)	Licensee's Share in (MW)
1	B'mura - IV	21	25	5.25
2	B'mura - V	21	25	5.25
	TSECL-Total	42		10.50
<b>V</b>	<b>OTPC</b>			
1	Palatana	726	3.03	22
	OTPC-Total	726		22
VI	Total	5757		<b>120.45</b>

(Source: Format – F1 of ARR Petition)

The energy drawn from various central generating stations and Tripura is given in Table below:

**Table 3.3: Energy drawal from Sources outside the State and Own Generation furnished by P & ED for FY 2017-18**

(MU)		
Sl. No	Source	FY 2017-18
<b>A</b>	<b>Central Generating Stations</b>	
<b>I</b>	<b>NTPC</b>	
1	Bongaigon TPS	104.57
2	Farakka STPS	13.45
3	Kahalgaoon STPS	7.85
4	Talcher STPS	9.39
	<b>NTPC-Total</b>	<b>135.25</b>
<b>II</b>	<b>NHPC</b>	
1	Loktak HEP	40.44
	<b>NHPC-Total</b>	<b>40.44</b>
<b>III</b>	<b>NEEPCO</b>	
1	Kopili HEP	47.54
2	Kopili - II HEP	6.86
3	Khandong HEP	9.43
4	Ranganadi HEP	79.40
5	Doyang HEP	12.85
6	AGBPP	82.81
7	AGTPP	40.12
	<b>NEEPCO-Total</b>	<b>279.00</b>
<b>IV</b>	<b>TSECL</b>	
1	B'mura -IV	26.33
2	B'mura -V	14.93
	<b>TSECL-Total</b>	<b>40.26</b>
<b>V</b>	<b>OTPC</b>	
1	Palatana	117.08
	<b>OTPC-Total</b>	<b>117.08</b>
<b>VI</b>	<b>Other Stations/IPPs</b>	1.09
	<b>Others-total</b>	<b>1.09</b>
	<b>State Generating Stations</b>	
1	All Units	57.11

Sl. No	Source	FY 2017-18
	<b>State Generating Stations-Total</b>	<b>57.11</b>
<b>C</b>	<b>UI/ Deviation</b>	
<b>D</b>	<b>Grand Total</b>	<b>671.25</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 centres 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 31.03.2018 are given in Table below:

**Table 3.4: Network Details as on 31.03.2018**

Sl. No	Voltage	Transmission & Distribution lines (Ckt. Km)	Substation No	Transformers	Capacity (MVA)
1	132kV	813	7	86	
2	66 KV	111	2		272
3	33kV	918	61		
4	11kV lines	4721			
	LT lines	3099			
6	Power Transformers				
7	Distribution Transformers		1727		303
8	No of Consumer Meters				
(i)	LT < 5 accuracy				207803
(ii)	HT < 5 accuracy				327
	<b>Total</b>	<b>9662</b>	<b>1797</b>	<b>86</b>	<b>208705</b>

### 3.4 Distribution losses

The distribution losses of P&ED system were 16.16% during the year 2017-18. 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 2017-18 are given in Table below:

**Table 3.5: Consumer Profile and Energy Sales for FY 2017-18**

Sl. No	Category	Energy Sales (MU)	No. of Consumers (Nos.)	Connected Load (MW)
	<b>LT Industrial</b>			
1(a)	Kutir Jyoti - LT	3.56	11794	2.795
1(b)	Domestic - LT	229.95	194603	267.544
2(a)	Commercial - LT	37.75	15833	43.692
3	Public Lighting - LT	2.21	1252	0.943
4(a)	Irrigation & Agriculture –LT	0.01	20	0.02
5(a)	Public Water Works - LT	5.31	13	4.187
6(a)	Industrial - LT	2.19	958	5.283
	<b>HT Industrial</b>			
1(c)	Domestic - HT	5.19	41	5.277
2(b)	Commercial - HT	10.37	151	11.053
4(b)	Irrigation & Agriculture –HT	0.12	1	0.085
5(b)	Public Water Works - HT	36.26	56	40.263
6(b)	Industrial - HT	11.15	25	12.991
7	Bulk Supply - HT	51.41	406	12.168
8	Temp connection & Theft	0.31	146	6.283
9	UI Sales	164.66		
	<b>TOTAL</b>	<b>560.44</b>	<b>225299</b>	<b>412.584</b>

(Source: Form No: R1 of petition)

### 3.6 Demand

As per Load Generation Balance Report (LGBR) of NERPC for FY 2018-19 the peak power demand of P&ED during FY 2018-19 was 114 MW. The allocation of power (firm and infirm) from various central generating stations and NEC funded Baramura Gas Based Thermal Power Plant is 120.48 MW.

The energy procured by P&ED during the year 2018-19 was 920.57 MU including own generation of MU and excluding the UI deviations & RPO obligation.

## 4 Public Hearing Process

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### 4.1 Introduction:

On admitting the ARR and Tariff Petition for FY 2019-20, 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.

No Objection has been received from the Consumers or General public.

### 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 22.02.2019 as scheduled in the Aijal Club, Aizawl from 11:00 A.M. to 12:30 P.M. During the Public Hearing the participants from general public were given an opportunity to offer their views in respect of the ARR and Tariff Petition for FY 2019-20 of P&ED.

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

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:

It was highlighted in the hearing that the proposed tariff hike is Re 0.38/unit (8.05%) from the existing tariff rate. The average tariff will then be Rs 11.36/unit without subsidy whereas it is Rs 5.097/unit with subsidy, leaving a gap of Rs 6.27/unit.

It was further highlighted that Power Purchase Cost is significantly increased from Rs 198.52 Cr (True up figure of FY 2017-18) to Rs 333.36 Cr for FY 2018-19. This significant increase in power purchase cost automatically increases Net ARR. The main reason for increase in Power purchase cost is due to increase of power purchase from two new hydel projects, namely Pare HEP (projected energy purchase being

35.6 MU) and Tuirial HEP (projected energy purchase being 168.39 MU). Energy from these two hydel projects will add up to existing power purchase from various generating sources including state owned generating stations. However, surplus power received will be sold outside the State which will automatically increase revenue from sale of power. As such, sale within the state has no significant increase apart from normal increase.

It was further mentioned and illustrated in the presentation that there is a total of 679 posts presently lying vacant in the Department, majority of which are from Group B and C. A total of 237 posts (43.65% of total post in Group B) and 355 posts (29.91% of total post in group C) are vacant. These employees are the main workers in the field and due to such shortage of manpower, the progress and work efficiency of the Department is greatly hampered. It is therefore, considered imperative to submit proposal for filling up of some vacant post within the next financial year, for which Rs 4.18 Crore is included in the proposed ARR against employee cost.

After discussion on various issues related to this new tariff petition, the Pu Vanlalruata, President Central YMA raised the following objections and the response of P & ED, Mizoram against each objection are furnished below.

**Objection 1:** The impact of Power Purchase volume and its cost contributed by 12% free power from Tuirial HEP.

**Reply:** The power purchase cost from Tuirial HEP is calculated based on Rs 5.18 per unit, which is the provisional tariff rate agreed between State Government and NEEPCO before final tariff is determined. The provisional tariff so determined is calculated after deducting 12% free power and this rate is used for determination of total energy and energy cost from Tuirial HEP.

**Objection 2:** Regarding Employee Cost, True Up figure is always significantly increased as compared to previously approved figure. Although it is explained in the presentation that Employee cost depicted in the petition contains only for Distribution Function and it is as per guideline of JERC Multi Year Tariff Regulation, but the true-up figure is for the whole Department. This is mainly due to the fact the Department actually does not have separate figure for Generation, Transmission and

Distribution for employee cost. As such is the case, it is understood that before Corporatization of the Department, the same has to be continued. At the same time, this new proposal contains recruitment for new employees. It is asked the hearing that whether the Department simply targeted to fill up of all vacancies or actually work out actual manpower requirements.

**Reply:** The P&E Department constituted a team to study and work out actual manpower requirement under the Chairmanship of Chief Engineer (RE). This Committee is about to finalize their report in evaluating actual manpower requirement. After finalization of the report, the Department will then submit proposal for filling up of vacant post and new recruitment of staff based on the final observation of this Committee. It is therefore propose to fill up only 100 vacancy posts against a total of 679 vacancy posts in this petition.

**Objection 3:** It is seen from the new tariff proposed that increase in tariff to some Categories are about 100% like in KJ Category whereas in some cases, no tariff hike is observed like in Public Water Works. Reason and Modalities in determining new tariff proposal in such irregular and haphazard manner is asked in this Hearing.

**Reply:** The Department also made a serious concern over the issue and also found such irregular changes in this tariff proposal. The main criteria based in this new tariff design is to follow the principle laid down in clause 8.3 of National Tariff Policy 2016 that deviation of tariff rate is limited within 20% from average cost of supply such that the cross subsidy value must fall within 80% to 120%.

It is expected that once the principle is followed, the same structure automatically will exist in the future. Based on this principle, cross subsidy value of the new tariff proposed is worked out as follows:

Average Billing Rate as per Tariff Order for FY 2019 - 20 in respect of P&ED, Mizoram									
Sl. No.	Category of Consumers	Average Cost of Supply (Rs./kWh)	Average Cost of Supply after subsidy (Rs./kWh)	Average Billing Rate (Rs./kWh)	Direct subsidy given by State Govt. (Rs./kWh)	Cross - subsidy provided (Rs./kWh)	Total Subsidy (Rs./kWh)	Rate of ABR to ACOS (%)	Ratio of ABR to ACOS after subsidy (%)
					(3-4)	(4-5)	(6+7)	(5/3)	(5/4)
1	2	3	4	5	6	7	8	9	10
	<b>LT Category</b>								
1	Kutir Jyoti	11.36	5.1	4.07	6.26	1.03	7.29	36%	80%
2	Domestic	11.36	5.1	4.54	6.26	0.56	6.82	40%	89%
3	Non-domestic	11.36	5.1	4.94	6.26	0.16	6.42	43%	97%
4	Commercial	11.36	5.1	5.91	6.26	-0.81	5.45	52%	116%
5	Public Lighting	11.36	5.1	5.76	6.26	-0.66	5.6	51%	113%
6	Public Water Works	11.36	5.1	5.92	6.26	-0.82	5.44	52%	116%
7	Irrigation & Agriculture	11.36	5.1	5.03	6.26	0.07	6.33	44%	99%
8	Industrial	11.36	5.1	5.74	6.26	-0.64	5.62	51%	113%
	<b>HT Category</b>								
1	Domestic	11.36	5.1	6.01	6.26	-0.91	5.35	53%	118%
2	Non-domestic	11.36	5.1	5.67	6.26	-0.57	5.69	50%	111%
3	Commercial	11.36	5.1	6.04	6.26	-0.94	5.32	53%	118%
4	Public Water Works	11.36	5.1	6.05	6.26	-0.95	5.31	53%	119%
5	Irrigation & Agriculture	11.36	5.1	4.97	6.26	0.13	6.39	44%	97%
6	Industrial	11.36	5.1	6.01	6.26	-0.91	5.35	53%	118%
7	Bulk Supply	11.36	5.1	6.05	6.26	-0.95	5.31	53%	119%

It can be seen under column 10 of the above table that KJ Category has the least deviation of 80% in the new proposal. Public Water works has 116% and 119% in LT and HT category. Hence, it is considered justified with changes newly proposed. Moreover as compared to tariff of other States, new rate for KJ Category in Mizoram still falls within moderate value as shown below:

Comparison of Tariff for the FY 2018-19							
Category	Mizoram (Existing)	Mizoram (Proposed)	Manipur	Meghalaya	Nagaland	Assam	Sikkim
	(In Rs.)	(In Rs.)	(In Rs.)	(In Rs.)	(In Rs.)	(In Rs.)	(In Rs.)
<b>Kutir Jyothi</b>							
First 20 kWh	1.75/kWh	2.50/kWh	1.70/kWh	3.65/kWh	Same as Domestic	4.60/kWh	
Above 20 kWh	2.40/kWh	3.35/kWh					



<b>Comparison of Tariff for the FY 2018-19</b>							
Category	Mizoram (Existing)	Mizoram (Proposed)	Manipur	Meghalaya	Nagaland	Assam	Sikkim
	(In Rs.)	(In Rs.)	(In Rs.)	(In Rs.)	(In Rs.)	(In Rs.)	(In Rs.)
<b><u>Domestic</u></b>							
LT							
First 100 kWh	2.90/kWh	3.40/kWh	3.60/kWh	3.70/kWh	4.85/kWh	5.45/kWh	2.34/kWh
Next 100 kWh	4.45/kWh	4.90/kWh	4.35/kWh	4.20/kWh	5.95/kWh	6.70/kWh	3.65/kWh
Above 200 kWh	5.05/kWh	5.30/kWh	5.60/kWh	5.70/kWh	6.95/kWh	7.70/kWh	4.57/kWh
HT	4.80/kVah	4.80/kVah		6.20/kVah		7.30/kVah	
<b><u>Commercial</u></b>							
LT							
First 150 kWh	4.35/kWh	4.35/kWh	6.00/kWh	7.30/kWh	7.90/kWh	7.90/kWh	5.60/kWh
Above 150 kWh	5.40/kWh	5.40/kWh	7.10/kWh		9.00/kWh		6.00/kWh
HT	5.50/kVah	4.55/kVah	7.00/kVah	6.60/kVah		8.00/kWh	
<b><u>Industrial</u></b>							
LT							
First 400 kWh	4.10/kWh	4.10/kWh	3.75/kWh	6.00/kWh	5.25/kWh	5.45/kWh	5.30/kWh
Above 400 kWh	4.80/kWh	4.80/kWh			6.30/kWh		6.20/kWh
HT	4.55/kVah	4.40/kVah	4.90/kVah to 6.60 kVah	6.60/kVah		5.90/kVah	3.70/kVah to 5.10 kVah

### Commissions Comments

The Objections raised by the Stakeholders /Public and replies of the P&ED are noted

## 5 True-up of ARR of 2017-18

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### 5.1 Back ground

The Commission had approved ARR for FY 2017-18 on 28.2.2017 on the petition filed by P&ED. The Commission had carried out the review exercise for FY 2017-18 in Tariff Order for FY 2018-19 dated 12-03-2018 based on revised estimates of P&ED.

Now the P&ED has submitted true-up Petition along with ARR and Tariff Petition for FY 2019-20, together with audited annual accounts for FY 2017-18.

As per Regulation 10.6 (ii) of the MYT Regulations, 2014 the Commission has to undertake true up based on audited accounts and pass an order regarding approved aggregate gain or loss on account of controllable factors and the amount of such gains or losses shall be shared in accordance with Regulation 13 of JERC for Mizoram and Manipur (MYT) Regulations 2014 and the components of approved costs pertaining to uncontrollable factors which were not recovered during the previous year shall be pass through as per Regulation 12 of JERC for Mizoram and Manipur (MYT) Regulations 2014 on aggregate gain or loss on account of un controllable factors in the following manner as per MYT Regulations 2014.

12. “Mechanism for pass through of gains or losses on account of uncontrollable factors.

12.1 The approved aggregate gain or loss to the Generating Company or Transmission Licensee or Distribution Licensee on account of uncontrollable factors shall be passed through as an adjustment in the tariff of the Generating Company or Transmission Licensee or Distribution Licensee over such period as may be specified in the Order of the Commission passed under these Regulations.

12.2 The Generating Company or Transmission Licensee or Distribution Licensee shall submit such details of the variation between expenses incurred and revenue earned and the figures approved by the Commission, to the Commission, along

with the detailed computations and supporting documents as may be required for verification by the Commission.

- 12.3 Nothing contained in this Regulation 12 shall apply in respect of any gain or loss arising out of variations in the price of fuel and purchase, which shall be dealt with as specified by the Commission from time to time.

**As per regulations 13 of JERC M & M (MYT) Regulations 2014 the gains or losses on account of controllable factors shall be dealt with the following manner.**

- 13.1 (i) One third of the amount of such gain shall be passed on as a rebate in tariffs over such period as may be stipulated in the order of the Commission under Regulation 10.6

- (ii) The balance amount which will amount to two-third of such gains may be utilized at the discretion of the distribution licensee.

- 13.2 The approved aggregate loss to the Generating Company or Transmission Licensee, Distribution licensee on account of controllable factors shall be dealt with in the following manner.

- (i) One third of the amount of such loss may be passed on as an additional charge in tariffs over such period as may be stipulated in the order of the Commission under Regulation 10.6 and

- (ii) The balance amount of loss which will amount to two thirds of such loss shall be absorbed by the distribution licensee”.

## **5.2 True-up Petition for FY 2017-18**

The P&ED Mizoram in its petition for true-up for FY 2017-18 has furnished actual energy sales, expenditure based on the audited annual accounts for FY 2017-18. Accordingly, the petitioner has claimed revised ARR of Rs.376.58 crs, Revenue of Rs. 219.16 Crs and consequent revenue gap of Rs. 157.42Crs for FY 2017-18

### Commission's Analysis

The Commission has analyzed all components of actual energy sales, expenses and gap under true-up for FY 2017-18 based on accounts as under: wherever necessary the Commission has considered expenses based on prudence check and after taking into account efficiency parameters like distribution loss etc.

### 5.3 Number of Consumers and Connected Load

**Table 5. 1: Consumer Profile and Energy Sales during FY 2017-18**

Sl. No	Category	FY 2017-18			
		Energy Sales (MU)	No. of Consumers (Nos.)	Connected Load (MW)	Avg. Load (kW)
<b>A</b>	<b>LT Industrial</b>	<b>280.98</b>	<b>224593</b>	<b>362.146</b>	
1	Kutir Jyoti	3.56	11794	2.795	0.237
2	Domestic	229.95	194603	267.544	1.375
3	Commercial	37.75	15833	43.692	2.760
4	Public Lighting	2.21	1252	0.943	0.753
5	Irrigation & Agriculture	0.01	20	0.02	1.000
6	Public Water Works	5.31	133	41.869	314.805
7	Industrial	2.19	958	5.283	5.515
<b>B</b>	<b>HT Industrial</b>	<b>105.54</b>	<b>980</b>	<b>81.837</b>	
1	Domestic	5.19	41	5.277	128.707
2	Commercial	10.37	151	11.053	73.199
3	Irrigation & Agriculture	0.12	1	0.085	85.000
4	Public Water Works	36.26	56	40.263	718.982
5	Industrial	2.19	325	12.991	39.972
6	Bulk Supply	51.41	406	12.168	29.970
7	Temp connection & Theft		146	6.224	42.630
8	UI Sales	<b>164.66</b>			
<b>C</b>	<b>TOTAL</b>	<b>551.18</b>	<b>225719</b>	<b>450.207</b>	

As seen from the above table, it is observed that in respect of the following categories, the average connected load is disproportionate as detailed below.

Sl. No	Category	Average Connected load (KW)	Remarks
1	Domestic HT	128.707	Very High
2	Irrigation LT	1	Very Low
3	PWW LT	314.8	Very High
4	PWW HT	718.982	Very High
5	Industrial HT	40	Very Low
6	Bulk supply HT	30	Very Low

Owing to furnishing of high connected load the revenue assessment (fixed charges) will be on the high side than actual billing. **Directive- 19** was also issued in Tariff Order of FY 2014-15 and it is being repeated each year so as to physically verify the individual connected load. The Commission has viewed the inaction and lack of seriousness on the part of the Petitioner with much displeasure. The P & ED, Mizoram is directed to arrange physical verification of the connections and report compliance in next ARR filing of next year. In the mean while, a quarterly report on the progress so far achieved shall be submitted starting from 01.07.2019 onwards.

**As seen from the above out of 225719 L.T connections only 219598 LT connections are with meters and 6121 LT connections are without meters**

In the additional information of P&ED, Mizoram had stated that out of 225299 connections only 219178 are metered connections.

As per 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 a correct meter in accordance with the regulations to be made in this behalf by the authority”.

Directive No. 6 was also issued by the Commission in the tariff order of FY 2010-11 in this matter and it is being repeated ever since then.

Continuance of supply without meter is a serious irregularity. This may be attended to immediately and report compliance by 30.06.2019 confirming that all connections to whom power supply is given are fitted with appropriate capacity and healthy meters.

#### **5.4 Energy sales**

The P&ED in its True- up Petition had furnished the actual energy sales at 395.78 MU as against 382.12MU approved by the Commission for the FY 2017-18. The Category wise actual sales during the FY 2017-18 as reported by the P&ED and now approved by the Commission are given in table below:

**Table 5. 2: Energy Sales approved by the Commission for FY 2017-18 after true-up****(MU)**

Sl. No	Category	Approved by Commission in Tariff Order dated 28.02.2017 (MU)	Actuals furnished by P&ED (MU)	Now approved by Commission
<b>A</b>	<b>LT Industrial</b>	<b>283.02</b>	<b>280.98</b>	<b>280.98</b>
1	Kutir Jyoti	4.00	3.56	3.56
2	Domestic	232.00	229.95	229.95
3	Commercial	35.00	37.75	37.75
4	Public Lighting	8.00	2.21	2.21
5	Irrigation & Agriculture	0.02	0.01	0.01
6	Public Water Works	1.00	5.31	5.31
7	Industrial	3.00	2.19	2.19
<b>B</b>	<b>HT Industrial</b>	<b>99.10</b>	<b>114.81</b>	<b>114.81</b>
1	Domestic	4.00	5.19	5.19
2	Commercial	11.00	10.37	10.37
3	Irrigation & Agriculture	0.10	0.12	0.12
4	Public Water Works	59.00	36.26	36.26
5	Industrial	8.00	11.15	11.15
6	Bulk Supply	17.00	51.41	51.41
7	Temp connection & Theft	0	0.31	0.31
	<b>TOTAL</b>	<b>382.12</b>	<b>395.79</b>	<b>395.78</b>

**The Commission approves energy sales of LT & HT category within the State at 395.78 MU based on the actuals for FY 2017-18 for true-up purpose.**

### **5.5 Distribution Loss**

The Commission in its order dated 28.2.2017 had approved Distribution Loss at 18.40% for FY 2017-18. The P&ED has furnished actual distribution losses at 16.16% for FY 2017-18. While in the ARR filings at form-P2 it was indicated that their distribution Losses as 15.88% (Energy Input is 470.50MU and sales 395.78MU resulting in D.Loss of 74.72MU). This is inconsistent with the 16.16% in the write-up at Table-1.5 and at page-2, para-1.3 of true-up for FY 2017-18 is due to variation in the energy input quantity as 472.09 MU. In future, all the figures indicated within annexure Forms shall not be varying with the base figures, else the purpose of the annexure is not served.

### Commission's analysis

The P&ED Mizoram has not furnished detailed calculation as to how the Distribution loss is arrived at. As such the loss is recalculated duly considering the energy availability, average inter-state pool NER loss at 2.61% being the average actual weekly transmission loss from 03.04.2017 to 01.04.2018 and the transmission loss of ER at 2.10% being the average weekly transmission loss from 04.04.2017 to 02.04.2018. The intra-state transmission loss is however considered at 3% as furnished by P & ED. Considering the above the Distribution Losses of P&ED, Mizoram is worked out to as detailed in Table below:

**Table 5. 3: T&D loss calculation Approved by the Commission for FY 2017-18 after true-up**

Sl. No.	Source	Unit	Energy
1	<b>Own generation</b>	<b>MU</b>	<b>57.11</b>
2	Energy from ER		30.69
3	ER Tr. Loss	%	2.10%
4	Less ER Tr. Loss	MU	0.64
5	Net Energy from ER(2-4)	MU	30.05
6	<b>Energy from NER</b>		<b>583.43</b>
7	Total energy in NER(5+6)		613.48
8	NER Tr. Loss	%	2.61%
9	Less NER Tr. Loss	MU	16.01
10	<b>Net energy in NER (7-9)</b>		<b>597.46</b>
11	UI purchases		25.82
12	UI sales		-26.95
13	Net energy available at state periphery (1+10+11-12)	MU	653.44
14	Intra State Transmission Losses	%	3%
15	Intra State Transmission losses	MU	19.60
16	<b>Net energy available for sale (13-14)</b>	<b>MU</b>	<b>633.84</b>
17	<b>Energy sales within the state</b>	<b>MU</b>	<b>395.78</b>
18	Distribution loss(16-17)	MU	78.34
19	<b>Distribution loss</b>	<b>%</b>	<b>16.52%</b>
20	Energy required at Discom Input level	MU	474.13
21	Surplus Energy for outside sale (16-20)	MU	159.72
22	<b>Grossed Up Surplus Energy with Trans. Losses</b>	<b>MU</b>	<b>164.66</b>

As seen from the above the P&ED, Mizoram has actually achieved the distribution loss at 16.52% which is lower than targeted loss of 18.40%.

Thereby, the Commission approves distribution loss at 16.52% for FY 2017-18 as against 16.16% furnished by P & ED.

## 5.6 Energy Requirement

The energy requirement approved by the Commission for FY 2017-18 in its order dated 28.02.2017, actuals furnished by P&ED in its true-up petition of FY 2017-18 and now approved by the Commission are detailed in table below:

**Table 5.4: Energy Requirement for FY 2017-18 approved by the Commission after true-up**

Sl. No.	Particulars	Unit	As per T.O dt.28.2.2017	Actuals for FY 2017-18	Now approved by Commission
1	Energy Sales	MU	382.12	395.78	395.78
2	Distribution Loss	MU	86.16	76.31	78.34
3	Distribution Loss	%	18.40%	16.16%	16.52%
4	Energy Requirement at State periphery	MU	468.28	472.09	474.13

## 5.7 Own Generation

The Commission in its order dated 28.02.2017 had approved net own generation at 66.52 MU for FY 2017-18. Where as in the filings of P&ED has now furnished actual own generation at 57.11MU for the FY 2017-18.

**Therefore, Commission has now approved P&ED own generation to be 57.11MU for FY 2017-18 based on audited actuals in the true up.**

## 5.8 Purchase of Power

The Commission in its order dated 28.02.2017 had approved power purchase of 597.22 MU for FY 2017-18. The P&ED in its true-up petition for 2017-18 has furnished actual power purchase at 612.99 MU including UI deviation of (-) 1.13 MU as detailed in table below:



Table 5.5: Power Purchase for FY 2017-18 approved by the Commission for true-up.

Sl. No	Source	Power Purchase Approved in Order dated 28.02.2017	Actuals furnished by P&ED	Approved by the Commission
<b>A</b>	<b>Central Generating stations</b>			
I	<b>NTPC- ER</b>			
1	Farakka STPS	13.10	13.45	13.45
2	Kahalgao STPS	7.62	7.85	7.85
3	Talcher STPS	9.46	9.39	9.39
	<b>NTPC-Total</b>	<b>30.18</b>	<b>30.69</b>	<b>30.69</b>
<b>II</b>	<b>NTPC -NER</b>			
4	Bongaigaon TPS	76.39	104.56	104.56
	<b>Sub-Total Bongaigaon</b>	<b>76.39</b>	<b>104.56</b>	<b>104.56</b>
<b>III</b>	<b>NHPC</b>			
5	Loktak HEP	33.13	40.44	40.44
	<b>Sub-Total</b>	<b>33.13</b>	<b>40.44</b>	<b>40.44</b>
<b>IV</b>	<b>NEEPCO</b>			
6	Kopili HEP	40.73	47.54	47.54
7	Kopili - II HEP	6.28	6.86	6.86
8	Khandong HEP	6.34	9.43	9.43
9	Ranganadi HEP	71.06	79.40	79.40
10	Doyang HEP	11.31	12.85	12.85
	<b>Sub Total NEEPCO – Gas based</b>	<b>135.72</b>	<b>156.08</b>	<b>156.08</b>
11	AGBPP	79.87	82.81	82.81
12	AGTPP	47.65	40.11	40.11
	<b>Sub-Total</b>	<b>127.52</b>	<b>122.92</b>	<b>122.92</b>
<b>V</b>	<b>TSECL</b>			
13	B'mura - IV	37.62	26.33	26.33
14	B'mura - V	41.72	14.93	14.93
	<b>Sub-Total</b>	<b>79.34</b>	<b>41.26</b>	<b>41.26</b>
<b>VI</b>	<b>OTPC</b>			
15	Palatana	114.94	117.08	117.08
	<b>Sub-Total</b>	<b>114.94</b>	<b>117.08</b>	<b>117.08</b>
<b>VII</b>	<b>Purchases thro IEX</b>		<b>1.09</b>	<b>1.09</b>
	UI Deviation		(-)1.13	(-)1.13
	<b>Grand Total</b>	<b>597.22</b>	<b>612.99</b>	<b>612.99</b>

### Commission's Analysis

UI deviation of (-) 1.13 means surplus power which tantamount UI sales and should be accounted for under revenue head and hence not considered under power purchase.

**The Commission approves power purchase of 612.99MU including UI and IEX**

purchase of 1.09 MU during FY 2017-18 after true-up as per actual.

## 5.9 Energy Balance

The details of energy requirement and availability of power approved by the Commission for FY 2017-18 in its order dated 28.02.2017 and actuals furnished by the P&ED in its true-up petition for FY 2017-18 and now approved by the Commission are furnished in Table below:

**Table 5.6: Energy Balance for FY 2017-18 approved by the Commission**

Sl. No.	Particulars	Unit	Approved in the order dated 28.02.17	Actuals filed by P&ED	Now approved by Commission
<b>A</b>	<b>Energy Requirement</b>				
1	Energy Sales	MU	382.12	395.78	395.78
2	Distribution Loss %	%	18.40%	16.16%	16.52%
3	Distribution Loss MU	MU	86.16	76.31	78.34
4	Energy Requirement	MU	468.28	472.09	474.13
<b>B</b>	<b>Energy Availability</b>				
5	Own Generation	MU	66.52	57.11	57.11
6	Energy from ER	MU	106.57	135.25	30.69
7	Less: ER Tr loss (%)	%	2.10%	2.11%	2.10%
8	Less: ER Tr loss (MU)	MU	2.24	2.85	0.64
9	Net Energy for ER	MU	104.33	132.40	30.05
10	Energy from NER	MU	490.65	478.87	583.43
11	Total energy in NER (9+10)	MU	594.99	611.27	613.48
12	Less NER Tr loss (%)	%	2.65%	2.60%	2.61%
13	Less NER Tr loss (MU)	MU	15.77	15.89	16.01
14	Net energy(11-13)	MU	579.22	595.37	597.46
15	UI Purchases	MU		25.82	25.82
16	Less: Outside Trading	MU		-26.95	-26.95
17	Total energy available (5+14+15-16)	MU	645.74	651.35	653.44
18	Intra-state transmission loss 3%	%	3%	3%	3%
19	Intrastate transmission loss MU	MU	19.37	19.54	19.60
20	Energy available for sale (17-19)	MU	626.37	631.81	633.84
21	Surplus (20-4)	MU	158.09	159.72	159.72
22	<b>Surplus grossed-up by 3%</b>	<b>MU</b>	<b>162.83</b>	<b>164.66</b>	<b>164.66</b>

### Commission's Analysis

Actual distribution loss was arrived to be **16.52%** as calculated vide Table 5.3 Supra is considered as against 16.16% furnished by P&ED by taking into consideration of the Surplus of power as worked out to be 164.66MU same as that furnished by P&ED.

#### 5.9.1 Fuel Cost

The Commission in its tariff Order for FY 2017-18 had approved fuel cost at Rs. 0.01 Crore Actual Fuel Cost furnished by P&ED and as per audited annual accounts for FY 2017-18 is Rs. NIL Crore during the FY 2017-18.

**The Commission accordingly approves fuel cost at Rs. NIL for FY 2017-18 after true-up.**

#### 5.9.2 Power Purchase Cost

##### Petitioner's submission

The Commission in its order dated 28.2.2017 had approved Rs. 211.85 Crore towards power purchase cost during FY 2017-18 for purchase of 597.22 MU. The P&ED in its true-up petition for FY 2017-18 has furnished actual power purchase cost during FY 2017-18 at Rs. 198.52 Crores for purchase of 670.10 MU including UI deviation of (-1.13MU) as detailed in the table below.

**Table 5.7: Actual Power Purchase Cost furnished by P & ED during FY 2017-18**

Sl. No	Source of Power	Plant Capacity (MW)	Licensee's share in %	Licensee's share in MW	MU Purchased/generated (ex-bus)	All charges Total (in Crs)	Average rate (P/kWh)
<b>A</b>	<b>Central Generating Stations</b>						
1	NTPC						
1	Bongaigaon TPS	250.00	5.415	13.54	104.56	60.64	580
2	Farakka STPS	1600.00	0.140	2.24	13.45	4.79	357
3	Kahalgaoon STPS	840.00	0.140	1.18	7.85	2.77	354
4	Talcher STPS	1000.00	0.140	1.40	9.39	2.43	259
	<b>NTPC Total</b>	<b>3690.00</b>		<b>18.35</b>	<b>135.25</b>	<b>70.64</b>	<b>522</b>

Sl. No	Source of Power	Plant Capacity (MW)	Licensee's share in %	Licensee's share in MW	MU Purchased/ generated (ex-bus)	All charges Total (in Crs)	Average rate (P/kWh)
<b>II</b>	<b>NHPC</b>						
1	Loktak HEP	105.00	5.020	5.27	40.44	10.91	270
	<b>NHPC Total</b>	<b>105.00</b>		<b>5.27</b>	<b>40.44</b>	<b>10.91</b>	<b>270</b>
<b>III</b>	<b>NEEPCO</b>						
1	KopiliHEP	200.00	4.618	9.24	47.54	5.47	115
2	Kopili-II HEP	25.00	6.040	1.51	6.86	0.96	141
3	Khandong HEP	50.00	3.940	1.97	9.43	1.67	177
4	Ranganadi HEP	405.00	5.700	23.09	79.40	17.54	221
5	Doyang Hep	75.00	5.250	3.94	12.85	6.42	500
6	AGBPP	291.00	5.410	15.74	82.81	27.12	327
7	AGTPP	148.00	6.000	8.88	40.12	11.42	285
	<b>NEEPCO-Total</b>	<b>1194.00</b>		<b>64.33</b>	<b>279.00</b>	<b>70.60</b>	<b>253</b>
<b>IV</b>	<b>TSECL</b>						
1	B'mura-IV	21.00	25.00	5.25	26.33	7.93	301
2	B'mura-V	21.00	25.00	5.25	14.93	4.50	301
	<b>TSECL-Total</b>	<b>42.00</b>		<b>10.50</b>	<b>41.26</b>	<b>12.43</b>	<b>301</b>
<b>V</b>	<b>OTPC</b>						
1	Palatana	726.00	3.030	22.00	117.08	34.96	299
	<b>OTPC Total</b>	<b>726.00</b>		<b>22.00</b>	<b>117.08</b>	<b>34.96</b>	<b>299</b>
B	Power exchange through IEX				1.09	0.33	302
C	<b>Own Generation</b>	<b>29.35</b>	<b>100</b>	<b>29.35</b>	<b>57.11</b>	<b>0</b>	<b>0</b>
	<b>Others- Total</b>				<b>1.09</b>	<b>0.33</b>	<b>302</b>
1	UI/ Deviation/				-1.13	-1.35	1196
	<b>UI/ Deviation/ Total</b>				<b>-1.13</b>	<b>-1.35</b>	<b>1195</b>
	<b>Grand Total</b>	<b>5786.35</b>		<b>149.80</b>	<b>670.10</b>	<b>198.52</b>	<b>296</b>

### Commission's analysis

Further to the discussions had in Para 5.8, the UI deviation of Rs.(-) 1.35 Crore furnished by P & ED in cost of power purchase for FY 2017-18 has been considered. Accordingly the power purchase cost works out to be Rs.198.52 Crore tallying with that of Rs. 198.52 Crore furnished by P & ED as detailed in the table below.

Table 5.8: Actual Power Purchase Cost filed by P &amp; ED during FY 2017-18

Sl. No	Source of Power	Plant Capacity (MW)	Licensee's share in %	Licensee's share in MW	MU Purchased/generated (ex-bus)	All charges Total (in lakhs)	Average rate (P/kWh)
<b>A</b>	<b>Central Generating Stations</b>						
1	NTPC						
1	Bongaigaon TPS	250.00	5.415	13.54	104.57	60.64	580
2	Farakka STPS	1600.00	0.140	2.24	13.45	4.79	357
3	Kahalgaoon STPS	840.00	0.140	1.18	7.85	2.77	354
4	Talcher STPS	1000.00	0.140	1.40	9.39	2.43	259
	<b>NTPC Total</b>	<b>3690.00</b>		<b>18.35</b>	<b>135.25</b>	<b>70.64</b>	<b>522</b>
<b>II</b>	<b>NHPC</b>						
1	Loktak HEP	105.00	5.020	5.27	40.44	10.91	270
	<b>NHPC Total</b>	<b>105.00</b>		<b>5.27</b>	<b>40.44</b>	<b>10.91</b>	<b>270</b>
<b>III</b>	<b>NEEPCO</b>						
1	KopiliHEP	200.00	4.618	9.24	47.54	5.47	115
2	Kopili-II HEP	25.00	6.040	1.51	6.86	0.96	141
3	Khandong HEP	50.00	3.940	1.97	9.43	1.67	177
4	Ranganadi HEP	405.00	5.700	23.09	79.40	17.54	221
5	Doyang Hep	75.00	5.250	3.94	12.85	6.42	500
6	AGBPP	291.00	5.410	15.74	82.81	27.12	327
7	AGTPP	148.00	6.000	8.88	40.12	11.42	285
	<b>NEEPCO-Total</b>	<b>1194.00</b>		<b>64.33</b>	<b>279.00</b>	<b>70.60</b>	<b>253</b>
<b>IV</b>	<b>TSECL</b>						
1	B'mura-IV	21.00	25.00	5.25	26.33	7.93	301
2	B'mura-V	21.00	25.00	5.25	14.93	4.50	301
	<b>TSECL-Total</b>	<b>42.00</b>		<b>10.50</b>	<b>41.26</b>	<b>12.43</b>	<b>301</b>
<b>V</b>	<b>OTPC</b>						
1	Palatana	726.00	3.030	22.00	117.08	34.96	299
	<b>OTPC Total</b>	<b>726.00</b>		<b>22.00</b>	<b>117.08</b>	<b>34.96</b>	<b>299</b>
B	Power exchange through IEX				1.09	0.33	302
C	<b>Own Generation</b>	<b>29.35</b>	<b>100%</b>	<b>29.35</b>	<b>57.11</b>	<b>0</b>	<b>0</b>
	<b>Others- Total</b>				<b>1.09</b>	<b>0.33</b>	<b>302</b>
1	UI/ Deviation				-1.13	-1.35	1196
	<b>UI/Deviation Total</b>				<b>-1.13</b>	<b>-1.35</b>	<b>1196</b>
	<b>Grand Total</b>	<b>5786.35</b>		<b>149.80</b>	<b>670.10</b>	<b>198.52</b>	<b>296</b>

The Commission accordingly approves power purchase cost of Rs.198.52 Crore for FY 2017-18 for purchase of 670.10 MU (vide Table 5.5 supra) as per actuals based on audited accounts for true-up.

### 5.9.3 Inter State Transmission Charges

#### Petitioner's Submission

The Hon'ble Commission in the Tariff Order dated 12.03.2018 for the FY 2017-18 had approved transmission charges of 44.28 Crores. The actual transmission charges for the FY 2017-18 is 40.08 Crores. The actual transmission charges based on the audited annual accounts as compared to the approved figure is provided in the table below.

**Table 5.9: Inter State Transmission Charges furnished by P&ED for FY 2017-18**  
(Rs. Cr)

Sl. No.	Particulars	Approved in T.O. dated 12.03.2018	As per Accounts	Deviation
1	2	3	4	5 = (3-4)
1	Transmission Charges	44.28	40.08	-4.20
	<b>Total</b>	<b>44.28</b>	<b>40.08</b>	<b>-4.20</b>

#### Commission's Analysis

Generally actuals as per true-up petition have to be compared with the figures approved by the Commission in its Tariff Order but not in review order.

Now, in view of the considered Power Purchase Cost at Para 5.9.2 the interstate (PGCIL) transmission charges are considered at Rs.40.08 Crores. Thus the total purchase cost including inter-state transmission charges works out to Rs. 237.25 Crore (198.52 + 40.08) which is in line with actuals as per annual accounts for FY 2017-18.

**The Commission approves Inter State Transmission Charges (PGCIL Charges) at Rs. 40.08 Cr for FY 2017-18 as per the audited actual as furnished by P&ED for True up purpose.**

### 5.9.4 Intra State Transmission Charges

The Commission in its order dated 28-02.2017 had approved Intra State Transmission Charges at Rs. 20.98 Cr for FY 2017-18. The P&ED in its True up Petition has stated

that function wise segregated costs are not available and the audited costs are inclusive of transmission and generation costs.

**The Commission accordingly approves Intra State Transmission Charges at Rs. NIL for FY 2017-18 after True up.**

### 5.9.5 O & M Expenses

#### a) Employee Cost

##### Petitioner's submission

The Hon'ble Commission had approved employee cost of Rs.45.84 Crores for the FY 2017-18 vide Tariff Order dated 12.03.2018. The employee cost approved as above only relates to the distribution function. However, the audited accounts for department is not function wise, hence, segregated actual employee expenses for distribution function is not available. The actual employee cost provided below is total for the department as a whole.

It is submitted that in view of the fact that the function wise segregated costs are not available and the audited costs are inclusive of the cost of generation & transmission function, P&ED is not claiming the cost of generation & intra-state transmission charges separately.

The Hon'ble Commission may kindly consider the above submission and true-up the employee cost for the FY 2017-18.

The approved employee cost and actual value of employee cost for FY 2017-18 is provided in the table below:

**Table 5.10: Employee Cost furnished by P&ED for FY 2017-18**

(Rs. Cr)				
Sl. No.	Particulars	Approved in T.O. dated 12.03.2018	As per Accounts	Deviation
1	2	3	4	5 = (3-4)
1	Employee Cost	45.84	100.41	54.57
	<b>Total</b>	<b>45.84</b>	<b>100.41</b>	<b>54.57</b>

### Commissions Analysis

The Commission accordingly approves employee expenses at Rs. 100.41 Crore for total department for FY 2017-18 as per actuals for True up.

#### b) Repairs & Maintenance

##### Petitioner's submission

The Hon'ble Commission had approved repair & maintenance expenses of Rs.7.08 Crores for the FY 2017-18 vide Tariff Order dated 12.03.2018. Repair & maintenance expenses approved as above only relates to the distribution function. However, the audited accounts for department is not function wise hence, segregated actual repair & maintenance expenses for distribution function is not available. The actual repair & maintenance expenses provided below are total for the department as a whole.

It is submitted that in view of the fact that the function wise segregated costs are not available and the audited costs are inclusive of the cost of generation & transmission function, P&ED is not claiming the cost of generation & intra-state transmission charges separately.

The Hon'ble Commission may kindly consider the above submission and true-up the repair & maintenance expenses for the FY 2017-18.

The approved repair & maintenance expenses and actual value of repair & maintenance expenses for FY 2017-18 is provided in the table below:

**Table 5.11: Repair and Maintenance Expenses furnished by P&ED for FY 2017-18**

(Rs. Cr)				
Sl. No.	Particulars	Approved in T.O. dated 12.03.2018	As per Accounts	Deviation
1	2	3	4	5 = (3-4)
1	Repair & Maintenance Expenses	7.08	21.01	13.93
	<b>Total</b>	<b>7.08</b>	<b>21.01</b>	<b>13.93</b>

The Commission accordingly approves the R&M expenses at Rs. 21.01 Crore for



entire department for the FY 2017-18 as per actuals for True up.

**c) Administration & General Expenses**

**Petitioner's submission**

The Hon'ble Commission had approved Administration & General Expenses of 1.33 Crores for the FY 2017-18 vide Tariff Order dated 12.03.2018. Administration & General Expenses approved as above only relates to the distribution function. However, the audited accounts for department is not function wise hence, segregated actual Administration & General Expenses for distribution function is not available. The actual Administration & General Expenses provided below is total for the department as a whole.

It is submitted that in view of the fact that the function wise segregated costs are not available and the audited costs are inclusive of the cost of generation & transmission function, P&ED is not claiming the cost of generation & intra-state transmission charges separately.

The Hon'ble Commission may kindly consider the above submission and true-up the Administration & General Expenses for the FY 2017-18.

The approved Administration & General Expenses and actual value of Administration & General Expenses for the FY 2017-18 is provided in the table

**Table 5.12: Administrative & General Expenses furnished by P&ED for FY 2017-18**

(Rs. Cr)

Sl. No.	Particulars	As per T.O. dated 12.03.2018	As per Accounts	Deviation
1	2	3	4	5 = (3-4)
1	Administration & General Expenses	1.33	5.34	4.01
	<b>Total</b>	<b>1.33</b>	<b>5.34</b>	<b>4.01</b>

**Commission's Analysis**

The Commission accordingly approves Administrative and General expenses at Rs.5.34 Crore for entire department for the FY 2017-18 as per actuals after True-up.

**d) O&M Expenses**

Abstract of actual O&M Expenses furnished by P&ED are as detailed in the Table below.

**Table 5.13: O&M Expenses approved by the Commission for FY 2017-18 after true-up**  
(Rs. Cr)

Sl. No	Particulars	Amount
1	Employee Cost	100.41
2	R&M Expenses	21.01
3	Administration and General expenses	5.34
4	Total O&M Expenses	126.76

**5.9.6 Depreciation**

The Hon'ble Commission had approved Depreciation of Rs.4.98 Crores for the FY 2017-18 vide Tariff Order dated 12.03.2018. The approved Depreciation and actual value of Depreciation as per the Fixed Asset & Depreciation Register for the FY 2017-18 is provided in the table below:

**Table 5.14: Depreciation furnished by P&ED for FY 2017-18**

(Rs. Cr)				
Sl. No.	Particulars	Approved in T.O. dt: 12.03.2018	As per Accounts	Deviation
	1	2	3	4 = (2-3)
1	Depreciation	4.98	4.77	-0.21
	<b>Total</b>	<b>4.98</b>	<b>4.77</b>	<b>-0.21</b>

**Commissions Analysis**

As per audited accounts for FY 2017-18 the total depreciation during FY 2017-18 is Rs. 47.70 Crore and 10 % of the depreciation is Rs.4.77 Crore since 90 % of expenditure funded through grants.

**The Commission accordingly approves depreciation at Rs. 4.77 Crore for the FY 2017-18, being the 10% of depreciation as per actuals.**

### 5.9.7 Interest & Finance Charges

The interest & finance charges approved for the FY 2017-18 and actual value of interest & finance charges made by the P&ED for the FY 2017-18 is provided in the table below:

**Table 5.15 : Interest and Finance Charges furnished by P&ED for FY 2017-18**

(Rs. Cr)

Sl.No	Particulars	Approved in T.O. dt. 12.03.2018	As per Accounts	Deviation
1	2	3	4	5 = (3-4)
1	Interest & Finance Charges	2.26	2.26	0
	<b>Total</b>	<b>2.26</b>	<b>2.26</b>	<b>0</b>

### Commissions Analysis

The Interest and Finance charges of P&ED during FY 2017-18 are worked out as detailed in the table below.

**Table 5. 16: Interest and Finance Charges approved by Commission for FY 2017-18**

after true up (Rs. Ccrs)

Particulars	Gross loan-opening (in Rs. Crore)	Add: drawals during the year	Less: repayment of Loan during the year in Rs. Crore)	Closing balance of loans Rs. Crore)	Average loan Rs. Crore)	Rate of interest on loan % (Average)	Interest on Loan (Rs. Crore)
LIC loans	6	0	1	5	5.5	8.00%	0.44
REC loans		0		0	0	8.35%	
REC (RGGVY) loans	16.78	0	2.39	14.39	15.59	11.67%	1.82
<b>Total loans</b>	<b>22.78</b>	<b>0</b>	<b>3.39</b>	<b>19.39</b>	<b>21.09</b>	<b>9.86%</b>	<b>2.26</b>
Weighted average rate of interest on loans %						9.86%	

Interest and Finance charges of Rs. 2.26 Cr are in line with the audited annual accounts of P&ED for FY 2017-18.

**The Commission accordingly approves Interest & Finance charges at Rs. 2.26 Crore for the FY 2017-18 as per actuals after true-up.**

### 5.9.8 Interest on Working Capital

#### Petitioner's submission

The Interest on Working Capital as approved for the FY 2017-18 and actual value of Interest on Working Capital for the FY 2017-18 is provided in the table below.

**Table 5.17: Interest on working capital furnished by P&ED for FY 2017-18**

Sl. No.	Particulars	Approved in T.O. dated 12.03.2018	As per Audited Accounts	Deviation
1	2	3	4	5= (3-4)
1	Interest on Working Capital	4.37	5.75	1.38
	<b>Total</b>	<b>4.37</b>	<b>5.75</b>	<b>1.38</b>

#### Commissions Analysis

- (i) As per regulation 29(4) of HERC for Manipur and Mizoram (MYT) Regulations 2014 the distribution licensee shall be allowed on estimated level of working capital computed as follows:
- O&M Expenses for one month; plus
  - Maintenance of spares at 1% of historical cost escalated at 6%; plus
  - Receivables equivalent to one month from sale of electricity at prevailing tariff minus.
  - Amount hold as Security deposit under clause (a) and (b) of sub-section (1) of 47 of the Act, from consumers except security deposit held in the form of Bank guarantee.
  - Interest shall be allowed at a rate equal to the State Bank Advance Rate (SBAR) as on 1<sup>st</sup> April of this financial year in which the petition is filed.

**Table 5. 18: Commission approved Interest on working capital for FY 2017-18 after true-up (Rs. Cr)**

Sl. No	Particulars	Total Cost	One Month
1	O&M Expenses	126.76	10.56
2	Maintenance of spares at 1% of Historical cost of GFA escalated by 6%	1194.53	12.66
3	Receivables for one month	219.16	18.26
4	Security Deposit held as on 01.04.2017		11.17

Sl. No	Particulars	Total Cost	One Month
5	Gross Total		30.34
6	Rate of Interest (SABR As on 01.04.2017)		13.85%
7	Interest on Working Capital		<b>4.20</b>

**The Commission approves Interest on Working Capital at Rs. 4.20 Crore for FY 2017-18 as against Rs.5.75 Crore furnished by P&ED after true-up.**

#### **5.9.9 Provision for Bad Debts**

The Commission had not considered any Provision for Bad Debts for the FY 2017-18, since P&ED has not submitted the amount written off during FY 2017-18.

#### **5.9.10 Return on Equity**

Commission had not considered any Return on Equity Capital for the FY 2017-18 as the P&ED is a Government Department.

#### **5.9.11 Non-Tariff Income**

The Commission in its Order dated 28.02.2017 had approved Rs. 2.73 Crore as Non-tariff Income for the FY 2017-18. P&ED has reported the Non-tariff Income at Rs. 1.56 Crore for the FY 2017-18 as per accounts.

**The Commission accordingly approves Rs. 1.56 Crore towards Non-tariff Income for the FY 2017-18, as per actuals.**

#### **5.10 Revenue from approved tariffs**

The P&ED has reported the energy sales at 560.44 MU, including UI Sales of 164.66MU and Revenue from sale of power as per annual accounts is Rs.219.16 Crore including revenue from UI sales amounting to Rs. 46.82 Crore as detailed in Table below:

**Table 5. 19: Revenue from energy Sales FY 2017-18 furnished by P&ED**

Sl. No	Consumer Category (2017-18)	Sales (MU)	Amount (Rs. Crs)	CPU (Rs./kWh)
<b>I</b>	<b>L.T Consumers</b>	<b>280.97</b>	<b>116.86</b>	<b>4.16</b>
1	a. Kutir Jyoti	3.56	1.01	<b>2.84</b>
	b. Domestic (LT)	229.95	90.25	<b>3.93</b>
2	Commercial (LT)	37.75	19.57	<b>5.19</b>
3	Public Lighting	2.21	1.29	<b>5.84</b>
4	Irrigation & Agriculture (LT)	0.01	0.01	<b>10.00</b>
5	Public Water Works (LT)	5.31	3.32	<b>6.25</b>
6	Industrial (LT)	2.19	1.40	<b>6.39</b>
<b>II</b>	<b>H.T Consumers</b>	<b>114.81</b>	<b>55.48</b>	<b>4.83</b>
1	Domestic (HT)	5.19	2.28	<b>4.39</b>
2	b. Commercial (HT)	10.37	6.23	<b>6.01</b>
3	b. Irrigation & Agriculture (HT)	0.12	0.02	<b>1.67</b>
4	b. Public Water Works (HT)	36.26	21.34	<b>5.89</b>
5	b. Industrial (HT)	11.15	4.16	<b>3.73</b>
6	Bulk Supply	51.41	21.22	<b>4.13</b>
7	Temporary supply	0.31	0.23	<b>7.42</b>
	<b>Total Sales within State</b>	<b>395.78</b>	<b>172.34</b>	<b>4.35</b>
8	Outside Sales UI	163.58	46.82	<b>2.86</b>
	<b>Total</b>	<b>559.36</b>	<b>219.16</b>	<b>3.92</b>

### Commission's Analysis

*The average revenue realisation from sale of surplus power is Rs.2.86/KWh while average purchase cost is Rs.3.25/KWh. It is suggested to regulate monthly purchase of costly power like Bongaigaon, AGBPP and AGTPP to the actual requirement and minimise the surplus power by proper planning in SLDC.*

*In respect of Irrigation and Agriculture connections LT average realisation is Rs.10/kWh while for HT Rs. 1.67/kWh. The connected load needs to be checked to get reasonable revenue as per tariff.*

*The Commission accordingly approves the revenue from sale of energy at 219.16 Crore during FY 2017-18 as per actuals after true-up.*

### 5.11 Summary of ARR after true up with actuals and approvals.

**Table 5. 20: Aggregate Revenue Requirement for FY 2017-18 after true-up  
(Rs. Cr)**

Sl. No.	ARR Elements	Approved in T.O dt 28.02.17	Audited Actuals (P&ED)	Commission Approved
1	Fuel Cost	0.01	-	-
2	Cost of Generation	9.06	-	-
3	Power Purchase Cost	211.85	198.52	198.52
4	Inter State Transmission	30.58	40.08	40.08
5	Intra State Transmission	20.93	-	-
6	Employee Cost	45.84	100.41	100.41
7	R & M Expenses	7.08	21.01	21.01
8	A & G Expenses	1.33	5.34	5.34
9	Depreciation	1.58	4.77	4.77
10	Interest & Finance charges	2.26	2.26	2.26
11	Interest on Working Capital	3.34	5.75	4.20
12	Provision for Bad Debts	-	-	-
13	Return on Equity	-	-	-
14	<b>Total ARR</b>	<b>333.86</b>	<b>378.14</b>	<b>376.59</b>
15	Less: Non-Tariff Income	2.73	1.56	1.56
16	<b>Net ARR</b>	<b>331.13</b>	<b>376.58</b>	<b>375.03</b>
17	<b>Less: 1/3 True-up surplus of FY 15-16</b>	20.67	0	20.67
18	Less Rev. from surplus power sale	35.82	46.82	46.82
19	<b>Net ARR after surplus power rev.</b>	<b>274.64</b>	<b>329.76</b>	<b>307.54</b>
20	a) Revenue from sale of power	175.97	172.34	172.34
21	b) Rev. from surplus power sale	35.82	46.82	46.82
22	<b>Total Revenue (a + b)</b>	<b>211.79</b>	<b>219.16</b>	<b>219.16</b>
23	Government Subsidy received	0	0	<b>244.35</b>
24	<b>Surplus/Deficit (19 - 20a -23)</b>	<b>98.67</b>	<b>157.42</b>	<b>-109.15</b>
25	Energy LT & HT sales(MU)	382.12	395.78	395.78
26	Surplus power (MU)	162.83	164.66	164.66
27	<b>Average Cost of supply (Rs./kWh)</b>	<b>7.19</b>	<b>8.33</b>	<b>7.77</b>
28	<b>Average Realisation (Rs./kWh)</b>	<b>4.61</b>	<b>4.35</b>	<b>4.35</b>

### 5.12 Revenue gap/surplus after true up

As seen from the above the P&ED has while not considered Government subsidy of Rs.244.35Crore received by it as per annual accounts for FY 2017-18, and shown a gap of Rs.157.42 Crore **which is not correct.**

After considering Government subsidy of Rs.244.35 Crore, the revenue surplus during FY 2017-18 is Rs.109.15 Cr. 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.36.39 Crore being the one third (1/3rd) of surplus amount of Rs.109.15Crore resulted in True Up of FY 2017-18, is now being passed on as a rebate in the ARR for FY 2019-20.

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## 6 Annual Performance Review for 2018-19

### 6.1 Back ground

The Commission in its Order dated 12.03.2018 had approved the ARR for FY2018-19 based on the projected data by the P&ED. Now the P&ED in its review petition for FY 2018-19 has submitted data as per Revised Estimate for FY 2018-19. 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 2018-19 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 Number of Consumers and Connected Load

**Table 6.1: Number of Consumers and Connected Load as on 31.03.2018**

Sl. No	Category	Consumer (No's)	Connected Load (KW)
	<b>LT Industrial</b>		
1	Kutir Jyoti - LT	12394	2935
2	Domestic - LT	200061	280921
3	Commercial - LT	16676	45525
4	Public Lighting - LT	1315	990
5	Irrigation & Agriculture –LT	20	20
6	Public Water Works - LT	1	4396
7	Industrial - LT	1002	5518
	<b>HT Industrial</b>		
1	Domestic - HT	43	5541
2	Commercial - HT	158	11571
3	Irrigation & Agriculture –HT	1	85
4	Public Water Works - HT	59	41807
5	Industrial - HT	26	13882
6	Bulk Supply - HT	580	19374
	<b>TOTAL ( LT &amp; HT)</b>	<b>232348</b>	<b>432565</b>

As seen from the above table it is observed that in respect of the following categories the average connected load is disproportionate as detailed below.

Sl. No	Category	Average Connected load	Remarks
1	Domestic HT	129KW	Very High
2	Irrigation & agriculture LT	1000W	Very low
3	PWW LT	314KW	Very High
4	PWW HT	709KW	Very High
5	Industrial HT	533KW	Very High
6	Bulk supply HT	33KW	Very Low

Owing to furnishing of high connected load the revenue assessment (fixed charges) will be on high side than actual billing. Directive Number 19 was also issued in FY 2014-15 tariff order and being repeated every year to physically verify the individual connected load. The Commission has viewed with much displeasure on the inaction of the petitioner in this regard. The P & ED Mizoram is directed to arrange physical verification of all the connections and report compliance in next tariff order. In the mean while a quarterly report on the progress achieved shall be submitted starting from 01.07.2019 onwards.

### 6.3 Energy sales

The Commission in its Order dated 12.03.2018 had approved energy sales at 388.30MU for the FY 2018-19. The P&ED has estimated the energy sales at 410.87 MU

#### Commission's Analysis

Energy sales approved by the Commission in its Order for FY 2018-19 estimated by P & ED as per RE and now approved by the Commission are furnished in the table below.

Table 6.2: Energy Sales as approved by the Commission for FY 2018-19 after review (MU)

Sl. No.	Category	Approved by the Commission in T.O dt.12.03.2018 (MU)	Estimated by P&ED (MU)	Now approved by the Commission
	<b>LT Industrial</b>	<b>297.02</b>	<b>290.32</b>	<b>290.32</b>
1	Kutir Jyoti - LT	2	3.65	3.65
1	Domestic - LT	252	236.67	236.67
2	Commercial - LT	31	39.64	39.64
3	Public Lighting - LT	5	2.32	2.32
4	Irrigation & Agriculture LT	0.02	0.01	0.01
5	Public Water Works - LT	5	5.73	5.73
6	Industrial - LT	2	2.31	2.31
	<b>HT Industrial</b>	<b>91.28</b>	<b>120.55</b>	<b>120.55</b>
1	Domestic - HT	5	5.45	5.45
2	Commercial - HT	8	10.88	10.88
4	Irrigation & Agriculture HT	0.28	0.13	0.13
5	Public Water Works - HT	49	11.71	11.71
6	Industrial - HT	10	38.08	38.08
7	Bulk Supply - HT	19	54.30	54.30
	<b>L.T &amp; H.T Total</b>	<b>388.30</b>	<b>410.87</b>	<b>410.87</b>

The Commission now approves energy sales at 410.87MU for FY2018-19 after review.

#### 6.4 Distribution Loss

The Commission in its order dated 12.03.2018 had approved distribution loss at 18.30% for FY 2018-19. The P&ED has estimated distribution loss at the same level of 18.30% as approved in tariff order dated 12.3.2018.

#### Commissions Analysis

In the year 2017-18 the P & ED has furnished distribution loss at 16.16%. But as per detailed calculation the distribution loss works out to 16.52%. Either the same trend may be continued or even at a lower loss levels in the FY 2018-19 shall be preferred for adoption. However, the Commission decides that the distribution losses at 16.52% during FY 2018-19 as the loss percentage indicated in the APR filings for FY 2018-19 was higher at 18.30% and also appears to be unreasonable at that loss levels.

The Commission accordingly approves distribution loss at 16.52% for FY 2018-19 as

against 18.30% estimated by the P&ED.

## 6.5 Energy Requirement

The details of the energy requirement that was approved by the Commission for FY 2018-19 in its Tariff Order dated 12.03.2018, revised estimates submitted by P&ED in its review petition and the Commission approved figures after review are tabulated below:

**Table 6.3: Energy Requirement for FY 2018-19 by the Commission after review**

Sl. No	Particulars	Units	Approved in Tariff Order dt: 12.03.18	APR filing by P&ED	Commission approved after review
1	Energy Sales	MU	388.30	410.87	410.87
2	Distribution Loss	MU	86.98	92.03	81.31
3	Distribution Loss	%	18.30%	18.30%	<b>16.52%</b>
4	Energy Requirement at State periphery	MU	475.28	502.90	492.18

## 6.6 Own Generation

The P&ED's own generation energy approved by the Hon'ble Commission for the FY 2018-19 & the estimated own generation filed by the P&ED for the FY 2018-19 is provided in the table below:

**Table 6.4: Own Generation Tariff Order Vs. P&ED filing for FY 2018-19 (MU)**

Sl. No	Particulars	Approved in T.O. dt: 12.03.2018	P&EDs APR filings	Deviation
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4=(2-3)</b>
1	Total Generation (Net)	64.85	57.11	-7.74
	<b>Total</b>	<b>64.85</b>	<b>57.11</b>	<b>-7.74</b>

### Commission's Analysis

The Commission in its order dated 12.03.2018 had approved own generation at 64.85MU for FY 2018-19, based on the data furnished by P&ED.

**The Commission accordingly approves own generation for FY 2018-19 as 57.11MU estimated by P&ED after review.**

## 6.7 Purchase of Power

Table 6.5 : Allocation of Power during FY 2018-19

Sl. No	Source	Plant Capacity (MW)	Licensee's Share in %	Licensee's Share in MW
<b>A</b>	<b>Central Generating Stations</b>			
<b>I</b>	<b>NTPC</b>			
1	Bongaigaon TPS	250	5.415	13.54
2	Farakka STPS	1600	0.14	2.24
3	Kahalgao STPS	840	0.14	1.18
4	Talcher STPS	1000	0.14	1.40
	<b>NTPC-Total</b>	<b>3690</b>		<b>18.35</b>
<b>II</b>	<b>NHPC</b>			
1	Loktak HEP	105	5.02	5.27
	<b>NHPC-Total</b>	<b>105</b>		<b>5.27</b>
<b>III</b>	<b>NEEPCO</b>			
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	Pare HEP	110	5.765	6.34
7	Tuirial HEP	60		0
8	AGBPP	291	5.41	15.74
9	AGTPP	148	6	8.88
	<b>NEEPCO-Total</b>	<b>1364</b>		<b>70.70</b>
<b>IV</b>	<b>TSECL</b>			
1	B'mura - IV	21	25	5.25
2	B'mura - V	21	25	5.25
	<b>TSECL-Total</b>	<b>42</b>		<b>10.50</b>
<b>V</b>	<b>OTPC</b>			
1	Palatana	726	3.03	22.00
	<b>OTPC-Total</b>	<b>726</b>		<b>22.00</b>
<b>B</b>	<b>State generating Stations</b>			
1	All Units	29.35	100	29.35
	<b>State Generation -Total</b>	<b>29.35</b>		<b>29.35</b>
<b>C</b>	<b>UI / Deviation</b>			
<b>G</b>	<b>GRAND TOTAL</b>	<b>5956.35</b>		<b>156.18</b>

Power purchase approved by the Commission in Tariff Order dated 12.03.2018, and estimated by the P&ED in its review petition for 2018-19 and now approved by the

Commission are furnished in table below:

**Table 6.6: Power Purchase approved by the Commission for FY 2018-19 after review**  
(figures in MU)

Sl. No.	Stations	Approved in the Tariff Order dt.12.03.2018	Estimated by the P&ED	Now approved by Commission
<b>A</b>	<b>NTPC</b>			
1	Bongaigaon	66.09	159.75	66.09
2	Farakka	15.29	14.26	15.29
3	Kahalgaoon	9.09	8.03	9.09
4	Talcher	9.50	9.45	9.50
	<b>Sub Total</b>	<b>99.97</b>	<b>191.49</b>	<b>99.97</b>
<b>B</b>	<b>NEEPCO –Hydro</b>			
4	Koppili I	36.44	51.81	36.44
5	Koppili II	6.68	6.22	6.68
6	Khandong	8.36	9.08	8.36
7	Rangamati	66.80	67.61	66.80
8	Doyang	12.31	13.97	12.31
9	Pare HEP	--	35.60	35.60
10	Tural	--	168.39	168.39
9	<b>Sub Total</b>	<b>130.59</b>	<b>352.68</b>	<b>334.58</b>
<b>C</b>	<b>NEEPCO–Gas based</b>			
10	AGBPP	71.13	79.92	71.13
11	AGTPP	41.62	36.17	41.62
	<b>Sub Total</b>	<b>112.75</b>	<b>116.09</b>	<b>112.75</b>
	<b>NHPC</b>			
12	NHPC Loktak	30.99	37.81	30.99
<b>D</b>	<b>Others</b>			
13	OTPC- Pallatana	117.21	124.11	117.21
14	Baramura – IV	27.80	19.89	27.80
15	Baramura – V	22.10	21.38	22.10
	<b>Sub total</b>	<b>167.11</b>	<b>165.38</b>	<b>167.11</b>
16	<b>UI purchase</b>	<b>38.14</b>	<b>(-)38.65</b>	<b>--</b>
	<b>RPO/REC</b>		<b>0.21</b>	<b>0.21</b>
17	<b>Grand Total</b>	<b>579.55</b>	<b>825.01</b>	<b>745.61</b>

**Commission's Analysis**

The Commission in its Order dated 12.03.2018 had approved power purchase of 579.55MU which resulted in a surplus energy of 138.86 after meeting energy sales requirement of LT & HT within the state at 388.30MU.

Now the P&ED has estimated power purchase of 825.02MU at an average cost of Rs. 4.04 /kWh for meeting the energy sales requirement of 410.87MU, this results in surplus of Power of about 350MU which the P&ED had proposed to sell at an average of Rs. 2.84/kWh.

**Thus, by purchasing quantity of power more than requirement, while at the same time the energy sales within state are not proportionally increased, the petitioner would invariably sustains considerable financial loss on selling the surplus power at a rate considerably lower than the cost of power purchase is against the principles of financial propriety. This aspect needs to be taken care from now onwards are make a good bargain for outside supply sales.**

As such the Commission has considered power purchase already approved in MYT Order dated 12.03.2018 besides the purchase of power from the newly added generating stations during FY 2018-19 as indicated in the above Table. Thus the total power purchase quantum approved during FY 2018-19 is limited to 745.61MU.

**The Commission approves quantum of power purchase at 745.61 MU for the FY 2018-19 as against 825.02MU liberally estimated by P&ED as detailed supra**

**6.8 Energy Balance**

The details of energy requirement and availability of power approved by the Commission for FY 2018-19 in its tariff order dated 12.3.2018, estimated by the P&ED in its review petition for FY 2018-19 and now approved by the Commission are

furnished in Table below:

**Table 6.7: Energy Balance for FY 2018-19 approved by the Commission after review**  
(figures in MU)

Sl. No.	Particulars	Unit	Approved in Tariff Order dt: 12.03.18	Estimated by P&ED	Now approved by Commission
<b>A</b>	<b>Energy Requirement</b>				
1	Energy Sales	MU	388.30	410.87	410.87
2	Distribution Loss %	%	18.30%	18.30%	16.52%
3	Distribution Loss MU	MU	86.98	92.03	81.31
4	<b>Distribution Input</b>	MU	475.28	502.90	492.18
<b>B</b>	<b>Energy Availability</b>				
5	State Own Generation	MU	64.85	57.11	64.85
6	<b>Energy from ER</b>	MU	33.38	191.49	33.88
7	% of ER Trans. Losses	%	2.11%	2.11%	1.95%
8	Less: ER Tr loss (MU)	MU	0.70	4.04	0.66
9	Net Energy for ER	MU	32.68	187.45	33.22
10	<b>Energy from NER</b>	MU	507.54	671.97	711.52
11	Total energy in NER(9+10)	MU	540.22	859.42	744.74
12	% of NER Trans. Losses	%	2.60%	2.60%	2.85%
13	Less: NER Trans Losses	MU	14.05	22.34	21.23
14	<b>Net Energy(11-13)</b>	MU	<b>526.17</b>	<b>837.07</b>	<b>723.51</b>
15	UI Purchases /RPO	MU	38.14	-38.44	0.21
16	<b>State Level Energy (5+14+15)</b>	MU	<b>629.16</b>	<b>855.74</b>	<b>788.57</b>
17	Less: Outside state Trading	MU	0	337.29	
18	<b>Energy at State Periphery</b>	MU	629.16	518.45	787.90
19	Intrastate transmission loss 3%	%	3%	3%	3%
20	Intrastate transmission loss MU	MU	18.87	15.55	23.65
21	<b>Net Energy for sale (16-17)</b>	MU	<b>610.29</b>	<b>502.90</b>	<b>764.25</b>
22	<b>Distribution Input</b>	MU	475.28	502.90	492.18
23	Surplus Energy (18-22)	MU	135.01	0.00	272.07
24	<b>Grossed-up Surplus</b>	MU	<b>139.19</b>	<b>0.00</b>	<b>280.49</b>

### Commission's Analysis

The P&ED has not considered latest scheduled loss prevailing in ER (Eastern) & NER (North Eastern) regions. The scheduled inter-state transmission loss in ER and NER are as follows:

As per weekly actual transmission loss from 02.04.2018 to 23.09.2018, the average weekly transmission loss relevant in ER is 1.95% while in NER the average weekly



transmission loss is 2.85 % as per weekly loss from 02.04.2018 to 09.09.2018. Intra-state transmission loss is however considered at 3%.

Accordingly the energy balance has been modified as tabulated in the above table, which resulted in surplus energy of 280.49 MU to be sold under U.I as against 337.29 MU estimated by P & ED as detailed in the above table.

## **6.9 Fuel Cost**

### **Petitioner's submission**

The Commission in its order dated 12.03.2018 had approved Fuel Cost at Rs. 0.01 Crore for FY 2018-19 for DG set generation at Lengpui. The P&ED has now estimated the same fuel cost of Rs. 0.01 Crore.

### **Commission's Analysis**

**The Commission accordingly approves Fuel Cost at Rs. 0.01 Crore for FY 2018-19 after review.**

## **6.10 Generation Cost**

### **Petitioner's submission**

The Commission in its order dated 12.03.2018 had approved generation cost at Rs. 8.75 Crore for FY 2018-19.

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. 8.75Crore is adopted.

**The Commission accordingly approves generation cost at Rs. 8.75 Crore for FY 2018-19 after review.**

## **6.11 Power Purchase Cost**

### **Petitioner's submission**

The Hon'ble Commission in the Tariff Order for the FY 2018-19 had approved a power purchase quantum of 579.56 MUs at a total cost of Rs.191.35 Crores. As submitted above the estimate of power purchase quantum for the FY 2018-19 is proposed to be revised to 825.02 MUs. Accordingly, the power purchase cost is also proposed to be revised as detailed in the Table below.

**Table 6.8: Power Purchase Cost for FY 2018-19 projected by P&ED**

Sl. No.	Source	Capacity (MW)	Share (%)	Share (MW)	Energy (MU)	Total Cost Crs)	CPU (Rs/kwh)
<b>A</b>	<b>Central Generating Stations</b>						
<b>I</b>	<b>NTPC</b>						
1	Bongaigaon TPS	250	5.415	13.54	159.75	100.16	6.27
2	Farakka STPS	1600	0.14	2.24	14.26	4.43	3.11
3	Kahalgaoon STPS	840	0.14	1.18	8.03	2.61	3.25
4	Talcher STPS	1000	0.14	1.40	9.45	2.47	2.61
	<b>NTPC-Total</b>	<b>3690</b>		<b>18.35</b>	<b>191.49</b>	<b>109.67</b>	<b>5.73</b>
<b>II</b>	<b>NHPC</b>						
1	Loktak HEP	105	5.02	5.27	37.81	11.95	3.16
	<b>NHPC-Total</b>	<b>105</b>		<b>5.27</b>	<b>37.81</b>	<b>11.95</b>	<b>3.16</b>
<b>III</b>	<b>NEEPCO</b>						
1	Kopili HEP	200	4.618	9.24	51.81	5.97	1.15
2	Kopili - II HEP	25	6.04	1.51	6.22	0.85	1.37
3	Khandong HEP	50	3.94	1.97	9.08	1.55	1.71
4	Ranganadi HEP	405	5.70	23.09	67.61	14.01	2.07
5	Doyang HEP	75	5.25	3.94	13.97	5.84	4.18
6	Pare HEP	110	5.765	6.34	35.60	17.80	5.00
7	Tuirial HEP	60		0.00	168.39	87.23	5.18
8	AGBPP	291	5.41	15.74	79.92	28.54	3.57
9	AGTPP	148	6.00	8.88	36.17	12.18	3.37

Sl. No.	Source	Capacity (MW)	Share (%)	Share (MW)	Energy (MU)	Total Cost Crs)	CPU (Rs/kwh)
	<b>NEEPCO-Total</b>	<b>1364</b>		<b>70.70</b>	<b>468.78</b>	<b>173.97</b>	<b>3.71</b>
<b>IV</b>	<b>TSECL</b>						
1	B'mura - IV	21	25	5.25	19.89	5.99	3.01
2	B'mura - V	21	25	5.25	21.38	6.44	3.01
	<b>TTSECL-Total</b>	<b>42</b>		<b>10.50</b>	<b>41.27</b>	<b>12.43</b>	<b>3.01</b>
<b>V</b>	<b>OTPC</b>						
1	Palatana	726	3.03	22.00	124.11	38.52	3.10
	<b>OTPC-Total</b>	<b>726</b>		<b>22.00</b>	<b>124.11</b>	<b>38.52</b>	<b>3.10</b>
<b>B</b>	<b>Own Generation</b>	<b>29.35</b>	100	<b>29.35</b>	<b>57.11</b>		
<b>C</b>	UI / Deviation				-38.65	-13.18	3.41
	<b>UI / Deviation-Total</b>				<b>-38.65</b>	<b>-13.18</b>	<b>3.41</b>
<b>D</b>	REC/RPO Obligation				0.21	2.11	
<b>G</b>	<b>GRAND TOTAL</b>	<b>5956.35</b>		<b>156.18</b>	<b>882.13</b>	<b>335.47</b>	<b>3.80</b>

Further, Power purchase cost for the FY 2018-19 has been arrived at in following manner:

- i. Actual power purchase cost for the H1 of the FY 2018-19 has been considered.
- ii. For estimating the power purchase cost of H2, the estimated quantum of power purchase units for H2 has been taken from actual power purchase unit of FY 2017-18 and source wise average cost of September, 2018 has been applied.
- iii. 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 2018-19 is 17% (9% for non-solar & 8% for solar). P&ED shall meet the requirement of non-solar RPO from its own hydro generation which is estimated at 57.11 MUs for the FY 2018-19. 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 8.00% has been applied on the base figure of 112.40 MUs. Further, P&ED has planned to procure power from own solar project of 0.21 MUs. Accordingly, 8,782.02 MWh (8.78 MUs) is computed as the solar RPO for the FY 2018-19. The rate as prescribed by CERC has been considered to arrive at the cost of RPO of Rs.2.11 Crores. But cost of RPO obligation was somehow not taken into power purchase cost while arriving at the ARR calculations and hence not it is added afresh to arrive at the revenue gap in their calculation also. The Power Purchase cost for FY 2018-19 would stand revised/corrected to **Rs.335.47 Crs (i.e, Rs.333.36 Crs + Rs.2.11 Crs)** as per their filings.

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

**Table 6.9: Power Purchase Cost for FY 2018-19 estimated by P&ED**

(Rs. Crs)

Sl. No.	Particulars	Approved in T.O. dated 12.03.2018	As per Revised Estimate	Deviation
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4=(2-3)</b>
1	Power Purchase Cost	191.35	335.47	144.12
	<b>Total</b>	<b>191.35</b>	<b>335.47</b>	<b>144.12</b>

### Commissions Analysis

As already discussed in Para 6.7, the power purchase cost of Rs.191.35 Crore including RPO Obligation of Rs. 6.88 Crore for purchase of 810.46MU is approved by the Commission as detailed in the table below.

Table 6.10: Power Purchase Cost approved by the Commission for the FY 2018-19

Sl. No.	Source	Capacity (MW)	Share (%)	Share (MW)	Energy (MU)	Total Cost Crs)	CPU (Rs/kwh)
<b>A</b>	<b>Central Generating Stations</b>						
1	Bongaigaon TPS	250	5.415	13.54	66.09	39.37	5.96
2	Farakka STPS	1600	0.14	2.24	15.29	5.96	3.90
3	Kahalgaoon STPS	840	0.14	1.18	9.09	3.25	3.58
4	Talcher STPS	1000	0.14	1.40	9.50	2.36	2.48
	<b>NTPC-Total</b>	<b>3690</b>		<b>18.35</b>	<b>99.97</b>	<b>50.94</b>	<b>5.10</b>
<b>II</b>	<b>NHPC</b>						
1	Loktak HEP	105	5.02	5.27	30.99	9.92	3.20
	<b>NHPC-Total</b>	<b>105</b>		<b>5.27</b>	<b>30.99</b>	<b>9.92</b>	<b>3.20</b>
<b>III</b>	<b>NEEPCO</b>						
1	Kopili HEP	200	4.618	9.24	36.44	3.97	1.09
2	Kopili - II HEP	25	6.04	1.51	6.68	0.86	1.29
3	Khandong HEP	50	3.94	1.97	8.36	1.4	1.67
4	Ranganadi HEP	405	5.70	23.09	66.8	13.07	1.96
5	Doyang HEP	75	5.25	3.94	12.31	5.39	4.38
6	Pare HEP	110	5.765	6.34	35.60	17.80	5.00
7	Tuirial HEP	60		0.00	168.39	87.23	5.18
8	AGBPP	291	5.41	15.74	71.13	23.81	3.35
9	AGTPP	148	6.00	8.88	41.62	11.78	2.83
	<b>NEEPCO-Total</b>	<b>1364</b>		<b>70.70</b>	<b>447.33</b>	<b>165.31</b>	<b>3.70</b>
<b>IV</b>	<b>TSECL</b>						
1	B'mura - IV	21	25	5.25	27.80	8.63	3.10
2	B'mura - V	21	25	5.25	22.10	6.86	3.10
	<b>TTSECL-Total</b>	<b>42</b>		<b>10.50</b>	<b>49.90</b>	<b>15.49</b>	<b>3.10</b>
<b>V</b>	<b>OTPC</b>						
1	Palatana	726	3.03	22.00	117.21	39.64	3.38
	<b>OTPC-Total</b>	<b>726</b>		<b>22.00</b>	<b>117.21</b>	<b>39.64</b>	<b>3.38</b>
<b>B</b>	<b>Own Generation</b>	<b>29.35</b>	100	<b>29.35</b>	<b>64.85</b>	<b>0.00</b>	
<b>C</b>	<b>UI / Deviation</b>						
	<b>UI / Deviation-Total</b>						
<b>D</b>	<b>REC/RPO Obligation</b>				0.21	<b>6.88</b>	327.62
<b>G</b>	<b>GRAND TOTAL</b>	<b>5956.35</b>		<b>156.18</b>	<b>810.46</b>	<b>288.18</b>	<b>3.56</b>

**The Commission accordingly approves power purchase cost of Rs. 288.18 Crore for FY 2018-19 for purchase of 810.46MU including own generation of 64.85MU and solar generation of 0.21MU after review, at an average cost of Rs. 3.56/ kWh.**

#### **6.12 Inter-state Transmission Charges**

The Commission in its order dated 12.03.2018 had approved inter-state transmission charges (PGCIL Charges) at Rs. 46.81 Crore for FY 2018-19. The P&ED in its review petition has estimated an amount of Rs. 42.38 Crore for FY 2018-19.

**The Commission accordingly approves inter-state transmission charges (PGCIL charges) at Rs. 42.38 Crore for FY 2018-19 as estimated by P&ED after review.**

#### **6.13 Intra-state Transmission Charges**

The Commission in its order dated 12.03.2018 had approved intra-state transmission charges at Rs. 28.88 Crore for FY 2018-19. The P&ED in its review petition has estimated same amount of Rs. 28.88 Crore towards intra-state transmission charges for FY 2018-19.

**The Commission accordingly approves intra-state transmission charges at Rs.28.88 Crore for FY 2018-19 after review.**

#### **6.14 O & M Expenses**

##### **i. Employee Cost:**

##### **Petitioner's submission**

The Commission in its Order dated 12.03.2018 had approved of employee cost approved for the FY 2018-19 at Rs. 48.46 Crores. The revised estimate of employee cost for the FY 2018-19 has been arrived at on the basis of actual employee cost for the H1 (1st half year) of the FY 2018-19 of Rs.79.37 Crores for P&ED. Further, P&ED proposed for new recruitment employee cost of Rs. 4.18 Crores. Accordingly, the employee cost estimate for the FY 2018- 19 is revised at Rs. 115.30 Crores for only

relates to the distribution function. The approved & estimated employee cost for the FY 2018-19 is provided in the table below:

**Table 6.11: Employee Cost for FY 2018-19 estimated by P&ED**

(Rs. Cr)

Sl. No	Particular	Approved in T.O. dated 12.03.2018	As per Revised Estimate	Deviation
1	2	3	4	5
1	Employee Cost	48.46	115.30	66.84
	<b>Total</b>	<b>48.46</b>	<b>115.30</b>	<b>66.84</b>

### Commissions Analysis

The P&ED in its true-up petition for FY 2017-18 has stated that as the employee cost between distribution, transmission and generation are not segregated and combined annual accounts are maintained. Accordingly, the employee cost during FY 2017-18 is shown as Rs. 100.40Cr for entire department. The P&ED also not claimed transmission function cost and generation function cost. Now in the review petition the petitioner has claimed Transmission function cost of Rs. 28.88Crore and generation function cost of Rs. 8.75 Crore. As such claiming entire department cost as distribution employee cost is not in order. As such already approved cost of Rs.48.46Cr vide tariff order dated 12.03.2018 is retained.

**The Commission accordingly approves employee expenses at Rs. 48.46 Crore for the FY 2018-19 as against Rs.115.30 Crore estimated by P&ED after review.**

### ii. Repairs & Maintenance

#### Petitioners submission

The value of Repair & Maintenance Expenses approved by the Commission in its tariff order dated 12.03.2018 for the FY 2018-19 is Rs.7.10 Crore. The revised estimate of Repair & Maintenance Expenses for the FY 2018-19 has been arrived at on the basis of actual Repair & Maintenance Expenses for the H1 (1st half year) of the FY 2018-

19 of Rs. 6.23 Crores for P&ED. Accordingly, the Repair & Maintenance Expenses estimate for the FY 2018-19 is revised at Rs. 5.31 Crores for only relates to the distribution function. The approved & estimated Repair & Maintenance Expenses for the FY 2018-19 is provided in the table below:

**Table 6.12: Repair & Maintenance Expenses FY 2018-19 estimated by P&ED**

(Rs. Cr)

Sl. No.	Particulars	Approved in T.O. dated 12.03.2018	As per Revised Estimate	Deviation
1	2	3	4	5
1	Repair & Maintenance Expenses	7.10	5.31	-1.79
	<b>Total</b>	<b>7.10</b>	<b>5.31</b>	<b>-1.79</b>

The Commission accordingly approves the R&M expenses at Rs.5.31 Crore for the FY 2018-19 as estimated by P&ED.

### iii. Administration & General Expenses

The value of Administration & General Expenses approved by the Commission in its tariff order dated 12.03.2018 for the FY 2018-19 is Rs. 1.41 Crore. The revised estimate of Administration & General Expenses for the FY 2018-19 has been arrived at on the basis of actual Administration & General Expenses for the H1 (1st half year) of the FY 2018-19 of Rs. 3.90 Crores for P&ED. Accordingly, the Administration & General Expenses estimate for the FY 2018-19 is revised at Rs. 5.46 Crores for only relates to the distribution function. The approved & estimated Administration & General Expenses for the FY 2018-19 is provided in the table below:

**Table 6.13: Administration & General Expenses FY 2018-19 estimated by P&ED**

(Rs. Cr)

Sl. No.	Particulars	Approved in T.O. dated 12.03.2018	As per Revised Estimate	Deviation
1	Administration & General Expenses	1.41	5.46	4.05
	<b>Total</b>	<b>1.41</b>	<b>5.46</b>	<b>4.05</b>



The Commission accordingly approves Administration and General Expenses at Rs. 5.46 Crore for the FY 2018-19 as estimated by P&ED.

#### iv. O&M Expenses

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

**Table 6.14: O&M Expenses approved by the Commission for FY 2018-19 after Review**

Sl. No.	Details	Amount
1	Employee Cost	48.46
2	R&M Expenses	5.31
3	Administration. and General expenses	5.46
4	<b>Total</b>	<b>59.23</b>

### 6.15 Depreciation

#### Petitioners submission

The Hon'ble Commission has approved the Depreciation for the FY 2018-19. In this regard it is submitted that the GFA for the FY 2017-18 has got revised in accordance with the audited annual accounts for which true-up proposal is being submitted. The Fixed Asset & Depreciation Register for the FY 2017-18 is also being submitted. Therefore, the GFA & corresponding depreciation for the FY 2018-19 also stands revised.

In view of the above it is requested that the Hon'ble Commission may kindly consider & approve the revised depreciation for the FY 2018-19. The depreciation approved by the Hon'ble Commission and revised depreciation for the FY 2018-19 is provided in the table below:

**Table 6.15: Depreciation FY 2018-19 estimated by P&ED**

Sl. No.	Particulars	Approved in T.O. dated 12.03.2018	As per Revised Estimate	Deviation
1	Depreciation	5.41	1.75	-3.66
	<b>Total</b>	<b>5.41</b>	<b>1.75</b>	<b>-3.66</b>

**Commission's Analysis**

As per revised estimate for FY 2018-19 and capital investment plan and Capitalization during FY 2018-19 furnished vide Form No. F2C, the depreciation for FY 2018-19 is worked out as under.

**Table 6.16: Depreciation approved by the Commission for FY 2018-19 after review****(Rs. Cr)**

Sl. No	Particulars	
1	Opening GFA as on 01.04.2018	1224.07
2	Additions during the year FY 2018-19	20.13
3	Closing GFA as on 31.03.2019	1244.20
4	Average GFA	1234.14
5	Average rates of Petition (As per annual accounts 2017-18)	3.94%
6	Depreciation for FY 2018-19	48.62
7	10 % of Depreciation	4.86

**The Commission approves depreciation at Rs. 4.86Crore for FY 2018-19 as against Rs.1.75 Crore estimated by P&ED after review.**

**6.16 Interest & Finance Charges**

The Commission had approved Rs. 1.90 Crore for the FY 2018-19 in its Tariff Order dated 12.03.2018.

P&ED in its review petition for FY 2018-19 has estimated Interest & Finance charges at Rs.1.90 Crore for FY 2018-19.

**Commission's Analysis**

As verified from the format F 3 b the interest and finance charges are worked out to Rs.1.90 Crore for FY 2018-19 as detailed in the table below.

**Table 6.17: Interest and Finance Charges approved by the Commission for FY 2018-19****(Rs. Cr)**

Particulars	Gross Loan Opening	Add: Drawals during the year	Less: repayment of loan during the year	Closing balance of loan	Average loan	Rate of Interest on loan % (Average)	Interest on Loan
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LIC loan	5.00	0.00	1.00	4.00	4.50	8.00%	0.36
REC loan	0.00	0.00	0.00	0.00	0.00	8.35%	0.00
REC ( RGGVY ) Loans	14.39	0.00	2.40	11.99	13.19	11.67%	1.54
Total loans	19.39	0.00	3.40	15.99	17.69	9.78%	1.90

**The Commission accordingly approves Interest & Finance charges at Rs. 1.90 Crore for the FY 2018-19 as estimated by P&ED.**

## **6.17 Interest on Working Capital**

### **Petitioner's Submission**

The P&ED has projected interest on working capital at Rs. 5.40 Cr for FY 2018-19 as against Rs. 4.76 Cr approved by the Commission in its Order dated 12.03.2018.

### **Commission's Analysis**

Now the State Bank has reduced the interest rates and the SBAR as on 01.04.2018 is 13.45%. Further as per FY 2017-18 annual accounts the closing balance of security deposit (in cash) as on 01.04.2018 is Rs. 13.21 Cr. Accordingly the interest on working capital has been revised based on approved costs as detailed in Table below:

**Table 6.18: Interest on working capital approved by the Commission for FY 2018-19 after review (Rs.Crs)**

<b>Sl. No</b>	<b>Particulars</b>	<b>Total Cost</b>	<b>One month Cost</b>
1	O&M Expenses	59.23	4.94
2	Maintenance of Spares 1% at escalation by 6 %	1224.07	12.98
3	Receivables one month	276.01	23.00
4	Less : Security deposit		13.21
5	Total		27.71
6	Interest at SABR of 13.45% as on 1.04.2018		13.45%
7	Interest on Working Capital		3.73

**The Commission approves Interest on Working Capital for FY 2018-19 at Rs. 3.73Crs after review as against Rs.5.40 Crore estimated by P&ED after review.**

**6.18 Provision for Bad Debts**

The Commission had not considered any Provision for Bad Debts for the FY 2018-19, since P&ED has not submitted the amount written off during FY 2018-19.

**6.19 Return on Equity**

The Commission had not considered any Return on Equity Capital for the FY 2018-19 as the P&ED is a Government Department.

**6.20 Non-tariff Income**

The Commission had approved Rs. 2.56 Crore as Non-tariff Income for the FY 2018-19. P&ED in his review petition for FY 2018-19 has estimated the Non-tariff Income at Rs.2.22Crore for the FY 2018-19. Commission has retained already approve amount of Rs.2.56 Cr for FY 2018-19

**The Commission accordingly approves Rs.2.56 Crores towards Non-tariff Income for the FY 2018-19 as against Rs.2.22 Cr estimated by P&ED.**

**6.21 Revenue from existing tariffs**

The Commission in its order dated 12.03.2018 had approved revenue from approved tariff at Rs.198.68 Crore including revenue from sale of surplus power of 139.5 MU. The P&ED in its review petition estimated a revenue of Rs. 198.68Crore for FY 2018-19 including sale of surplus power of 139.5 MU, as detailed in table below:

**Table 6.19: Revenue from sale of power with existing tariff projected by P&ED for FY 2018-19**

(Rs. Cr)

Sl. No.	Category	Approved in T.O. dated 12.03.2018	As per Revised Estimate	Deviation
	<b>LT Category</b>			
1	KJ(Domestic)	0.60	0.95	0.35
2	Domestic	104.66	91.33	-13.33
3	Commercial	18.56	23.44	4.88
4	Public Lighting	2.73	1.31	-1.42
5	Agriculture	0.01	0.00	0.00
6	Public Water Works	3.07	3.40	0.33
7	Industrial	1.23	1.33	0.10
	<b>L.T - Total</b>	<b>130.86</b>	<b>121.77</b>	<b>-9.088</b>
	<b>HT Category</b>			
8	Domestic	2.54	3.20	0.66

Sl. No.	Category	Approved in T.O. dated 12.03.2018	As per Revised Estimate	Deviation
9	Commercial	5.09	7.73	2.64
10	Agriculture	0.06	0.03	-0.03
11	Public Water Works	27.31	25.19	-2.12
12	Industrial	5.39	7.22	1.83
13	Bulk Supply	10.27	28.01	17.74
	<b>H.T - Total</b>	<b>50.66</b>	<b>71.38</b>	<b>20.724</b>
14	Outside State	27.49	95.91	68.42
	<b>Total</b>	<b>209.01</b>	<b>289.06</b>	<b>80.06</b>

(Source Table 1.23 of Petition)

### Commission Analysis

Owing to change in inter-state transmission losses the surplus power has been revised to 272.07MU. Thus the revenue from approved Tariffs worked out to Rs. 275.42 Crore as detailed in table below.

Table 6.20: Revenue at existing Tariff approved by the Commission for FY 2018-19 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	3.65	2.98	1.09
2	Domestic	236.67	4.15	98.22
3	Commercial	39.64	5.99	23.74
4	Public Lighting	2.32	5.46	1.67
5	Public water works	5.73	6.15	3.52
6	Agriculture	0.01	3	0.0003
7	Industrial	2.31	6.13	1.42
	<b>Total</b>	<b>290.33</b>	<b>4.47</b>	<b>129.66</b>
<b>B</b>	<b>HT Supply</b>			
8	Domestic	5.45	5.09	2.77
9	Commercial	10.88	6.36	6.92
10	Public water works	38.08	5.57	21.21
11	Agriculture	0.13	3	0.07
12	Industrial	11.71	5.39	6.31
13	Bulk supply	54.3	5.41	29.38
	<b>Total HT</b>	<b>120.55</b>	<b>5.48</b>	<b>66.66</b>
	<b>Total LT + HT</b>	<b>410.87</b>	<b>4.67</b>	<b>196.32</b>

14	Sale of Surplus power	272.07	2.84	77.27
<b>15</b>	<b>Grand Total</b>	<b>689.51</b>	<b>3.97</b>	<b>275.42</b>

On comparing the revenue from sale of energy sales within the state there is short assessment of Rs. 3.17 Crore which may be checked up.

**The Commission accordingly approves revenue from existing tariffs at Rs.275.42 Crore for FY 2018-19 after review.**

## 6.22 Summary of ARR approved by the Commission.

**Table 6.21: Aggregate Revenue Requirement approved by the Commission for FY 2018-19 after review**

(Rs. Cr)				
Sl. No.	Item of Expense	Approved in T.O. dated 12.03.2018	As per Revised Estimate	Approved by the Commission
1	2	3	4	5
1	Cost of Fuel	0.01	0.01	0.01
2	Cost of Generation	8.75	8.75	8.75
3	Cost of Power Purchase	191.35	335.47	288.16
4	Transmission Charges	46.81	42.38	42.38
5	Intra State Transmission	28.88	28.88	28.88
6	Employee Costs	48.46	115.30	48.46
7	R&M Expenses	7.10	5.31	5.31
8	Administration and General Expenses	1.41	5.46	5.46
9	Depreciation	5.41	1.75	4.86
10	Interest charges	1.90	1.90	1.90
11	Interest on Working Capital	4.76	5.40	3.73
12	Provision for bad debts	0.00	0.00	0
13	Return on NFA /Equity	0.00	0.00	0
<b>14</b>	<b>Total Revenue Requirement</b>	<b>344.84</b>	<b>550.61</b>	<b>437.90</b>
15	Less: Non Tariff Income	2.56	2.22	2.56
16	Less: 1/3 Surplus transferred from FY 2016-17	7.42	7.42	7.42
<b>17</b>	<b>Net Revenue Requirement</b>	<b>334.86</b>	<b>540.97</b>	<b>427.92</b>
18	Less: Revenue from Sale of Power	209.01	289.06	274.87
<b>19</b>	<b>Net Gap</b>	<b>125.85</b>	<b>249.80</b>	<b>152.50</b>

(Source 1.24 of Petition)

As seen from the above, the net ARR for FY 2018-19 works out to Rs. 427.92 Cr with revenue gap of Rs.152.50 as against P&ED estimation of Rs.249.80 Cr after review.

**6.23 Govt. Subsidy**

As against the gap of Rs.152.50 Crore the P&ED shall generate additional revenue of Rs.2.50 Crore by improving internal efficiency and the balance Rs. 150Crore shall be met from Govt. subsidy.

## 7 Aggregate Revenue Requirement (ARR) for FY 2019-20

### 7.1 Background

The Commission in its Tariff Order dated 12.03.2018 had approved ARR for 2nd Block of 5 years from 2018-19 to FY 2022-23 and retail tariff for FY 2018-19.

Now the P&ED has filed ARR and Tariff petition for 2nd year in 2nd Block of five year MYT period for FY 2019-20 seeking determination of ARR & retail tariff for FY 2019-20

In this chapter the Commission has analysed the consumers and connected load, energy sales and components of expenditure and revenue projected by P&ED for FY 2019-20 and approvals accorded as detailed below:

### 7.2 No of consumers and Connected Load

#### Petitioner's Submission

P&ED has furnished category-wise consumers and their connected load actuals for FY 2017-18, estimated for FY 2018-19 and projections for FY 2019-20 as detailed in the table below.

**Table: 7.1 Category wise consumers and connected load for FY 2019-20 projected by P&ED**

Sl. No	Category	FY 2017-18			FY 2018-19			FY 2019-20		
	LT Industrial	No. of Consumers (Nos.)	Connected Load (MW)	Avg. Load	No. of Consumers (Nos.)	Connected Load (MW)	Avg. Load	No. of Consumers (Nos.)	Connected Load (MW)	Avg. Load
1	Kutir Jyoti - LT	11794	2.795	0.237	12394	2.935	0.237	13025	3.081	0.237
1	Domestic - LT	194603	267.544	1.375	200061	280.921	1.404	205672	294.967	1.434
2	Commercial - LT	15833	43.692	2.760	16676	45.525	2.730	17565	47.434	2.700
3	Public Lighting - LT	1252	0.943	0.753	1315	0.99	0.753	1380	1.04	0.754
4	Irrigation & Agriculture –LT	20	0.02	1.000	20	0.02	1.000	20	0.02	1.000
5	Public Water Works - LT	13	4.187	322.077	14	4.396	314.000	14	4.616	329.714
6	Industrial - LT	958	5.283	5.515	1002	5.518	5.507	1049	5.764	5.495
	<b>HT Industrial</b>									
1	Domestic - HT	41	5.277	128.707	43	5.541	128.860	45	5.818	129.289
2	Commercial - HT	151	11.053	73.199	158	11.571	73.234	164	12.113	73.860
3	Irrigation & Agriculture –HT	1	0.085	85.000	1	0.085	85.000	1	0.085	85.000
4	Public Water Works - HT	56	40.263	718.982	59	41.807	708.593	62	43.41	700.161
5	Industrial - HT	25	12.991	519.640	26	13.882	533.923	28	14.835	529.821
6	Bulk Supply - HT	406	12.168	29.970	580	19.374	33.403	609	20.342	33.402



Sl. No	Category	FY 2017-18			FY 2018-19			FY 2019-20		
	LT Industrial	No. of Consumers (Nos.)	Connected Load (MW)	Avg. Load	No. of Consumers (Nos.)	Connected Load (MW)	Avg. Load	No. of Consumers (Nos.)	Connected Load (MW)	Avg. Load
7	Temp connection & Theft	146	6.283	43.034						
8	UI Sales									
	<b>TOTAL</b>	<b>225299</b>	<b>412.584</b>		<b>232349</b>	<b>432.565</b>		<b>239634</b>	<b>453.525</b>	

### Commissions Analysis

As seen from table 7.1 supra, it is observed that in respect of the following categories the average connected load is disproportionate as detailed below.

Sl. No	Category	Average Connected load	Remarks
1	Domestic HT	129.3 KW	Very High
2	Irrigation LT	1KW	Very low
3	PWW LT	330KW	Very High
4	PWW HT	700 KW	Very High
5	Industrial HT	530 KW	Very High
6	Bulk supply (HT)	33KW	Very low

Owing to furnishing of high connected load the revenue assessment (fixed charges) will be on the high side than actual billing and vice versa. Directive Number 19 was issued in FY 2014-15 tariff order and being repeated every year to physically verify the individual connected load. The Commission has viewed with much displeasure the inaction of the petitioner in this regard. The P & ED Mizoram is directed to arrange physical verification of the consumers and their connected load and report compliance in next tariff order. In the mean while a quarterly report on the progress achieved shall be submitted starting from 01.07.2018 onwards.

However, in the process of Tariff finalisation of FY 2019-20, the Commission felt that suitable adjustments needed to the above data to remove the inconsistency in the submitted data and had made relevant modification to the data wherever felt necessary and adopted them into the Tariff determination for FY 2019-20.

### 7.3 Category wise sales Forecast

#### Petitioner's submission

#### Energy sales

The P&ED propose to revise the energy sales for various categories of consumers based on the actual sales for the FY 2017-18 & revised estimate of FY 2018-19. The energy sales for the FY 2019-20 as approved by the Hon'ble Commission in its MYT Order dated 12.03.2018 and revised sales figures provided by P&ED are furnished in the table below:

**Table: 7.2 Energy Sales FY 2019-20 projected by P&ED**

(In MUs)				
Sl. No.	Category	Approved in T.O. dated 12.03.2018	Proposed by P&ED	Deviation
	<b>LT Consumers</b>			
1	Kutir Jyoti	2.00	3.75	1.75
2	Domestic	265.00	243.58	-21.42
3	Commercial	32.00	41.62	9.62
4	Public Lighting	5.00	2.43	-2.57
5	Agriculture	0.02	0.01	-0.01
6	Public Water Works	6.00	6.18	0.18
7	LT Industrial	2.00	2.43	0.43
	<b>Total LT</b>	<b>312.02</b>	<b>300.01</b>	<b>-12.01</b>
	<b>HT Consumers</b>			
8	Domestic	5.00	5.72	0.72
9	Commercial	9.00	11.43	2.43
10	Agriculture	0.29	0.14	-0.15
11	Public Water Works	51.00	39.98	-11.02
12	HT Industrial	11.00	12.30	1.30
13	Bulk Supply	21.00	57.02	36.02
	<b>Total HT</b>	<b>97.29</b>	<b>126.58</b>	<b>29.29</b>
	<b>Total LT + HT</b>	<b>409.31</b>	<b>426.59</b>	<b>17.28</b>
14	Outside State - Trading	113.13	323.95	210.82
	<b>Total</b>	<b>522.44</b>	<b>750.54</b>	<b>228.10</b>

### Commission's Analysis

As verified from the above the P & ED has projected energy sales for FY 2019-20 at 426.59 barring surplus power of 323.95 MU as against 409.31 MU approved in MYT Order dated 12.03.2018. The P & ED submitted that the revised energy sales are projected based on actual energy sales during FY 2017-18 and estimated sales during FY 2018-19 based on revised estimates. The Commission approves energy sales of 426.59 MU as detailed in the Table below.

**Table 7. 3: Energy sales approved by the Commission FY 2019-20**

Sl. No	Category consumers	FY 2019-20
A	<b>LT Supply</b>	
1	Kutir Jyoti	3.75
2	Domestic	243.58
3	Commercial	41.62
4	Public lighting	2.43
5	Irrigation and Agriculture	0.01
6	PWW	6.18
7	Industrial	2.43
8	<b>Total LT</b>	<b>300.01</b>
B	<b>HT supply</b>	
1	Domestic	5.72
2	Commercial	11.43
3	Irrigation and Agriculture	0.14
4	PWW	39.98
5	Industrial	12.30
6	Bulk supply	57.02
7	<b>Total HT</b>	<b>126.58</b>
8	<b>Grand Total (LT+HT)</b>	<b>426.59</b>

The Commission approves energy sales during FY 2019-20 at 426.59 MU as projected by P & ED Mizoram.

### 7.4 Distribution Loss

#### Petitioner's submission

It is submitted that the P&ED is making all efforts to meet the trajectory of distribution loss given by the Hon'ble Commission in the MYT Order. Accordingly, P&ED is not proposing any deviation in the distribution loss % approved by the

Hon'ble Commission for the FY 2019-20 at this stage. However, actuals & deviations if any shall be submitted for consideration & approval at the time of true-up. The Distribution loss for the FY 2019-20 as approved by the Hon'ble Commission in its order dated 12.03.2018 is provided in the table below:

**Table 7.4: Distribution Loss for FY 2019-20 projected by P&ED**

Sl. No	Particulars	Approved in T.O. dated 12.03.2018	Proposed by P&ED
1	Distribution Loss	18.20%	18.20%

### Commissions Analysis

During FY 2017-18, P&ED achieved actual distribution loss at 16.90% as against targeted loss of 18.40%. Similarly, in the subsequent years also P&ED shall make endeavour to perform better and achieve the same level of losses of 16.90% or even at reduced loss levels but not at the targeted loss level of 18.20% for FY 2019-20.

**However the Commission approves distribution Loss at 16.52% during FY 2019-20 as against 18.20% projected by P&ED Mizoram.**

## 7.5 Energy Requirement

Energy requirement approved by the Commission in its order dated 12.03.2018, projected by P&ED Mizoram and now approved by the Commission are furnished in the table below.

**Table 7. 5: Energy Requirement approved by the Commission for FY 2019-20**

Sl. No	Energy Balance	Units	Approved in the Tariff order dt: 12.03.2018	Projected by P&ED for FY 2019-20	Now approved by the Commission for FY 2019-20
<b>A</b>	<b>Energy requirement</b>				
1	Energy sales	MU	409.31	426.59	426.59
2	Distribution loss	%	18.20	18.20	16.52%
3	Distribution loss	MU	91.07	94.91	84.42
<b>4</b>	<b>Total energy requirement</b>	<b>MU</b>	<b>500.38</b>	<b>521.50</b>	<b>511.01</b>

## Sources of Power

### 7.6.1 Own Generation

#### Petitioner's submission

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 the table below.

**Table 7.6: Details of Hydel stations**

Sl. No	Name of Station	Capacity (MW)	Date of COD
<b>I</b>	<b>Hydel</b>		
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	Kai-Tlabung	3.00	05.05.2005
9	Lansial	0.50	26.08.2008
10	Maicham-II	3.00	11.11.2009
11	Seruli 'B'	12.00	Not yet Commissioned
	<b>Sub Total</b>	<b>29.35</b>	
<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>	

P & ED has furnished own generation at 57.11 MU during FY 2019-20.

#### Commissions Analysis

The Commission in its order dated 12.03.2018 had approved 64.85MU for FY 2019-20 as per the additional information given by the P&ED. So own generation for FY 2019-20 is considered at 64.85 MU as already approved in its tariff order dated 12.03.2018.

**The Commission accordingly approves Net Generation from Own generating stations at 64.85MU for FY 2019-20 as against 57.11MU projected by P&ED.**

### 7.6.2 Power Purchase

P&ED has allocation of power from various central generating stations in north eastern region of NEEPCO, NHPC and in eastern region & North eastern region of NTPC, Tripura gas based generating stations TSECL-Baramura and OTPC-Pallatana as given below:

**Table 7. 7: Allocation of power (in MWs) from Central Sector and other Generating Stations**

Sl. No	Source	Plant Capacity (MW)	P&ED Share in %	P&ED Share in MW
<b>A</b>	<b>Central Generating</b>			
<b>I</b>	<b>NTPC</b>			
1	Bongaigaon	250	5.415	13.54
2	Farakka STPS	1600	0.14	2.24
3	Kahalgao STPS	840	0.14	1.18
4	Talcher STPS	1000	0.14	1.40
	<b>NTPC-Total</b>	<b>3690</b>		<b>18.35</b>
<b>II</b>	<b>NHPC</b>			
1	Loktak HEP	105	5.02	5.27
	<b>NHPC-Total</b>	<b>105</b>		<b>5.27</b>
<b>III</b>	<b>NEEPCO</b>			
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	Para HEP	110	5.765	6.34
7	Tural HEP	60	No allocation	
8	AGBPP	291	5.41	15.74
9	AGTPP	148	6.00	8.88
	<b>NEEPCO-Total</b>	<b>1364</b>		<b>70.70</b>
<b>IV</b>	<b>TSECL</b>			
1	B'mura - IV	21	25	5.25
2	B'mura - V	21	25	5.25
3	<b>TSECL-Total</b>	<b>42</b>		<b>10.50</b>
<b>V</b>	<b>OTPC</b>			
1	Palatana	726	3.03	22.00
	<b>OTPC-Total</b>	<b>726</b>		<b>22.00</b>
<b>VI</b>	<b>Own Generation</b>	52.77	100	52.77
<b>VII</b>	<b>Total</b>	<b>5979.77</b>		<b>179.59</b>

(Source: Extract of Form F1)

### 7.6.3 Assumption for Power Purchase Projection:

The merit order dispatch principles are to be adopted while determining the power purchase from various generating stations. However, in a power deficit scenario, these principles do not play any 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.

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

P & ED has furnished station wise projection of power purchase including own generation as detailed in the table below.

**Table 7.8: Power Purchase from Central Sector and other Generating Stations Projected by P&ED during FY 2019-20**

Sl. No	Source	Plant Capacity (MW)	Licensee' share (%)	Licensee's Share (MW)	MU Purchased (ex-bus)
<b>A</b>	<b>Central Generating Stations</b>				
<b>I</b>	<b>NTPC</b>				
1	Bongaigaon TPS	250	5.415	13.54	159.75
2	Farakka STPS	1600	0.14	2.24	14.26
3	Kahalgao STPS	840	0.14	1.18	8.03
4	Talcher STPS	1000	0.14	1.40	9.45
	<b>NTPC-Total</b>	<b>3690</b>		<b>18.35</b>	<b>191.49</b>
<b>II</b>	<b>NHPC</b>				
1	Loktak HEP	105	5.02	5.27	37.81
	<b>NHPC-Total</b>	<b>105</b>		<b>5.27</b>	<b>37.81</b>
<b>III</b>	<b>NEEPCO</b>				
1	Kopili HEP	200	4.618	9.24	51.81
2	Kopili - II HEP	25	6.04	1.51	6.22
3	Khandong HEP	50	3.94	1.97	9.08
4	Ranganadi HEP	405	5.70	23.09	67.61
5	Doyang HEP	75	5.25	3.94	13.97
6	Pare HEP	110	5.765	6.34	35.60
7	Tuirial HEP	60		0	168.39
8	AGBPP	291	5.41	15.74	79.92
9	AGTPP	148	6.00	8.88	36.17
	<b>NEEPCO-Total</b>	<b>1364</b>		<b>70.7</b>	<b>468.78</b>
<b>IV</b>	<b>TSECL</b>				
1	B'mura - IV	21	25	5.25	19.89

Sl. No	Source	Plant Capacity (MW)	Licensee's share (%)	Licensee's Share (MW)	MU Purchased (ex-bus)
2	B'mura - V	21	25	5.25	21.38
	<b>TSECL-Total</b>	<b>42</b>		<b>10.50</b>	<b>41.27</b>
<b>V</b>	<b>OTPC</b>				
1	Palatana	726	3.03	22.00	124.11
	<b>OTPC-Total</b>	<b>726</b>		<b>22.00</b>	<b>124.11</b>
<b>C</b>	<b>UI / Deviation</b>				-38.65
	<b>UI / Deviation-Total</b>				<b>-38.65</b>
<b>D</b>	<b>RPO Obligation / REC Certificate</b>				6.05
<b>G</b>	<b>GRAND TOTAL</b>	<b>5927</b>		<b>126.83</b>	<b>830.86</b>

### Commission's Analysis

In the FY 2017-18 as against energy sales of 395.78MU within the state, 614.12 MU were purchased resulting in surplus of power 164.66 MU with distribution loss at 16.16%. While so during FY 2019-20 as against approved energy sales of 426.59 MU projection of power purchase of 830.86MU with distribution loss at 16.52% is on very high side.

The Commission in its Order dated 12.03.2018 had approved power purchase of 579.06MU for FY 2019-20 including UI purchase of 38.14MU as against energy sales within the state at 409.31 MU and it is ended in surplus of power to a tune of 113.13MU with distribution loss of 18.20%.

As such the Commission considers the power purchase of 540.92 MU excluding UI purchase of 38.14U as was approved in its tariff order dated 12.03.2018 plus the power purchase projected from the following two new hydel stations.

Sl. No	Station	Plant Capacity	Licensee's share	Licensee share in MW	Power purchase projected MU
1	Pare HEP	110	5.765%	6.34	35.60
2	Turial HEP	60			168.39
	<b>Total</b>	<b>170</b>			<b>203.99</b>

UI deviation of (-) 38.65 does not come under power purchase for the reason that it is sale of surplus power which has to be accounted for under revenue head and hence not considered with the above observations, the power purchase during FY 2019-20 approved by the Commission works out to be 752.44 MU as detailed in the table below.



Table 7.9: Power purchase quantum approved by the Commission during FY 2019-20

Sl. No	Source	Plant Capacity (MW)	Licensee's Share in %	Licensee's Share in MW	MU Purchased (ex-bus)
<b>A</b>	<b>Central Generating Stations</b>				
<b>I</b>	<b>NTPC</b>				
<b>1</b>	Bongaigaon TPS	250	5.415	13.54	66.09
<b>2</b>	Farakka STPS	1600	0.14	2.24	15.29
<b>3</b>	Kahalgaoon STPS	840	0.14	1.18	9.09
<b>4</b>	Talcher STPS	1000	0.14	1.4	9.50
	<b>NTPC-Total</b>	<b>3690</b>		<b>18.35</b>	<b>99.98</b>
<b>II</b>	<b>NHPC</b>				
<b>1</b>	Loktak HEP	105	5.02	5.27	30.99
	<b>NHPC-Total</b>	<b>105</b>		<b>5.27</b>	<b>30.99</b>
<b>III</b>	<b>NEEPCO</b>				
<b>1</b>	Kopili HEP	200	4.618	9.24	36.44
<b>2</b>	Kopili - II HEP	25	6.04	1.51	6.68
<b>3</b>	Khandong HEP	50	3.94	1.97	8.36
<b>4</b>	Ranganadi HEP	405	5.7	23.09	66.80
<b>5</b>	Doyang HEP	75	5.25	3.94	12.31
<b>6</b>	Pare HEP	110		6.34	35.60
<b>7</b>	Tural HEP	60			168.39
<b>8</b>	AGBPP	291	5.41	15.74	71.13
<b>9</b>	AGTPP	148	6	8.88	41.62
	<b>NEEPCO-Total</b>	<b>1364</b>		<b>70.7</b>	<b>447.33</b>
<b>IV</b>	<b>TSECL</b>				
<b>1</b>	B'mura - IV	21	25	5.25	27.80
<b>2</b>	B'mura - V	21	25	5.25	22.10
	<b>TSECL-Total</b>	<b>42</b>		<b>10.50</b>	<b>49.90</b>
<b>V</b>	<b>OTPC</b>				
<b>1</b>	Palatana	726	3.03	22	117.21
	<b>OTPC-Total</b>	<b>726</b>		<b>22</b>	<b>117.21</b>
<b>B</b>	<b>UI / Deviation</b>				
	<b>UI / Deviation-Total</b>				
<b>C</b>	<b>RPO Obligation / REC Certificate</b>				7.03
	<b>GRAND TOTAL</b>	<b>5927</b>		<b>126.82</b>	<b>752.44</b>

UI purchase transactions are not considered as there already adequate surplus power.

However, the P&ED may resort to UI purchases only to tide over any exigencies in

order to meet the short term power requirement, to overcome interruption in supply of power in state. However, the RPO obligation requirement based on the Commission approved power purchase, the RPO obligation in terms of quantity and amount is arrived at in the similar lines as that of the methodology adopted by the licence in ARR filings made with the Commission.

## 7.7 Energy Balance:

P & ED has projected the energy balance during FY 2019-20 as detailed in the table below.

**Table 7. 10: Energy Balance projected by P & ED during FY 2019-20**

Sl. No	Energy Balance	Approved in T.O. dated 12.03.2018	Proposed by P&ED
<b>A</b>	<b>Energy Requirement</b>		
1	Energy Sales	409.31	426.59
2	Distribution Loss (%)	18.20%	18.20%
3	Distribution Loss (MUs)	91.07	94.91
<b>4</b>	<b>Total Energy Requirement</b>	<b>500.38</b>	<b>521.50</b>
<b>B</b>	<b>Energy Availability</b>		
5	Own Generation	64.85	57.11
6	Energy Purchase from ER	33.38	191.49
7	Less: ER Pool Loss (%)	2.11%	2.11%
8	Less: ER Pool Loss (MUs)	0.71	4.04
9	Net Energy for ER	33.17	187.45
10	Energy Purchase from NER	507.54	671.97
11	Sub Total	540.71	859.42
12	Less: NER Pool Loss (%)	2.60%	2.60%
13	Less: NER Pool Loss (MUs)	14.06	22.34
14	Net Energy at NERLDC	526.65	837.07
15	UI / RPO Purchase	38.14	-32.60
16	Energy Available	629.64	861.58
17	Less: Outside State - Trading		323.95
18	Total Energy Available	629.64	537.63
19	Less: Intra State Tr. Loss (%)	3.00%	3.00%
20	Less: Intra State Tr. Loss (MUs)	18.89	16.13
21	Net Energy Available	610.75	521.50
<b>22</b>	<b>Less: Energy requirement at State Periphery</b>	<b>500.38</b>	<b>521.50</b>
<b>23</b>	<b>ENERGY SURPLUS/(DEFICIT)</b>	<b>110.37</b>	<b>0.00</b>

### Commissions' Analysis

The petitioner has not considered latest eastern and north eastern region losses. So the Commission has revised the energy balance considering the following parameters.

- (a) Energy sales approved by the Commission at - 426.59MU
  - (b) Own generation at 64.85MU instead of 57.11MU projected by P&ED.
  - (c) Power purchase from Eastern region is considered at 33.88MU as against 191.49MU projected by P&ED since Bongaigaon TPS is located in NER region. As such the power purchase from Bongaigaon has to be accounted for in North eastern region.
  - (d) Eastern region transmission loss at 1.95% being the average weekly loss from
  - (e) North eastern region transmission loss at 2.85% being the average loss from
  - (f) Distribution loss at 16.52% as per actuals during FY 2017-18.
  - (g) RPO obligation is arrived at based on the approved quantities of the Commission
- Based on the approved energy sales, distribution and Transmission loss, power purchase and own generation the energy balance is compiled in the table below.

**Table-7. 11: Energy Balance Approved by the Commission for FY 2019-20**

Sl. No	Energy Balance	FY 2019-20
<b>A</b>	<b>Energy requirement</b>	
1	Energy sale(MU)	426.59
2	Distribution loss (%)	16.52%
3	Distribution Loss(MUs)	84.42
4	Total energy Requirement(MU)	511.01
<b>B</b>	<b>Energy availability</b>	
5	Own Generation(MU)	64.85
6	Energy Purchase from ER	33.88
7	Less: ER Pool Loss(%)	1.95%
8	Less: ER Pool loss(MUs)	0.66
9	Net energy from ER(6-8)	33.22
10	Energy purchase from NER(MU)	711.74
11	<b>Sub Total (9+10)</b>	744.96
12	Less: NER Pool Loss(%)	2.85%
13	Less NER Pool Loss( MUs)	21.23

Sl. No	Energy Balance	FY 2019-20
14	Net Energy at NERLDC (MU)	723.73
15	UI/RPO Purchase(MU)	7.03
16	<b>Energy available (5+14+15)(MU)</b>	<b>795.61</b>
17	Less: Intra state transmission loss (%)	3%
18	Less: Intra state transmission loss (MU)	23.87
19	<b>Net energy available (16-18)(MU)</b>	<b>771.74</b>
20	Less: energy requirement (4)(MU)	511.01
21	Energy surplus/ Deficit (19-20)(MU)	260.73
22	Surplus at state periphery (grossed up) (MU)	<b>268.79</b>

Thus the energy balance resulted in surplus of power at 268.79 MU which the P&ED shall sell through traders or under UI and realise maximum revenue by proper planning in SLDC.

### 7.8 Aggregate Revenue Requirement

ARR approved by the Commission in its Order dated 12.03.2018 and projected by P&ED for FY 2019-20 are furnished in the Table below. In the case of Power purchase cost, the P&ED in its filing has omitted to add the cost of RPO obligation to the total power purchase cost, though it was reflected in the power purchase cost annexure due to some error and hence to reflect the true gap status of the filing it is also shown in power purchase cost.

**Table 7.12: ARR projected for P & ED for FY 2019-20**

(Rs. Cr)				
Sl. No.	Item of Expense	Approved in T.O. dated 12.03.2018	Proposed by P&ED	Deviation
	1	2	3	4=(3-2)
1	Cost of Fuel	0.01	0.01	0
2	Cost of Generation	8.93	8.93	0
3	Cost of Power Purchase	201.44	355.55	154.11
4	Transmission Charges	49.49	44.80	-4.69
5	Intra State Transmission	30.87	30.87	0
6	Employee Costs	51.23	121.66	70.43
7	Repair & Maintenance Expenses	7.5	5.62	-1.88
8	Administration and General Expenses	1.49	5.78	4.29

Sl. No.	Item of Expense	Approved in T.O. dated 12.03.2018	Proposed by P&ED	Deviation
9	Depreciation	5.69	1.98	-3.71
10	Interest charges	1.44	1.54	0.1
11	Interest on Working Capital	4.99	5.55	0.56
12	Provision for bad debts	0	0	0
13	Return on NFA /Equity	0	0	0
14	<b>Total Revenue Requirement</b>	<b>363.08</b>	<b>582.29</b>	<b>219.21</b>
15	Less: Non Tariff Income	2.71	2.35	-0.36
16	<b>Net Revenue Requirement</b>	<b>360.37</b>	<b>579.94</b>	<b>219.57</b>
17	Less: Revenue from Sale of Power at existing Tariff		293.35	293.35
18	<b>Net Gap</b>	<b>360.37</b>	<b>286.59</b>	<b>-73.78</b>

(Source Table 2.21 of petition)

### Commissions Analysis

Item wise expenses and revenue are analysed as under:

#### 7.8.1 Cost of Fuel

Fuel Cost approved by the Commission for FY 2019-20 in its order dated 12.03.2018, projected by P&ED Mizoram and now approved by the Commission are furnished in the Table below.

**Table 7.13: Fuel Cost FY 2019-20 approved by the Commission**

(Rs. Cr)

Sl. No.	Particulars	Approved in T.O. dated 12.03.2018	Proposed by P&ED	Now approved by the Commission
1	Cost of Fuel	0.01	0.01	0.01
	<b>Total</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>

The Commission approves fuel cost at Rs. 0.01 Crore for FY 2019- 20 as projected by P & ED Mizoram.

#### 7.8.2 Cost of Generation

Cost of Generation for FY 2019-20 approved by the Commission in its Order dated

12.03.2018 and projected by P&ED Mizoram and now approved by the Commission are furnished in the table below.

**Table 7.14: Cost of Generation FY 2019-20 approved by the Commission**  
(Rs. Cr)

Sl. No	Particulars	Approved in T.O. dated 12.03.2018	Proposed by P&ED	Now approved by the Commission
1	Cost of Generation	8.93	8.93	8.93
	<b>Total</b>	<b>8.93</b>	<b>8.93</b>	<b>8.93</b>

**The Commission approves cost of Generation at Rs.8.93 Crore for FY 2019-20 as projected by P&ED Mizoram.**

### 7.8.3 Cost of Power Purchase

#### Petitioner's submission

The Hon'ble Commission in the Tariff Order dated 12.03.2018 had approved a power purchase quantum of 579.56 MUs at a total cost of Rs.201.44 Crores for the FY 2019-20. As submitted above the estimate of power purchase quantum for the FY 2019-20 is proposed to be revised to 830.86 MUs. It is submitted that the power purchase cost for the FY 2019-20 has been revised based on the actual purchase for the FY 2017-18 & revised estimate for the FY 2018-19. Accordingly, the power purchase cost is also proposed to be revised. Power purchase cost for the FY 2019-20 has been arrived at in following manner-

i. 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 2019-20 is 19.00% (10.00% for non-solar & 9.00% for solar). P&ED shall meet the requirement of non-solar RPO from its own hydro generation which is estimated at 57.11 MUs for the FY 2019-20. The RPO for solar has been calculated based on the actual consumption (excluding the sale outside the state 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 9.00% has been

applied on the base figure of 131 MUs. Further, P&ED has planned to procure power from solar sources of 5.85 MUs @ Rs. 2.98/unit & 0.21 MUs from own solar generation in E-in-C Building & Khawiva. Accordingly, 5,735.71 MWh (5.74 MUs) is computed as the solar RPO for the FY 2019-20. The rate as prescribed by CERC has been considered to arrive at the cost of RPO of Rs.1.38 Crore.

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

**Table 7. 15: Power Purchase Cost projected by the P & ED for the For the FY 2019-20**

Sl. No	Source	Plant Capacity (MW)	Licensee's Share in %	Licensee's Share in MW	MU Purchased (ex-bus)	Total Charges (Crs)	Total Charge per unit (Rs./kwh)
<b>A</b>	<b>Central Generating Stations</b>						
<b>I</b>	<b>NTPC</b>						
1	Bongaigaon TPS	250	5.415	13.54	159.75	105.89	6.63
2	Farakka STPS	1600	0.14	2.24	14.26	4.68	3.28
3	Kahalgaoon STPS	840	0.14	1.18	8.03	2.76	3.44
4	Talcher STPS	1000	0.14	1.4	9.45	2.61	2.76
	<b>NTPC-Total</b>	<b>3690</b>		<b>18.35</b>	<b>191.49</b>	<b>115.95</b>	<b>6.06</b>
<b>II</b>	<b>NHPC</b>						
1	Loktak HEP	105	5.02	5.27	37.81	12.64	3.34
	<b>NHPC-Total</b>	<b>105</b>		<b>5.27</b>	<b>37.81</b>	<b>12.64</b>	<b>3.34</b>
<b>III</b>	<b>NEEPCO</b>						
1	Kopili HEP	200	4.618	9.24	51.81	6.31	1.22
2	Kopili - II HEP	25	6.04	1.51	6.22	0.90	1.45
3	Khandong HEP	50	3.94	1.97	9.08	1.64	1.80
4	Ranganadi HEP	405	5.7	23.09	67.61	14.81	2.12
5	Doyang HEP	75	5.25	3.94	13.97	6.18	4.42
6	Pare HEP	110	5.765	6.34	35.6	18.82	5.29
7	Tuirial HEP	60		0	168.39	92.22	5.48
8	AGBPP	291	5.41	15.74	79.92	30.17	3.78
9	AGTPP	148	6	8.88	36.17	12.88	3.56
	<b>NEEPCO-Total</b>	<b>1364</b>		<b>70.7</b>	<b>468.78</b>	<b>183.92</b>	<b>3.92</b>
<b>IV</b>	<b>TSECL</b>						
1	B'mura - IV	21	25	5.25	19.89	6.33	3.18
2	B'mura - V	21	25	5.25	21.38	6.81	3.18
	<b>TSECL-Total</b>	<b>42</b>		<b>10.50</b>	<b>41.27</b>	<b>13.14</b>	<b>3.18</b>
<b>V</b>	<b>OTPC</b>						

Sl. No	Source	Plant Capacity (MW)	Licensee's Share in %	Licensee's Share in MW	MU Purchased (ex-bus)	Total Charges (Crs)	Total Charge per unit (Rs./kwh)
1	Palatana	726	3.03	22	124.11	40.72	3.28
	<b>OTPC-Total</b>	<b>726</b>		<b>22</b>	<b>124.11</b>	<b>40.72</b>	<b>3.28</b>
<b>C</b>	<b>UI / Deviation</b>				-38.65	-13.93	3.61
	<b>UI / Deviation-Total</b>				<b>-38.65</b>	<b>-13.93</b>	<b>3.61</b>
<b>D</b>	<b>RPO Obligation / REC Certificate</b>				6.05	3.12	5.16
<b>E</b>	<b>Own Generation</b>	<b>29.35</b>	100	<b>29.35</b>	<b>57.11</b>	--	
	<b>GRAND TOTAL</b>	<b>5956.35</b>		<b>156.18</b>	<b>887.97</b>	<b>355.55</b>	<b>4.00</b>

### Commission's analysis

Similar to Power Purchase approved for FY 2019-20 the power purchase cost also adopted as approved in its order dated 12.03.2018 plus cost of power purchase from the following new stations added and projected by P&ED.

Sl. No	Name of the Station	Power purchase projected	Average Cost (Rs/kWh)	Total Cost (Rs. Cr)
1	Pare HEP	35.60	5.29	18.82
2	Turial HEP	168.39	5.48	82.22
		<b>203.99</b>		<b>111.14</b>

Accordingly the Power purchase cost is revised for FY 2019-20 as detailed in the tables below:

**Table 7. 16: Power Purchase Cost approved by the Commission for the FY 2019-20**

Sl. No	Source	Plant Capacity (MW)	PED's Share (%)	PED's Share (MW)	Energy (MU)	Total Cost (Rs. Crs)	Average rate (Rs/kWh)
<b>A</b>	<b>Central Generating Stations</b>						
<b>I</b>	<b>NTPC</b>						
1	Bongaigaon TPS	250	5.42	13.54	66.09	40.56	6.14
2	Farakka STPS	1600	0.14	2.24	15.29	6.14	4.02
3	Kahalgaoon STPS	840	0.14	1.18	9.09	3.35	3.69
4	Talcher STPS	1000	0.14	1.40	9.50	2.43	2.56
	<b>NTPC-Total</b>	<b>3690</b>		<b>18.36</b>	<b>99.97</b>	<b>52.48</b>	<b>5.25</b>
<b>II</b>	<b>NHPC</b>						
1	Loktak HEP	105	5.02	5.27	30.99	10.22	3.30



Sl. No	Source	Plant Capacity (MW)	PED's Share (%)	PED's Share (MW)	Energy (MU)	Total Cost (Rs. Crs)	Average rate (Rs/kWh)
	<b>NHPC-Total</b>	<b>105</b>		<b>5.27</b>	<b>30.99</b>	<b>10.22</b>	<b>3.30</b>
<b>III</b>	<b>NEEPCO</b>						
1	Kopili HEP	200	4.62	9.24	36.44	4.10	1.13
2	Kopili - II HEP	25	6.04	1.51	6.68	0.89	1.33
3	Khandong HEP	50	3.94	1.97	8.36	1.45	1.73
4	Ranganadi HEP	405	5.7	23.09	66.8	13.46	2.01
5	Doyang HEP	75	5.25	3.94	12.31	5.55	4.51
6	Pare	110	5.77	6.34	35.60	18.82	5.29
7	Turial	60			168.39	92.22	5.48
6	AGBPP	291	5.41	15.74	71.13	24.53	3.45
7	AGTPP	148	6	8.88	41.62	12.13	2.91
	<b>NEEPCO-Total</b>	<b>1364</b>		<b>70.71</b>	<b>447.33</b>	<b>173.15</b>	<b>3.87</b>
<b>IV</b>	<b>TSECL</b>						
1	B'mura - IV	21	25	5.25	27.80	8.88	3.19
2	B'mura - V	21	25	5.25	22.10	7.06	3.19
	<b>TSECL-Total</b>	<b>42</b>		<b>10.50</b>	<b>49.90</b>	<b>15.94</b>	<b>3.19</b>
<b>V</b>	<b>OTPC</b>						
1	Palatana	726	3.03	22	117.21	40.83	3.48
	<b>OTPC-Total</b>	<b>726</b>		<b>22</b>	<b>117.21</b>	<b>40.83</b>	<b>3.48</b>
<b>B</b>	<b>UI / Deviation</b>						
	<b>UI / Deviation-Total</b>						
<b>C</b>	<b>RPO Obligation / REC Certificate</b>				7.03	<b>3.43</b>	4.88
<b>D</b>	<b>Own Generation</b>	29.35		29.35	64.85		
	<b>GRAND TOTAL</b>	<b>5956.35</b>		<b>156.19</b>	<b>817.28</b>	<b>296.05</b>	<b>3.62</b>

The Commission approves Power Purchase Cost of Rs.296.05 Crores for purchase of 752.43MU during FY 2019-20 excluding the own generation.

#### 7.8.4 Inter-State Transmission Charges

Transmission charges approved by the Commission for FY 2019-2020 in its MYT Order dated 12.03.2018, projected by P&ED Mizoram and now approved by the Commission are furnished in table below.

**Table 7.17: Transmission Charges for FY 2019-20 approved by the Commission****(Rs. Cr)**

Sl. no	Particulars	Approved in MYT Order dated 12.03.2018	Projected by P&ED	Now approved by the Commission
1	Transmission charges	49.49	44.8	44.80

The Commission approves transmission charges at Rs.44.80 Crore for FY 2019-20 as projected by P&ED.

### 7.8.5 Intra State Transmission Charges

Intra state transmission charges approved by the Commission for FY 2019-20 in its MYT Order dated 12.03.2018, Projected by P&ED Mizoram and now approved by the Commission are given in the table below.

**Table 7.18: Intra-State Transmission charges for FY 2019-20****Rs. Cr**

Sl. no	Particulars	Approved in Tariff Order dated 12.03.2018	Projected by P&ED	Now approved by the Commission
1	Intra state Transmission charges	30.87	30.87	30.87

The Commission approved Intra state Transmission charges at Rs. 30.87 for FY 2019-20 as projected by P&ED.

### 7.8.6 O&M Expenses

Operation & maintenance expense comprises of the following heads of expenditure viz.

- (a) Employee Expenses
- (b) Administration & General Expenses
- (c) Repairs & Maintenance Expenses

The operation & maintenance expense has been arrived at in accordance with the Regulation 89.6 of The JERC for Manipur and Mizoram (Multi Year Tariff) Regulations, 2014. Details of Employee Expenses, Administration & General

Expenses and Repairs & Maintenance Expenses are provided in the subsequent sections.

**(a) Employee Expenses**

It is submitted that the Employee cost for the FY 2019-20 has been revised based on the actual Employee cost for the FY 2017-18 & revised estimate for the FY 2018-19. The Employee cost for the FY 2019-20 as projected & approved by the Hon'ble Commission is provided in the table below.

**Table 7.19: Employee Cost FY 2019-20**

(Rs. Cr)				
Sl. No.	Particulars	Approved in T.O. dated 12.03.2018	Proposed by P&ED	Deviation
1	2	3	4	5
1	Employee Cost	51.23	121.66	70.43
	<b>Total</b>	<b>51.23</b>	<b>121.66</b>	<b>70.43</b>

**Commission's Analysis**

The P & ED Mizoram has projected at 58.53% over estimated employee cost during FY 2017-18. The petitioner has not furnished any post wise/caderwise details employee cost for escalation of 58.53% in the petition. In the absence of the reasonable data to verify the cost escalation, the Commission did not consider the additional cost now. This aspect will be scrutinized on actuals incurred in 2019-20.

**Thus the Commission has approved Employee expenses for FY 2019-20 at Rs.51.23 Cr as against Rs. 121.66 Crore projected by the petitioner.**

**(b) Administrative and General Expenses**

**Petitioner's submission**

It is submitted that the Administration & General Expenses for the FY 2019-20 has been revised based on the actual Administration & General Expenses for the FY 2017-18 & revised estimate for the FY 2018-19. The Administration & General Expenses for the FY 2019-20 as projected & approved by the Hon'ble Commission is provided in the table below.

**Table 7.20: Administration & General Expenses FY 2019-20**

(Rs. Cr)				
Sl. No	Particulars	Approved in T.O. dated 12.03.2018	Proposed by P&ED	Deviation
1	Administration & General Expenses	1.49	5.78	4.29
	<b>Total</b>	<b>1.49</b>	<b>5.78</b>	<b>4.29</b>

**Commission's Analysis**

The actual Administration and General expenses during FY 2017-18 are Rs. 5.33 Crore which are for the department as a whole and the estimated expenses for distribution function during FY 2017-18 are Rs. 1.33 and by escalating by 5.72 % the A & G expenses for FY 2018-19 works out to Rs. 1.41 Crore and for the subsequent years the same escalation factor of 5.72 % is applied to arrive at A & G expenses for balance control period as detailed below:

**The Commission approves A & G expenses at Rs.1.49Cr for FY 2019-20 as against Rs. 5.78 Cr projected by the petitioner.**

**e) Repairs and Maintenance Expenses**

It is submitted that the Repair & Maintenance Expenses for the FY 2019-20 has been revised based on the actual Repair & Maintenance Expenses for the FY 2017-18 & revised estimate for the FY 2018-19. The Repair & Maintenance Expenses for the FY 2019-20 as projected & approved by the Hon'ble Commission is provided in the table below.

**Table 7.21: R&M Expenses approved by the Commission for FY 2019-20**

(Rs. Cr)				
Sl. No	Particulars	Approved by Commission in tariff order dated 12.03.2018	Projected by P&ED	Now approved by the Commission
1	R&M Expenses	7.50	5.62	5.62

**The Commission approves R & M expenses at Rs. 5.62 Crore for FY 2019-20 as projected by the petitioner.**

The abstract of O & M expenses approved by the commission are as detailed in the Table below:

**Table 7.22: O & M expenses approved by the Commission for FY 2019-20**  
(Rs. Cr)

Sl. No	Particulars	FY 2019-20
1	Employee Expenses	51.23
2	Administration & General Expenses	1.49
3	Repair & Maintenance Expenses	5.62
4	<b>Total O&amp;M Expenses</b>	<b>58.34</b>

### 7.8.7 Capital investment

Summary of CWIP from FY 2017-18 to FY 2019-20 furnished by P&ED vide Form F2C is detailed in the table below.

**Table 7.23 : CWIP approved by the Commission for FY 2019-20**

Sl. no	Particulars	FY 2017-18	FY 2018-19	FY 2019-20
1	Opening CWIP	594.28	829.22	944.56
2	Investment during the year	264.48	135.47	135.96
3	Investment capitalization	29.54	20.13	50.83
4	Closing CWIP (1+2-3)	829.22	944.56	1029.69

### 7.8.8 Gross Fixed Assets & Depreciation

#### 7.8.8.1 Gross Fixed Assets

Based on the audited annual accounts for FY 2017-18 and summary of CWIP furnished in Para 7.8.7 supra the year wise GFA is furnished in the table below.

**Table 7.24: GFA approved by the Commission for FY 2019-20**

(Rs. Cr)

Sl. No	Particulars	FY 2017-18	FY 2018-19	FY 2019-20
1	Opening GFA	1194.53	1224.07	1244.20
2	Additional during the year	29.54	20.13	50.83
3	Deletions	-	-	-
4	<b>Total</b>	<b>1224.07</b>	<b>1244.20</b>	<b>1295.03</b>

### 7.8.8.2 Depreciation

#### Petitioners' submission

The Hon'ble Commission has approved the Depreciation for the FY 2019-20. In this regard it is submitted that the GFA for the FY 2017-18 has got revised in accordance with the audited annual accounts for which true-up proposal is being submitted. The Fixed Asset & Depreciation Register for the FY 2017-18 is also being submitted. Therefore, the GFA & corresponding depreciation for the FY 2018-19 & FY 2019-20 also stands revised.

In view of the above it is requested that the Hon'ble Commission may kindly consider & approve the revised depreciation for the FY 2019-20. The depreciation approved by the Hon'ble Commission and revised depreciation for the FY 2019-20 is provided in the table below:

**Table 7.25: Depreciation projected by P&ED for FY 2019-20**

(Rs. Cr)				
Sl. No.	Particulars	Approved in T.O. dated 12.03.2018	Proposed by P&ED	Deviation
1	2	3	4	5
1	Depreciation	5.69	1.98	-3.71
	<b>Total</b>	<b>5.69</b>	<b>1.98</b>	<b>-3.71</b>

#### Commission's Analysis

Based on the GFA arrived vide Para 7.8.8 supra, the depreciation for FY 2019-20 is worked out as in the table below.

**Table 7.26: Depreciation for FY 2019-20 approved by the Commission**

(Rs. Cr)		
S.no	Particulars	Depreciation for FY 2019-20
1	Opening GFA	1244.20
2	Additions during the year	50.83
3	Deletions	-
4	Closing GFA ( 1+2-3)	1295.03
5	Average depreciation (1+4)/2	1269.62
6	Average rate of Depreciation	3.94%*
7	Depreciation	50.02
8	10% of Depreciation	5.00

\*As per annual accounts for FY 2017-18.

The Commission approves depreciation at Rs. 5.00 Crore for FY 2019-20 as against Rs. 1.98 Crore projected by P&ED.

### 7.8.9 Interest and Finance Charges

#### Petitioner's submission

The Interest & Finance charges for the FY 2019-20 as approved by the Hon'ble Commission & projected by P&ED is provided in the table below.

**Table 7.27: Interest and Finance charges projected by P&ED for FY 2019-20**

(Rs. Cr)				
Sl. No.	Particulars	Approved in T.O. dated 12.03.2018	Proposed by P&ED	Deviation
1	2	3	4	5
1	Interest & Finance Charges	1.44	1.54	0.10
	<b>Total</b>	<b>1.44</b>	<b>1.54</b>	<b>0.10</b>

#### Commission's Analysis

Interest and Finance charges approved by the Commission are detailed in the table below:

**Table 7.28: Interest and Finance charges approved by the Commission**

(Rs. Cr)

Particulars	Gross loan opening (in Cr)	Add: Drawing during the year (in Cr)	Less: Repayment of Loan during the year (in Cr)	Closing Balance of loan (in Cr)	Average loan (in Cr)	Rate of Interest on loan % (Average)	Interest on loan (in Cr)
LIC Loans	4	0	1	3	3.5	8.00%	0.28
Rec loans	0	0	0	0	0	8.35%	0
REC (RGGVY) Loans	11.99	0	2.4	9.59	10.79	11.67%	1.26
<b>Total Loan</b>	<b>15.99</b>	<b>0</b>	<b>3.4</b>	<b>12.59</b>	<b>14.29</b>		<b>1.54</b>
Weighted average Rate of Interest on Loans %						<b>9.61%</b>	

The Commission approves Interest and Finance charges for FY 2019-20 at Rs.1.54 Cr as projected by P&ED as follows.

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

The Interest on Working capital for the FY 2019-20 as approved by the Hon'ble Commission and the revised interest on working capital is provided in the table below:

**Table 7.29: Interest on working capital FY 2019-20 projected by P&ED**

(Rs. Cr)				
Sl. No	Particulars	Approved in T.O. dated 12.03.2018	Proposed by P&ED	Deviation
1	2	3	4	5
1	Interest on Working Capital	4.99	5.55	0.56
	<b>Total</b>	<b>4.99</b>	<b>5.55</b>	<b>0.56</b>

**Commission's Analysis**

Regulation 29.4 of the Joint Electricity Regulatory Commission for Manipur and Mizoram (Multi Year Tariff) Regulations, 2014.

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

- (a) *Operation and maintenance expenses for one month; plus*
- (b) *Maintenance spares at one (1) per cent of the historical cost escalated at 6% from the date of commercial operation; plus*
- (c) *Receivables equivalent to one (1) month of the expected revenue from sale of electricity at the prevailing tariffs; minus*
- (d) *Amount held as security deposits under clause (a) and clause (b) of sub-section (1) of Section 47 of the Act from consumers except the security deposits held in the form of Bank Guarantees;*

Interest is required to be calculated at a rate equal to the State Bank Advance Rate (SBAR) as on 1st April of the financial year, in which the Petition is filed i.e. 1st April, 2017.

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

**Table 7.30: Interest on Working Capital approved by the Commission for FY 2019-20**

(Rs. Cr)			
Sl. No	Particulars	Total Cost	FY 2019-20 One month Cost
1	O&M expenses for one month	58.34	4.86



Sl. No	Particulars	Total Cost	FY 2019-20 One month Cost
2	Maintenance spares at 1% of historical GFA escalated by 6%	1244.20	13.19
3	Receivables for one month	277.14	23.10
4	Less security deposit held		13.21
5	Total		27.94
6	SBAR as on 01.04.2018		13.45%
7	Interest on working capital		3.76

The Commission approves Interest on working Capital at Rs. 3.76 Crore for FY 2019-20 as against Rs. 5.55 Crore projected by P&ED.

#### 7.8.11 Bad Debts

##### Petitioner's submission

P&ED has not proposed provision for bad debts.

##### Commission's Analysis

In view of the above the Commission has not considered provision for bad debts during control period FY 2019-20.

#### 7.8.12 Return on Equity

##### Petitioner's submission

P & ED has not proposed Return on Equity for FY 2019-20.

##### Commission's Analysis

Since P & ED is a Government Department Return on Equity is not considered for FY 2019-20.

#### 7.8.13 Non-Tariff Income

##### Petitioner's submission

The Other Income for the FY 2019-20 as approved by the Hon'ble Commission is provided and now projected by P&ED is furnished in the table below.

Table 7.31: Non – Tariff Income projected by P & ED for Control period

(Rs. Cr)

Sl. No.	Particulars	Approved in T.O. dated 12.03.2018	Proposed by P&ED	Deviation
1	2	3	4	5
1	Non-Tariff Income	2.71	2.35	-0.36
	<b>Total</b>	<b>2.71</b>	<b>2.35</b>	<b>-0.36</b>

### Commission's Analysis

The Commission in its MYT Order dated 12.03.2018 had approved power Non- Tariff Income at Rs.2.71 Cr for FY 2019-20 as projected by P&ED. Now it is not correct to reduce the amount without any details. As such already approved amount of Rs. 2.71 Cr is considered for FY 2019-20.

**The Commission accordingly approved Non-Tariff Income at Rs.2.71 Cr as against Rs. 2.35 Cr projected by P &ED for FY 2019-20.**

### 7.9 Aggregate Revenue Requirement

It is submitted that P&ED has proposed revisions in few components of Aggregate Revenue Requirement approved by the Hon'ble Commission in the MYT Order dated 12.03.2018 and the same has been discussed in the above Para. The approved ARR and the revised ARR & the corresponding Revenue Gaps at existing tariff is provided in the table below:

**Table 7.32: Aggregate Revenue Requirement for FY 2019-20 projected by P&ED**

(Rs. Cr)

Sl. No.	Item of Expense	Approved in T.O. dated 12.03.2018	Proposed by P&ED	Deviation
1	2	3	4	5
1	Cost of Fuel	0.01	0.01	0.00
2	Cost of Generation	8.93	8.93	0.00
3	Cost of Power Purchase	201.44	355.55	154.11
4	Transmission Charges	49.49	44.80	-4.69
5	Intra State Transmission	30.87	30.87	0.00
6	Employee Costs	51.23	121.66	70.43
7	Repair & Maintenance Expenses	7.50	5.62	-1.88
8	Administration and General Expenses	1.49	5.78	4.29
9	Depreciation	5.69	1.98	-3.71
10	Interest charges	1.44	1.54	0.10
11	Interest on Working Capital	4.99	5.55	0.56
12	Provision for bad debts	0.00	0.00	0.00
13	Return on NFA /Equity	0.00	0.00	0.00
14	<b>Total Revenue Requirement</b>	<b>363.08</b>	<b>582.29</b>	<b>219.21</b>
15	Less: Non Tariff Income	2.71	2.35	-0.36
16	<b>Net Revenue Requirement</b>	<b>360.37</b>	<b>579.94</b>	<b>219.57</b>

Sl. No.	Item of Expense	Approved in T.O. dated 12.03.2018	Proposed by P&ED	Deviation
17	Less: Revenue from Sale of Power at existing Tariff		293.35	293.35
18	<b>Net Gap</b>	<b>360.37</b>	<b>286.59</b>	<b>-73.78</b>

### Commission's Analysis

Based on the approved costs the Aggregate Revenue Requirement for FY 2019-20 is furnished in the table below:

**Table 7.33: Aggregate Revenue Requirement approved by the Commission for the Control period FY 2019-20**

(Rs. Cr)		
Sl. No	Particulars	FY 2019-20
1	Cost of Power Purchase	296.05
2	Fuel Cost	0.01
3	Cost of Generation	8.93
4	Interstate transmission charges	44.80
5	Intra state transmission charges	30.87
6	Operation & Maintenance Expenses	<b>58.34</b>
	a) Employee Cost	51.23
	b) A & G Expenses	1.49
	c) R&M Expenses	5.62
7	Depreciation	1.98
8	Interest and Finance charges	1.54
9	Interest on Working Capital	3.76
10	Return on Equity	-
11	Provision for Bad Debt	-
12	<b>Total Revenue Requirement</b>	<b>446.28</b>
13	Less: Non-Tariff Income	2.71
14	Less: 1/ 3 of surplus resulted in true up of FY 2017-18	36.38
15	<b>Net Revenue Requirement</b>	<b>407.19</b>

### 7.10 Revenue from existing Tariff for FY 2019-20

#### Petitioner's submission

P&ED has calculated the Revenue from sale of power for the FY 2019-20 on the basis of the revised sales with existing tariff. The Revenue from sale of power for the FY 2019-20 is furnished in the Table below.

**Table 7.34: Revenue from existing Tariff projected by P&ED for FY 2019-20**  
(Rs. Cr)

Sl. No.	Category	Revenue at Existing Tariff
<b>A</b>	<b>LT Consumers</b>	
1	Kutir Jyoti	0.98
2	Domestic	94.32
3	Commercial	24.58
4	Public Lighting	1.37
5	Agriculture	0.00
6	Public Water Works	3.66
7	LT Industrial	1.40
	Total LT	<b>126.31</b>
<b>B</b>	<b>HT Consumers</b>	
8	Domestic	3.36
9	Commercial	8.11
10	Agriculture	0.03
11	Public Water Works	26.40
12	HT Industrial	7.60
13	Bulk Supply	29.41
	Total HT	<b>74.92</b>
14	Outside State	92.12
	Total	<b>293.35</b>

**Commission's Analysis**

Based on approved energy sales for FY2019-20, revenue from existing tariff is worked out including revenue from sale of surplus energy of 258.56MU as detailed in the table below.

**Table 7.35: Revenue from existing Tariff of FY 2018-19 for FY 2019-20 approved by the Commission**

Sl. No	Category	Sales (MU)	Revenue (Lakhs)	CPU Rs./kWh
<b>A</b>	<b>LT Category</b>			
1	KJ(Domestic)	<b>4.05</b>	102.00	2.52
2	Domestic (LT)	243.58	9307.68	3.82
3	Non-Domestic	8.33	469.80	5.64
4	Commercial	33.29	1828.80	5.49
5	Public Lighting	2.43	137.16	5.64
6	PWS LT	6.18	365.76	5.92
7	Agriculture LT	0.01	0.48	3.32
8	LT Industrial	2.13	135.84	6.38

Sl. No	Category	Sales (MU)	Revenue (Lakhs)	CPU Rs./kWh
	<b>LT Total</b>	<b>300.01</b>	<b>12347.52</b>	<b>4.12</b>
<b>B</b>	<b>HT Category</b>			
1	Domestic - HT	5.72	336.07	5.88
2	Non-Domestic - HT	2.28	161.94	7.10
3	Commercial - HT	9.15	649.63	7.10
4	PWS HT	39.98	2639.84	6.60
5	Agriculture HT	0.14	3.45	2.53
6	HT Industrial	12.30	760.06	6.18
7	Bulk Supply	57.02	2941.10	5.16
	<b>HT Total</b>	<b>126.58</b>	<b>7492.09</b>	<b>5.92</b>
	<b>LT &amp; HT Total</b>	<b>426.59</b>	<b>19839.61</b>	<b>4.65</b>
8	Outside State - Trading	268.79	7959.00	2.96
	<b>Total</b>	<b>695.38</b>	<b>27831.73</b>	<b>4.00</b>

*Note: Detailed calculation is given in Annexure – II*

### 7.11 Revenue Gap

**Table 7.36: Revenue Gap for FY 2019-20 approved by the Commission**

Sl. no	Particulars	Units	Projected by P & ED	Approved by the Commission
1	Net ARR	Rs. Cr	579.94	407.19
2	Revenue from sale of power at existing Tariff	Rs. Cr	201.23	198.396
3	Revenue from sale of surplus power	Rs. Cr	92.12	79.59
4	<b>Total Revenue</b>	Rs. Cr	<b>293.35</b>	<b>277.99</b>
5	<b>Revenue Gap</b>	<b>Rs. Cr</b>	<b>286.59</b>	<b>129.20</b>
6	Energy sales	MU	426.59	426.59
7	Surplus power	MU	323.95	268.79
8	<b>Total sales</b>	<b>MU</b>	<b>750.54</b>	<b>695.38</b>

### 7.12 Recovery of Revenue Gap for FY 2019-20

As seen from the Para 7.11 supra the revenue gap works out to Rs.129.20 Cr as against Rs.283.47Cr (but the gap would be 286.59) furnished by P&ED which is about 31.8% of Net ARR for FY 2019-20. Previous tariffs are revised from 01.04.2018. The License (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 wellbeing of 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 funded by budgetary support from State Government does not propose to absorb the unrecovered gap but proposed an average increase in tariff by 8.05% to bridge the gap partially.

As discussed in detail at Chapter-8 the Commission has decided to revise the existing Tariff with an escalation of 6.68% against 8.05% proposed by P&ED.

Accordingly, the revenue from approved tariff works to be Rs.291.24 crs as detailed in the table below.

**Table 7.37: Revenue from the approved tariff of FY 2019-20**

Sl. No	Category	Sales (MU)	Revenue (Lakhs)	CPU Rs./kWh
<b>A</b>	<b>LT Category</b>			
1	KJ(Domestic)	4.05	127.20	2.55
2	Domestic (LT)	243.58	10114.44	4.15
3	Non-Domestic	8.33	406.08	4.87
4	Commercial	33.29	1828.80	5.49
5	Public Lighting	2.43	140.16	5.76
6	PWS LT	6.18	365.76	5.92
7	Agriculture LT	0.01	0.48	3.32
8	LT Industrial	2.13	135.84	6.38
	<b>LT Total</b>	<b>300.01</b>	<b>13118.76</b>	<b>4.37</b>
<b>B</b>	<b>HT Category</b>			
1	Domestic - HT	5.72	343.83	6.01
2	Non-Domestic - HT	2.28	129.26	5.67
3	Commercial - HT	9.15	649.63	7.10
4	PWS HT	39.98	2684.24	6.71
5	Agriculture HT	0.14	4.53	3.32
6	HT Industrial	12.30	760.06	6.18
7	Bulk Supply	57.02	3474.99	6.09
	<b>HT Total</b>	<b>126.58</b>	<b>8046.54</b>	<b>6.36</b>
	<b>LT &amp; HT Total</b>	<b>426.59</b>	<b>21165.30</b>	<b>4.96</b>
8	Outside State - Trading	268.79	7959.00	2.96
	<b>Total</b>	<b>695.38</b>	<b>29124.30</b>	<b>4.19</b>

*Note: Detailed calculation is given in Annexure – III*

With the proposed revision in tariff the P & ED will be generating additional revenue to the tune of Rs.13.26crs as against the projected figure of Rs. 16.19 Cr by P&ED. Thereby the revenue gap is reduced to 115.95 crs.

### **7.13 Government Subsidy/ support**

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/support from Government of Mizoram. The net revenue gap of Rs. 115.95 Crore is arrived at, as indicated at Para 7.12 supra, shall be met from Government subsidy/ support as against Rs. 270.40 Crore projected by P&ED (The gap of 267.28crs got increased by the RPO obligation amount of Rs.3.12 crs was not added in power purchase cost by the petitioner).

The ARR & Tariff Petition for FY 2019-20 was filed by the P&E Department with the prior approval of the State Government. The licensee, in their submitted Tariff Petition, had proposed a tariff hike of 8.05% over the prevailing tariffs of FY 2018-19 resulting in a revenue gap amounting to Rs.267.28Cr which needs to be absorbed only by way of subsidy from the State Government of Mizoram.

To achieve the objective of year on year tariffs progressively reflects the cost of electricity supply, the grant of subsidy shall have to be reduced every year in decrementing fashion and ultimately make the power utility to manage without Government subsidy support. Keeping this in view, the Commission consciously considers the subsidy requirement to the extent of **Rs.115.95 crore (Rupees One hundred and fifteen crores and ninety-five lakhs only)** for FY 2019-20 upon suitably revising the prevailing tariffs of FY 2018-19 at an average rate of increase at 6.68% (six point six eight percent) only in order not to cause much burden to the consumers.

The Section 65 of the Electricity Act 2003 mandates that the State Government shall release subsidy amount due to the licensee in advance so as to enable the licensee to implement the subsidized tariffs to their consumers as per Revised Subsidised Tariff schedule at Table-8.2 & detailed calculation at **Annex-III**. The State

Government should release the above stated subsidy amount in Twelve (12) equal monthly installment amounting to **Rs.966.23 lakhs (Rupees nine hundred and sixty-eight lakhs and twenty-three thousand only)** in each month. However, in the event of non-receipt of subsidy in any month from the Government, the license can adopt the applicable **full cost tariff (FCT)** at Table-8.3, while issuing the monthly energy for that month as indicated at **Annexure-IV** a detailed calculation sheet for each category of consumer of the licensee in the annexure part of this Order. A brief summary is tabulated below for reference.

**Table 7.38: Revenue details for FY 2019-20 at Full Cost Tariff**

Sl. No	Category	Sales (MU)	Revenue (Lakhs)	CPU Rs./kWh
<b>A</b>	<b>LT Category</b>			
1	KJ(Domestic)	4.05	252.48	6.23
2	Domestic (LT)	243.58	16867.56	6.92
3	Non-Domestic	8.33	612.48	7.35
4	Commercial	33.29	2936.40	8.82
5	Public Lighting	2.43	202.20	8.31
6	PWS LT	6.18	532.68	8.62
7	Agriculture LT	0.01	0.96	6.64
8	LT Industrial	2.13	194.28	9.12
	<b>LT Total</b>	<b>300.01</b>	<b>21599.04</b>	<b>7.20</b>
<b>B</b>	<b>HT Category</b>			
1	Domestic - HT	5.72	445.59	7.79
2	Non-Domestic - HT	2.28	181.22	7.95
3	Commercial - HT	9.15	842.71	9.21
4	PWS HT	39.98	3683.84	9.21
5	Agriculture HT	0.14	9.69	7.11
6	HT Industrial	12.30	1128.94	9.18
7	Bulk Supply	57.02	4868.79	8.54
	<b>HT Total</b>	<b>126.58</b>	<b>11160.78</b>	<b>8.82</b>
	<b>LT &amp; HT Total</b>	<b>426.59</b>	<b>32759.82</b>	<b>7.68</b>
8	Outside State - Trading	268.79	7959.00	2.96
	<b>Total</b>	<b>695.38</b>	<b>40718.82</b>	<b>5.86</b>

There can be a situation where the outstanding subsidy was released by the government after passage of much time and thereby if consumers were billed at full cost tariffs in any relevant month or months. Given the situation, the entire excess amount so charged on account of full cost tariff shall have to be reflected as rebate,



by the licensee at a time, in the immediate monthly billing cycle being issued to respective consumers soon after receiving such subsidy pertaining to the past. If the rebate amount is exceeding the monthly bill amount to be adjusted, then such excess amount may be carried forward and be adjusted in the following monthly bills issued to the consumer until full settlement is made.

Lastly, the brief summary of the calculations in support of subsidy amount deduced, the average of supply and the average revenue realisation details are tabulated in the following table.

**Table 7.39: Average Cost of electricity supply within Mizoram**

Sl. No	Particulars	Units	Projected by P & ED	Approved by the Commission
1	Net overall ARR	Rs. Cr	579.94	407.19
2	Sale of surplus power	Rs. Cr	92.12	79.59
3	Net ARR within the state (1-2)	Rs. Cr	487.82	327.60
4	Govt. subsidy/ Support	Rs. Cr	286.59	115.95
5	Net ARR after Govt. subsidy (3-4)	Rs. Cr	201.23	211.65
6	Energy sale within the state	MU	426.59	426.59
7	<b>Average cost of supply (3/6)</b>	Rs/KWH	<b>11.44</b>	<b>7.68</b>
8	Avg. Revn. realisation (If subsidy is paid)- (5/6)	Rs/KWH	4.72	4.96
9	<b>Avg. per unit Subsidy (7-8)</b>	Rs/kWh	<b>6.72</b>	<b>2.72</b>

## 8 Tariff Principles and Design

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### 8.1 Background

While determining the revenue requirement and in fixation of the retail supply tariff of the P&ED, Mizoram for the year 2019-20 the Commission had 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 E. Act 2003 laid down the broad principles, which shall guide determination of retail supply tariffs. As per these statutory provisions, the tariff shall “Progressively reflect cost of supply” and also reduce cross subsidies components “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 2016 provides** comprehensive guidelines for determination of tariff and in working out the revenue requirement of power utilities. The Commission had made conscious endeavour 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. Consequently, the Commission hasd introduced the MYT Regime in the State from 2015-16 onwards.

The National Tariff Policy of 2006 mandate that the as a result of existence of cross subsidy component the tariffs so determined shall be well within plus / minus 20% of the average cost of supply before FY 2010-11 itself. But, this could not be accomplished due to high cost of power purchase, low paying capacity of the

consumers and lack of industrialization in the state. Until this date, the P&ED could not submit the voltage-wise cost of supply. In this regard, a directive has been issued to build up data to arrive at the cost of supply at various voltage levels etc so as to accomplish the object mandated in the National Tariff Policy. While in arriving at the cost of supply, the Commission has taken the average cost of supply as the basis in the absence of relevant data to work out consumer category wise cost of supply. In this tariff order an element of performance target has been indicated to maintain the set target for distribution loss reduction for the year 2019-20. The P&ED shall show better performance by achieving reduction in loss levels, which will result in substantial reduction in average cost of supply on account of lesser power purchases. The existing and proposed tariff of P&ED is a two-part tariff adopted 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 consumption is below a specified level, say 30 units per Month, may receive a special support in the form of 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 reflect the cost of supply of electricity, the JERC would notify the roadmap, within six Months with a target that latest by the end of the year 2019-20 that the 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, it is imperative to keep in view of usage of ground water resources in a sustainable manner in addition to the average cost of supply component. 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.”

National Electricity Policy (NEP) aims at increased access to electricity, supply of reliable and quality power at reasonable rates, minimum lifeline consumption and financial turnaround of consumer interest. The Commission has considered factors as far as possible which aim at achieving the objectives of NEP while determining the revenue requirement of the P&ED and designing the retail tariff for its consumers. The Commission considered for a 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 323 kWh to 350 kWh by the end of 2019-20. The Commission endeavours that the tariff progressively reflects cost of supply in a shortest possible period and the government subsidy is reduced gradually. The tariffs have been rationalized with regards to inflation, paying capacity of consumers and avoidance of 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 2019-20, P&ED has proposed the changes in the existing categories of consumers.

The existing non-domestic/ commercial category into two separate categories viz., Non-domestic and Commercial categories with definitions as underlined.

#### **Non-domestic:**

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 public interest including other small power. This tariff includes power loads for non-domestic purposes like Government offices, hospitals,

nursing homes, clinics, dispensaries, health centres; Government Institutions, schools, colleges, libraries, research institutes, boarding/lodging houses; Government rest houses, tourist lodges, guest house, circuit house, rest house; Public buildings, community halls/YMA halls, religious premises like churches, temples, mosques, gurudwaras, religious offices.

**Tariff Rates:**

- a) Fixed charge : Rs 55.00 per month per kW of contracted load.
- b) Energy charge (on monthly consumption)
  - i) First 150 kWh : @ Rs 3.90 per kWh.
  - ii) Above 150 kWh : @ Rs 4.30 per kWh.

**Commercial:**

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 private gain including other small power. This tariff includes power loads for commercial purposes like Semi- government/non-government offices, shops, hospitals, nursing homes, clinics, dispensaries, health centres, restaurants, bars, hotels, clubs, guest houses, rest houses, tourist lodges, picnic spots, resorts, farm/garden houses, clubs, markets, optical houses, stadiums, meeting/conference halls, 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 centres, pathological labs, carpenters and furniture makers, repair workshops, laundries, typing institutes, internet cafes, STD/ISD PCO's, FAX/photocopy shops, tailoring shops, 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 70.00 per month per kW of contracted load.
- b) Energy charge (on monthly consumption)
  - i) First 150 kWh : @ Rs 4.35 per kWh.
  - ii) Above 150 kWh : @ Rs 5.40 per kWh.

The Commission considers retaining the existing categories as follows:

- 1 (a) Kutir Jyoti LT (b) Domestic LT (c) Domestic HT
- 2 (a) Non-domestic LT 2 (b) Non-domestic HT
- 3 (a) Commercial LT 3 (b) Commercial HT
- 4 Public Lighting LT
- 5 (a) Irrigation & Agriculture LT 5 (b) Irrigation & Agriculture HT
- 6 (a) Public Water Works LT 6 (b) Public Water Works HT
- 7 (a) Industrial LT 7 (b) Industrial HT
- 8 Bulk Supply HT

**8.2.2 Existing & Proposed Tariff**

P&ED in its tariff petition for FY 2019-20 has proposed revision to the prevailing two part retail supply tariffs of FY 2018-19 to various categories of consumers to earn additional revenue of Rs. 16.19 Crore to meet the huge revenue gap partially.

The P&ED has proposed tariff revision of both energy charges and Fixed Charges, which are in existence since 1.4.2019 with an average increase of 8.05% over the existing charges.

The summary of the tariff proposal by P&ED for FY 2019-20 is furnished in table below:

**Table 8.1: Existing v/s Proposed Tariff for FY 2019-20**

Sl. No.	Type of installation	Existing		Proposed	
		Energy Charges	Fixed Charges	Energy Charges	Fixed Charges
		A	B	A	B
1	<b>Kutir Jyothi</b>				
i)	First 20 kWh	1.75/kWh	15/Connection	2.50/kWh	30/Connection

Sl. No.	Type of installation	Existing		Proposed	
		Energy Charges	Fixed Charges	Energy Charges	Fixed Charges
ii)	Balance above 20 kWh	2.40/kWh	15/Connection	3.35/kWh	30/Connection
<b>2</b>	<b>Domestic</b>				
A	LT				
i)	First 100 kWh	2.90/kWh	40/Contracted Load in kW	3.40/kWh	50/Contracted Load in Kw
ii)	Next 100 kWh	4.45/kWh	40/Contracted Load in kW	4.90/kWh	50/Contracted Load in Kw
iii)	Balance above 200 kWh	5.05/kWh	40/Contracted Load in kW	5.30/kWh	50/Contracted Load in Kw
B	HT	4.80/kVAh	40/Billing Demand in KVA	4.80/kVAh	50/Billing Demand in KVA
<b>3</b>	<b>Non-Domestic</b>				
A	LT				
i)	First 150 kWh	4.35/kWh	70/Contracted Load in kW	3.90/kWh	55/Contracted Load in Kw
iii)	Balance above 150 kWh	5.40/kWh	70/Contracted Load in kW	4.30/kWh	55/Contracted Load in Kw
B	HT	5.50/kVAh	70/Billing Demand in KVA	4.40/kVAh	55/Billing Demand in KVA
<b>4</b>	<b>Commercial</b>				
A	LT				
i)	First 150 kWh	4.35/kWh	70/Contracted Load in Kw	4.35/kWh	70/Contracted Load in Kw
iii)	Balance above 150 kWh	5.40/kWh	70/Contracted Load in Kw	5.40/kWh	70/Contracted Load in Kw
B	HT	5.50/kVAh	70/Billing Demand in KVA	4.55/kVAh	70/Billing Demand in KVA
<b>5</b>	<b>Public Lighting</b>	5.30/kWh	65/Contracted Load in Kw	5.40/kWh	70/Contracted Load in Kw
<b>6</b>	<b>Irrigation &amp; Agriculture</b>				
A	LT	2.10/kWh	40/Contracted Load in Kw	4.20/kWh	50/Contracted Load in Kw
B	HT	2.00/kVAh	40/Billing Demand in KVA	4.10/kVAh	50/Billing Demand in KVA
<b>7</b>	<b>Public Water Works</b>				
A	LT	5.20/kWh	80/Contracted Load in Kw	5.20/kWh	80/Contracted Load in Kw
B	HT	4.90/kVAh	80/Billing Demand in KVA	4.40/kVAh	80/Billing Demand in KVA
<b>8</b>	<b>Industrial</b>				
A	LT				
i)	First 400 kWh	4.10/kWh	70/Contracted Load in Kw	4.10/kWh	70/Contracted Load in Kw
ii)	Balance above 400 kWh	4.80/kWh	70/Contracted Load in Kw	4.80/kWh	70/Contracted Load in Kw

Sl. No.	Type of installation	Existing		Proposed	
		Energy Charges	Fixed Charges	Energy Charges	Fixed Charges
B	HT	4.55/kVAh	70/Billing Demand in KVA	4.40/kVAh	70/Billing Demand in KVA
9	<b>Bulk Supply</b>	4.30/kVAh	80/Billing Demand in KVA	5.10/kVAh	80/Billing Demand in KVA

### 8.2.3 Tariffs Approved by the Commission

#### (a) Approved Subsidised Tariff for FY 2019-20

The Commission worked out the average rate to be Rs. 4.65/kWh on adopting the existing tariff of FY 2018-19 for the FY 2019-20 on the basis of increased number of consumers and energy consumption. 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. 129.38 Crore vide Para 7.11 of Chapter-7, the Commission considers to revise the tariffs as subsidised under Telescopic billing with an average increase of 6.68% as against 8.05% proposed by P&ED as detailed below:

**Table 8.2: Category wise subsidised Tariff approved by the Commission for FY 2019-20**

Sl. No.	Consumer Category	Existing Tariff		Revised subsidised Tariff	
		Energy Charges (Rs.)	Fixed Charges (Rs.)	Energy Charges (Rs.)	Fixed Charges (Rs.)
1	<b>Kutir Jyothi</b>				
i)	First 20 kWh	1.75/kWh	15/Connection	2.10/kWh	20/Connection
ii)	Balance above 20 kWh	2.40/kWh	15/Connection	3.00/kWh	20/Connection
2	<b>Domestic</b>				
A	Low Tension				
i)	First 100 kWh	2.90/kWh	40/Contracted Load in kW	3.10/kWh	50/Contracted Load in kW
ii)	Next 100 kWh	4.45/kWh	40/Contracted Load in kW	4.60/kWh	50/Contracted Load in kW
iii)	Balance above 200 kWh	5.05/kWh	40/Contracted Load in kW	5.10/kWh	50/Contracted Load in kW
B	High Tension	4.80/kVAh	40/Billing Demand in kVA	4.80/kVAh	50/Billing Demand in kVA
3	<b>Non-Domestic</b>				



Sl. No.	Consumer Category	Existing Tariff		Revised subsidised Tariff	
		Energy Charges (Rs.)	Fixed Charges (Rs.)	Energy Charges (Rs.)	Fixed Charges (Rs.)
A	Low Tension				
i)	First 150 kWh	4.35/kWh	70/Contracted Load in kW	3.90/kWh	55/Contracted Load in kW
iii)	Balance above 150 kWh	5.40/kWh	70/Contracted Load in kW	4.30/kWh	55/Contracted Load in kW
B	High Tension	5.50/kVAh	70/Billing Demand in kVA	4.40/kVAh	55/Billing Demand in kVA
<b>4</b>	<b>Commercial</b>				
A	Low Tension				
i)	First 150 kWh	4.35/kWh	70/Contracted Load in kW	4.35/kWh	70/Contracted Load in kW
iii)	Balance above 150 kWh	5.40/kWh	70/Contracted Load in kW	5.40/kWh	70/Contracted Load in kW
B	High Tension	5.50/kVAh	70/Billing Demand in kVA	5.50/kVAh	70/Billing Demand in kVA
<b>5</b>	<b>Public Lighting</b>	5.30/kWh	65/Contracted Load in Kw	5.40/kWh	70/Contracted Load in kW
<b>6</b>	<b>Irrigation &amp; Agriculture</b>				
A	Low Tension	2.10/kWh	40/Contracted Load in Kw	2.70/kWh	50/Contracted Load in kW
B	High Tension	2.00/kVAh	40/Billing Demand in KVA	2.60/kVAh	50/Billing Demand in kVA
<b>7</b>	<b>Public Water Works</b>				
A	Low Tension	5.20/kWh	80/Contracted Load in kW	5.20/kWh	80/Contracted Load in kW
B	High Tension	4.90/kVAh	80/Billing Demand in kVA	5.00/kVAh	80/Billing Demand in kVA
<b>8</b>	<b>Industrial</b>				
A	Low Tension				
i)	First 400 kWh	4.10/kWh	70/Contracted Load in kW	4.10/kWh	70/Contracted Load in kW
ii)	Balance above 400 kWh	4.80/kWh	70/Contracted Load in kW	4.80/kWh	70/Contracted Load in kW
B	High Tension	4.55/kVAh	70/Billing Demand in kVA	4.55/kVAh	70/Billing Demand in KVA
<b>9</b>	<b>Bulk Supply</b>	4.30/kVAh	80/Billing Demand in kVA	5.10/kVAh	90/Billing Demand in kVA

\*\*\* Fixed charge is per kW of contracted load in LT supply except kJ and per kVA of Billing Demand in HT supply, energy charge is per kWh in LT supply and per kVAh in HT supply and LT high value services provided with MDI meters.

Note: The above table depicts fixed and energy charge only. However, Tariff Charges in detail are given in the Tariff Schedule Appended.

#### (b) Approved Full Cost Tariff

With the approved ARR for FY 2019-20, the Commission also works out the average cost of supply at the rate of Rs.7.68/kWh. In the event of non-receipt of subsidy in any month from the State Government, the Commission considers to make full cost tariff as tabulated below:

**Table 8.3: Category wise full cost Tariff (i.e., without subsidy) approved by the Commission for FY 2019-20**

Sl. No.	Consumer Category	Full Cost Tariff	
		Energy Charges (Rs.)	Fixed Charges (Rs.)
<b>1</b>	<b>Kutir Jyothi</b>		
i)	First 20 kWh	5.40/kWh	20/Connection
ii)	Balance above 20 kWh	5.60/kWh	20/Connection
<b>2</b>	<b>Domestic</b>		
A	Low Tension		
i)	First 100 kWh	6.15/kWh	50/Contracted Load in kW
ii)	Next 100 kWh	6.35/kWh	50/Contracted Load in kW
iii)	Balance above 200 kWh	6.55/kWh	50/Contracted Load in kW
B	High Tension	6.40/kVAh	50/Billing Demand in kVA
<b>3</b>	<b>Non-Domestic</b>		
A	Low Tension		
i)	First 150 kWh	6.40/kWh	55/Contracted Load in kW
iii)	Balance above 150 kWh	6.55/kWh	55/Contracted Load in kW
B	High Tension	6.45/kVAh	55/Billing Demand in kVA

Sl. No.	Consumer Category	Full Cost Tariff	
		Energy Charges (Rs.)	Fixed Charges (Rs.)
<b>4</b>	<b>Commercial</b>		
A	Low Tension		
i)	First 150 kWh	7.90/kWh	70/Contracted Load in kW
iii)	Balance above 150 kWh	8.00/kWh	70/Contracted Load in kW
B	High Tension	7.40/kVAh	70/Billing Demand in kVA
<b>5</b>	<b>Public Lighting</b>	7.95/kWh	70/Contracted Load in kW
<b>6</b>	<b>Irrigation &amp; Agriculture</b>		
A	Low Tension	6.10/kWh	50/Contracted Load in kW
B	High Tension	6.00/kVAh	50/Billing Demand in kVA
<b>7</b>	<b>Public Water Works</b>		
A	Low Tension	7.90/kWh	80/Contracted Load in kW
B	High Tension	7.25/kVAh	80/Billing Demand in kVA
<b>8</b>	<b>Industrial</b>		
A	Low Tension		
i)	First 400 kWh	6.85/kWh	70/Contracted Load in kW
ii)	Balance above 400 kWh	7.15/kWh	70/Contracted Load in kW
B	High Tension	7.25/kVAh	70/Billing Demand in KVA
<b>9</b>	<b>Bulk Supply</b>	7.30/kVAh	90/Billing Demand in kVA

**\*\*\* Fixed charge is per kW of contracted load in LT supply except kJ and per kVA of Billing Demand in HT supply, energy charge is per kWh in LT supply and per kVAh in HT supply and LT high value services provided with MDI meters.**

Note: The above table depicts fixed and energy charge only. However, Tariff Charges in detail are given in the Tariff Schedule Appended.

**(c) Miscellaneous Charges and Important Conditions of Supply**

The detail Tariffs including rates for un-metered categories of consumer, miscellaneous charges and Important Conditions of Supply furnished by P&ED are examined and approved as given in the Tariff Schedule in the Appendix.

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## 9 Wheeling Charges

### 9.1 Background

Wheeling charges has been calculated in accordance with the Regulation 71 read with Regulation 72 of The Joint Electricity Regulatory Commission for Manipur and Mizoram (Multi Year Tariff) Regulations, 2014. Since, the P&ED is not maintaining separate accounts for the Distribution Wire Business & Retail Supply Business; the ARR of the wheeling business is arrived at in accordance with the allocation matrix as prescribed in the Regulation 72. The allocation matrix is given as 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 2019-20**  
(Rs. Cr)

Sl. No	Particular	Total Cost	Wire cost	Retail supply cost
1	Power purchase cost	296.05	-	296.05
2	Fuel Cost	0.01	-	0.01
3	Interstate Transmission Charges	8.93	-	8.93
4	Intra state transmission charges	44.8	-	44.80
5	Cost of Generation	30.87	-	30.87
6	Employee cost	51.23	30.74	20.49
7	R&M cost	5.62	5.058	0.562
8	Administration & General expenses	1.49	0.745	0.745
9	Depreciation	1.98	1.782	0.198
10	Interest & Fin. Charges	1.54	1.386	0.154
11	Int. on working capital	3.76	0.376	3.384
12	Less Non-tariff income	2.71	0.26	2.44
13	Less: 1/3 of Surplus in Fy 2017-18 true-up	36.38	0	36.38
<b>14</b>	<b>Total</b>	<b>407.19</b>	<b>39.83</b>	<b>367.38</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 the 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**

<b>Sl. No</b>	<b>Particular</b>	<b>FY 2019-20</b>
1	ARR for wheeling function approved by the Commission (Rs. Crore)	39.83
2	Total Energy available for Distribution(MU)	511.01
3	Wheeling Tariff (Rs/kWh)	0.78

**The Commission approves wheeling Tariff at Rs.0.78/kWh for FY 2019-20.**

## 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.

FAC (Rs./kWh)	=	$\frac{Q_c(RC_2 - RC_1) + Q_o(RO_2 - RO_1) + Q_{pp}(R_{pp2} - R_{pp1}) + V_z + A}{(Q_{Pg1} + Q_{pp1} + Q_{pp2})} \times \left[ 1 - \frac{L}{100} \right] \times 100$
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Where,

$Q_c$	=	Quantity of coal consumed during the adjustment period in Metric Tons (MT).
	=	(SHR X $Q_{pg}$ ) (1+TSL)/GCV, or actual whichever is less.
$RC_1$	=	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
$RC_2$	=	Weighted average of base rate of coal supplied ex-power station coal yard for the adjustment period in Rs./MT
$Q_o$	=	Actual Quantity of oil (in KL) consumed during the adjustment period or normative oil consumption as per Tariff order whichever is less.
$RO_1$	=	Weighted average of base rate of oil ex-power station (Rs./KL) approved by the Commission for the adjustment period.
$RO_2$	=	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
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)
$V_z$	=	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, BPL & Kutir Jyoti Consumers are covered).

If there are more than one power stations owned by the Licensee  $Q_c$ ,  $R_{c1}$ ,  $R_{c2}$ ,  $Q_o$ ,  $R_{o1}$ ,  $R_{o2}$ ,  $Q_{pg}$  and  $Q_{pg1}$  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.
- 12) Any amendment/enhancement in retail supply tariff during the on account of any fuel surcharge adjustment (i.e., FPPCA) shall not construed as revision in Tariff which is as per the provisions of Sec 62(5) of E. Act 2003.

## 11 Aggregate Revenue Requirement of Transmission function for FY 2019-20

### 11.1 Introduction

The Transmission capacity requirement and allocation to the long term & medium term users of the license area is determined based on the expected transmission of energy in the area during the period under consideration. The Transmission function of P & ED primarily handles power required by the Distribution function and hence the forecast/ projection would completely depend on the sales/ energy transmission projection of the distribution function. Accordingly, the transmission system requirement projected by the P & ED for 2019-20 is as given in the succeeding paragraphs.

### 11.2 Capacity allocation and Energy Requirement

The energy requirement of the state is mainly met from outside Generating sources as the allocation of share to Mizoram from various Central Sector Generating Stations. Own Generation capacity is provided in the table below is seasonal in nature. Apart from the allocation from the Central Sector Generating Stations & Own generating sources, Mizoram has to resort to additional short-term purchases through other sources such as over draws under UI & purchase through IEX.

**Table 11.1: Power Availability sources/ share including own generation for FY 2019-20**

Sl. No	Source	Plant Capacity (MW)	P&ED Share (%)	P&ED Share (MW)
<b>A</b>	<b>Central Generating Stations</b>			
I	NTPC Bongaigaon	250	5.415	13.54
1	Farakka STPS	1600	0.14	2.24
2	Kahalgaon STPS	840	0.14	1.18
3	Talcher STPS	1000	0.14	1.4
	<b>NTPC-Total</b>	<b>3690</b>		<b>18.36</b>
<b>II</b>	<b>NHPC</b>			
1	Loktak HEP	105	5.02	5.27

Sl. No	Source	Plant Capacity (MW)	P&ED Share (%)	P&ED Share (MW)
	<b>NHPC-Total</b>	<b>105</b>		<b>5.27</b>
<b>III</b>	<b>NEEPCO</b>			
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	Pare HEP	110	5.765	6.34
7	Turial HEP	60	-	-
8	AGBPP	291	5.41	15.74
9	AGTPP	148	6.00	8.88
	<b>NEEPCO-Total</b>	<b>1364</b>		<b>70.71</b>
<b>IV</b>	<b>TSECL</b>			
1	B'mura - IV	21	25	5.25
2	B'mura - V	21	25	5.25
	<b>TSECL-Total</b>	<b>42</b>		<b>10.5</b>
<b>V</b>	<b>OTPC</b>			
1	Palatana	726	3.03	22
	<b>OTPC-Total</b>	<b>726</b>		<b>22</b>
<b>VI</b>	<b>Own Generation</b>	<b>52.77</b>		<b>52.77</b>
	<b>Total</b>	<b>5979.77</b>		<b>179.61</b>

Table 11.2: Power Sources- Own Generation

Sl. No	Name of the Station	Installed Capacity (MW)
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>Total</b>	<b>29.35</b>

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

**Table 11.3: Transmission Network as on 31.03.2018**

Sl. No	Particulars	Ckt KM	Sub Stations	Capacity (MVA)
1	132 kV	728.961	7	121.80
2	66 kV	117.00	2	12.60
3	33 kV	1240.24	61	218.25

### 11.3 Transmission Loss

P & ED has been trying to reduce the transmission losses during recent years. P & ED submits that the system improvement works executed every year under the plan schemes have also contributed to the reduction of transmission losses. However, it may also be noted that reduction of transmission losses may not be possible beyond a certain level due to topographical conditions and technical limitations. The Department is currently not equipped to measure the exact energy flowing into and out of the state grid at various levels due to inadequate metering equipment. Therefore, State transmission loss has been calculated on the basis of the net input energy in the State Transmission system periphery and energy sales. The transmission loss for FY 2019-20 has been considered at 3% as approved by the Hon'ble Commission's Order dated 12.03.2018.

**The Commission accordingly approves transmission loss at 3 % for FY 2019-20 as projected by P&ED.**

### 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 2019-20 is given in the table below.

**Table 11.4: Aggregate Revenue Requirement projected by P & ED during FY 2019-20**

(Rs. Cr)

Sl. No	Particulars	FY 2019-20
1	Return on equity	0.00
2	Interest and Finance charges	0.00
3	Depreciation	1.48
4	O & M expenses	28.17
5	Interest on working capital	1.22
6	Contribution to Contingency Reserve	0.00
7	Non Tariff Income	0.00
8	Income from other Business	0.00
9	Total	30.87

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

Item wise expenses are discussed here under.

### **11.5 Return on Equity**

#### **Petitioner's submission**

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

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

In view of the above, the financial principal of debt- equity ratio of 70 : 30 and return

on equity there on as provided in regulation 26 read with regulation 22 may not be applicable to the P & ED. Therefore, P & ED has not considered return on equity while computing ARR.

**Commission's analysis**

In view of the above the Commission has not considered for ROE for transmission function for FY 2019-20.

**11.6 Interest and Finance charges**

**Petitioner's submission**

Regulation 27 of the Joint Regulatory Commission for Manipur and Mizoram (Multi Year Tariff) Regulations, 2014 provides the methodology for calculation of the Interest and Finance charges. It provides that 30 % of the capital employed shall be considered as equity and balance 70 % is to be considered as loan. The regulation provides for normative loan irrespective of actual loan availed by the utility. Repayment of loan and Interest are to be considered on normative basis.

In this regard it is submitted that the P & ED being a Government Department, the nature of capital employed till date has been funded through fund infusion by the Government in the form of budgetary support which are generally in the nature of grants.

In view of the above, the financial principal of debt-equity ratio of 70: 30 as provided in regulation 27 read with regulation 22 may not be applicable to the P & ED. Therefore P & ED has not considered Interest and Finance charges while computing the ARR.

**Commission's analysis**

**In view of the above the Commission has not considered Interest and Finance charges for transmission function for FY 2019-20.**



## 11.7 Gross Fixed Assets and Depreciation

### 11.7.1 Gross Fixed Assets

#### Petitioner's submission

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

It is submitted the opening value of gross fixed assets (GFA) for the FY 2019-20 has been taken from Fixed Asset Register as on 31.03. 2018 & the audited accounts for the FY 2017-18 and the same has been increased by estimated addition of assets during the FY 2018-19 and projected addition during FY 2019-20. Accordingly, GFA has been computed for the FY 2019-20. The GFA movement is given in the table below:

**Table 11.5: GFA for FY 2019-20 projected by P & ED**

Financial year	Opening Balance	Addition during year	(Rs. Cr)
			Closing Balance
FY 2018-19	330.05	27.27	357.32
FY 2019-20	357.32	45.33	402.65

#### Commission's analysis

The Commission approves the growth of GFA for FY 2019-20 as detailed in the table below.

**Table 11.6: GFA for Transmission function for FY 2019-20 approved by the Commission**

Financial year	Opening Balance	Addition During year	(Rs. Cr)
			Closing Balance
FY 2018-19	330.05	27.27	357.32
FY 2019-20	357.32	45.33	402.65

### 11.7.2 Depreciation

#### Petitioner's submission

P & ED has projected the depreciation in accordance with the Regulation- 28 of the Joint Electricity Regulatory Commission for Manipur and Mizoram (Multi Year Tariff) Regulations, 2014.

It is submitted that opening value of Gross Fixed assets (GFA) and Opening accumulated depreciation for FY 2018-19 has been taken from Fixed Asset register as on 31.03.2017 and the audited accounts for the FY 2017-18 and estimated addition during the FY 2018-19, planned additions during the FY 2019-20 have been considered for calculating the depreciation for FY 2018-19, FY 2019-20. The rate of depreciation is however taken from average depreciation rate as per annual accounts for FY 2017-18. It is submitted that the State of Mizoram has been granted a special assistance for the development of infrastructure facilities in these states. Accordingly, the infrastructure projects of the state of Mizoram, including those of P & ED are being supported by Grants through various Central Government Ministries and Agencies like Ministry of Power (MoP) through schemes of APDRP and RGGVY, Ministry of New and Renewable Energy (MNRE), Ministry of Development of North eastern region (DONER) and North eastern Council. Asset wise funding pattern is not available. However, in majority of the case, the portion of grant is 90 % of the total project cost. In view of the above, it is assumed that the 90% of the total gross Fixed Asset are being funded through Grants, Accordingly, the proportionate amount to the extent of 90% of the total depreciation is deducted from the total depreciation to arrive at the amount of depreciation chargeable in the ARR. The table below indicates the depreciation of the assets calculated at 10% of total depreciation and the same has been considered while protecting the ARR of Transmission function for the, FY 2019-20. Accordingly, the depreciation for FY 2019-20 is depicted below.

Table 11.7: Depreciation for FY 2019-20 projected by P &amp; ED

(Rs. Cr)

Particulars	Approved in T. O. dated 12.03.2018	Proposed by P&ED	Deviation
Opening GFA	357.32	357.32	0
Additions during the Year	45.33	45.33	0
Closing GFA	402.65	402.65	0
Average GFA	379.99	379.99	0
Average Rate of Depreciation	3.89	3.89	0
Total Depreciation	14.78	14.78	0
10% of Total Depreciation	1.48	1.48	0

**Commission's Analysis**

As verified from the above table the P&ED has considered depreciation rate at 3.89%. But as per audited annual accounts for FY 2017-18 the average rate of depreciation is 3.94%. Accordingly, the depreciation is re-calculated as detailed in the table below.

Table 11.8: Depreciation for FY 2019-20 for Transmission function approved by the Commission

(Rs. Cr)

Particulars	Approved T. O. dt : 12.03.2018	Proposed by P&ED	Approved by Commission
Opening GFA	357.32	357.32	357.32
Additions during the Year	45.33	45.33	45.33
Closing GFA	402.65	402.65	402.65
Average GFA	379.99	379.99	379.99
Average Rate of Depreciation	3.89%	3.89%	3.94%
Total Depreciation	14.78	14.78	14.96
10% of Total Depreciation	1.48	1.48	1.50

However, the Commission accordingly approves depreciation for FY 2019-20 at Rs. 1.48 Cr as projected by P&ED and the variation would be considered in true-up if needed.

**11.8 Operation and Maintenance expenses****Petitioner's submission**

Operation and Maintenance expenses comprise of the following heads of expenditure viz.

- Employee expenses

- Administration & General expenses
- Repairs and Maintenance expenses

The operation and maintenance expenses have been arrived at in accordance with the Regulation 62.5 of the Joint Electricity Regulatory Commission for Manipur and Mizoram (Multi Year Tariff) Regulations, 2014. It is submitted that the P & ED is an integrated utility carrying out three functions of Generation, Transmission and Distribution and the complete segregation of function wise accounts has not been done yet. In view of the above the operation and Maintenance expenses has been allowed among various functions on the principle allowed by the Hon'ble Commission in the Tariff Order from the FY 2014-15, The allocation matrix is attached as Annexure.

The allocated actual expenses for the FY 2017-18 has been considered as the operation & maintenance expenses and the same has been escalated at the escalation factor of 5.72 % to arrive at the operation and maintenance expenses for the FY 2018-19. The operation and maintenance expenses for each subsequent year has been determined by further escalating the estimated operation and maintenance expenses for the FY 2018-19 by the escalation factor of 5.72 % YOY.

Accordingly, details of operation and maintenance expenses viz. Employee Expenses Administration & General Expenses & Repairs & Maintenance Expenses are provided in the subsequent sections.

#### **11.8.1 Employee Expenses**

The expense head of employee cost consists of salary and allowance, bonus, Leave Travel Concession (LTC) & Honorarium etc. P&ED has projected the employee cost in accordance with the Regulation 62.5 of The Joint Electricity Regulatory Commission for Manipur and Mizoram (Multi Year Tariff) Regulations, 2014 as given in the table below.

**Table 11.9: Employee Expenses projected by P&ED for FY 2019-20**

Particulars	Approved in T. O. dated 12.03.2018	Proposed by P&ED	Deviation
Employee Expenses	21.95	21.95	0

It is therefore kindly requested that Hon'ble Commission may approve the employee expenses of Rs. 21.95 Cr for FY 2019-20.

**The Commission accordingly approves employee expenses of Rs. 21.95 Cr for FY 2019-20 as projected by P &ED.**

### 11.8.2 Administration and General Expenses

#### Petitioner's submission

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

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

The expense head of A & G expense consists of Domestic Travelling Expenses, Office Expenses, Legal, Regulatory & Consultancy Fees & Insurance etc. P & ED has projected the A & G expenses in accordance with the Regulation 89.6 of the Joint Electricity Regulatory Commission for Manipur and Mizoram (Multi Year Tariff) Regulations, 2014 and the methodology described in the Para 4.4. The Licensee therefore requested the Hon'ble Commission to kindly approve the A & G expenses at Rs. 1.25 Cr for FY 2019-20.

**Table 11.10: Administrative and General Expenses projected by P&ED for FY 2019-20**  
(Rs. Cr)

Particulars	Approved in T. O. dated 12.03.2018	Proposed by P&ED	Deviation
Administration & General Expenses	1.26	1.26	0.00

#### Commission's analysis

The Commission approves Administration and General expenses for FY 2019-20 at Rs. 1.26 Cr as projected by P & ED.

### 11.8.3 Repairs and Maintenance expenses

#### Petitioner's submission

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

P & ED has projected the R & M expenses in accordance with the regulation 29.6 of The Joint Electricity Regulatory Commission for Manipur and Mizoram (Multi Year tariff) Regulations, 2014 and the methodology described in the Para 11.4.

The Licensee therefore requested the Hon'ble Commission to kindly approve the R & M expenses of Rs. 4.96 Cr for FY 2019-20.

**Table 11.11: Repair and Maintenance expenses projected by P&ED for FY 2019-20**

(Rs. Cr)

Particulars	Approved in T. O. dated 12.03.2018	Proposed by P&ED	Deviation
Repair & Maintenance Expenses	4.96	4.96	0.00

#### Commission's analysis

The Commission approves R & M expenses for FY 2019-20 at Rs. 4.96 Cr as projected by the P&ED as detailed in the table below.

**Table 11.12: Summary of O & M expenses for FY 2019 -20 approved by the Commission**

(Rs. Crore)

Sl. No	Particulars	FY 2019-20
1	Employee expenses	21.95
2	Administration and General expenses	1.26
3	R & M expenses	4.96
4	Total O & M expenses	28.17

### 11.9 Interest on Working Capital

#### Petitioner's submission

The P & ED has computed the Interest on Working Capital for the FY 2019-20 in accordance with the Regulation 29.2 of The Joint Electricity Regulatory Commission for Manipur and Mizoram (Multi Year Tariff) Regulations, 2014.

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

- (a) Operation and maintenance expenses for one month, plus.
- (b) Maintenance spares at one (1) percent of the historical cost escalated at 6 % from the date of commercial operation, plus.
- (c) Receivables equivalent to one (1) month of the expected revenue from sale of electricity at the prevailing tariffs minus.
- (d) Amount held as security deposits under clause (a) and clause(b) of sub-section (1) of Section 47 of the Act from consumers except the security deposits held in the form of Bank guarantees.

Interest is required to be calculated at a rate equal to the State Bank Advance Rate (SABR) as on 1<sup>st</sup> April of the financial year in which petition is filed.

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

**Table 11.13: interest on Working Capital projected by P & ED for FY 2019-20**

(Rs. Cr)			
Sl. No	Particulars	Total Cost (Rs. Cr)	One month's Cost (Rs. Cr)
1	O&M expenses one month	28.17	2.35
2	Maintenance of spares at 1% historical cost of assets escalated by 6% from COD	357.32	3.79
3	Receivables one month	30.89	2.57
4	Less: Security deposit if any		
5	Total		8.71
6	Rate of Interest as on 01.04.2018		14.05%
7	Interest on Working Capital		1.22

### Commission's Analysis

P & ED has worked out the Interest on working capital considering SBAR as on 01.04.2017 at 14.05% which is considered. Accordingly, interest on working capital is worked out as detailed in the table below.

**Table 11.14: Interest on Working Capital for FY 2019-20 approved by the Commission**

(Rs. Crore)			
Sl. No	Particulars	Total Cost (Rs. Cr)	One month Cost (Rs. Cr)
1	O&M expenses one month	28.17	2.35
2	Maintenance of spares at 1% historical cost of assets escalated by 6% from COD	357.32	3.79
3	Receivables one month	30.89	2.57
4	Less: Security deposit if any		
5	Total		8.71
6	Rate of Interest as on 01.04.2018		14.05%
7	Interest on Working Capital		1.22

**The Commission approves Interest on Working Capital for FY 2019 - 20 at Rs. 1.22 Cr as projected by P&ED.**

### 11.10 Non- Tariff Income

#### Petitioner's Submission



Regulation 63 of the Joint Electricity Regulatory Commission for Manipur and Mizoram (Multi Year Tariff) Regulations, 2014 provides that the Non –Tariff Income shall be deducted from the ARR in calculating the Tariff. Non- Tariff income includes revenue from rent on land and building, statutory investments, interest on delayed payments and other charges. The P & ED has not considered Non- Tariff income for computing the ARR of the transmission function for the FY 2019-20.

### Commission's Analysis

**P & ED is an integrated utility. As such Non- Tariff income is being accounted for under distribution business. Therefore, Non- Tariff income has not been considered for the transmission business for FY 2019-20**

#### 11.11 Aggregate Revenue Requirement

Based on the approved expenses the ARR for transmission function approved by the Commission for FY 2019-20 is given in table below.

**Table 11.15: Aggregate Revenue Requirement approved by the Commission FY 2019-20**  
(Rs. Cr)

Sl. No	Particulars	FY 2019-20
1	Return on Equity	-
2	Interest and Finance Charges	-
3	Depreciation	1.48
4	O & M expenses	28.17
5	Interest on working capital	1.22
6	Non tariff income	-
7	Total ARR	30.87

#### 11.12 Transmission Charges

##### Petitioner's submission

P&ED has calculated the transmission charges in accordance with Regulation 65 of the JERC for Mizoram and Manipur (MYT) Regulations 2014 as detailed in the Table below.

**Table 11.16 Transmission charges projected by P&ED**

Sl. No	Particulars	Unit	FY 2019-20
1	Aggregate Revenue Requirement	Rs. Cr	30.87
2	Total MW allocation	MW	159.436
3	Total energy to be transmitted	MU	521.50
4	Transmission charges (Rs/MW/Month)		161350
5	Transmission charges (Rs/MW/day)		5304.66
6	Transmission Tariff	Rs/kWh	0.59

### Commissions Analysis

The Commission has calculated the transmission tariff with approved data as detailed in the table below.

**Table 11.17: Transmission charges approved by the Commission for FY 2019-20**

Sl. No	Particulars	Unit	FY 2019-20
1	Aggregate Revenue Requirement	Rs. Cr	30.87
2	Total MW allocation	MW	159.436
3	Total energy to be transmitted	MU	511.01
4	Transmission charges Rs/MW/Month		161350
5	Transmission charges Rs/MW/day		5304.66
6	Transmission Tariff (Rs/kWh)	Rs/kWh	0.60

## 12 ARR of Generation Function for FY 2019-20

### 12.1 Background

The Power and Electricity Department, Government of Mizoram owns 10 small Hydro Projects with installed capacity below 25 MW. Accordingly, the P& ED has submitted the proposal for determination of tariff as per the JERC for Manipur and Mizoram (Terms and Conditions for Tariff determination from Renewable Energy sources) Regulations, 2010 read with JERC for Mizoram & Manipur (First Amendments) Regulations, 2014.

### 12.2 Details of SHPS

Details of SHPS are provided in the table below.

**Table12. 1: Details of SHPS projected by P & ED**

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

In this regard it is submitted that since the Serlui 'B' SHP has not been commissioned till date the same has not been considered for the calculation of Capital Cost , ARR

and Generation tariff calculated in accordance with the JERC for Manipur and Mizoram (Terms and conditions for Tariff determination from Renewable Energy sources) Regulations, 2010 read along with JERC for M&M (First Amendments) Regulations, 2014.

However, the Serlui BSHP is generating infirm power and the same is being injected into the state grid. The rate at which the energy supplied by the SHP has to be considered while arriving at the total cost of generation, has been dealt with separately in the subsequent section of this submission.

### **12.3 Aggregate Revenue Requirement**

This section outlines the Aggregate Revenue Requirement of the P&ED for FY 2019-20 considering the following.

- i. Actual Performance in FY 2017-18.
- ii. Estimated performance for FY 2018-19 based on the Actual Performance for the period 01.04.2018 to 30.09.2018.
- iii. Projection for FY 2019-20 based on the Actual performance in FY 2017-18 and estimated performance in FY 2018-19.
- iv. Principles outlined in Tariff Regulations of JERC for Mizoram and Manipur.

Past trends have been taken into cognizance in case of certain elements as deemed necessary. The present section has been structured in the following manner

#### **Determination of Energy to be transmitted**

- Energy input Projections
- Loss Trajectory
- Energy Balance

#### **Proposed Capital Expenditure and capitalization**

- Scheme wise details.
- Capital Expenditure.
- Asset Capitalization

#### **Determination of the Aggregate Revenue Requirement**

- Power Generation/Purchase Costs
- Transmission Charges
- Operation and Maintenance Expenses
- Depreciation
- Interest charges (including interest on working capital)
- Provision for Bad and Doubtful Debts
- Return on Equity

### Capital Cost

- (1) Regulation 28 of the JERC for Manipur & Mizoram (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2010 read with First Amendments Regulations 2014, provides that the capital cost of Small Hydro Projects shall be determined as per the normative parameters defined in the regulation. The extract of the regulation is reproduced below:

The normative capital cost for small hydro projects during first year of Control Period (FY 2012-13) shall be as follows:

**Table 12. 2: Normative Capital Cost**

Sl. No	Project Size	Capital Cost (Rs. in Lakh /MW)
1	Below 5 MW	770
2	5 MW to 25 MW	700

- (2) The capital cost for subsequent years shall be determined on the basis of indexation formula as outlined under Regulation 29.

Further, regulation 29 provides the Capital Cost Indexation Mechanism. The provisions of the regulation are reproduced below:

“The following indexation mechanism shall be applicable in case of small hydro power projects for adjustments in capital cost over the Control Period with the changes in Wholesale Price Index for Steel and Electrical Machinery.

$$CC(n) = P\&M(n) * (1+F1+F2+F3)$$

$$P\&M(n) = P\&M(0) * (1+d(n))$$

$$d(n) = [a*\{(SI(n-1)/SI(0)) - 1\} + b*\{(EI(n-1)/EI(0)) - 1\}]/(a+b)$$

Where,

CC(n) = Capital Cost for nth year

P&M(n) = Plant and Machinery Cost for nth year P&M(0) =

Plant and Machinery Cost for the base year

Note. P&M(0) is to be computed by dividing the base capital cost (for the first year of the control period) by (1+F1+F2+F3) i.e.

**Table 12. 3: Base Capital cost**

Small hydro Project	Base Capital Cost (Rs. Lakh/MW)	Factor (1+F1+F2+F3)	P&M (0) (Rs. Lakh/MW)
SHP (<5MW)	770	1.40	550
SHP (5 - 25 MW)	700	1.40	500

$d(n)$  = Capital Cost escalation factor for year (n) of Control Period

$SI(n-1)$  = Average WPI Steel Index prevalent for calendar year (n-1) of the Control Period

$SI(0)$  = Average WPI Steel Index prevalent for calendar year (0) at the beginning of the Control Period i.e. April, 2011 to December March, 2012

$EI(n-1)$  = Average WPI Electrical Machinery Index prevalent for calendar year (n-1) of the Control Period

$EI(0)$  = Average WPI Electrical and Machinery Index prevalent for calendar year at the beginning of the Control Period i.e. April

a = Constant to be determined by Commission from time to time, (In default it is 0.6), for weight age to Steel Index

b = Constant to be determined by Commission from time to time, (In default it is 0.4), for weight age to Electrical Machinery Index

F1 = Factor for Land and Civil Work (0.16)

F2 = Factor for Erection and commissioning (0.10)

F3 = Factor for IDC and Financing Cost (0.14)

Capital Cost of the SHPS has been calculated in accordance with the above defined norms and mechanism. The calculation of index capital cost is detailed below.

**Table 12. 4: Indexed Capital Cost**

Sl. No.	Factors	Reference Year	Value
i	d(n)	2017-18	
ii	SI(n-1)	2016-17	105.80
iii	SI(0)	2011-12	100.00
iv	EI (n-1)	2016-17	108.20
v	EI (0)	2011-12	100.00
vi	a		0.60
vii	b		0.40
viii	F1+F2+F3		0.40
ix	P&M(0)		550.00

$$\begin{aligned}
 d(n) &= [a \cdot \{(SI(n-1)/SI(0)) - 1\} + b \cdot \{(EI(n-1)/EI(0)) - 1\}] / (a+b) \\
 &= [0.6 \cdot \{(105.80/100.00) - 1\} + 0.40 \cdot \{(108.20/100.00) - 1\}] / (0.60 + 0.40) \\
 &= 0.068 \\
 P\&M(n) &= P\&M(0) \cdot \{1 + d(n)\} \\
 &= 550 \{1 + 0.068\} \\
 &= 587.18 \\
 CC(n) &= P\&M(n) \cdot (1 + F1 + F2 + F3) \\
 &= 587.18 (1 + 0.40) \\
 &= 822.05
 \end{aligned}$$

Therefore, the indexed cost of project per MW is Rs. 822.05 Lakhs. The indexed capital cost of the 10SHPs are accordingly calculated below.

**Table 12. 5: Capital Cost projected by P & ED for SHPS**

(Rs. Cr)

Sl. No.	Name of Station	Installed Capacity (MW)	Capital Cost (@822.05 Lakhs/MW)
1	Serlui 'A'	1	8.22
2	Tuirivang	0.3	2.47
3	Khawiva	1.05	8.63
4	Tuipui	0.5	4.11
5	Maicham-I	2	16.44
6	Kau-Tlabung	3	24.66
7	Lamsial	0.5	4.11
8	Maicham-II	3	24.66
9	Teirei	3	24.66
10	Tuipaglui	3	24.66
	<b>Total</b>	<b>17.35</b>	<b>142.62</b>

**Commission's Analysis**

P&ED in its additional information has furnished that Serlui A, Tuirivang, Teirai and Tuipanglui are not in operation. Barring the above four stations not in operation the Commission considers the capital cost of balance 6 Hydro Stations already in operation as projected by P & ED as detailed in the Table below.

**Table 12. 6: Capital Cost approved by the Commission for FY 2019-20**

(Rs. Cr)

Sl. No	Name of Station	Installed Capacity (MW)	Capital Cost (@ ` 822.05 Rs. Cr/MW)
1	Khawiva	1.05	8.63
2	Tuipui	0.50	4.11
3	Maicham-I	2.00	16.44
4	Kau-Tlabung	3.00	24.66
5	Lamsial	0.50	4.11
6	Maicham-II	3.00	24.66
	<b>Total</b>	<b>10.05</b>	<b>82.61</b>

**12.4 O & M expenses****Petitioner's Submission**

Operation and Maintenance Expenses has been calculated in accordance with the regulation 18 of the JERC for Manipur & Mizoram (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2010 along with



amendments. The Operation and Maintenance Expenses of the SHPs for the control period is provided below:

**Table12. 7: Operation and Maintenance Expenses for SHPS projected by P & ED for Control period FY 2019-20**

(Rs. Cr)				
Sl. No	Name of Station	Approved in T. O. dated 12.03.2018	Proposed by P&ED	Deviation
1	Khawiva	0.39	0.39	0
2	Tuipui	0.39	0.39	0
3	Maicham-I	0.74	0.74	0
4	Kau-Tlabung	1.11	1.11	0
5	Lamsial	0.18	0.18	0
6	Maicham-II	1.11	1.11	0
7	Total	3.92	3.92	0

**Table12.8: O & M expenses approved by the Commission for Control Period FY 2018-19 to FY 2022-23**

(Rs. Cr)						
Sl. No	Name of Station	Capacity (MW)	Normative O&M Expense /MW	Normative O&M Expenses/MW for base year FY 2012-13	Escalation Rate / Annum	FY 2019-20
1	Khawiva	1.05	0.25	0.26	5.72%	0.39
2	Tuipui	0.5	0.25	0.13	5.72%	0.39
3	Maicham-I	2	0.25	0.50	5.72%	0.74
4	Kau-Tlabung	3	0.25	0.75	5.72%	1.11
5	Lamsial	0.5	0.25	0.13	5.72%	0.18
6	Maicham-II	3	0.25	0.75	5.72%	1.11
	<b>Total</b>	<b>10.05</b>	<b>1.5</b>	<b>2.52</b>		<b>3.92</b>

The Commission approves normative O & M expenses at Rs. 3.92 Cr as against Rs. 3.92 Cr projected by P&ED for FY 2019-20.

## 12.5 Depreciation

### Petitioner's Submission

Depreciation has been calculated in accordance with the regulation 15 of the JERC for Manipur & Mizoram (Terms and Conditions for Tariff determination from

Renewable Energy Sources) Regulations, 2010 along with amendments. The depreciation of the SHPs for FY 2019-20 is provided below:

**Tables 12. 9: Calculation of Depreciation for FY 2019-20 projected by P & ED Mizoram**

(Rs. Cr)

Sl. No	Name of Station	Approved in T. O. dated 12.03.2018	Proposed by P&ED	Deviation
1	Khawiva	0.010	0.010	0
2	Tuipui	0.005	0.005	0
3	Maicham-I	0.019	0.019	0
4	Kau-Tlabung	0.029	0.029	0
5	Lamsial	0.022	0.022	0
6	Maicham-II	0.029	0.029	0
7	<b>Total</b>	<b>0.114</b>	<b>0.114</b>	<b>0</b>

#### Commission's Analysis

As verified in respect of Maichen-II SHP total depreciation for FY 2019-20 is erroneously furnished as Rs.0.03 Cr instead Rs. 1.44 Cr and 10% of depreciation is furnished Rs. 0.03 Cr instead Rs. 0.14 Cr. The mistake is now rectified. So the 10 % depreciation to balance six stations for FY 2019-20 is as detailed in the table below.

**Table 12. 10: Calculation of Depreciation for FY 2019-20 approved by the Commission for FY 2019-20**

(Rs. Cr)

Sl. No	Name of Station	Date of COD	Capital Cost	No. of Years since COD	Balance useful Life	Depreciation /year upto 12th yr	Depreciation from 13th yr	Total Depreciation for 2019-20
1	Khawiva	08.12.1988	8.63	31	4	5.83%	0.87%	0.01
2	Tuipui	15.12.1991	4.11	28	7	5.83%	0.87%	0.01
3	Maicham-I	05.01.1996	16.44	23	12	5.83%	0.87%	0.02
4	Kau-Tlabung	05.05.2005	24.66	14	21	5.83%	0.87%	0.03
5	Lamsial	26.08.2008	4.11	11	24	5.83%	0.87%	0.02
6	Maicham-II	11.11.2009	24.66	10	25	5.83%	0.87%	0.14
	<b>Total</b>		<b>82.61</b>					<b>0.23</b>

**The Commission approves depreciation at Rs. 0.23 Crore for FY 2019-20.**

**12.6 Return on equity****Petitioner's submission**

The Fixed Assets of P&ED are funded through the budgetary support by the Government of Mizoram and Grants and Aids through Financial Institutions under various schemes like RGGVY, APDRP etc. Approximately 90% of the funding is done through the Government funding/Grants. However, in line with the previous orders of the Hon'ble Commission in this regard Return on Equity has not been considered for computing the ARR for the control period.

**Commission's Analysis**

**Under the circumstances explained supra the Commission has not considered return on equity during FY 2019-20.**

**The Commission approves ROE at Rs. NIL for FY 2019-20.**

**12.7 Interest on Working Capital****Petitioner's submission**

Interest on working capital has been calculated in accordance with the regulation 17 of the JERC for Manipur & Mizoram (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2010 along with amendments. The Interest on working capital of the SHPs for FY 2019-20:

**Table 12. 111: Interest on Working Capital for the FY 2019-20 projected by P & ED**  
(Rs. Cr)

Sl. No	Name of Station	Approved in T. O. dated 12.03.2018	Proposed by P&ED	Deviation
1	Khawiva	0.02	0.02	0
2	Tuipui	0.01	0.01	0
3	Maicham-I	0.04	0.04	0
4	Kau-Tlabung	0.07	0.07	0
5	Lamsial	0.01	0.01	0
6	Maicham-II	0.07	0.07	0
7	Total	0.22	0.22	0

**Commission's Analysis**

**Table 12. 12: Interest on Working Capital approved by the Commission for FY 2019-20**

Sl. No	Name of the station	Operation & Maintenance expenses for one month	Receivable for two months	Maintenance spares-15% of O&M	Total	Interest (13.45%)
1	Khawiva	0.03	0.07	0.01	0.11	0.01
2	Tuipui	0.02	0.03	0.01	0.06	0.01
3	Maicham-I	0.06	0.13	0.01	0.2	0.03
4	Kau-Tlabung	0.1	0.2	0.02	0.32	0.04
5	Lamsial	0.02	0.04	0.01	0.07	0.01
6	Maicham-II	0.1	0.22	0.02	0.34	0.05
	<b>Total</b>	<b>0.33</b>	<b>0.69</b>	<b>0.08</b>	<b>1.1</b>	<b>0.15</b>

The Commission approves interest on working capital at 0.15Cr for FY 2019-20 detailed supra.

## 12.8 Aggregate Revenue Requirement (ARR)

### Petitioner's submission

The ARR of the SHPs has been arrived at based on the components of tariff as detailed in the previous sections. The table below provides the ARR of 6 SHPs.

**Table 12. 13: Annual Revenue Requirement projected by P&ED for FY 2019-20**

(Rs. Cr)

Sl. No	Name of Station	Approved in T. O. dated 12.03.2018	Proposed by P&ED	Deviation
1	Khawiva	0.42	0.42	0
2	Tuipui	0.2	0.2	0
3	Maicham-I	0.8	0.8	0
4	Kau-Tlabung	1.2	1.2	0
5	Lamsial	0.22	0.22	0
6	Maicham-II	1.2	1.2	0
7	Total	4.04	4.04	0

### Commission's analysis

Considering the approved expenses for the above six stations the consolidated ARR approved by the Commission is as detailed below in the table.

**Table 12. 14: Annual Revenue Requirement approved by the Commission for FY 2019-20**

Head of Expense	Khawiva	Tuipui	Maicham-I	Kau-Tlabung	Lamsial	Maicham-II	Total
O&M Expense	0.39	0.18	0.74	1.11	0.095	1.11	3.72
Return on Equity	0	0	0	0	0	0	0
Interest on Loan	0	0	0	0	0	0	0
Depreciation	0.01	0.01	0.02	0.03	0.01	0.029	0.13
Interest on Working Capital	0.02	0.01	0.03	0.04	0.005	0.068	0.19
<b>Total</b>	<b>0.42</b>	<b>0.2</b>	<b>0.8</b>	<b>1.2</b>	<b>0.22</b>	<b>1.20</b>	<b>4.04</b>

The Commission approves ARR for the above six generating stations at Rs. 4.09 Cr for FY 2019-20 as detailed supra.

## 12.9 Capacity Utilization factor

### Petitioner's submission

Capacity Utilisation Factor has been calculated in accordance with the regulation 30 of the JERC for Manipur & Mizoram (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2010 along with amendments. The extract of the regulation is reproduced below:

*“Capacity Utilisation factor for the small hydro projects in Manipur and Mizoram shall be 45%. Explanation: For the purpose of this Regulation normative CUF is net of free power to the home state if any, and any quantum of free power if committed by the developer over and above the normative CUF shall not be factored into the tariff”*

Generation of 6 SHP at the CUF of 45% is provided in the table below:

**Table 12. 15: Total Generation**

Sl. No.	Name of Station	Installed Capacity (MW)	Generation at 45% CUF
1	Khawiva	1.05	4.1391
2	Tuipui	0.5	1.971
3	Maicham-I	2	7.884
4	Kau-Tlabung	3	11.826
5	Lamsial	0.5	1.971
6	Maicham-II	3	11.826
	<b>Total</b>	<b>10.05</b>	<b>39.6171</b>

### Commission's Analysis

The Commission approved gross generation from the above six stations at 39.6171 MU for FY 2019-20

### 12.10 Auxiliary Consumption

#### Petitioner's submission

Auxiliary Consumption has been calculated in accordance with the regulation 30 of the JERC for Manipur & Mizoram (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2010 along with amendments. The extract of the regulation is reproduced below:

Normative auxiliary consumption for the small hydro projects shall be 1.0%

**Normative Auxiliary consumption and Net generation is calculated in the table below:**

**Table 12. 16: Normative Auxiliary Consumption projected by P & ED**

Sl. No.	Name of Station	Generation at 45% CUF	Auxiliary Consumption @1%	Net Generation
1	Khawiva	4.139	0.041	4.098
2	Tuipui	1.971	0.02	1.951
3	Maicham-I	7.884	0.079	7.805
4	Kau-Tlabung	11.826	0.118	11.708
5	Lamsial	1.971	0.02	1.951
6	Maicham-II	11.826	0.118	11.708
	<b>Total</b>	<b>39.617</b>	<b>0.396</b>	<b>39.221</b>

#### Commission's analysis

**The Commission approves auxiliary consumption of 0.396MU and net generation of 39.221 MU for the six stations in operation for FY 2019-20.**

### 12.11 Generation Tariff

#### Petitioner's submission

Generation tariff of the SHPs has been calculated on the basis of the ARR and net generation of the SHPs. Tariff per unit for the 10 SHPs for the FY 2018-19 is provided in the table below:

**Table 12. 17 Tariff for Generation projected by P & ED**

Sl. No	Name of Station	Net Generation (In Mus)	ARR (`in Crores)	Tariff
1	Khawiva	4.098	0.42	1.03
2	Tuipui	1.951	0.20	1.00
3	Maicham-I	7.805	0.80	1.03
4	Kau-Tlabung	11.708	1.20	1.03
5	Lamsial	1.951	0.22	1.14
6	Maicham-II	11.708	1.20	1.02

### Commission's Analysis

Tariff for generation for the above six stations is considered as detailed in the table below.

**Table 12. 18 Tariff for Generation approved by the Commission**

Sl. No	Name of Station	Net Generation (In MUs)	ARR (Rs. Cr)	Tariff (Rs/kWh)
1	Khawiva	4.098	0.40	1.00
2	Tuipui	1.951	0.20	1.03
3	Maicham-I	7.805	0.79	1.01
4	Kau-Tlabung	11.708	1.18	1.01
5	Lamsial	1.951	0.22	1.13
6	Maicham-II	11.708	1.30	1.11

## 12.12 Infirm power from Serlui 'B' SHP

### Petitioner's submission

As submitted in para 4.1 above since the Serlui has not commissioned till date the same has not been considered for the calculation of Capital cost, ARR & Generation Tariff thereof in accordance with The Joint Electricity Regulatory Commission for Manipur & Mizoram (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2010 read along with First Amendments Regulations, 2014.

However, the SHP is generating infirm power and the same is being injected in the state grid. The details of energy supplied from the SHP & the rate for the energy charge considered for arriving at the total cost of generation of the generation function is detailed in the subsequent sections.

The energy generated from the Serlui B SHP is provided in the table below.

**Table 12. 18: Generation from Serlui 'B' projected by P & ED for FY 2019-20**  
(In MUs)

Sl. No.	Name of Station	FY 2019-20
1	Gross Generation	47.30
2	Auxiliary Consumption	0.95
3	Net Generation	46.35

**Tables 12. 19: Charges for Serlui 'B' projected by P & ED for Control period FY 2019-20**  
(Rs. Cr)

Sl. No.	Name of Station	FY 2019-20
1	Net Generation	4.635
2	Rate	1.06
3	Total Energy Charge	4.91

The Commission approves energy charges from Serlui B during FY 2019-20 at Rs. 4.91 Cr Per Annum projected by P & ED.

### 12.13 Aggregate Revenue Requirement (ARR)

#### Petitioner's submission

Total ARR of the Generation function comprising of the 10 commissioned SHPs and Serlui 'B' SHP which is generating infirm power is detailed in the table below:



Table 12. 21: ARR of Generation Function projected by P &amp; ED for FY 2019-20

(Rs. Cr)

Sl. No.	Name of Project	Approved in T. O. dated 12.03.2018	Proposed by P&ED	Deviation
1	Khawiva	0.42	0.42	0.00
2	Tuipui	0.20	0.20	0.00
3	Maicham-I	0.80	0.80	0.00
4	Kau- Tlabung	1.20	1.20	0.00
5	Lamsial	0.22	0.22	0.00
6	Maicham-II	1.20	1.20	0.00
7	Serlui 'B'	4.91	4.91	0.00
	<b>Total</b>	<b>8.93</b>	<b>8.93</b>	<b>0.00</b>

The ARR for the above six stations in operation and Serlui 'B' (not yet commissioned) approved by the Commission is as detailed below:

Table 12. 202: ARR for Generation Function approved by the Commission P &amp; ED for FY 2019-20

(Rs. Crore)

Sl.No	Name of the station	FY 2019-20
1	Khawiva	0.42
2	Tuipui	0.20
3	Maicham-I	0.80
4	Kau- Tlabung	1.20
5	Lamsial	0.22
6	Maicham-II	1.20
7	Serlui 'B'	4.91
	<b>Total</b>	<b>8.93</b>

## 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 2018-19, 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 2018-19. The Commission had observed that while there is ample scope for reducing cost and increasing internal 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, though action has 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.

Under 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 action to update the arrears by 31/03/2011.

#### **Compliance:**

Manual data collection is being practised by the Department. Moreover, Customer Care Centre established under R-APDRP is expected to function as Call Centre as well as Data collecting centre for the whole state of Mizoram. After making the Customer Call Centre functioning, Management Information System is expected to come into existence automatically.

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

P&ED should ensure that the management system data base is updated and installed in all offices quickly for better utilisation of the system to get data instantly. Please ensure that the work is completed before next tariff petition.

**Directive 5: Pilferage of Energy**

The P&ED 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 P&ED is directed to furnish an action plan to arrest the pilferage.

**Compliance**

Theft report for FY 2016-17 and along with 1<sup>st</sup> and 2<sup>nd</sup> quarter of FY 2017-18 is reproduced below

<b><u>DETAILS OF THEFT OF ENERGY for FY 2016-17</u></b>		
<b>No of cases where inspection were carried out</b>		<b>23591</b>
No of cases where theft or misuse detected		100
a)	Meter by-pass	68
b)	Hooking	12
c)	Unauthorized extension	12
d)	Tampering	8
	<b>Total (a+b+c+d)</b>	<b>100</b>
Estimate quantity of energy pilfered		8172
No of cases where sentences were imposed		0
Quantity of energy for which cost were recovered (kWh)		8172

Amount realized (Rs)		65376
<b><u>DETAILS OF THEFT OF ENERGY for 1st &amp; 2nd QUARTER for FY 2017-18</u></b>		
<b>No of cases where inspection were carried out</b>		<b>7954</b>
No of cases where theft or misuse detected		24
a)	Meter by-pass	4
b)	Hooking	2
c)	Unauthorized extension	7
d)	Tampering	0
	<b>Total (a+b+c+d)</b>	<b>13</b>
Estimate quantity of energy pilfered		670
No of cases where sentences were imposed		0
Quantity of energy for which cost were recovered (kWh)		670
Amount realized (Rs)		3795

To reduce theft and unauthorised use of energy, Vigilance Committee was constituted covering 234 no of areas, villages, towns and cities as per minutes of 19<sup>th</sup> State Advisory Meeting on 08.02.2017 in which Chairman and Secretary are from the Department and other members are from Non-Government Organisation and prominent citizens. But, unfortunately, Central YMA issued an instruction to all its Branch offices that such participation in Vigilance Committee without the consent from the Central YMA must not be done. As such, the Vigilance Committee cannot function at present as expected. It is intended to liaise Central YMA to allow its members to participate in the Committee for successful functioning.

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

The same drive may be continued to plug the pilferage of energy which will result in reduction of distribution loss.

#### **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**

To reduce unmetered supply and to achieve 100% metering, all non-MDI consumer meters under RAPDRP towns are decided to be replaced by MDI meters procured under R-APDRP scheme free of cost. However, it is not insisted to use MDI meter to consumers of rural area at present. Replaced working electronic consumer meter within R-APDRP town area will be set aside for replacement of damaged meters of rural consumers and street light meter for the time being to achieve higher percentage on consumer metering. Notice to this effect has already been circulated

vide this office letter No T-23037/01/16-EC (P)/Com/32 dated, 17.09. 2017.

### **Commission's comments**

Mere reminding site offices is of no use. The required meters to be made available to all site offices and ensure that they are installed to consumer connections whose connections have either no meter or with defective meter. So also the feeders and then distribution transformers.

### **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**

It is submitted that P&ED has already submitted earlier that Assets reflected in the petition and for calculation of depreciation does not include any consumer contribution. If any asset is created in future out of contribution of consumers the same shall be submitted to the Hon'ble Commission.

In view of the above it is requested that the directive may dropped.

### **Commission's comment**

The directive is fully complied with

### **Directive 8: Transmission and Distribution Losses**

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

The P&ED 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 P&ED 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**

To locate feeders having high losses, the Department took initiative steps by introducing Circle-wise Energy Audit and Accounting in which all circles input points and output points are metered. But, it is noted with surprise that some of the meter readings show doubtful figures and hence considered not reliable enough for proper analysis of Circle performance.

A remedial action to solve the above problem is proposed in which reliability and healthiness of all feeder meters and metering equipment's must be ensured from 11kV above. By giving constant effort in analysing the performance of all feeder meters and metering equipment's, it is expected to have reliable analysis on the energy consumption not only Circles-wise, but also feeder-wise, which will ultimately enable the Department in narrowing high loss area so that reduction of T&D loss can be achieved with proper approach.

To initiate the remedial measures mentioned above, circular has been made vide this office letter No: T-23037/01/16-EC(P)/Com/20 dated 19.09.2017 to collect all damaged system meter and metering equipment from all Sub-stations. After receiving required information from site offices, all damaged system meters and metering equipment's are to be replaced step by step depending upon the availability of fund so as to achieve reliable 100% system metering.

### **Commission's comments**



About ten years lapsed since the directive issued. Still 100% achievement is not attained. The P&ED directed to ensure that 100% metering be one before next tariff petition.

**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**

It is intended to introduce spot billing system at Kolasib town as a pilot project in which spot billing machine compatible with optical port communication will be used to minimize human interface in meter reading. After successful implementation of spot billing at Kolasib, the same will be introduced throughout the state.

**Commission's comments**

The same reply is being repeated since the last two years. It is sufficient to observe pilot projects by eight or nine months. Initially in all towns and major villages this system may be implemented.

**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**

P&ED has submitted actual capital expenditure & asset details for the last control period along with True-up petition, it is requested that the Hon'ble Commission may consider the actual capital expenditure during the period.

#### Commission's comments

Proposals for all capital works costing Rs. 5 Cr and above shall be submitted to the Commission to accord approval and for following

#### 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

Despite constant expansion of power system network and implementation of new project which ultimately increase maintenance work within the department, the department is still striving to decrease number of working staff to reduce employee cost. It is now reduced to 4409 by the end of 2017-2018 which is likely to be further reduced to 4401 by the end of 2018-19 as tabulated below:

Sl. No	Particulars	No of employees at the beginning of		
		FY 2016-17 (Actual)	2017-18 (Actual)	2018-19 (Projected)
1	Regular Employees	1728	1675	1663
2	Contract Employees	2	2	NIL
3	Work charge	484	478	468
4	Muster Roll	2188	2253	2270
<b>Total Employees</b>		<b>4402</b>	<b>4409</b>	<b>4401</b>

As compared to 2011 figure, the number of staff is reduced by 241 in 2017-18. Also, the Department is trying to judiciously utilise the workforce by establishing its own Training Centre to increase the efficiency of the existing working staff.

#### Commission's comments

The services of existing employees may be better utilised for physical verification of connections, replacement /fixing meters etc on priority and report compliance.

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

Maximum Demand Meters should be provided for HT Consumers.

**Compliance**

As pointed out in response to Directive 6, it is intended that all non-MDI consumer meters under RAPDRP towns are to be replaced by MDI meters procured under R-APDRP scheme free of cost not only for HT consumers but also for all LT consumers.

**Commission's comments**

KVAH billing is introduced for HT Category from FY 2018-19. If MDI meters are installed to high value LT Connections KVAH billing will be introduced to LT Category with MDI meters. This may be elucidated.

**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**

Survey of all Consumers' Contract Demand has been newly initiated again with fresh instruction from head office of the Department vide letter No.T.23014/01/15-EC(P)/Com/78 dated 10.07. 2017, in which all consumers are informed in writing to submit application for fresh Contracted Load whoever is willing to do so. Time limit is also extended upto 31<sup>st</sup> December 2017 for submission of application for this purpose.

**Commission's comments**

This may be expedited. The directive is partly 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**

The Department is actively pursuing for the restructuring of the Department with segregation and placement of staff to facilitate on functional basis of the organisation into two entities namely Distribution wing for the first entity and Generation and Transmission wing for second entity. Rs 600.00 lakhs has been earmarked under NEDP scheme. The proposal for such approach has been submitted to Government of Mizoram and approval is being awaited.

**Commission's comments**

Please follow up and see that the department is corporatized for better results

**Directive 19: Survey and physical verification of consumer's 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**

Constant effort has been given by the Department in checking consumer's connection. However, action taken report has not been received from field offices. The same may be submitted to the Commission after receiving the report in this

regard.

**Commission's comments**

Pilferage of energy is nothing to do with physical verification. By physical verification of all services, malpractices, defective meters, pilferage of nergy can be identified. This may be planned sub-division wise.

**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**

As pointed out under Directive 9, it is intended to introduce spot billing system at Kolasib town as a pilot project in which spot billing machine compatible with optical port communication will be used to minimize human interface in meter reading. After successful implementation of spot billing at Kolasib, the same will be introduced throughout the state.

**Commission Comments**

Since the directive is covered in directive 9. This is dropped

**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**

As pointed out under Directive 6, it is intended that all non-MDI consumer meters under RAPDRP towns are to be replaced by MDI meters procured under R-APDRP scheme free of cost for consumers. It is also intended to take same action for other towns under IPDS scheme.

### **Commission's Comments**

The directive is covered under directive 12 this is dropped.

### **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**

As pointed out under Directive 9, it is intended to introduce spot billing system at Kolasib town as a pilot project in which spot billing machine compatible with optical port communication will be used to minimize human interface in meter reading. After successful implementation of spot billing at Kolasib, the same will be introduced throughout the state.

### **Commission's Comments**

The directive is covered under directive 9 this is dropped. .

### **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**

As stated earlier, the Department has submitted its petition to CEA to declare Bairabi HFO based power plant as non-operational. Response/approval has not been received till now. However, as per CEA bulletin published on 31.01.2017 for Installed Capacity of Power Utilities for Mizoram brought out zero (0) figure under Thermal. Copy of the bulletin is enclosed for reference.

Therefore, P&ED, Mizoram considered that an authority lies within the Central Government either to include or exclude from the statistical data. However, being an

incoming point for Bairabi town with 3.15 MVA, 132/33 kV Transformer feeding 33/11kV Bairabi Sub-station, complete abandonment of the generating plant is considered not convenient at present.

#### Commission's Comments

Often the plant may be operated to generate energy and to keep the plant in good working condition.

**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

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

Tariff for utilising tower/pole to levy usage charges be submitted in next attriff petition invariably.

#### 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	FY 2010-11	FY 2011-12	FY 2012-13
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 e

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**

It is submitted that P&ED has been submitting function wise audited fixed assets register for each financial year along with the audited accounts. In view of the same, it is requested that the directive may kindly be dropped.

**Commission's Comments**

Function wise gross fixed assets value may be arrived instead net GFA. In the arrival accounts this information may be provided invariably.

**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**

It is submitted that P&ED has not been able to segregate the employee expense function wise. As pointed out under Directive 16, restructuring is being under process. After successful implementation of this restructuring scheme, it is expected that this Directive is automatically implemented. As such it is requested that the



Hon'ble

### Commission's comment

It is nothing to do with restructuring of department since the accounts are computerised all accounts of respective functions can be maintained separately. This may be followed.

### 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. Kutir 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

It is submitted that billing slabs are reduced in the present petition as follows:

Sl. No	Category	Existing Slabs	Proposed Slabs
1	KJ	1) First 15 kWh	1) First 20 kWh
		2) Next 15 kWh	2) 21-35 kWh
		3) Above 30 kWh	
2	Domestic (LT)	1) First 50 kWh	1) First 100 kWh
		2) Next 50 kWh	2) Next 100 kWh
		3) Next 100 kWh	3) Balance above 200 kWh
		4) Above 200 kWh	
3	Non Domestic/ Commercial (LT)	1) First 100 kWh	1) First 150 kWh
		2) Next 100 kWh	2) Balance above 150 kWh
		3) Above 200 kWh	

### Commission's comment

Number of consumers and their connected load and sales be segregated to consider creation of separate categories such as Non- Domestic and commercial from next tariff onwards i.e., FY 2020-21.

### 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**

*Compliance of the above is as mentioned under Directive 8.*

**Commission's comment**

Since this directive is covered under directive 8, this directive is dropped.

**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**

It is submitted that total quantity of MDI meter installed so far is 9769 upto June 2017. The new approach of the department in installing MDI meter is as elaborated under Directives 6.

**Commission's comment**

Directive 6 is metering to all connections whereas this directive is to installation of MDI meters. The P&ED first identify the category wise number of connections to be provided with MDI meters. Category wise number of meters installed, balance numbers to be installed for better follow-up. All new connections eligible for MDI

meters be provided with MDI meters as on the site of released.

**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**

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**

Action plan is to be set up for quick implementation of this directive.

**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.

**Compliance:**

Format P4 is being included in the MYT petition. Regretfully, format P2 and P3 are excluded unintentionally. It is hereby enclosed as additional information. Inadvertent omission in the petition is deeply regretted.

**Commission's Comments**

Compliance to this directive may be submitted in the next tariff order

**Directive 38**

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

Sl. No	Particulars
<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 Lessors
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.

### Compliance

It is submitted that while efforts were made to compile the details in the above prescribed format, the records were not maintained in the required format during the past years. P&ED shall maintain the records & compile the details in the required format from the next financial year and report the same from the next petition. The Hon'ble Commission may kindly consider the same.

### Commission's Comment

When computerisation of accounts is under progress, the reply of P&ED that the data in required formats is not maintained is not acceptable. Please pull up the concern for compile required data.

**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.

**Compliance:**

Introduction of Prepaid-meter and Smart meter as per MOP Guideline is under consideration of the Department. DPR for pilot project in Aizawl city (Vaivakawn, Zarkawt and Babutlang Feeders) amounting to Rs 495.502 lakh was submitted to the Govt. of Mizoram on 20th November, 2017. Action is being taken for preparation of DPR for the whole state of Mizoram.

**Commission's Comments**

Please follow up constantly for quick finalization of DPR and its implementation.

**Directive 41**

P & ED is directed to submit Annual Performance Review (APR) for the whole year based on actuals for the first half year (i.e. from April to September) .

**Compliance:**

This is compiled to the extent possible in the petition for 2019-20 for the FY 2018-19.

**Commission's Comment**

Since compiled dropped.

**Directive 42**

P&ED should request the State Govt. to allocate different heads of account for (i) Generation, (ii) Transmission and (iii) Distribution. Projection /Estimated expenditure should be classified accordingly or segregate the accounts by Department itself. Audited figure should also be in line with the allocated heads of account.

**Compliance:**

It is considered that this issue has connection with 'Directive 28' in which the Department has already asked to State Government for re-organisation in which it was mentioned the necessity of segregation of expenses. But as mentioned earlier under Directive 16, the Department is directed to submit proposal for Corporatisation, instead of re-organisation. The proposal for Corporatisation will include segregation of the Department into three entities as mentioned under this Directive.

After attaining a full-fledged Corporation body, it is expected that segregation of expenses will automatically come into being.

**Commission's Comments**

Since the accounts are computerised, all the accounts of respective of respective functions can be maintained function wise by allocating separate code Numbers for Distribution, Transmission and Generation functions and staff works there on.

**Directive 43**

P & ED is directed to complete the system metering (metering at all voltage level) by Sept., 2018 to know the actual loss at various voltage levels i.e.

- 1) Transmission (above 33 kV)
- 2) Sub-Transmission (33 kV level)
- 3) Distribution (11 kV level)
- 4) Low tension (level).

**Compliance:**

Improvement of system metering at all voltage level is a must, not only to know the actual loss, but also to have meaningful energy accounting. Department is also trying its level best to improve system metering as mentioned under Directive 8 and 32.

### Commission's Comments

Targeted data by which this issue will be completed may be furnished in next tariff petition.

### Directive 44

In respect of Kurti Jyoti, Domestic, Non-Domestic/Commercial and Industry under LT Categories, P&ED is directed to submit reliable average slab-wise monthly energy consumption per consumer and number of consumer in each slab during the FY 2017-18 (Actual), FY 2018-19 (Revised Estimate based on last 6 months) and FY 2019-20 (Projected) alongwith the Petition for determination of ARR & Tariff for FY 2019-20 positively. The P&ED should take necessary action immediately to make available the above requisite data at the time of submission of the Petition mentioned above.

### Compliance:

It was intended to include the above data in the petition, but inadvertently missed out. As such, the same is provided herewith.

Year	Item	KJ	Domestic	Commercial	Industrial
FY 2017-18 (Actual)	No of Consumer	11794	194603	15833	958
	Annual energy consumption (MU)	3.56	229.95	37.75	2.19
	Avg energy consumption/ consumer/month (kWh)	25.15	98.47	198.69	190.50
FY 2018-19 (RE)	No of Consumer	12394	200061	16676	1002
	Annual energy consumption (MU)	3.65	236.67	39.64	2.31
	Avg energy consumption/ consumer/month (kWh)	24.54	98.58	198.09	192.12
FY 2019-20 (Projected)	No of Consumer	13025	205672	17565	1049
	Annual energy consumption (MU)	3.75	243.58	41.62	2.43

Year	Item	KJ	Domestic	Commercial	Industrial
	Avg energy consumption/ consumer/month (kWh)	23.99	98.69	197.46	193.04

**Commission's Comments**

Commission wanted slab wise number of consumers, connected load and sales. Whereas P&ED furnished category wise total sales, which is already available in Tariff petition as well as Tariff orders.

**Directive 45**

The P & ED is directed to submit from next petition onwards the energy in M.U and amounts Rs. in Crores invariably.

**Compliance**

As directed, the directive is complied with wherever applicable.

**Commission's Comments**

The directive is fully complied with.

**Directive 46**

P&ED should strive to achieve AT&C Loss set in UDAY Scheme signed under unilateral agreement.

**Compliance:**

Year-wise achievement against target under UDAY scheme is as tabulated below:

AT&C Loss data	2015-16	2016-17	2017-18	2018-19	2019-20
Target under UDAY	32.17%	27.38%	23.76%	20.30%	15.00%
Achieved by	32.17%	26.36%	22.43%	Data is not available	

It may be seen from the above that, the Department achieved targeted AT&C loss up to FY 2017-18.

**Commission's Comments**

This may be continued year on year. Since the P&ED has stated calculation of AT & C loss the directive is dropped



## **New Directives**

### **1) Voltage wise cost of supply submission**

The Licensee shall submit the voltage-wise cost of supply in the next year ARR filing duly providing all the relevant details with regard to each distribution voltage level along with voltage wise losses being incurred. This data is very much essential for arriving at the cost of supply to various categories of consumers at the time of tariff determination duly adhering to the National Tariff Policy principles.

### **2) Slab wise data of consumers, consumption and Contracted Load/connected load**

The slab wise average data of consumers existing in the FY2017-18 & 2018-19 together with their slab wise consumption of energy and their contracted & the connected load data on actual basis for the above said period may be intimated to the commission latest by the 15<sup>th</sup> August 2019 for their examination. This data has the direct implication on the tariff determination aspect in future, care shall be taken in the data collection before submitting it to the Commission.

### **3) Monthly submission of the details of receipt of tariff subsidy from the Government in each month:**

Every month, the licensee shall submit to the Commission the details with regard to the amount of tariff subsidy received along with the date of receipt from the government. Besides, the licensee shall also submit the details as to the amount of tariff subsidy and the month in which they not received and also indicate the tariff charges adopted to various consumers during such month.

If there was a situation where government had released the pending subsidy amount pertaining to the previous months, as and when it occurs, the licensee shall submit the details to the Commission with regard to the following details by the last of week such month/months:

a) The month wise details of the amount of tariff subsidy received in respect of the previous months, and

- b) The action taken by the licensee in refunding the excess amount of revenue collected from the consumers on account of charging the consumer at full cost tariff rates in respect of those months when subsidy was not received, and
- c) The details as to amount and the date of refund made in respect of each category of consumer.

#### **4) INSTALLATION OF SMART METERS**

Smart meters have the advantages of remote metering and billing, implementation of peak and off-peak tariff and demand side management through demand response. These would become essential in future for load generation balancing due to increasing penetration of intermittent generation like wind and solar power.

In line with Clause 8.4 of National Tariff Policy 2016, the Commission, therefore mandate Smart meters for the following consumers:

- a) Consumers with monthly consumption of 500 units and more at the earliest but not later than 31.12.2019.
- b) Consumers with monthly consumption above 200 units by 31.12.2019.
- c) The Smart meters shall also be provided to all those consumers who sell back electricity to the grid as and when they require by 15.03.2020.

Take action taken report on installation of smart meters for the consumers stated above may be submit by the 1<sup>st</sup> week of January 2020 and again by end of March 2020 to the Commissions to monitor progress.

#### **5) Revenue subsidies and Grants to be displayed separately in Schedule-33**

The P&ED is hereby directed to indicate the amounts received under Revenue subsidies and Grants during the year shown separately in the Schedule-33 of the Annual accounts proforma from the audited annual accounts of FY 2018-19 onwards without fail. This will enable the Commission to assess the actual amount of revenue

subsidy received by the utility during the year while finalising the eligible true up amount for the relevant year.



## **TARIFF SCHEDULE**



## Tariff Schedule

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

#### 1.1 Rebate/Surcharge for availing supply at voltage higher/lower than base voltage:

In spite of feasibility/availability to given supply at the specified voltage for the corresponding load as stipulated in clause 3.2 of the JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013 (with up to date amendment.)

- (i) For consumers having contracted load upto 50 kW only, but, the supply is given at higher voltage (HT/EHT level), then a rebate of 5 % would be admissible on the energy and fixed charges applicable to that class of consumer for such period, he/she is so availing the supply at that voltage level.
- (ii) For consumers having contracted load above 50 kW, but the consumer desires to draw supply at a voltage lower than that of base voltage he/she is eligible avail for corresponding load as per clause of supply code mentioned above, the consumer shall be required to pay additionally an extra charge of 10% on the bill amount (Energy charge & Fixed charge) calculated at the applicable voltage category tariff to which he/she should have normally availed.
- (iii) All voltages mentioned above are normally available rated voltages as per clause 3.2 of the JERC for Manipur & Mizoram (Electricity Supply Code) Regulations, 2013, with up to date amendment.

**1.2 Payment:** All payments shall be made by way of Cash/Banker's Cheque/by Demand Draft/through Money Order/E- transfer on line. But in the case of payments to be made in cash (the amount limit will be fixed and notified in advance by the Licensee to his convenience).

**1.3. Validity of Existing Recharge Voucher:** In the case of a consumer with prepaid meter who has purchased voucher prior to the effective date of new tariff, the existing voucher shall be continued till such voucher recharged amount is fully exhausted without levying any extra charge to such consumer. Therefore, Licensee shall cautiously issue recharge voucher(s) in such a way that the voucher's validity period shall not exceed the number of days beyond the effective date of new tariffs coming

into force.

**1.4. Due date:** Due date for payment of monthly bill through cheques shall be **three (3) days** in advance from the normal due date for that bill payment. While, in the case of payment through online bank transfer/credit card, it shall be **one (1) day** in advance from the normal due date specified for that bill. The licensee shall ensure that the bill is delivered to the consumer by hand/post/courier at **least ten (10) days** prior to the payment due date of the bill. (Clause 6.1 & 6.5 of the JERC for Manipur & Mizoram (Electricity Supply Code Regulations, 2013 with latest amendments).

**1.5. Surcharge for late payment of bills:** If payment is not received within the due date, a surcharge @ **two percent (2%)** (simple interest) will be levied on the outstanding principal amount for number of days of delay occurred to each thirty (30) days' successive period or part thereof or until such time the due amount is paid in full.

**1.6. Single Point Delivery:** This tariff is based on the supply being given through a single point of delivery and metering at one voltage. Supply availed at other points at other voltage level shall be metered separately and billed accordingly and it shall be treated as a separate connection.

**1.7. 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 (with latest amendments).

**1.8. Power Factor Incentive / Surcharge:-**

- a) If the average monthly power factor of the HT consumer/LT 3-Phase consumer /LT Industrial consumer increases above 95%, he shall be paid **an incentive** at the following rate:

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

- b) If the average monthly power factor of the HT consumer/LT 3- phase consumer / LT industrial 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	One percent (1%) of the total
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average monthly power factor falls below 90% up to 85%	amount of the bill under the head 'energy charge'
--	---

- c) If average monthly power factor of the HT consumer/LT 3- phase consumer /LT industrial consumer falls below 85%, he shall pay **a surcharge in addition** to his normal tariff at the following rate :

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

- d) If the average monthly power factor of the HT consumer/LT 3- phase consumer /LT industrial consumer falls below 70%, then the utility shall have the right to disconnect supply to consumer's installation after serving a notice of fifteen (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 level not less than 90%, then the surcharge billed on account of low power factor during the staid period, shall be withdrawn and credited in the next month's bill.

**1.9. 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 (**with up to date amendment**). 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:

$$730 \times 1.0 \times C$$

$$\text{Average transformer loss} = \frac{\text{----- kVAh per month}}{100}$$

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.

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.

**1.10. 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 as recorded by DISCOM office (that is, not to be rounded). Licensee should update Contracted load/Billing demand as per clause-108 of JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013 (with upto date amendment).**

**1.11. Mixed load:-** Any part of the connection given for one specific category should not be utilized for any other purpose, involving higher rate of charge in the tariff. A separate connection shall have to be taken invariably for such loads/purpose under appropriate category, failing which the entire consumption (i.e., existing category consumption and additional consumption for different purpose) shall be billed in that corresponding category at higher applicable tariff for which any part of that connection is utilised.

**1.12. 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 has to be ignored). In case of non-availability/scarcity of small change of rupees less the Rs.10/- then 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.

### **1.13. System of L.T Supply**

#### **1.13.1 L.T Supply**

- i) Alternating Current 50 Hz, single phase 230 Volts up to 8 kW.
- ii) Alternating Current, three phase, 400 Volts, for loads above 8 kW and upto 50 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.

**1.13.2. 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. with up to date amendment.

**1.14. 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.

**1.15. Billing demand:** As defined in Clause 2.3(12) of the Joint Electricity Regulatory Commission for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013 with latest amendments.

**1.16. Government Subsidy: Section 65 of E.Act 2003 is hereby reproduced –**  
**“ Provision of subsidy by State Government:- If the State Government requires the grant of any subsidy to any consumer or class of consumers in the tariff determined by the State Commission under section 62, the State Government shall, notwithstanding any direction which may be given under section 108, pay, in advance and in such manner as may be specified, the amount to compensate the person affected by the grant of subsidy in the manner the State Commission may direct, as a condition for the licence or any other person concerned to implement the subsidy provided for by the State Government:**  
**Provided that no such direction of the State Government shall be operative if the payment is**

*not made in accordance with the provisions contained in this section and the tariff fixed by the State Commission shall be applicable from the date of issue of orders by the Commission in this regard.”*

**Therefore, if the government subsidy is regularly received, the licensee shall adopt tariff ‘A’ (Subsidised Tariff) or in the event of non-receipt of said subsidy, the Licensee shall be at liberty to implement tariff ‘B’ (Full Cost Tariff i.e., without Subsidy) during the period of non-receipt.**

There can be a situation where the outstanding subsidy was released by the government after passage of much time and thereby if consumers were billed at full cost tariffs in any relevant month or months. Given the situation, the entire excess amount so charged on account of full cost tariff shall have to be reflected as rebate, by the licensee at a time, in the immediate monthly billing cycle being issued to respective consumers soon after receiving such subsidy pertaining to the past. If the rebate amount is exceeding the monthly bill amount to be adjusted, then such excess amount may be carried forward and be adjusted in the following monthly bills issued to the consumer until full settlement is made.

#### **1.17. 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.

**1.18. Contingency:** In case of any inconsistency between provisions of this Tariff schedule and the Electricity Supply Code Regulations 2013 issued by JERC for Manipur and Mizoram (with up to date amendment). the provision, meaning and contend of the said Code shall prevail.

**A: SUBSIDISED TARIFF****2 : LT SUPPLY****2.1 LT Category-1: KutirJyoti Service**

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

**Rates:-**

a) Fixed charge : Rs 20.00 per month per connection.

b) Energy charge per month:-

1) First 20 kWh : @ Rs 2.10 per kWh

2) >20 kWh : @ Rs 3.00 per kWh

*Note: 1- if the total consumption of any consecutive three months is more than 45 kWh, the consumer shall be re-categorized/converted under normal domestic category permanently from the very 1<sup>st</sup>/2<sup>nd</sup>/3<sup>rd</sup> month of that consecutive three months, if the total unit consumed exceeds the specified limit of 45 kWh from that instance and the bill be served as domestic category. (clause 4.90 of the JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013 with latest amendments may be referred to)*

*Note 2: In case a Kutir Jyoti /BPL consumer gets converted to a domestic consumer, the re-categorised/converted consumer shall be required to deposit load security/meter security as applicable for domestic consumers but should not contradict clause 5.9 of the JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013 with latest amendments.*

**2.2 LT Category - 2: Domestic Service**

**Applicability:** Applicable for supply of energy exclusively for domestic purposes only in domestic premises. Invariably attached with Kitchen/Kitchen facilities. 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 will not be applicable to institutions conducting commercial activities of any nature.

**Rates:**

a) Fixed charge : Rs 50.00 per month per kW of contracted load.

b) Energy charge per month:

- |                  |   |                    |
|------------------|---|--------------------|
| 1) First 100 kWh | : | @ Rs 3.10 per kWh. |
| 2) Next 100 kWh  | : | @ Rs 4.60 per kWh. |
| 3) >200 kWh      | : | @ Rs 5.10 per kWh. |

### 2.3 LT Category 3: Non-Domestic

**Applicability:** Applicable for supply of energy to all lights, all types of fans, heating devices, Television, VCR/VCP, Radio, Refrigerator, Air Conditioner, lift motors, water pump and all other appliances for the purpose of public interest. This tariff includes power loads for non-domestic/Non-commercial purposes such as Government establishments / institutions Where rental charges are not being levied such as offices, hospitals, nursing homes, clinics, dispensaries, health centres, schools, colleges, libraries, research institutes, boarding / lodging houses, rest houses, tourist lodges, guest house, circuit house, rest house, Go-downs; Public building/hall, community halls/YMA halls (not for hiring), religious premises like churches, temples, mosques, gurudwaras, religious offices. This category shall include NGO's offices and any other establishment (Not setup for the purpose of undertaking some sort of trading/profit making). This tariff is also applicable to orphanage/recognized charitable institutions where no fees/rental of any kind are charged whatsoever.

**Rates:**

a) Fixed charge : Rs 55.00 per month per kW of contracted load.

b) Energy charge per month:-

1)	First 150 kWh	:	@ Rs 3.90 per kWh.
2)	> 150 kWh	:	@ Rs 4.30 per kWh.

## 2.4 LT Category - 4: Commercial Service

**Applicability:** Applicable for supply of energy to all lights, all types of fans, heating ces, Television, VCR/VCP, Radio, Refrigerator, Air Conditioner, lift motors, water pump, This tariff includes power loads for commercial purposes like Semi- government/non-government offices, shops, book stalls / shops, parlours, hospitals, educational institutes, nursing homes, clinics, dispensaries, health centres, restaurants, bars, hotels, clubs, guest houses, rest houses, tourist lodges, picnic spots, resorts, farm/garden houses, clubs, markets, optical houses, stadiums, meeting/conference halls, 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 centres, pathological labs, carpenters and furniture makers, repair workshops, laundries, typing institutes, internet cafes, STD/ISD PCO's, FAX/photocopy shops, tailoring shops, Non- Government Institutions such as 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/Cable TV establishment with sub-opreators' 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, leased of Government property(ies) to private party(ies) such as Guest house, tourist lodges, restaurants and others commercial applications not covered under any other categories. It shall also include store/stock yard, parking lot, Storage godowns and any other applications for private/company/government gain. It will broadly apply to all offices/establishment so setup for the purpose of trading/profit making.

### **Rates:**

a) Fixed charge : Rs 70.00 per month per kW of contracted load.

b) Energy charge per month:-

- |                  |   |                   |
|------------------|---|-------------------|
| 1) First 150 kWh | : | @ Rs 4.35 per kWh |
| 2) >150 kWh      | : | @ Rs 5.40 per kWh |

## 2.5 LT Category - 5: Public Lighting Service (Street/thorough fare lighting)

**Applicability:** Applicable to Public Street Lighting System in Municipality, City, Town, Sub-Town/Village, etc. including Signal system and Road and Park lighting in areas of Municipality, City, Town, Sub-Town/Village, etc.

### **Rates:**

a) Fixed charge : Rs 70.00 per month per kW of contracted load.

b) Energy charge per month:-

All kWh : @ Rs 5.40 per kWh.

## 2.6 LT Category – 6 : Public Water Works

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

### **Rates:**

a) Fixed charge : Rs 80.00 per month per kW of contracted load.

b) Energy charge per month:-

All kWh : @ Rs 5.20 per kWh

## 2.7 LT Category -7 : Irrigation & Agriculture Service

**Applicability:** This tariff is applicable to irrigation/pumping for agricultural purpose only.

### **Rates:**

a) Fixed charge : Rs 50.00 per month per kW of contracted load..

b) Energy charge per month:-

All kWh : @ Rs 2.70 per kWh

## 2.8 LT Category – 8 : Industrial Service

**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.

**Rates:**

a) Fixed charge : Rs 70.00 per month per kW of contracted load..

b) Energy charge per month:-

1) First 400 kWh : @ Rs 4.10 per kWh

2) > 400 kWh : @ Rs 4.80 per kWh

### 3: HT SUPPLY

**Applicability :-**The tariffs are applicable for Consumer availing supply at voltage above 400Volts 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, with up to date amendment.

#### 3.1 HT Category - I: Domestic Service

**Applicability:** This tariff is applicable to similar purposes as defined in LT category- 2 as below:

**Rates:**

a) Demand charge : Rs50.00 per month per kVA of Billing demand.

b) Energy charge per month:-

All kVAh : @ Rs 4.80 per kVAh

#### 3.2 HT Category - 2: Non-Domestic

**Applicability:** This tariff is applicable to similar purposes defined in LT Category-3 as below:

**Rates:**

a) Demand charge : Rs 55.00 per month per kVA of Billing demand.

b) Energy charge per month:-

All kVAh : @ Rs 4.40 per kVAh

### 3.3 HT Category - 3: Commercial Service

**Applicability:** This tariff is applicable to similar purposes defined in LT Category-4 as below:

**Rates:**

a) Demand charge : Rs 70.00 per month per kVA of Billing demand.

b) Energy charge per month:-

All kVAh : @ Rs 5.50 per kVAh

### 3.4 Category 4 : Public Water Works (PWW)

**Applicability:** This tariff is applicable to similar purposes defined in LT Category- 6 as below:

**Rates:**

a) Demand charge : Rs 80.00 per month per kVA of Billing demand.

b) Energy charge per month:-

All kVAh : @ Rs 5.00 per kVAh

### 3.5 HT Category - 5: Irrigation & Agriculture Service

**Applicability:** This tariff is applicable to similar purposes defined in LT Category- 7 as below:

**Rates:**

a) Demand charge : Rs 50.00 per month per kVA of Billing demand.

b) Energy charge per month:-

All kVAh : @ Rs 2.60 per kVAh

### 3.6 HT Category -6: Industrial Service

**Applicability:** This Tariff is applicable to similar purpose defined in LT

Category – 8 as below:

**Rates:**

a) Demand charge : Rs 70.00 per month per kVA of Billing demand.

b) Energy charge per month:-

All kVAh : @ Rs 4.55 per kVAh

**3.7 HT Category - 7: 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:

**Rates:**

a) Demand charge : Rs 90.00 per month per kVA of Billing demand.

b) Energy charge per month:

All kVAh : @ Rs 5.10 per kVAh

**B: FULL COST TARIFF (FCT) ( i.e., WITHOUT SUBSIDY)**

Sl. No.	Consumer Category	Full Cost Tariff	
		Energy Charges (Rs.)	Fixed Charges (Rs.)
<b>1</b>	<b>Kutir Jyothi</b>		
i)	First 20 kWh	5.40/kWh	20/Connection
ii)	Balance above 20 kWh	5.60/kWh	20/Connection
<b>2</b>	<b>Domestic</b>		
A	Low Tension		
i)	First 100 kWh	6.15/kWh	50/Contracted Load in kW
ii)	Next 100 kWh	6.35/kWh	50/Contracted Load in kW
iii)	Balance above 200 kWh	6.55/kWh	50/Contracted Load in kW
B	High Tension	6.40/kVAh	50/Billing Demand in kVA
<b>3</b>	<b>Non-Domestic</b>		
A	Low Tension		
i)	First 150 kWh	6.40/kWh	55/Contracted Load in kW
iii)	Balance above 150 kWh	6.55/kWh	55/Contracted Load in kW
B	High Tension	6.45/kVAh	55/Billing Demand in kVA
<b>4</b>	<b>Commercial</b>		
A	Low Tension		
i)	First 150 kWh	7.90/kWh	70/Contracted Load in kW
iii)	Balance above 150 kWh	8.00/kWh	70/Contracted Load in kW
B	High Tension	7.40/kVAh	70/Billing Demand in kVA
<b>5</b>	<b>Public Lighting</b>	7.95/kWh	70/Contracted Load in kW
<b>6</b>	<b>Irrigation &amp; Agriculture</b>		
A	Low Tension	6.10/kWh	50/Contracted Load in kW
B	High Tension	6.00/kVAh	50/Billing Demand in kVA
<b>7</b>	<b>Public Water Works</b>		
A	Low Tension	7.90/kWh	80/Contracted Load in kW

Sl. No.	Consumer Category	Full Cost Tariff	
		Energy Charges (Rs.)	Fixed Charges (Rs.)
B	High Tension	7.25/kVAh	80/Billing Demand in kVA
<b>8</b>	<b>Industrial</b>		
A	Low Tension		
i)	First 400 kWh	6.85/kWh	70/Contracted Load in kW
ii)	Balance above 400 kWh	7.15/kWh	70/Contracted Load in kW
B	High Tension	7.25/kVAh	70/Billing Demand in KVA
<b>9</b>	<b>Bulk Supply</b>	7.30/kVAh	90/Billing Demand in kVA

#### 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 with latest amendments. If the applicant provides the materials for service line, it shall be treated as per clause 4.133 of the JERC for Manipur & Mizoram (Electricity Supply Code) Regulations, 2013 with latest amendments. **If the licensee/Discom desired to delegated to power to various level of officers, it may be done through an executive order within the licensee/Discom. However, in all cases, overall duration should not violate the supply code mentioned above.** If the service line is arranged by consumer, it shall be treated as per clause 4.133 of the JERC for Manipur & Mizoram (Electricity Supply Code) Regulations, 2013 with latest amendments and be returned to the consumer after the period is over. Bill shall be served at the following rates:

##### **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:

**5.1 Street light billing:- (1) As per Section 55 of Electricity Act 2003 and as per clause 5.1 of the JERC for Manipur & Mizoram (Electricity Supply Code) Regulations, 2013 with latest amendments, no installation should be serviced without appropriate and correct meter. Therefore, after lapsed of more than many years from the effective date of the EA 2003 and after lapsed several years of effective date of the said code, the formula for computation of energy consumed for unmetered supply is withdrawn. P&ED should meter all street light supply along with DT metering.**

**5.2 P&ED has achieved 100% metering of all consumers as per report in the 18<sup>th</sup> State Advisory Committee meeting.** Hence, separate computation methodology is no longer required and it is deleted. **(5.1 above shall not be applicable).** Billing under defective, burnt, lost meter shall be made as per the JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013 with latest amendment.

**5.3 For Un-authorized consumer/theft (includes by-pass of meter)/pilferage and cases cover by section 135 of the Act:-** The energy consumed shall be computed as per Annexure 11.1.19 of the JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013. **with up to date amendment.** 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 instances:- 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 instances:- 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)

**8.1 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.100.00per 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

### 8.2.1 For supporting of internet/media/telephone cables:

This charge shall be borne by Operator/Distributor of visual media network.

- Rs 5.00 per pole per cable per month in case of internet cable/ media cables/visual media cables
- Rs 7.00 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.

## 6.3. Other charges for meter:

**(a) Meter shifting charge:**

- i) Rs.200.00 per shifting if it resulted from reconstruction/ modification of building by consumer or at consumer's request. Material to be borne by interest party.
- ii) Free of cost if shifting is done in the interest to licensee. Required material to be borne by licensee.

*Meter shifting shall be carried out as per Chapter – 5 of the JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013. with up to date amendment.*

**(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. with up to date amendment. 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. with up to date amendment.

#### **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:-

- (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. with up

to date amendment.

**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. with up to date amendment.

**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 Re-rating charge of Consumer's Installation:**

This charge is for meeting expenses toward spot verification of load and other connected recording works. Charge for re-rating of the consumer's installation at the request of the consumer shall be Rs.150.00 per rerating per connection. Inspection for re-rating should be carried out only on advance payment in the concerned office and on production of such payment receipt.

*The aforesaid charges do not include the charges payable by the consumer for other works connected due to change of connected load (like additional load security, etc. However excess security paid by consumer should be returned by way of adjustment in monthly bill in one instalment). Rerating*

*shall be carried out as per clause 4.94 to 4.107 of the JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013. with up to date amendment.*

#### **6.10 Security Deposits:-**

##### **(i) 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 in line with **section 55 of Electricity Act 2003.**

##### **(ii) Load Security:**

The amount of load 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. with up to date amendment. **However, consumer with prepaid meter shall not be required to pay load security deposit.**

#### **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

#### **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. with up to date amendment.

**(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. with up to date amendment.





## **ANNEXURES**





## ANNEXURE-I

LIST OF PERSONS WHO ATTENDED PUBLIC HEARING ON TARIFF  
PETITION FOR FY 2019-20 IN RESPECT OF POWER & ELECTRICITY  
DEPARTMENT, GOVT. OF MIZORAM

Venue : **Aijal Club, Khatla, Aizawl.**

Date & Time : **22<sup>nd</sup> February, 2019 (Friday) from 11:00 A.M to 12.30**

**A.M**

Sl. No.	NAME OF PARTICIPANT	DESIGNATION / PROFESSION & ORGANISATION
<b>on behalf of JERC (M&amp;M)</b>		
1	Mr. LALCHHARLIANA PACHUAU	Chairperson, JERC (M&M)
2	Mr. NG. SARAT SINGH	Member, JERC (M&M)
3	Mr. RICHARD ZOTHANKIMA	Asst. Secy., JERC (M&M)
4	Mr. H. THANTHIANA	Asst. Chief (Engg.), JERC (M&M)
5	Mr. LALA KHOBUNG	Consultant (Legal), JERC (M&M)
6	Mr. K. HARI PRASAD	Consultant, ASCI, Hyderabad
<b>On behalf of P&amp;ED Department</b>		
7	Mr. LALRAMLIANA	E-in-C, P&E Deptt. P&ED
8	Mr. V. RODINGLIANA	C.E. (S.O.), P&ED
9	Mr. C. LALLAWMSANGA	S.E. (Champhai), P&ED
10	Mr. VANLALTLANA	S.E., T.C., P&ED
11	Mr. VANLALREMA	S.E., Design, P&ED
12	Mr. F. LALRINPUIA	S.E., P.C-I, P&ED
13	Mr. LALDUHZUALA SAILO	S.E. (APC), P&ED
14	Mr. H. ZOLIANA	S.E., Lunglei, Power Circle P&ED
15	Mr. J.H. LAITHANGLIANA	E.E. (Comml), P&ED
16	Mr. C.C. LALRINMAWIA	A.E. (Comml), P&ED
17	Mr. VANLALTHLENGLIANA	J.E. (Comml), P&ED
18	Mr. LALBIAKSANGA	S.E., SLDC
19	Mr. V.K. REMSANGPUII	J.E. (SLDC)
20	Mr. SANJIB MAJHI	Consultant, P&ED
<b>Public Objector</b>		
21	Mr. VANLALRUATA	President, CYMA

## Annexure-II

P&ED-Mizoram - Expected Revenue during FY2019-20 from Existing Tariff of FY2018-19													
Sl. No.	Consumer Category	No. of Consumers	Contracted Load (in kW)	Annual Units Sales (in MU)	Sales/Consumer/ Month (in kWh)	Existing Tariff		Revenue /month				Annual Revenue Rs. lakhs	Avg. Revenue (Rs/kWh)
						Fixed Charge (Rs/kVAh or kwh)	Energy charge (Rs./kWh or kVAh)	Total Fixed Charges (Rs. lakhs)	Energy charge per Consumer (Rupees)	Total energy charge (Rs. lakhs)	Total Revenue (in Rs lakhs)		
1	2	3	4	5	6	7	8	9	10	11	12=(9+11)	13	14
<b>1</b>	<b>Kutir Jyothi (Domestic)</b>												
i)	First 20 kWh	7815		1.60	17.06		1.75		29.86	2.33			
ii)	Balance >20 kWh	5210		2.45	39.19	Connection	2.40		81.06	4.22			
	<b>Sub Total (a)</b>	<b>13025</b>	<b>3081.49</b>	<b>4.05</b>		<b>15</b>		<b>1.95</b>	<b>110.92</b>	<b>6.55</b>	<b>8.50</b>	<b>102.00</b>	<b>2.52</b>
<b>2</b>	<b>Domestic (General)</b>												
i)	First 100 kWh	123403		95.00	64.15		2.90		186.04	229.58			
ii)	Next 100 kWh	61701		90.00	121.55		4.45		385.90	238.11			
iii)	Balance >200 kWh	20567		58.58	237.35		5.05		923.62	189.96			
	<b>Sub Total (b)</b>	<b>205671</b>	<b>294967</b>	<b>243.58</b>		<b>40</b>		<b>117.99</b>	<b>1495.56</b>	<b>657.65</b>	<b>775.64</b>	<b>9307.68</b>	<b>3.82</b>
<b>3</b>	<b>Domestic HT (c)</b>	<b>45</b>	<b>5818</b>	<b>5.72</b>	<b>10545.14</b>	<b>40</b>	<b>4.80</b>	<b>2.59</b>	<b>56240.75</b>	<b>25.42</b>	<b>28.01</b>	<b>336.07</b>	<b>5.88</b>
	<b>Total Domestic (a+b+c)</b>	<b>218741</b>	<b>303867</b>	<b>253.35</b>				<b>122.53</b>	<b>57847.23</b>	<b>689.62</b>	<b>812.15</b>	<b>9643.75</b>	<b>3.81</b>
<b>4</b>	<b>Non-Domestic</b>												
i)	First 150 kWh	3513		6.00	142.34		4.35		619.18	21.75			
ii)	Balance >150 kWh	878		2.33	221.10		5.40		1036.44	9.10			
	<b>Sub Total (a)</b>	<b>4391</b>	<b>11859</b>	<b>8.33</b>		<b>70</b>		<b>8.30</b>	<b>1655.62</b>	<b>30.85</b>	<b>39.15</b>	<b>469.80</b>	<b>5.64</b>
<b>5</b>	<b>Non-Domestic (HT) (b)</b>	<b>33</b>	<b>2424</b>	<b>2.28</b>	<b>5757.58</b>	<b>70</b>	<b>5.50</b>	<b>1.89</b>	<b>35185.21</b>	<b>11.61</b>	<b>13.50</b>	<b>161.94</b>	<b>7.10</b>
	<b>Total Non-Domestic (a &amp; b)</b>	<b>4424</b>	<b>14283</b>	<b>10.61</b>				<b>10.19</b>	<b>36840.83</b>	<b>42.46</b>	<b>52.6453</b>	<b>631.74</b>	<b>5.95</b>
<b>4</b>	<b>Commercial</b>												
i)	First 150 kWh	7904		16.00	168.68		4.35		733.76	58.00			
ii)	Balance >150 kWh	5270		17.29	273.42		5.40		1318.97	69.50			
	<b>Sub Total (a)</b>	<b>13174</b>	<b>35576</b>	<b>33.29</b>		<b>70</b>		<b>24.90</b>	<b>2052.73</b>	<b>127.50</b>	<b>152.40</b>	<b>1828.80</b>	<b>5.49</b>
<b>5</b>	<b>Commercial (HT) (b)</b>	<b>131</b>	<b>9689</b>	<b>9.15</b>	<b>5820.61</b>	<b>70</b>	<b>5.50</b>	<b>7.54</b>	<b>35570.39</b>	<b>46.60</b>	<b>54.14</b>	<b>649.63</b>	<b>7.10</b>
	<b>Total Commercial (a&amp;b)</b>	<b>13305</b>	<b>45265</b>	<b>42.44</b>				<b>32.44</b>	<b>37623.12</b>	<b>174.1</b>	<b>206.536</b>	<b>2478.43</b>	<b>5.84</b>
<b>6</b>	<b>Public Lighting</b>	<b>1380</b>	<b>1040</b>	<b>2.43</b>	<b>146.91</b>	<b>65</b>	<b>5.30</b>	<b>0.68</b>	<b>778.62</b>	<b>10.75</b>	<b>11.43</b>	<b>137.16</b>	<b>5.64</b>
<b>7</b>	<b>Public Water Supply - LT</b>	<b>14</b>	<b>4616</b>	<b>6.18</b>	<b>35948.56</b>	<b>80</b>	<b>5.20</b>	<b>3.69</b>	<b>186932.51</b>	<b>26.79</b>	<b>30.48</b>	<b>365.76</b>	<b>5.92</b>
<b>8</b>	<b>Public Water Supply - HT</b>	<b>62</b>	<b>43410</b>	<b>39.98</b>	<b>53965.26</b>	<b>80</b>	<b>4.90</b>	<b>38.59</b>	<b>293810.86</b>	<b>181.40</b>	<b>219.99</b>	<b>2639.84</b>	<b>6.60</b>
<b>9</b>	<b>Agriculture - LT</b>	<b>20</b>	<b>20</b>	<b>0.01</b>	<b>60.28</b>	<b>40</b>	<b>2.10</b>	<b>0.01</b>	<b>126.59</b>	<b>0.03</b>	<b>0.04</b>	<b>0.48</b>	<b>3.32</b>
<b>10</b>	<b>Agriculture - HT</b>	<b>1</b>	<b>85</b>	<b>0.14</b>	<b>11357.59</b>	<b>40</b>	<b>2.00</b>	<b>0.04</b>	<b>25239.09</b>	<b>0.25</b>	<b>0.29</b>	<b>3.45</b>	<b>2.53</b>
<b>11</b>	<b>Industrial LT</b>												
i)	First 400 kWh	629		0.10	13.24		4.10		54.28	0.34			
ii)	Balance >400 kWh	420		2.03	403.16		4.80		1655.17	6.95			
	<b>Total Industrial</b>	<b>1049</b>	<b>5764</b>	<b>2.13</b>		<b>70</b>		<b>4.03</b>	<b>1709.45</b>	<b>7.29</b>	<b>11.32</b>	<b>135.84</b>	<b>6.38</b>
<b>12</b>	<b>Industrial - HT</b>	<b>28</b>	<b>14835</b>	<b>12.30</b>	<b>37176.02</b>	<b>70</b>	<b>4.55</b>	<b>11.54</b>	<b>187945.43</b>	<b>51.80</b>	<b>63.34</b>	<b>760.06</b>	<b>6.18</b>
<b>13</b>	<b>Bulk Supply HT</b>	<b>609</b>	<b>20342</b>	<b>57.02</b>	<b>7807.30</b>	<b>80</b>	<b>4.30</b>	<b>18.08</b>	<b>37301.54</b>	<b>227.01</b>	<b>245.09</b>	<b>2941.10</b>	<b>5.16</b>
	<b>Grand Total</b>	<b>239633</b>	<b>453526</b>	<b>426.59</b>				<b>241.80</b>	<b>866155.27</b>	<b>1411.50</b>	<b>1653.30</b>	<b>19839.61</b>	<b>4.65</b>

## Annexure-III

P&ED-Mizoram - Expected Revenue during FY2019-20 from Approved subsidised Tariff w.e.f 01.04.2019													
Sl. No.	Consumer Category	No. of Consumers	Contracted Load (in kW)	Annual Units Sales (in MU)	Sales/Consumer/ Month (in kWh)	Approved		Revenue /month				Annual Revenue Rs. lakhs	Avg. Revenue (Rs/kWh)
						Fixed Charge (Rs/kVAh or kwh)	Energy charge (Rs./kWh or kVAh)	Total Fixed Charges (Rs. lakhs)	Energy charge per Consumer (Rupees)	Total energy charge (Rs. lakhs)	Total Revenue (in Rs lakhs)		
1	2	3	4	5	6	7	8	9	10	11	12=(9+11)	13	14
<b>1</b>	<b>Kutir Jyothi (Domestic)</b>												
i)	First 20 kWh	7815		1.60	17.06		<b>2.10</b>		35.83	2.80			
ii)	Balance >20 kWh	5210		2.45	39.19	Connection	<b>3.00</b>		99.57	5.19			
	<b>Sub Total (a)</b>	<b>13025</b>	<b>3081.49</b>	<b>4.05</b>		<b>20</b>		<b>2.61</b>	<b>135.40</b>	<b>7.99</b>	<b>10.60</b>	<b>127.20</b>	<b>3.14</b>
<b>2</b>	<b>Domestic (General)</b>												
i)	First 100 kWh	123403		95.00	64.15		<b>3.10</b>		198.87	245.41			
ii)	Next 100 kWh	61701		90.00	121.55		<b>4.60</b>		409.13	252.44			
iii)	Balance >200 kWh	20567		58.58	237.35		<b>5.10</b>		960.49	197.54			
	<b>Sub Total (b)</b>	<b>205671</b>	<b>294967</b>	<b>243.58</b>		50		<b>147.48</b>	<b>1568.49</b>	<b>695.39</b>	<b>842.87</b>	<b>10114.44</b>	<b>4.15</b>
3	<b>Domestic HT (c)</b>	45	5818	5.72	10545.14	50	<b>4.80</b>	3.23	56240.75	25.42	<b>28.65</b>	343.83	<b>6.01</b>
	<b>Total Domestic (a+b+c)</b>	<b>218741</b>	<b>303867</b>	<b>253.35</b>				<b>153.32</b>	<b>57944.64</b>	<b>728.80</b>	<b>882.12</b>	<b>10458.27</b>	<b>4.13</b>
<b>4</b>	<b>Non-Domestic</b>												
i)	First 150 kWh	3513		6.00	142.34		<b>3.90</b>		555.13	19.50			
ii)	Balance >150 kWh	878		2.33	221.10		<b>4.30</b>		890.73	7.82			
	<b>Sub Total (a)</b>	<b>4391</b>	<b>11859</b>	<b>8.33</b>		<b>55</b>		<b>6.52</b>	<b>1445.86</b>	<b>27.32</b>	<b>33.84</b>	<b>406.08</b>	<b>4.87</b>
5	<b>Non-Domestic (HT) (b)</b>	33	2424	2.28	5757.58	55	<b>4.40</b>	1.48	28148.17	9.29	<b>10.77</b>	129.26	<b>5.67</b>
	<b>Total Non-Domestic (a &amp; b)</b>	<b>4424</b>	<b>14283</b>	<b>10.61</b>				<b>8.00</b>	<b>29594.03</b>	<b>36.61</b>	<b>44.6113</b>	<b>535.34</b>	<b>5.05</b>
<b>4</b>	<b>Commercial</b>												
i)	First 150 kWh	7904		16.00	168.68		<b>4.35</b>		733.76	58.00			
ii)	Balance >150 kWh	5270		17.29	273.42		<b>5.40</b>		1318.97	69.50			
	<b>Sub Total (a)</b>	<b>13174</b>	<b>35576</b>	<b>33.29</b>		<b>70</b>		<b>24.90</b>	<b>2052.73</b>	<b>127.50</b>	<b>152.40</b>	<b>1828.80</b>	<b>5.49</b>
5	<b>Commercial (HT) (b)</b>	131	9689	9.15	5820.61	70	<b>5.50</b>	7.54	35570.39	46.60	<b>54.14</b>	649.63	<b>7.10</b>
	<b>Total Commercial (a&amp;b)</b>	<b>13305</b>	<b>45265</b>	<b>42.44</b>				<b>32.44</b>	<b>37623.12</b>	<b>174.1</b>	<b>206.536</b>	<b>2478.43</b>	<b>5.84</b>
6	Public Lighting	1380	1040	2.43	146.91	70	<b>5.40</b>	0.73	793.31	10.95	<b>11.68</b>	140.16	<b>5.76</b>
7	Public Water Supply - LT	14	4616	6.18	35948.56	80	<b>5.20</b>	3.69	186932.51	26.79	<b>30.48</b>	365.76	<b>5.92</b>
8	Public Water Supply - HT	62	43410	39.98	53965.26	80	<b>5.00</b>	38.59	299807.00	185.10	<b>223.69</b>	2684.24	<b>6.71</b>
9	Agriculture - LT	20	20	0.01	60.28	<b>50</b>	<b>2.70</b>	0.01	162.76	0.03	<b>0.04</b>	0.48	<b>3.32</b>
10	Agriculture - HT	1	85	0.14	11357.59	<b>50</b>	<b>2.60</b>	0.05	32810.82	0.33	<b>0.38</b>	4.53	<b>3.32</b>
<b>11</b>	<b>Industrial LT</b>												
i)	First 400 kWh	629		0.10	13.24		<b>4.10</b>		54.28	0.34			
ii)	Balance >400 kWh	420		2.03	403.16		<b>4.80</b>		1655.17	6.95			
	<b>Total Industrial</b>	<b>1049</b>	<b>5764</b>	<b>2.13</b>		<b>70</b>		<b>4.03</b>	<b>1709.45</b>	<b>7.29</b>	<b>11.32</b>	<b>135.84</b>	<b>6.38</b>
12	Industrial - HT	28	14835	12.30	37176.02	70	<b>4.55</b>	11.54	187945.43	51.80	<b>63.34</b>	760.06	<b>6.18</b>
13	Bulk Supply HT	609	20342	57.02	7807.30	90	5.10	20.34	44241.37	269.24	<b>289.58</b>	3474.99	<b>6.09</b>
	<b>Grand Total</b>	<b>239633</b>	<b>453526</b>	<b>426.59</b>				<b>272.73</b>	<b>879564.44</b>	<b>1491.04</b>	<b>1763.77</b>	<b>21165.30</b>	<b>4.96</b>

## Annexure-IV

## P&amp;ED-Mizoram - Expected Revenue during FY2019-20 from Approved Full Cost Tariff (i.e Witout Subsidy)

Sl. No.	Consumer Category	No. of Consumers	Contracted Load (in kW)	Annual Units Sales (in MU)	Sales/Consumer/ Month (in kWh)	Approved		Revenue /month				Annual Revenue Rs. lakhs	Avg. Revenue (Rs/kWh)	ABR to Avg Rev (%)
						Fixed Charge (Rs/kVAh or kwh)	Energy charge (Rs./kWh or kVAh)	Total Fixed Charges (Rs. lakhs)	Energy charge per Consumer (Rupees)	Total energy charge (Rs. lakhs)	Total Revenue (in Rs lakhs)			
1	2	3	4	5	6	7	8	9	10	11	12=(9+11)	13	14	15
1	<b>Kutir Jyothi (Domestic)</b>													
i)	First 20 kWh	7815		1.60	17.06		5.40		92.12	7.20				
ii)	Balance >20 kWh	5210		2.45	39.19	Connection	5.60		215.46	11.23				
	<b>Sub Total (a)</b>	<b>13025</b>	<b>3081.49</b>	<b>4.05</b>		<b>20</b>		<b>2.61</b>	<b>307.58</b>	<b>18.43</b>	<b>21.04</b>	<b>252.48</b>	<b>6.23</b>	<b>81.12%</b>
2	<b>Domestic (General)</b>													
i)	First 100 kWh	123403		95.00	64.15		6.15		394.52	486.85				
ii)	Next 100 kWh	61701		90.00	121.55		6.35		751.84	463.90				
iii)	Balance >200 kWh	20567		58.58	237.35		6.55		1494.64	307.40				
	<b>Sub Total (b)</b>	<b>205671</b>	<b>294967</b>	<b>243.58</b>		50		<b>147.48</b>	<b>2641.00</b>	<b>1258.15</b>	<b>1405.63</b>	<b>16867.56</b>	<b>6.92</b>	<b>90.10%</b>
3	<b>Domestic HT (c)</b>	45	5818	5.72	10545.14	50	6.40	3.23	74987.66	33.90	37.13	445.59	7.79	101.43%
	<b>Total Domestic (a+b+c)</b>	<b>218741</b>	<b>303867</b>	<b>253.35</b>				<b>153.32</b>	<b>77936.24</b>	<b>1310.48</b>	<b>1463.80</b>	<b>17313.15</b>	<b>6.83</b>	<b>88.93%</b>
4	<b>Non-Domestic</b>													
i)	First 150 kWh	3513		6.00	142.34		6.40		910.98	32.00				
ii)	Balance >150 kWh	878		2.33	221.10		6.55		1425.71	12.52				
	<b>Sub Total (a)</b>	<b>4391</b>	<b>11859</b>	<b>8.33</b>		55		<b>6.52</b>	<b>2336.69</b>	<b>44.52</b>	<b>51.04</b>	<b>612.48</b>	<b>7.35</b>	<b>95.70%</b>
5	<b>Non-Domestic (HT) (b)</b>	33	2424	2.28	5757.58	55	6.45	1.48	41262.66	13.62	15.10	181.22	7.95	103.52%
	<b>Total Non-Domestic (a &amp; b)</b>	<b>4424</b>	<b>14283</b>	<b>10.61</b>				<b>8.00</b>	<b>43599.35</b>	<b>58.14</b>	<b>66.1413</b>	<b>793.7</b>	<b>7.48</b>	<b>97.40%</b>
4	<b>Commercial</b>													
i)	First 150 kWh	7904		16.00	168.68		7.90		1332.57	105.33				
ii)	Balance >150 kWh	5270		17.29	273.42		8.00		2172.36	114.47				
	<b>Sub Total (a)</b>	<b>13174</b>	<b>35576</b>	<b>33.29</b>		70		<b>24.90</b>	<b>3504.93</b>	<b>219.80</b>	<b>244.70</b>	<b>2936.40</b>	<b>8.82</b>	<b>114.84%</b>
5	<b>Commercial (HT) (b)</b>	131	9689	9.15	5820.61	70	7.40	7.54	47858.35	62.69	70.23	842.71	9.21	119.92%
	<b>Total Commercial (a&amp;b)</b>	<b>13305</b>	<b>45265</b>	<b>42.44</b>				<b>32.44</b>	<b>51363.28</b>	<b>282.49</b>	<b>314.926</b>	<b>3779.11</b>	<b>8.90</b>	<b>115.89%</b>
6	Public Lighting	1380	1040	2.43	146.91	70	7.95	0.73	1167.93	16.12	16.85	202.20	8.31	108.20%
7	Public Water Supply - LT	14	4616	6.18	35948.56	80	7.90	3.69	283993.62	40.70	44.39	532.68	8.62	112.24%
8	Public Water Supply - HT	62	43410	39.98	53965.26	80	7.25	38.59	434720.15	268.40	306.99	3683.84	9.21	119.92%
9	Agriculture - LT	20	20	0.01	60.28	50	6.10	0.01	367.71	0.07	0.08	0.96	6.64	86.46%
10	Agriculture - HT	1	85	0.14	11357.59	50	6.00	0.05	75717.27	0.76	0.81	9.69	7.11	92.58%
11	<b>Industrial LT</b>													
i)	First 400 kWh	629		0.10	13.24		6.85		90.69	0.57				
ii)	Balance >400 kWh	420		2.03	403.16		7.15		2762.59	11.59				
	<b>Total Industrial</b>	<b>1049</b>	<b>5764</b>	<b>2.13</b>		70		<b>4.03</b>	<b>2853.28</b>	<b>12.16</b>	<b>16.19</b>	<b>194.28</b>	<b>9.12</b>	<b>118.75%</b>
12	Industrial - HT	28	14835	12.30	37176.02	70	7.25	11.54	299473.49	82.54	94.08	1128.94	9.18	119.53%
13	Bulk Supply HT	609	20342	57.02	7807.30	90	7.30	20.34	63325.88	385.39	405.73	4868.79	8.54	111.20%
	<b>Grand Total</b>	<b>239633</b>	<b>453526</b>	<b>426.59</b>				<b>272.73</b>	<b>1334518.20</b>	<b>2457.25</b>	<b>2729.98</b>	<b>32759.82</b>	<b>7.68</b>	<b>100.00%</b>





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

TBL Bhawan, 2<sup>nd</sup> to 5<sup>th</sup> Floor,

Peter Street, E-18, Khatla, Aizawl, Mizoram, 796001

Website: [www.jerc.mizoram.gov.in](http://www.jerc.mizoram.gov.in)

e-mail: [jerc.mm@gmail.com](mailto:jerc.mm@gmail.com)

**Ph: 0389 2336555/2335625 Fax: 0389-2336299/2335523**