



TARIFF ORDER

TRUE UP FOR FY 2018-19

REVIEW FOR FY 2019-20

AND

DETERMINATION OF AGGREGATE REVENUE REQUIREMENT

&

TARIFF FOR FY 2020-21

FOR

**POWER & ELECTRICITY DEPARTMENT
GOVERNMENT OF MIZORAM**

Petition (ARR & Tariff) No. 1 of 2020

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

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ABBREVIATIONS

Abbreviation	Description
A&G	Administrative and General
AAD	Advance Against Depreciation
ARR	Aggregate Revenue Requirement
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CWIP	Capital Work in Progress
DPS	Delayed Payment Surcharge
EA, 2003	Electricity Act, 2003
FSA	Fuel Surcharge Adjustment
FY	Financial Year
GFA	Gross Fixed Assets
GOI	Government of India
HT	High Tension
IEGC	Indian Electricity Grid Code
IEX	Indian Energy Exchange
IR	Inter-Regional
ISGS	Inter State Generating Station
JERC	Joint Electricity Regulatory Commission for Manipur and Mizoram
kV	Kilovolt
kVA	Kilovolt-Ampere
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

Abbreviation	Description
PPA	Power Purchase Agreement
PWW	Public Water Works
R&M	Repair and Maintenance
RAPDRP	Restructured Accelerated Power Development and Return Programme
RE	Revised Estimate
R&M	Repairs & Maintenance
RoE	Return of Equity
RPO	Renewable Purchase Obligation
RTS	Roof Top Solar
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. 1 of 2020

In the matter of

True up for FY2018-19, Annual Performance Review for FY 2019-20 and
Determination of Aggregate Revenue Requirement (ARR) and Tariff for FY 2020-21
for P&ED, Mizoram.

FOR

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

Present

**Mr. NGANGOM SARAT SINGH
CHAIRPERSON**

**Mr. LALCHHARLIANA PACHUAU
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 2018-19 and Annual Performance review for FY 2019-20 and determination of ARR and retail supply tariff for FY 2020-21 on 20th December 2019.

2. ARR and Tariff Petition for FY 2020-21

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 2020-21 along with true-up petition for FY2018-19 and Annual Review Petition for FY2019-20. In the petition P&ED estimated ARR and projected a gap of Rs. 367.11 Crores for FY 2020-21 at the prevailing Tariffs and with the proposed tariffs on yielding additional revenue of Rs.189.90crs the above deficit would get reduced to Rs.177.21 crores as per its 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.20013/29/19-JERC, Dt. 09.01.2020, 13.01.2020, 11.02.2020 & 14.02.2020. Pending receipt of additional information, the ARR and Tariff Petition was admitted on and marked as Petition (ARR & Tariff) No.1 of 2020 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.20013/29/19-JERC, dt: 13.02.2020. The P & ED department submitted the replies to the additional information vide their Letter No.T-23012/01/17-EC(P)/Com/41, dt: 22.01.2020, letter No.T-23012/01/17-EC(P)/Com/57, dt: 5.02.2020.

The notification of the proposed ARR and the proposed tariff schedule for FY 2020-21 was published by the P&ED in the following newspapers.

Sl. No	Name of the newspaper	Language	Date of publication
1	Newslink	English	1.02.2020 & 03.02.2020
2	Zozam Times	Mizo	1.02.2020 & 03.02.2020

Through the public notice, the stakeholders/public was invited to file their objections and suggestions on the petition on or before **14-02-2020**.

4. Notice for Public Hearing:

The Commission, to ensure transparency in the process of determination of ARR and tariffs for 2020-21 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 HOTEL FLORIA, Aizawl on 28.02.2020.

Sl. No.	Name of the News-paper	Language	Date of Publication
1	The Aizawl Post	Mizo	18/02/2020 & 19/02/2020
2	Highlander	English	17/02/2020 & 18/02/2020

5. Public Hearing:

Public hearing was held as scheduled on 28.02.2020 in the Conference Hall of Hotel Floria, 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 27-02-2020 in the Conference Hall of Hotel Floria, Aizawl and discussed the ARR & Tariff proposal for FY 2020-21 of P&ED, Mizoram. There were no objections from any of the members participated in the SAC meeting held on 27.02.2020 with regard to the upward revision of the existing tariff by the Commission for the FY 2020-21. The minutes of the SAC meeting held and the list of participants are placed at **Annexure -I** to this Order by the Commission.

7. The Commission has reviewed the directives issued earlier to P&ED (the petitioner) in the Tariff orders from FY 2010-11 onwards to FY 2019-20 and noted that some of the directives those have already been complied with are dropped. The directives which were partly complied with and the remaining directives are now consolidated and fresh directives are also now being issued.
8. In exercise of the powers vested under section 62(1) read with section 62(3) and 64 (3a) 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 2018-19 and Annual Performance Review for FY 2019-20 besides approving of the new retail supply Tariffs for FY 2019-20 based on the submitted ARR filings of FY 2020-21 for supply of electricity to the retail consumers 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 2018-19

The P&ED had submitted its true-up petition for FY 2018-19 together with audited annual accounts of FY 2018-19 approved by their Statutory Auditor dt: 6th December 2019. The Commission, its tariff order dated 22.03.2019 had approved the net ARR for FY 2018-19 to be Rs. 427.92 Crs. With the actual figures furnished by the P&ED based on the audited annual accounts for FY 2018-19, the true-up calculation resulted in net ARR of Rs. 482.66 as against Rs. 485.43 Cr furnished by P&ED and the revenue Gap is noted to be Rs. 191.63 Crs as against P&ED claimed ARR filing Gap of Rs.194.40 Crs prior to adjustment of Government revenue subsidy amount received during the same financial year. The State Government during the year have released revenue subsidy amount of Rs.249.05 Crs, according to Schedule-33 (Revenue subsidies and grants from State Government) to balance sheet of the Audited Accounts of FY 2018-19. Therefore, upon adjusting the above said revenue gap with that of the State Government released subsidy results, the P&ED sector, into a revenue surplus status by an amount of Rs.57.42 Crs which has to be taken back as per the provisions of the MYT Regulation 2014. As per Regulations 12.1(i) of the JERC for Manipur and Mizoram (MYT) Regulation 2014 one-third ($\frac{1}{3}^{\text{rd}}$) of the surplus amount of Rs.19.14 Crs is being passed on as rebate in the ARR for FY 2020-21.

10. Annual Performance Review for FY 2019-20

The P&ED has submitted review petition for FY 2019-20 based on its revised estimate for FY 2019-20. The Commission has reviewed the net ARR of Rs. 407.19 Crs approved in its tariff order dated 22.03.2019 with reference to estimated figures furnished by P&ED which resulted in net ARR of Rs.183.87Crs as against Rs.242.67 Cr furnished by P&ED without adjusting the State Government revenue related subsidy so far received.

11. ARR & Tariffs for FY 2020-21

The P&ED has submitted ARR petition for FY 2020-21 with net revenue gap of Rs. 367.11 Crs without Government subsidy. The Commission after detailed examination and analysis arrived at the net revenue gap of **Rs. 217.09 Crs** at the existing tariff and without considering of the Government subsidy to be notified.

12. This Order contains thirteen (13) chapters as detailed below:

1. Chapter 1: Introduction.
2. Chapter 2: Summary of proposed ARR and Tariffs for FY 2020-21
3. Chapter 3: Power Sector in Mizoram-An over view.
4. Chapter 4: Public hearing process.
5. Chapter 5: True up of ARR for FY2018-19.
6. Chapter 6: Annual performance Review of ARR for FY 2019-20.
7. Chapter 7: Analysis of ARR for FY 2020-21 and approvals of the Commission.
8. Chapter 8: Tariff principles and design and determination of tariffs for FY2020-21.
9. Chapter 9: Wheeling charges for FY 2020-21.
10. Chapter 10: Fuel and Power purchase cost Adjustment.
11. Chapter 11: ARR of Transmission Function and Transmission charges for FY2020-21.
12. Chapter 12: ARR of Generation Function for FY2020-21.
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 & conspicuously visible in two daily newspapers having wider circulation with in the state within a week and submit in writing the compliance report of doing so to the Hon'ble Commission before effective date itself.
14. This order shall be effective from 1st April, 2020 and shall remain in force until the issue of next Tariff Order by the Commission.



(LALCHHARLIANA PACHUAU)

MEMBER



(NGANGOM SARAT SINGH)

CHAIRPERSON

Place : Aizawl

Date : 20/03/2020

1. Introduction

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 licenses to persons seeking to act as transmission licensees, distribution licensees and electricity traders with respect to their operations within the State;
- e. Promote co-generation and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person, and also specify, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee;
- f. Adjudicate upon the disputes between the licensees and generating companies; and to refer any dispute for arbitration;
- g. Levy fee for the purposes of this Act;
- h. Specify State Grid Code consistent with the Grid Standards specified under Clause (h) of sub-section(1) of Section 79 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) has 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 2020-21

2.1 Aggregate Revenue Requirement (ARR)

The P&ED Mizoram, in its petition has projected the Aggregate Revenue Requirement (ARR) and Tariffs for FY 2020-21 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 2020-21

(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	9.18	9.18	0.00
3	Cost of Power Purchase	211.1	431.72	220.60
4	Transmission Charges	52.3	37.11	-15.21
5	Intra State Transmission	33.5	33.56	0.00
6	Employee Costs	54.1	151.56	97.40
7	Repair & Maintenance Expenses	7.94	9.50	1.56
8	Administration and General Expenses	1.57	5.47	3.90
9	Depreciation	6.09	2.08	-4.01
10	Interest charges	1.04	1.18	0.14
11	Interest on Working Capital	5.29	6.44	1.15
12	Provision for bad debts	0.00	0.00	0.00
13	Return on NFA /Equity	0.00	0.00	0.00
14	Total Revenue Requirement	382.28	687.81	305.53
15	Less: Non-Tariff Income	2.86	2.86	0.00
16	Net Revenue Requirement	379.42	684.95	305.53
17	Less: Revenue from Sale of Power at existing Tariff		317.84	317.84
18	Net Gap		367.11	-12.31

2.2 Tariff

The P&ED, Mizoram in its petition has submitted the existing and proposed tariffs for the FY 2020-21 as detailed in the table below.

Table 2.2: Existing V/s. Proposed Tariff for FY 2020-21

Sl. No.	Type of installation	Existing		Proposed	
		Energy Charges (Rs./Month)	Fixed Charges (In Rs.)	Energy Charges (Rs. /Month)	Fixed Charges (In Rs.)
		A	B	A	B
1	Kutir Jyothi				
	i) First 20 kWh	2.10/kWh	20/Connection	3.15/kWh	30/Connection
	ii) Balance above 20 kWh	3.00/kWh	20/Connection	4.25/kWh	30/Connection
2	Domestic				
	A. Low Tension				
	i) First 100 kWh	3.10/kWh	50/Contracted Load in Kw	6.40/kWh	60/Contracted Load in kW
	ii) Next 100 kWh	4.60/kWh	50/Contracted Load in kW	7.40/kWh	60/Contracted Load in kW
	iii) Balance above 200 kWh	5.10/kWh	50/Contracted Load in kW	8.40/kWh	60/Contracted Load in kW
	B. High Tension	4.80/kVAh	50/Billing Demand in kVA	9.40/kVAh	60/Billing Demand in kVA
3	Non-Domestic				
	A. Low Tension				
	i) First 150 kWh	3.90/kWh	55/Contracted Load in kW	7.95/kWh	65/Contracted Load in kW
	ii) Balance above 150 kWh	4.30/kWh	55/Contracted Load in kW	8.35/kWh	65/Contracted Load in kW
	B. High Tension	4.40/kVAh	55/Billing Demand in kVA	7.70/kVAh	65/Billing Demand in kVA
4	Commercial				
	A. Low Tension				
	i) First 150 kWh	4.35/kWh	70/Contracted Load in kW	10.15/kWh	80/Contracted Load in kW
	ii) Balance above 150 kWh	5.40/kWh	70/Contracted Load in kW	11.15/kWh	80/Contracted Load in kW
	B. High Tension	5.50/kVAh	70/Billing Demand in kVA	9.80/kVAh	80/Billing Demand in kVA
5	Public Lighting	5.40/kWh	70/Contracted Load in kW	13.20/kWh	80/Contracted Load in kW
6	Irrigation & Agriculture				

Sl. No.	Type of installation	Existing		Proposed	
		Energy Charges (Rs./Month)	Fixed Charges (In Rs.)	Energy Charges (Rs. /Month)	Fixed Charges (In Rs.)
	A. Low Tension	2.70/kWh	50/Contracted Load in kW	4.65/kWh	50/Contracted Load in kW
	B. High Tension	2.60/kVAh	50/Billing Demand in kVA	4.55/kVAh	50/Billing Demand in kVA
7	Public Water Works				
	A. Low Tension	5.20/kWh	80/Contracted Load in kW	12.60/kWh	90/Contracted Load in kW
	B. High Tension	5.00/kVAh	80/Billing Demand in kVA	11.45/kVAh	90/Billing Demand in kVA
8	Industrial				
	A. Low Tension				
	i) First 400 kWh	4.10/kWh	70/Contracted Load in kW	8.35/kWh	85/Contracted Load in kW
	ii) Balance above 400 kWh	4.80/kWh	70/Contracted Load in kW	9.05/kWh	85/Contracted Load in kW
	B. High Tension	4.55/kVAh	70/Billing Demand in kVA	9.55/kVAh	85/Billing Demand in kVA
9	Bulk Supply	5.10/kVAh	90/Billing Demand in kVA	8.85/kVAh	100/Billing Demand in kVA
10	Temporary Connection & Theft				

2.3 Prayer

- Approve True-up Petition for FY 2018-19 and APR for the FY 2019-20, ARR and Tariffs FY 2020-21 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 further and 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 Overview

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 2,29,366 consumers of various categories as on 31st of March, 2020.

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 2018-19 as furnished by P&ED is as in the Table below:

Table 3.1: Own Generating Stations as on 31.03.2019

Sl. No.	Station	Installed Capacity	Gross Generation in FY 2018-19	Net Generation in FY 2018-19
I	Mini Hydel	(MWs)	(MU)	(MU)
1	Serlui 'A'	1.00	--	--
2	Tuirivang	0.30	--	--
3	Khawiva	1.05	4.139	4.098
4	Tuipui	0.50	1.971	1.951
5	Maicham-I	2.00	7.884	7.805
6	Teirei	3.00	--	--
7	Tuipanglui	3.00	--	--
8	Kau-Tlabung	3.00	11.826	11.708
9	Lamsial	0.50	1.971	1.951
10	Maicham-II	3.00	11.826	11.708
11	Serlui 'B'	12.00 (Not Yet Commissioned)	0.854	0.769
	Total	29.35	40.47	40.09

P&ED has stated that they had now with the installed capacity of generation plants

of 29.35 MWs. The diesel generating set of 0.50 MW is for Lengpui Airport and the heavy fuel plant of 22.92 MW at Bairabi capacity are kept on standby mode for the purpose of meeting any emergency requirements only. The rest are mini Hydel plants having seasonal generation.

3.2.2 Power Purchase

The State is dependent on outside energy sources for meeting its energy requirement. The State has allocated share from Central Sector Generating Stations and total firm share from the Central Sector Generating Stations of NEEPCO, NHPC and NTPC is 154.29 MW. Apart from this, P&ED is also getting TSECL power to a tune of 10.50 MW from NEC funded Baramura Gas based thermal power plant and OTPC power of 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 186.80 MW as furnished by the P&ED is depicted in the Table below:

Table 3.2: Available Mw capacity share from All Generating Station sources

(in MW)				
Sl. No.	Source	Plant Capacity (MW)	Licensee's Share in %	Licensee's Share in MW
A	Central Generating Stations			
I	NTPC			
1	Bongaigaon TPS	250.00	5.415	13.54
2	Farakka STPS	1600.00	0.140	2.24
3	Kahalgaon STPS	840.00	0.140	1.18
4	Talcher STPS	1000.00	0.140	1.40
	NTPC-Total	3690.00		18.35
II	NHPC			
1	Loktak HEP	105.00	5.020	5.27
	NHPC-Total	105.00		5.27
III	NEEPCO			
1	Kopili HEP	200.00	4.618	9.24
2	Kopili - II HEP	25.00	6.040	1.51
3	Khandong HEP	50.00	3.940	1.97

Sl. No.	Source	Plant Capacity (MW)	Licensee's Share in %	Licensee's Share in MW
4	Ranganadi HEP	405.00	5.700	23.09
5	Doyang HEP	75.00	5.250	3.94
6	Pare HEP	110.00	5.765	6.34
7	Tuirial HEP	60.00	100.000	60.00
8	AGBPP	291.00	5.410	15.74
9	AGTPP	148.00	5.980	8.85
	NEEPCO-Total	1364.00		130.67
IV	TSECL			
1	B'mura - IV	21.00	25.000	5.25
2	B'mura - V	21.00	25.000	5.25
	TSECL-Total	42.00		10.50
V	OTPC			
1	Palatana	726.00	3.030	22.00
	OTPC-Total	726.00		22.00
VI	Other Stations/IPPs			
1	Power exchange through IEX			
	Others-Total			
B	State generating Stations			
1	All Units	29.35	100.000	29.35
	State Generating Stations-Total	29.35		29.35
G	GRAND TOTAL	5956.35		216.15

(Source: Format – F1 of ARR Petition)

The energy drawn from various Central Generating Stations and from Tripura state is given in Table below:

Table 3.3: Energy drawal from Sources outside the State and Own Generation furnished by P & ED for FY 2018-19

Sl No	Source	MU Purchased / generated (ex-bus)
A	Central Generating Stations	
I	NTPC	
1	Bongaigaon TPS	153.41
2	Farakka STPS	16.20
3	Kahalgaon STPS	8.66
4	Talcher STPS	9.18
	NTPC-Total	187.45

SI No	Source	MU Purchased / generated (ex-bus)
II	NHPC	
1	Loktak HEP	25.21
	NHPC-Total	25.21
III	NEEPCO	
1	Kopili HEP	45.53
2	Kopili - II HEP	5.54
3	Khandong HEP	7.68
4	Ranganadi HEP	58.65
5	Doyang HEP	11.56
6	Pare HEP	19.35
7	Tuirial HEP	63.67
	Free Power from Tuirial	18.38
8	AGBPP	85.68
9	AGTPP	39.95
	NEEPCO-Total	337.61
IV	TSECL	
1	B'mura - IV	3.30
2	B'mura - V	38.31
	TSECL-Total	41.60
V	OTPC	
1	Palatana	136.75
	OTPC-Total	136.75
VI	Other Stations/PPs	
1	Power exchange through IEX	0.00
	Others-Total	0.00
B	State generating Stations	
1	From all Generating Plants	40.09
	State Generating Stations-Total	40.09
C	UI / Deviation	8.53
	UI / Deviation-Total	8.53
D	GRAND TOTAL Energy (MU)	795.62

(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 and furnished as on 31.03.2019 are given in Table below:

Table 3.4: Network Details as on 31.03.2019

Sl. No.	Particulars	FY 2018-19			
		At the start of year	Additions during the year	Withdrawn services	At the end of year
1	Length of lines (ckt-km)				
	132 kV	813	15		827
	66 kV	111	-		111
	33 kV	918	357		1,275
	11 kV	4,721	616		5,337
	LT	3,099	145		3,245
	Total	9,662	1,133	-	10,795
			-		
2	Number of 33/11 kV substations	55	-		55
			-		
3	No. of Power Transformers (33/11 kV)	86		2	84
	Total MVA capacity of Power Transformers	272	221		492
			-		
3	No. of Distribution Transformers	1,727	187		1,914
	Total MVA capacity of Distribution Transformers	203	11		215
			-		
4	Number of consumer meters		-		
	LT (less than 0.5 accuracy class)	218,347	16,386		234,733
	LT (better than 0.5 accuracy class)		-		
	HT (less than 0.5 accuracy class)	951	71		1,022
	HT (0.2 accuracy class)		-		
	HT (better than 0.2 accuracy class)		-		
	Total	219,298	16,457	-	235,755
			-		
5	Number of Interface meters		-		
	0.5 accuracy class		-		
	0.2 accuracy class		-		
			-		
	Metered sales (in MU)		-		
	Low Tension (HT)	269			276

Sl. No.	Particulars	FY 2018-19			
		At the start of year	Additions during the year	Withdrawn services	At the end of year
	High Tension (HT)	110			103
	Extra High Tension (EHT)	--			--
	Total	379		-	379
			-		
	Metered Consumers (in Nos.)		-		
	Low Tension (HT)	218,347	16,386		234,733
	High Tension (HT)	951	71		1,022
	Extra High Tension (EHT)		-		
	Total	219,298	16,457	-	235,755

3.4 Distribution losses

The distribution losses of P&ED system as filed were 17.58% during the year 2018-19. The technical and commercial losses segregation are not furnished anywhere in the ARR filing submission.

3.5 Consumer profile and Energy sales

The consumers profile and corresponding energy sales during the year FY2018-19 are given in Table below:

Table 3.5: Consumer Profile and Energy Sales for FY 2018-19 (As filed)

Sl. No.	Category	Sales (MU)	No. of Consumers	Connected Load (MW)
1(a)	Kutir Jyoti - LT	3.36	20,925	4.245
1(b)	Domestic - LT	214.96	196,192	257.539
1(c)	Domestic - HT	9.65	34	5.415
2(a)	Non-Domestic - LT	0.00	0	0.000
2(b)	Non-Domestic - HT	0.00	0	0.000
3(a)	Commercial - LT	51.03	15,705	44.078
3(b)	Commercial - HT	10.01	168	18.527
4	Public Lighting - LT	2.67	1,283	0.921
5(a)	Irrigation & Agriculture - LT	0.22	23	0.038
5(b)	Irrigation & Agriculture - HT	0.00	0	0.000
6(a)	Public Water Works - LT	4.67	10	4.048
6(b)	Public Water Works - HT	63.90	54	43.458
7(a)	Industrial - LT	3.41	1,151	10.447
7(b)	Industrial - HT	10.94	15	8.958
8	Bulk Supply - HT	12.69	49	10.409
9	Temporary Connection & Theft -	0.23	146	6.283
10	Outside State Sale - UI / Trading	286.21		

Sl. No.	Category	Sales (MU)	No. of Consumers	Connected Load (MW)
	TOTAL	673.98	235,755	414.366

(Source: Form No: R1 of petition)

3.6 Demand

The allocation of power (firm and infirm) from various central generating stations and NEC funded Baramura Gas Based Thermal Power Plant is 186.79 MW. The peak load demand of the Mizoram during the FY 2018-19 as stated by P&ED department is 118.89MWs and off-peak load is 28.00MWs.

The energy procured by P&ED during the year 2018-19 was 787.09 MU including own generation of MU but excluding the UI deviations & RPO obligation.

4 Public Hearing Process

4.1 Introduction:

On admitting the ARR and Tariff Petition for FY 2020-21, 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 either 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 28.02.2019 as scheduled in the Hotel Floria conference Hall, 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 2020-21 of P&ED.

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

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

4.3 Proceedings of Public Hearing:

It was highlighted in the hearing that the overall proposed tariff hike of 89.52% from the existing Tariff Rates. The average tariff will then be Rs 13.547/unit without subsidy whereas it is Rs 9.40/unit with tariff revision, leaving a gap of Rs 4.145/unit.

It was further highlighted that Power Purchase Cost is significantly increased from Rs 316.70 Cr (True up figure of FY 2018-19) to Rs.412.52 in FY 2019-20 and Rs 431.72 Cr for FY 2020-21. 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 Ranganadi HEP and Pare HEP (projected extra energy purchase being 17.95 MU) and Tuirial HEP (projected energy purchase being 123.37 MU from the existing 63.87MU). Total extra energy of 61.52 MUs were added from the NEEPCO projects, 11.80MU and 8.12MU additionally from Baramura and Palatana stations will add up to existing power purchase from various other generating sources including state owned generating stations. However, surplus power received are proposed to be sold at outside the State at 3.58/kWh which is lower than average power purchase which will impact lesser addition to the revenue from sale of power within State. As such, sales within the state has no significant increase apart from normal increase. The Overall sales increase in FY 2020-21 over FY 2018-19 is only 39.75MU across all categories.

It was further mentioned and illustrated in the public hearing presentation that there is a total of 692 posts presently lying vacant in the Department, majority of which are from Group B and C. 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 3 Crore is included in the proposed ARR against employee cost.

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

1. Objections/Suggestions from Pu Vanlalruata, President CYMA.:

- i) Increase of proposed Fixed charge in respect of Kutir Jyoti category from Rs 20/connection to Rs 30/connection (i.e 50% hike) seems to be too high and may be reduced.

P&ED Reply: Contribution of 50% increase of proposed fixed charge in case of KJ will not be high in the actual bill in terms of money.

- ii) The number of employees / employee cost considering the quantum of power handled is much higher than that of some neighboring state like Manipur which contribute high ARR.

P&ED Reply: In view of uniform distribution of realtime power supply within the state, P&E Department, Govt of Mizoram tried its level best inspite of shortage of man power even in the most corner villages within the state for giving power supply and may not be comparable with other neighbouring states.

- iii) The Interest on Working Capital (IWC), Interest Charges and Depreciation are thought not applicable for P&E Department and should not be included in the estimation of ARR since the Department is being functioned presently under the State Government.

P&ED Reply: The P&E Department does not make any specific reply/reaction. The consideration of the Hon'ble Commission may be taken as final.

- iv) The P&E Department is requested to try to recover atleast 50% of its current outstanding arrears of bill from the default consumers to reduce suffering of majority of consumers on account of not paying the bill by lesser numbers of consumers.

P&ED Reply: The P&E Department could not committed for assurance to recover such amount of outstanding arrears from default consumers. But the Department will try its level best to recover arrear dues as much as possible.

- i) Most of the consumers in the villages are not supposed to have a behavior of reluctant to pay their energy bills. But they are facing a problem of paying the bill due to non-availability of bill collection counter in their localities. So, P&E Department is requested to open more collection centre at various villages for better collection of bill.

P&ED Reply: P&E Department aware the requirement of more bill collection counter in general. The new collection centre in Sakawrdai village as discussed in 22nd Meeting of SAC shall be opened by 15th March 2020.

2. Objections/Suggestions from Pu Lalmuanpuia Punte:

Pu Lalmuanpuia Punte, although not understanding very much about the calculation of ARR with involvement of various technical issues, requested to reduce the hike of proposed tariff as much as possible with consideration of burden and economy of general consumers.

P&ED Reply: The Tariff Petition for FY 2020-21 submitted by P&E Department is the proposal of the Department only. The Commission shall scrutinize the Petition in details considering genuineness and various impact on the consumers and final tariff to be approved and finalized by the Commission.

Commission's Comments:

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

5 True-up of ARR of 2018-19

5.1 Back ground

The Commission had approved ARR for FY 2018-19 on 22.3.2019 based upon the petition filed by P&ED. The Commission had carried out the review exercise for FY 2018-19 in Tariff Order for FY 2019-20 dated 22-03-2019 based on revised estimates submitted by the P&ED.

Now the P&ED has submitted true-up Petition along with ARR and Tariff Petition for FY 2020-21, together with statutory auditor approved audited annual accounts for FY 2018-19.

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 uncontrollable 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 2018-19

The P&ED Mizoram in its petition for true-up for FY 2018-19 has furnished actual energy sales, expenditure based on the audited annual accounts for FY 2018-19. Accordingly, the petitioner has claimed revised net ARR of Rs.485.43 crs, Revenue of Rs. 219.03 Crs which includes Rs.95.69 crs from Outside State Sales and with consequential revenue gap of Rs.194.40Crs for FY 2018-19.

Commission's Analysis

The Commission has analysed all components of actual energy sales, expenses and gap under true-up for FY 2018-19 based on audited accounts as under, wherever necessary the Commission has considered expenses based on prudence check and after taking into account of efficiency parameters like distribution loss , ATC Losses and dues collection efficiency etc.

5.3 Number of Consumers and Connected Load

Table 5.1: Consumer Profile and Energy Sales during FY 2018-19

Sl. No.	Category	Sales (MU)	No. of Consumers	Connected Load (MW)	Avg. Load (KW)
1(a)	Kutir Jyothi - LT	3.36	20,925	4.245	0.203
1(b)	Domestic - LT	214.96	196,192	257.539	1.313
1(c)	Domestic - HT	9.65	34	5.415	159.265
2(a)	Non-Domestic - LT	0.00	0	0.000	-
2(b)	Non-Domestic - HT	0.00	0	0.000	-
3(a)	Commercial - LT	51.03	15,705	44.078	2.807
3(b)	Commercial - HT	10.01	168	18.527	110.280
4	Public Lighting - LT	2.67	1,283	0.921	0.718
5(a)	Irrigation & Agriculture - LT	0.22	23	0.038	1.652
5(b)	Irrigation & Agriculture - HT	0.00	0	0.000	-
6(a)	Public Water Works - LT	4.67	10	4.048	404.800
6(b)	Public Water Works - HT	63.90	54	43.458	804.778
7(a)	Industrial - LT	3.41	1,151	10.447	9.076
7(b)	Industrial - HT	10.94	15	8.958	597.200
8	Bulk Supply - HT	12.69	49	10.409	212.429
9	Temporary Connection & Theft -	0.23	146	6.283	43.034
10	Outside State Sale - UI / Trading	286.21			-
	GRAND TOTAL	673.96	235,755	414.366	1.758

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	159.265	Very High
2	Commercial HT	110.280	Very High
3	Irrigation LT	1.652	Very Low
4	PWW LT	404.800	Very High
5	PWW HT	804.778	Very High
6	Industrial HT	597.200	Very High
7	Bulk supply HT	212.429	Very High

Owing to furnishing of high connected load the revenue assessment (fixed charges) will also be on 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 for physical verification of the connections and report compliance in next ARR filing of next year. The Directive to submit a quarterly report on the progress so far achieved shall be submitted starting from 01.07.2019 onwards was also not complied with besides it was reported in the recent filing on compliance that action taken report from field offices is not received. The directive which was issued in 2014 is still not found to be complied and seeking excuses is very much deplorable and Commission would be compelled to take some penal action on account of this non-compliance.

5.4 Energy sales

The P&ED in its True- up Petition had furnished the actual energy sales at 673.96 MU as against 682.94MU approved by the Commission for the FY 2018-19. The Category wise actual sales during the FY 2018-19 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 2018-19 after true-up (MU)

Sl. No.	Category	Approved in T.O. dated 22.03.2019	As per Accounts	Approved now by Commission
	LT Consumers			
1	Kutir Jyoti	3.65	3.36	3.36
2	Domestic	236.67	214.96	214.96
3	Commercial	39.64	51.03	51.03
4	Public Lighting	2.32	2.67	2.67
5	Public Water Works	5.73	4.67	4.67
6	Agriculture	0.01	0.22	0.22
7	Industrial	2.31	3.41	3.41
	Total LT	290.32	280.32	280.32
	HT Consumers			
8	Domestic	5.45	9.65	9.65
9	Commercial	10.88	10.01	10.01
10	Public Water Works	38.08	63.90	63.90
11	Agriculture	0.13	0.00	0.00
12	Industrial	11.71	10.94	10.94
13	Bulk Supply	54.30	12.69	12.69
14	Temporary connection & theft -	0	0.23	0.23
	Total HT	120.55	107.43	107.43
15	Outside State - Trading	272.07	286.21	286.21
	Total	682.94	673.96	673.96

The Commission approves energy sales of LT & HT category within the State at 673.96 MU based on the actuals for FY 2018-19 for true-up purpose.

5.5 Distribution Loss

The actual values of the distribution loss for the FY 2018-19 arrived at in accordance with the actual energy sales & energy purchase by P&ED in its filings.

Distribution Loss for FY 2018-19

Sl. No.	Particulars	Approved in T.O. dated 22.03.2019	As per Accounts	Deviation
1	2	3	4	5
1	Distribution Loss	16.52%	17.58%	1.06%

Commission's analysis

The Commission in its Tariff Order dated 22.03.2019 had approved Distribution Loss at 16.52% for FY 2018-19. The P&ED has furnished actual distribution losses at 17.58% for FY 2018-19 with a deviation of 1.06%. While based on the figures reported in their ARR filings for FY 2018-19 at Form-P2 their distribution Losses would be of the order of 30.11% (Energy Input is 554.82MU and sales 387.76MU resulting in Dist. Loss of 107.06 MU). This is inconsistent with that of 17.58% in the write-up at Table-1.5 and at page-4, para-1.6 of true-up for FY 2018-19. The variation is on account of considering 470.45MU as the Distribution energy input quantity while in reality it is 554.82MU (as per Form-P2).

Since, the historical data generated and provided by each circle with regard to the Circle-wise energy input and the sales quantity is basing on actual data from their basic records maintained in field created over the entire year in 2018-19. As such, same data can be taken directly into cognisance without any iota of doubt.

Therefore, the Hon'ble Commission thereby reaches to a strong conclusion that the real time distribution losses for FY 2018-19 are considered at **167.06 MU (at 30.11%)** but not **82.68MU** (at 17.58%) as was indicated in the ARR filing for FY2018-19 is with an intention to window dress their poor performance.

This kind of distribution loss is not desirable and it shall be brought down to 15% level at the earliest. *Moreover, the Outside State sales quantum of 286.21MU was indicated in their ARR filings for FY2018-19 but it does not appear to be right and as per the calculation methodology adopted by the*

Commission, it works out to **204.55MU** only. The detailed calculation of the Commission adopted in deriving the losses is tabulated below:

Table 5. 3: T&D loss calculation Approved by the Commission for FY 2018-19 after true-up

		(MU)
S.No.	Particulars	2018-19
1	Energy purchase from Eastern Region	34.04
2	Inter-State Losses on ER Energy (@ 1.95%)	0.66
3	ER Energy after Losses (1-2)	33.38
4	Energy from NER Stations (exl. Energy from Tuirial HEP)	630.92
5	UI Energy Purchase	8.53
6	RPO met from outside the State	0.00
7	Energy available at NER grid (3+4+5+6)	672.83
8	Inter-State Trans. loss in NER (@ 2.74%)	18.44
9	Net energy available for Mizoram at NERLDC (7-8)	654.39
10	Energy purchase from Tuirial HEP	63.67
11	Free Energy from Tuirial HEP	18.38
12	Energy export to Grid from State owned small HEPs	40.09
13	Energy export to Grid from Gross metering system of Solar plants & RTS	0.00
14	Energy export to Grid from Net metering system of RTS	0.00
15	Total energy available for Mizoram(9+10+11+12+13+14)	776.53
16	Ditribution Total Input (based on Circle-wise input meters record)	554.82
17	Retail sale of Energy **	387.76
18	Distribution loss (16-17)	167.06
19	Distribution loss percentage (18/16 %)	30.11%
20	Percentage Intra-state transmission loss (assumed)	3%
21	Energy at State trans. import bus (gross-up Discom input by 3%)	571.98
22	Intra-state Transmission loss (@3%)	17.16
23	Total T&D Losses (18+22)	184.22
24	Percentage T&D losses (23/21%)	32.21%
25	Surplus Energy (15-21)	204.55
**Total Grid energy consumed i.e grid energy imported by the consumers with/witout RTS, Solar plants and Hydel Stations.		

It is necessary, the Licensee shall make a dedicated endeavour to immediately take steps to arrest theft and pilferage of energy (Commercial Losses) and lots of

unmetered sales are going unaccounted. The Commission, therefore issues the following directive in this regard:

“The P&ED Department shall invariably submit details to the Commission on or before 15th of each month following the month in which the quantum of energy received (input) by each circle and the quantum of energy sold in that relevant month by each circle office separately for each of the twelve (12) months promptly starting from April to March without fail. The information so furnished by the licensee would form the basis to arrive at the distribution losses actually sustained by the P&ED in the entire year for truing-up purpose in future. Besides, the Licensee shall also submit the details of the net quantity of Outside State sales done in each month starting from April to March with a copy of the invoice issued to the party concerned for record.”

Thereby, the Commission approves distribution loss at 30.11% for FY 2018-19 as against 17.58% furnished by P & ED.

5.6 Energy Requirement

The energy requirement approved by the Commission for FY 2018-19 in its order dated 22.03.2019, actuals furnished by P&ED in its true-up petition of FY 2018-19 and now approved by the Commission are detailed in table below:

Table 5.4: Energy Requirement for FY 2018-19 approved by the Commission after true-up

Sl. No.	Energy Balance	Approved in T.O. dated 22.03.2019	As per Accounts	Now approved
A	Distribution Energy Requirement	(1)	(2)	(3)
1	Energy Sales (MU)	410.87	387.76	387.76
2	Distribution Loss (%)	16.52%	17.58%	30.11%
3	Distribution Loss (MUs)	81.31	82.68	167.06
4	Total Energy Requirement (MU)	492.18	470.45	554.82

5.7 Own Generation

The Commission in its order dated 22.03.2019 had approved net state-owned generation at 64.85 MU for FY 2018-19. Where as in the filings of P&ED has now furnished actual **P&ED own generation to be 40.09 MU for FY 2018-19 based on**

audited actuals and same is accepted by Commission for True-up.

5.8 Purchase of Power

The Commission in its order dated 22.03.2019 had approved power purchase of 810.46 MU for FY 2018-19. The P&ED in its true-up petition for 2018-19 has furnished actual power purchase at 777.24 MU but excluding the Free Power share of 18.38MU from Tuirial as detailed in table below:

Table 5.5: ER & NER Power Purchase for FY 2018-19 approved by the Commission for true-up.

Sl. No	Source	Approved in Order dated 22.03.2019	Actuals furnished by P&ED	Approved by the Commission
A	Central Generating stations			
I	NTPC- ER			
1	Farakka STPS	15.29	16.20	16.20
2	Kahalgao STPS	9.09	8.66	8.66
3	Talcher STPS	9.50	9.18	9.18
	NTPC-Total	33.88	34.04	34.04
II	NTPC -ER			
4	Bongaigaon TPS	66.09	153.41	153.41
	Sub-Total Bongaigaon	66.09	153.41	153.41
III	NHPC			
5	Loktak HEP	30.99	25.21	25.21
	Sub-Total	30.99	25.21	25.21
IV	NEEPCO - Hydro			
6	Kopili HEP	36.44	45.53	45.53
7	Kopili - II HEP	6.68	5.54	5.54
8	Khandong HEP	8.36	7.68	7.68
9	Ranganadi HEP	66.80	58.65	58.65
10	Doyang HEP	12.31	11.56	11.56
11	Pare HEP	35.60	19.35	19.35
12	Tuirial HEP	168.39	63.67	63.67
	Sub Total –NEEPCO Hydro	334.58	230.36	230.36
	NEEPCO – Gas Based			
13	AGBPP	71.13	85.68	85.68
14	AGTPP	41.62	39.95	39.95
	Sub-Total	112.75	125.63	125.63
V	TSECL			
15	B'mura - IV	27.80	3.30	3.30
16	B'mura - V	22.10	38.31	38.31
	Sub-Total	49.90	41.60	41.60
VI	OTPC			

Sl. No	Source	Approved in Order dated 22.03.2019	Actuals furnished by P&ED	Approved by the Commission
17	Palatana	117.21	136.75	136.75
	Sub-Total	117.21	136.75	136.75
VII	Purchases thro IEX			
	UI Deviation	0.21	8.53	8.53
VIII	State Own Generation	64.85	40.09	40.09
	Grand Total (I to VIII)	810.46	777.24	777.24
IX	Tuiriial Free Power Share	0	18.38	18.38
X	Over all energy purchased	810.46	795.62	795.62

Commission's Analysis

The Commission approves power purchase of 777.24 MU including UI of 8.53 MU but before considering the free power from Tuiriial of 18.38 MU received during FY 2018-19 for true-up as per actuals. With the Tuiriial free power the total gross power purchase shall have to be 795.62MU for FY 2018-19.

5.9 Energy Balance

The details of energy requirement and availability of power approved by the Commission for FY 2018-19 in its order dated 22.03.2019 and actuals furnished by the P&ED in its true-up petition for FY 2018-19 and now approved by the Commission are furnished in Table below:

Table 5.6: Energy Balance for FY 2018-19 filed by the P&ED

Sl. No.	Energy Balance	Approved in T.O. dated 22.03.2019	As per Accounts
A	Energy Requirement		
1	Energy Sales	410.87	387.76
2	Distribution Loss (%)	16.52%	17.58%
3	Distribution Loss (MUs)	81.31	82.68
4	Total Energy Requirement	492.18	470.45
B	Energy Availability		
5	Own Generation	64.85	40.09
6	Energy Purchase from ER	33.88	187.45
7	Less: ER Pool Loss (%)	1.95%	1.95%
8	Less: ER Pool Loss (Mus)	0.66	3.66
9	Net Energy for ER	33.22	183.79
10	Energy Purchase from NER	711.52	541.18
11	Sub Total	744.74	724.97

Sl. No.	Energy Balance	Approved in T.O. dated 22.03.2019	As per Accounts
12	Less: NER Pool Loss (%)	2.85%	2.85%
13	Less: NER Pool Loss (MUs)	21.23	20.66
14	Net Energy at NERLDC	723.51	704.31
15	UI / RPO Purchase	0.21	8.53
16	Free Energy from Tuirial HEP	0.00	18.38
17	Net NERLDC Energy Available	788.57	771.31
18	Less: Outside State - Trading	272.07	286.31
19	Total Energy Available at State border	516.50	485.00
20	Less: Intra-State Trn. Loss (%)	3.00%	3.00%
21	Less: Intra-State Trn. Loss (MUs)	23.65	14.55
22	Net Energy Available	492.85	470.45
23	Less: Energy requirement at State Periphery	492.18	470.45
24	ENERGY SURPLUS/(DEFICIT)	0.00	0.00

Commission's Analysis

Actual distribution loss was derived to be **30.11%** as calculated vide **Table 5.3 Supra** is considered as against 17.58% submitted by P&ED besides adopting the NERLDC losses at 2.74% instead of 2.85%. Taking the above into consideration of the Surplus of power worked out as 204.55MU as against the value of 286.21MU furnished by P&ED in their filings.

Table 5.7: Energy Balance approved by the Commission for FY 2018-19 after true-up

S.No.	Particulars for FY 2018-19	MU
A	Grid Energy Requirement	
1	Retail sale of energy	387.76
2	Distribution Loss in percentage	30.11%
3	Distribution Loss	167.06
4	Energy requirement at Distribution periphery	554.82
5	Intra- State Transmission Loss in percentage (assumed)	3%
6	Total Grid Energy requirement within the State (gross-up 4 by 3%)	571.98
B	Energy Availability	
7	Energy purchase from Eastern Region	34.04
8	Inter-State Losses on ER Energy (@ 1.95%)	0.66
9	ER Energy after Losses (1-2)	33.38
10	Energy from NER Stations (exl. Energy from Tuirial HEP)	477.51

S.No.	Particulars for FY 2018-19	MU
11	UI Energy Purchase	8.53
12	RPO met from outside the State	0.00
13	Energy available at NER grid (9+10+11+12)	519.42
14	Inter-State Trans. loss in NER (@ 2.74%)	14.23
15	Net energy available for Mizoram at NERLDC (13-14)	505.19
16	Energy purchase from Tuirial HEP	63.67
17	Free Energy from Tuirial HEP	18.38
18	Energy export to Grid from State owned small HEPs	40.09
19	Energy export to Grid from Gross metering system of Solar plants & RTS	0.00
20	Energy export to Grid from Net metering system of RTS	0.00
21	Total energy available for Mizoram(15+16+17+18+19+20)	627.33
22	Energy Surplus (+)/Deficit (-) (21-6)	55.35
23	Energy sale through trading/banking	0.00
24	UI/DSM Energy sale through IEX (22-23)	55.35
25	Gross generation from Net metering RTS	0.00
26	Total energy consumption in Discom area (1+25-20)	387.76

5.9.1 Fuel Cost

The Commission in its tariff Order for FY 2018-19 had approved fuel cost at Rs. 0.01 Crore Actual Fuel Cost furnished by P&ED and as per audited annual accounts for FY 2018-19 is Rs. NIL Crore during the FY 2018-19.

The Commission accordingly approves fuel cost at Rs. NIL for FY 2018-19 after true-up.

5.9.2 Power Purchase Cost

Petitioner's submission

The Commission in its order dated 22.3.2019 had approved Rs.288.16 Crores towards power purchase cost during FY 2018-19 for purchase of 745.61MU. The P&ED in its true-up petition for FY 2018-19 has furnished actual power purchase cost during FY 2018-19 at Rs. 316.70 Crores for purchase of 795.63MU including free power of 18.38 MU from Tuirial and own generation of power by Mizoram. The

Average cost of power is hence corrected from 4.07/kWh to **3.98/kWh** is detailed in the table below.

Table 5.8: Actual Power Purchase Cost furnished by P & ED during FY 2018-19

SI No	Energy Generation Source	Plant Capacity (MW)	Licensee's Share in %	Licensee's Share in MW	MU Purchased/generated (ex-bus)	Total Charges (Rs./Crores)	Total Charge per unit (Rs./kWh)
A	Central Generating Stations						
I	NTPC						
1	Bongaigaon TPS	250.00	5.415	13.54	153.41	98.47	6.42
2	Farakka STPS	1600.00	0.140	2.24	16.20	1.32	3.17
3	Kahalgaoon STPS	840.00	0.140	1.18	8.66	0.86	3.24
4	Talcher STPS	1000.00	0.140	1.40	9.18	0.89	2.70
	NTPC-Total	3690.00		18.35	187.45	53.61	5.81
II	NHPC						
1	Loktak HEP	105.00	5.020	5.27	25.21	9.86	3.91
	NHPC-Total	105.00		5.27	25.21	9.86	3.91
III	NEEPCO						
1	Kopili HEP	200.00	4.618	9.24	45.53	6.15	1.35
2	Kopili - II HEP	25.00	6.040	1.51	5.54	0.91	1.64
3	Khandong HEP	50.00	3.940	1.97	7.68	1.63	2.12
4	Ranganadi HEP	405.00	5.700	23.09	58.65	14.64	2.50
5	Doyang HEP	75.00	5.250	3.94	11.56	5.81	5.03
6	Pare HEP	110.00	5.765	6.34	19.35	9.68	5.00
7	a) Tuirial HEP	60.00	100.000	60.00	63.67	30.74	3.75
	b) Free Power share				18.38	0	
8	AGBPP	291.00	5.410	15.74	85.68	32.51	3.79
9	AGTPP	148.00	5.980	8.85	39.95	14.48	3.62
	NEEPCO-Total	1364.00		130.67	355.99	116.65	3.28
IV	TSECL						
1	B'mura - IV	21.00	25.000	5.25	3.30	0.99	3.00
2	B'mura - V	21.00	25.000	5.25	38.31	11.54	3.01
	TSECL-Total	42.00		10.50	41.60	12.53	3.01
V	OTPC						
1	Palatana	726.00	3.030	22.00	136.75	41.43	3.03
	OTPC-Total	726.00		22.00	136.75	41.43	3.03
VI	Other Stations/IPPs						
1	Power exchange through IEX				0.00	0.00	0.00
	Others-Total				0.00	0.00	0.00
B	State generating Stations						
1	All Units	29.35	100.000	29.35	40.09	0.00	0.00
	Owned Generation Total	29.35		29.35	40.09	0.00	0.00
C	UI / Deviation				8.53	8.31	9.74
	UI / Deviation-Total				8.53	8.31	9.74
D	RPO Obligation / REC Certificate						
E	Additional Supplementary Bills						

SI No	Energy Generation Source	Plant Capacity (MW)	Licensee's Share in %	Licensee's Share in MW	MU Purchased/generated (ex-bus)	Total Charges (Rs./Crores)	Total Charge per unit (Rs./kWh)
F	Bilateral Power Purchase						
1	Utility 1						
2	Utility 2						
	Bilateral-Total				0.00	0.00	0.00
G	GRAND TOTAL	5956.35		216.15	795.63	316.70	3.98

In addition, the P&ED had submitted additional information as corrigendum on 5th February 2020 with a request to consider the procurement from Tuirial as 141.49 against 63.67MU power supply and free power as 19.29MU instead of 18.38MU already submitted in their initial filing. Besides, it had proposed to revised the cost to be at 65.22crs as against 30.74 Crs initially claimed. Upon scrutiny, the excess purchase cost of Rs.34.48 Crs now they are proposing to be trued up cannot be entertained as this amount is not reflected in their audited accounts for 2018-19 and usually the true-up is always based on Audited Accounts only. Besides, the additional quantity of 78.73MU too cannot be considered now except as additional T&D losses. Hence, this additional information now submitted appears to be unreasonable and therefore it is considered as discarded.

Commission's analysis

Further to the discussions made at Para 5.8, the power purchase cost works out to be Rs.316.70 Crore tallying with that of Rs. 316.70 Crore furnished by P & ED as detailed in the table below.

Table 5.9: Actual Power Purchase Cost approved for FY 2018-19

Sl. No	Source	Plant Capacity (MW)	% Share in Capacity	Share (MWs)	Ex-Bus Energy Purchased (MU)	Total Cost (Rs. Crs)	C.P.U (Rs./kWh)
A	Central Generating Stations						
I	NTPC						
1	Bongaigaon TPS	250	5.415%	13.538	153.409	98.465	6.42
2	Farakka STPS	1600	0.14%	2.240	16.198	5.134	3.17

Sl. No	Source	Plant Capacity (MW)	% Share in Capacity	Share (MWs)	Ex-Bus Energy Purchased (MU)	Total Cost (Rs. Crs)	C.P.U (Rs./kWh)
3	Kahalgaon STPS	840	0.14%	1.176	8.659	2.813	3.25
4	Talcher STPS	1000	0.14%	1.400	9.179	2.484	2.71
	NTPC-Total	3690		18.354	187.445	108.895	5.81
II	NHPC						
1	Loktak HEP	105	5.02%	5.27	25.21	9.86	3.91
	NHPC-Total	105		5.27	25.21	9.86	3.91
III	NEEPCO						
1	Kopili HEP	200.00	4.62%	9.24	45.53	6.15	1.35
2	Kopili - II HEP	25.00	6.04%	1.51	5.54	0.91	1.64
3	Khandong HEP	50.00	3.94%	1.97	7.68	1.63	2.13
4	Ranganadi HEP	405.00	6%	23.09	58.65	14.64	2.50
5	Doyang HEP	75.00	5.25%	3.94	11.56	5.81	5.03
6	Pare HEP	110.00	5.77%	6.34	19.35	9.68	5.00
7	Tuirial HEP	60.00	100%	60.00	82.05	30.74	3.75
8	AGBPP	291.00	5.41%	15.74	85.68	32.51	3.79
9	AGTPP	148.00	5.98%	8.85	39.95	14.48	3.62
	NEEPCO-Total	1364.0		130.67	366.69	116.55	3.27
IV	TSECL						
1	B'mura - IV	21.00	25.00%	5.25	3.30	0.99	3.01
2	B'mura - V	21.00	25.00%	5.25	38.31	11.54	3.01
	TSECL-Total	42.00		10.50	41.60	12.53	3.01
V	OTPC						
1	Palatana	726.00	3.03%	22.00	136.75	41.43	3.03
	OTPC-Total	726.00		22.00	136.75	41.43	3.03
VI	Other Stations/IPPs						
1	IEX Power				0	0	0
	Others-Total				0	0	0
B	State generating Stations						
1	All Units	29.35	100%	29.35	40.09	0	0.00
	Total State Owned	29.35		29.35	40.09	0	0.00
C	UI / Deviation				8.53	8.31	9.74
	UI / Deviation-Total				8.53	8.31	9.74
D	RPOO / REC Certificate					3.84	
E	Addl. Supplementary Bills					15.29	
F	GRAND TOTAL	5956.3		216.15	795.62	316.70	3.98

On scrutiny of the above power purchase table, it is noted that the P&ED is procuring

more power than their need & requirement and hence resorting to Outside State sales often to dispose of excess purchases. Consequently, the power procurement cost incurred is more. This burdens the retail consumers for no reason. This kind of indiscriminate energy purchases has to be curtailed and monitored very carefully to cut-down higher quantum of power purchases from the Bongaigaon TPS, Doyang HEP, and Pare HEP stations whose average cost of supply far above the average power purchase cost.

However, the Commission now approves the actually incurred power purchase cost of Rs.316.70 Crore for FY 2018-19 for 795.63 MUs of purchase quantum (vide Table 5.5 supra) 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 22.03.2019 for the FY 2018-19 had approved transmission charges of 42.38 Crores. The actual transmission charges for the FY 2018-19 were at Rs.33.21 Crores as per the audited accounts. The actual transmission charges based on the audited annual accounts as compared to the approved figure is provided in the table below.

Table 5.10: Inter State Transmission Charges furnished by P&ED for FY 2018-19
(Rs. Cr)

Sl. No.	Particulars	Approved in T.O. dated 22.03.2019	As per Accounts	Deviation
1	2	3	4	5
1	Transmission Charges	42.38	33.21	-9.17
	Total	42.38	33.21	-9.17

Commission's Analysis

Normally, actuals as per true-up petition have to be compared with the figures approved by the Commission in its Tariff Order. Now, in view of the considered Power Purchase Cost of Rs.316.70Cr at Para 5.9.2 and the interstate (PGCIL) transmission charges are considered at Rs.33.21 Crores. Thus the total purchase cost including inter-state transmission charges works out to Rs. 349.91 Crore (316.70 + 33.21) which is in line with actuals as per annual accounts for FY 2018-19.

The Commission approves Inter State Transmission Charges (PGCIL Charges) at Rs. 33.21 Cr for FY 2018-19 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 22.03.2019 had approved Intra State Transmission Charges at Rs. 28.88 Cr for FY 2018-19. The P&ED in its True up Petition has stated that functional wise cost segregation is not available and hence the audited power purchase costs figure is inclusive of state transmission and generation costs also.

Therefore, the Commission accordingly approves any Intra State Transmission Charges at Rs. NIL for FY 2018-19 after True up separately.

5.9.5 O & M Expenses

a) Employee Cost

Petitioner's submission

The Hon'ble Commission had approved employee cost of Rs.48.46 Crores for the FY 2018-19 vide Tariff Order dated 22.03.2019. 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 2018-19.

The approved employee cost and actual value of employee cost for FY 2018-19 is provided in the table below:

Table 5.11: Employee Cost furnished by P&ED for FY 2018-19
(Rs. Crs)

Sl. No.	Particulars	Approved in T.O. dated 22.03.2019	As per Accounts	Deviation
1	2	3	4	5
1	Employee Cost	48.46	108.75	60.29
	Total	48.46	108.75	60.29

Commissions Analysis

Accordingly, upon verification with audited employee cost figure, the Commission approves employee expenses at Rs. 108.75 Crore for FY 2018-19 **for entire department as a whole as per audited actuals for True up.**

b) Repairs & Maintenance

Petitioner's submission

The Hon'ble Commission had approved repair & maintenance expenses of Rs.5.31 Crores for the FY 2018-19 vide Tariff Order dated 22.03.2019. Repair & maintenance expenses approved as above relates only for the distribution function. However, the audited account submitted for department is not functional 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 is noted as 19.53crs.

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 2018-19.

The approved repair & maintenance expenses and actual value of repair & maintenance expenses for FY 2018-19 is provided in the table below:

Table 5.12: Repair and Maintenance Expenses furnished by P&ED for FY 2018-19
(Rs. Crs)

Sl. No.	Particulars	Approved in T.O. dated 22.03.2019	As per Accounts	Deviation
1	2	3	4	5
1	Repair & Maintenance expenses	5.31	19.53	14.22
	Total	5.31	19.53	14.22

Commission Analysis:

The Commission accordingly approves the R&M expenses at Rs. 19.53 Crore for entire department for the FY 2018-19 as per actuals for True up.

c) Administration & General Expenses

Petitioner's submission

The Hon'ble Commission had approved Administration & General Expenses of 5.46 Crores for the FY 2018-19 vide Tariff Order dated 22.03.2019. 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 2018-19.

The approved Administration & General Expenses and actual value of Administration & General Expenses for the FY 2018-19 is provided in the table

Table 5.13: Administrative & General Expenses furnished by P&ED for FY 2018-19

(Rs. Cr)				
Sl. No.	Particulars	Approved in T.O. dated 22.03.2019	As per Accounts	Deviation
1	2	3	4	5
1	Administration & General Expenses	5.46	4.12	-1.34
	Total	5.46	4.12	-1.34

Commission's Analysis

The Commission accordingly approves Administrative and General Expenses at Rs.4.12 Crores for entire department for the FY 2018-19 as per actuals after True-up.

d) O&M Expenses

Abstract of actual O&M Expenses approved by Commission are as detailed in the Table below.

Table 5.14: O&M Expenses approved by the Commission for FY 2018-19 after true-up

(Rs. Cr)		
Sl. No	Particulars	Amount
1	Employee Cost	108.75
2	R&M Expenses	19.53
3	Administration and General expenses	4.12
4	Total O&M Expenses approved	132.40

5.9.6 Depreciation

The Hon'ble Commission had approved Depreciation of Rs.4.86 Crores for the FY 2018-19 vide Tariff Order dated 22.03.2019. The approved Depreciation and actual value of Depreciation as per the Fixed Asset & Depreciation Register for the FY 2018-19 is provided in the table below:

Table 5.15: Depreciation furnished by P&ED for FY 2018-19

(Rs. Cr)				
Sl. No.	Particulars	Approved in T.O. dated 22.03.2019	As per Accounts	Deviation
1	2	3	4	5
1	Depreciation	4.86	4.15	-0.71
	Total	4.86	4.15	-0.71

Commissions Analysis

As per audited accounts for FY 2018-19 the total depreciation during FY 2018-19 is Rs.41.50 Crores and 10 % of the depreciation is Rs.4.15 Crore since 90 % of expenditure funded through grants.

The Commission accordingly approves depreciation at Rs. 4.15 Crores for the FY 2018-19, being the 10% of depreciation as per actuals.

5.9.7 Interest & Finance Charges

The interest & finance charges approved for the FY 2018-19 and actual value of interest & finance charges made by the P&ED for the FY 2018-19 is provided in the table below:

Table 5.16 : Interest and Finance Charges furnished by P&ED for FY 2018-19

(Rs. Cr)				
Sl.No	Particulars	Approved in T.O. dt. 22.03.2019	As per Accounts	Deviation
1	2	3	4	5 = (3-4)
1	Interest & Finance Charges	1.90	1.90	0.00
	Total	1.90	1.90	0.00

Commissions Analysis

The Interest and Finance charges of P&ED during FY 2018-19 are payable to the following State Government Loans and the interest charged to P&L A/c **is not actually paid but created an Outstanding Liability for the accrued interest**. The Total Interest amount due on the loans obtained is to the tune of Rs.26.47 crores at the end of FY 2018-19 and the relevant details were provided in the table below:

Table 5.17 : Loan amount & Interest and Finance Charges details of P&ED for FY 2018-19

Rs. Crores										
Sl.No.	FY 2018-19	Opn.Baln of Loan	Repaid in 2018-19	Clsn. Baln of Loan	Avg. Loan	Interest Rate	Interest Amount	O/s Opening Due	Addn in 2018-19	O/s Closing Due
	(1)	(2)	(3)	4=(2-3)	5=(2+3)/2	(6)	7=(5x6)	(8)	(9)=(7)	10=(8+9)
a	LIC Loans	5.000	1.000	4.000	4.500	8%	0.360	6.411	0.360	6.771
b	REC (RGGVY Loans)	14.387	2.398	11.989	13.188	11.67%	1.539	15.937	1.539	17.476
c	REC Loan	0	0.000	-	-	0.00%	-	2.226	-	2.226
	Grand Total	19.387	3.398	15.989	17.688	10.74%	1.899	24.574	1.899	26.473

As seen from the above, the P&ED is yet to clear the Outstanding Interest payable on REC Loan, whose principle was repaid but the outstanding interest on it is to the tune of 2.226 crores kept pending since FY 2016-17 onwards and no actions seems to have been taken to clear off these old dues. Therefore, the possibility of levying penal charge on the outstanding loan interests in future can't be ruled out. Besides, the current year interest amount of Rs.1.90Crores was also shown as outstanding in their annual accounts in addition to the already pending obligation of Rs.24.575Cr.

Keeping in view the above facts, the Commission still approves actual Interest & Finance charges amount of Rs.1.90 Crores for the FY 2018-19 in true-up, but directs the P&ED to clear all the outstanding arrears to the respective lenders by the end of the FY 2020-21 as all those interest charges were passes on to the consumers in earlier years and were got reimbursed to the Department through Tariff revenue.

It is also noted from the annual accounts Schedule-33, the revenue subsidies & grants received during the year was Rs.249.05 crs, while the net ARR gap projected for FY 2018-19 was only Rs.194.40crs. Hence, there is a clear revenue surplus readily available with the Licensee is to the tune of Rs.54.65Cr. *This surplus is adequate to repay all the Interest and financial charges dues to banks to the tune of 26.47crs and there is no reason why these liabilities are still kept pending in spite of having the ability to repay. This situation cannot be allowed to continue anymore.*

In case of failure to repay these charges, then the entire amount outstanding as on 31.03.2021 would be clawed back by the Commission in the ensuing ARR determination and Commission wishes to provide a leeway to initiate corrective steps in this financial year of 2020-21.

5.9.8 Interest on Working Capital

Petitioner's submission

The Interest on Working Capital as approved for the FY 2018-19 and actual value of Interest on Working Capital for the FY 2018-19 is provided in the table below.

Table 5.18: Interest on working capital furnished by P&ED for FY 2018-19

Sl. No.	Particulars	Approved in T.O. dated 22.03.2019	As per P&ED	Deviation
1	2	3	4	5= (3-4)
1	Interest on Working Capital	3.73	6.49	2.76
	Total	3.73	6.49	2.76

Commissions Analysis

As per the MYT Regulation 2014, the interest on working capital is an permissible element of ARR expenditure as per the following relevant provision:

- (i) As per regulation 29(4) of JERC for Manipur and Mizoram (MYT) Regulations 2014 the distribution licensee shall be allowed on estimated level of working capital computed as follows:
 - a) O&M Expenses for one month; plus
 - b) Maintenance of spares at 1% of historical cost escalated at 6%; plus
 - c) Receivables equivalent to one month from sale of electricity at prevailing tariff minus.
 - d) **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.
 - e) Interest shall be allowed at a rate equal to the State Bank Advance Rate (SBAR) as on 1st April of this financial year in which the petition is filed.

It is observed that P&ED had not obtained any working capital loan during the entire financial year of 2018-19 or was there any history of such loans being drawn. Moreover, while working out the Interest on working Capital, the P&ED is ignoring the Consumer security deposit (CSD) possessed by them to the tune of 15.31crs in FY 2018-19, though the regulation provides for it but still it prefers to claim higher amount in the form of interest on working capital ignoring CSD. Therefore, Commission feels that admitting of Interest on working capital is only an additional burden on all consumers and there is no need noted for allowing this cost element as they are fully dependent and was availing funding from the State government and not from any other source of funding for their day to day routine operations. Hence, no calculation need be made afresh for this purpose in FY 2018-19.

The Commission now approves the already approved Interest on Working Capital amount of Rs.3.73 crs only for FY 2018-19 as against Rs.6.49 Crs claimed by the P&ED for true-up for having already approved earlier through the tariff Order 22.03.2019. But these will be disallowed from FY2020-21 onwards on adopting the

same analogy as that of Return on Equity to off-load the unnecessary burden on Consumers.

5.9.9 Provision for Bad Debts

The Commission had not considered any Provision for Bad Debts for the FY 2018-19, as the P&ED too had not submitted any proposed amount to write-off during FY 2018-19.

The Commission also approves nil Bad debts provision for FY 2018-19

5.9.10 Return on Equity

Commission had not considered any Return on Equity Capital for the FY 2018-19 as the P&ED is a Government Department and has no equity component in their Balance sheet.

The Commission also approves nil Bad debts provision for FY 2018-19

5.9.11 Non-Tariff Income

The Commission in its Order dated 22.03.2019 had approved Rs. 2.56 Crore as Non-tariff Income for the FY 2018-19. But the P&ED has reported their Non-tariff Income at Rs.2.01 Crs for the FY 2018-19 as per the audited accounts.

Commission analysis:

As seen from the Audited Accounts Schedule-26, the Year on Year (YoY) dues from Sale of Power (26b) has accumulated to Rs.52.86 crs and the current year addition of Rs.13.02 crs to the opening dues is also very much on higher side. Besides, within FY 2018-19 the sale of Power of Rs.291.02 crs, the uncollected portion of revenue (8.4%) was recorded as Rs.24.45crs in audited accounts. Therefore, the total uncollected dues accumulation within this one year itself is 37.47crs (i.e., 24.45crs +13.02crs). When the receivables due from sale of power is Rs.52.86 crs in debtors and the current year pending revenue collection is Rs.24.45 crs then how can the non-tariff collection is still be at the least. From the above, it can be inferred that the

licensee is not making any serious efforts of Special Intensive drive for revenue collections from its defaulters and instead it is allowing to grow further. The Commission feels, that the imposing of penalties/late payment surcharges is not appears to be happening at the level expected and unless penalties are strictly imposed the revenue collections will bound to be poor and the Organisation will have to face financial crunch on account of their own inaction. This is not a healthy practice and P&ED shall take serious note of the situation and order for intensive special drive collections and see that these huge dues from sale of power comes down very soon by drawing an action plan and inform the Commission.

The Commission with much displeasure accordingly approves Rs. 2.01 Crore towards Non-tariff Income for the FY 2018-19, as per actuals while these charges should have been at higher level in the prevailing condition.

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 2018-19 furnished by P&ED

Sl. No.	Category	Approved in T.O. dated 22.03.2019 Rs.Crs	As per ARR Filing Rs.Crs	Deviation Rs.Crs
LT Consumers				
1	Kutir Jyoti	1.09	0.96	-0.13
2	Domestic	98.22	97.67	-0.55
3	Commercial	23.74	28.79	5.05
4	Public Lighting	1.67	1.51	-0.16
5	Public Water Works	3.52	2.75	-0.77
6	Agriculture	0.00	0.05	0.05

Sl. No.	Category	Approved in T.O. dated 22.03.2019 Rs.Crs	As per ARR Filing Rs.Crs	Deviation Rs.Crs
7	Industrial	1.42	1.87	0.45
	Total LT	129.66	133.60	3.94
	HT Consumers			
8	Domestic	2.77	4.89	2.12
9	Commercial	6.92	6.99	0.07
10	Public Water Works	21.21	36.38	15.17
11	Agriculture	0.07	0.00	-0.07
12	Industrial	6.31	5.77	-0.54
13	Bulk Supply	29.38	7.56	-21.82
14	Temp Supply & Theft	0	0.15	0.15
	Total HT	66.66	61.74	-4.92
14	Outside State	77.27	95.69	18.42
	Grand Total	274.87	291.03	17.44

Commission's Analysis

The average revenue realisation from sale of surplus power is Rs.3.34/KWh while net average purchase cost is Rs.4.109/KWh. On account of surplus sales the licensee is incurring a loss of Rs.0.769 per each unit it is selling outside. It is suggested to regulate monthly purchase quantity from costly power station namely Bongaigaon, Doyang HEP, Pare HEP and lastly from Loktak HEP to limit to the actual requirement and minimise the surplus power by proper planning in SLDC. The Outside State sales constitute about 42.47% of total units sold while the sale to retails consumers is 57.53%. While in the average realisation the outside sales realisation is only Rs.3.34/kWh but the Retails sales realisation is Rs.5.04/kWh.

As seen from the foregone, it can safely be concluded to discourage the outside sales and concentrate to enhance within state sales more and pursue 100% revenue collections than incurring loss invariably on each unit of outside state sales. This is a serious matter and the P&ED shall reconsider their decision on high quantum of Outside State sales and to minimise procurement as far as possible.

However, the Commission approves the revenue from sale of energy at 291.028 Crore during FY 2018-19 as per the audited actuals indicated above for true-up purpose.

5.11 Summary of ARR filed by P&ED for true up with Approval Vs Actuals

Table 5.20: Aggregate Revenue Requirement for FY 2018-19 for true-up by P&ED
(Rs. Cr)

Sl. No.	Item of Expense	Approved in T.O. 22.03.2019	As per ARR filing	Commission Approved
1	2	3	4	5
1	Cost of Fuel	0.01	--	--
2	Cost of Generation	8.75	--	--
3	Cost of Power Purchase	288.16	316.70	316.70
4	Transmission Charges	42.38	33.21	33.21
2	Intra-state Transmission Charges	28.88	--	--
3	Employee Costs	48.46	108.75	108.75
4	R&M Expenses	5.31	19.53	19.53
5	Administration & General Expns.	5.46	4.12	4.12
6	Depreciation	4.86	4.15	4.15
7	Interest charges	1.90	1.90	1.90
8	Interest on Working Capital	3.73	6.49	3.73
9	Provision for bad debts	--	--	--
10	Return on NFA /Equity	--	--	--
11	Total Revenue Requirement	437.90	494.85	492.09
12	Less: Non- Tariff Income	2.56	2.01	2.01
13	Less: Net surplus in true-up	7.42	7.42	7.42
14	Net Revenue Requirement	427.92	485.43	482.66
15	Less: Revenue from Sale of Power	274.87	291.03	291.03
16	Gross Revenue deficit	152.50	194.40	191.63
17	Revenue Subsidy from Govt.		249.05	249.05
18	Net Revenue surplus		54.65	57.42

5.12 Revenue gap/surplus after true up

As seen from the above the P&ED has not considered Government subsidy of Rs.249.05 Crs received by it as per Schedule-33 of Audited Annual Accounts for FY 2018-19, but shown a gross revenue deficit of Rs.194.40 Crore **which is not a fair**

claim and should have indicated a revenue surplus of Rs.54.65Crs in their ARR filings.

After setting of net gap with that of Government subsidy of Rs.249.05 Crs during FY 2018-19, the P&ED would have a revenue surplus of **Rs.57.42 Crs** during FY 2018-19. As per regulation 13.1(i) of the JERC for M&M (MYT) Regulations, 2014, one third ($\frac{1}{3}^{\text{rd}}$) of the gain amount shall be passed on as a rebate in the tariffs of FY 2020-21.

Accordingly, **Rs.19.14 Crs being one third (1/3rd) of surplus amount of Rs.57.42 Crs resulted in True Up for FY 2018-19, is now being passed on as a rebate in the ARR for FY 2020-21.**

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6 Annual Performance Review for 2019-20

6.1 Back ground

The Commission in its Order dated 22.03.2019 had approved the ARR for FY 2019-20 based on the projected data by the P&ED. Now the P&ED in its review petition for FY 2019-20 has submitted data as per Revised Estimate for FY 2019-20. 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 2019-20 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 31.03.2019

Sl. No.	Consumer Category (FY 2019-20)	No.of Consumers	Connected Load (MW)	Avg. Connected Load (kW)
1(a)	Kutir Jyoti - LT	21,971	4.457	0.2029
1(b)	Domestic - LT	2,00,039	270.416	1.3518
1(c)	Domestic - HT	36	5.557	154.3611
2(a)	Non-Domestic - LT	8,107	22.718	2.8023
2(b)	Non-Domestic - HT	88	9.727	110.5341
3(a)	Commercial - LT	8,107	22.718	2.8023
3(b)	Commercial - HT	88	9.727	110.5341
4	Public Lighting - LT	1,315	0.967	0.7354
5(a)	Irrigation & Agriculture - LT	24	0.04	1.6667
5(b)	Irrigation & Agriculture - HT	0	0	0.0000
6(a)	Public Water Works - LT	11	4.25	386.3636
6(b)	Public Water Works - HT	57	45.579	799.6316
7(a)	Industrial - LT	1,209	10.969	9.0728

Sl. No.	Consumer Category (FY 2019-20)	No.of Consumers	Connected Load (MW)	Avg. Connected Load (kW)
7(b)	Industrial - HT	16	9.406	587.8750
8	Bulk Supply - HT	205	17.484	85.2878
9	Temporary Connection & Theft -			
10	Outside State Sale - UI / Trading			
	TOTAL	2,41,272	434.015	1.7989

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	154 kW	Very High
2	Non-Domestic HT	110 kW	Very High
3	Commercial - HT	110 kW	Very High
3	PWW LT	386 KW	Very High
4	PWW HT	799 KW	Very High
5	Industrial HT	588 KW	Very High
6	Bulk supply HT	85 KW	Very High

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. The Directive to submit a quarterly report on the progress so far achieved shall be submitted starting from 01.07.2019 onwards was also not complied with besides it was reported in the recent filing on compliance that action taken report from field offices is not received. The directive which was issued in 2014 is still not found to be complied and seeking excuses is very much deplorable and **the Commission would be compelled to take some penal action on account of this non-compliance if the same status prevails unabated.**

6.3 Energy sales

The Commission in its Order dated 22.03.2019 had approved energy sales of 426.59 MU for the FY 2019-20. But the P&ED has estimated the energy sales at 407.15 MU

Commission's Analysis

Energy sales approved by the Commission in its Order for FY 2019-20 and those estimated by P&ED as per RE figures with the method explained and now approved by the Commission are furnished in the table below.

Table 6.2: Energy Sales Filed by P&ED Vs Commission approved for FY 2019-20 after review (MU)

Sl. No.	Consumers Category	Approved in T.O. dated 22.03.2019	As per Revised Estimate	Approved now by Commission
	LT Consumers			
1	KJ (Domestic)	3.75	3.53	3.53
2	Domestic	243.58	225.71	225.71
3	Non-Domestic	0.00	26.79	26.79
4	Commercial	41.62	26.79	26.79
5	Public Lighting	2.43	2.81	2.81
6	Agriculture	0.01	0.23	0.23
7	Public Water Works	6.18	4.91	4.91
8	Industrial	2.43	3.58	3.58
	Total LT	300.00	294.35	294.35
	HT Consumers			
9	Domestic	5.72	10.13	10.13
10	Non- Domestic	0.00	5.25	5.25
11	Commercial	11.43	5.25	5.25
12	Agriculture	0.14	0.00	0.00
13	Industrial	12.30	11.49	11.49
14	Public Water Works	39.98	67.10	67.10
15	Bulk Supply	57.02	13.57	13.57
	Total HT	126.59	112.80	112.80
	LT and HT Total	426.59	407.15	407.15

The Commission now approves energy sales at 407.15MU for FY2019-20 after review.

6.4 Distribution Loss

The Commission in its order dated 22.03.2019 had approved distribution loss at 16.52% for FY 2019-20. The P&ED has estimated distribution loss at the same level of 16.52% as approved in tariff order dated 22.03.2019.

Commissions Analysis

For the year 2019-20 the P & ED has furnished distribution loss at 16.52%. But as per detailed calculation the distribution loss works out to 27.29% taking into Consideration of the circle wise inputs projected for each circle in the Format-P2 and the kind of losses sustained in FY 2018-19 as per actuals at 30.11%. Either the same trend may be continued or even at a lower loss levels in the FY 2019-20 shall be preferred for adoption and all of a sudden, the distribution losses cannot drop to 16.52% from the alarming level of 30.11% based on actuals furnished. However, the Commission decides that the distribution losses at 27.29% during FY 2019-20. The Detailed calculation Commission made leading to the above distribution losses is indicated in the Energy Balance and in the energy requirement paras below.

The Commission accordingly approves distribution loss at 27.29% for FY 2019-20 as against 16.52% as estimated by the P&ED.

6.5 Energy Requirement

The details of the energy requirement that was approved by the Commission for FY 2019-20 in its Tariff Order dated 22.03.2019, 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 2019-20 ARR filed Vs Commission approved

Sl. No.	Energy Balance	Approved in T.O. dated 22.03.2019	As per Revised Estimate	Approved Now by Commission
	Energy Requirement			
1	Energy Sales (MU)	426.59	407.15	407.15
2	Distribution Loss (%)	16.52%	16.52%	27.29%

Sl. No.	Energy Balance	Approved in T.O. dated 22.03.2019	As per Revised Estimate	Approved Now by Commission
3	Distribution Loss (MUs)	84.42	80.58	152.85
4	Total Energy Requirement	511.01	487.73	560.00

6.6 Own Generation

The P&ED's own generation energy approved by the Hon'ble Commission for the FY 2019-20 & the estimated own generation filed by the P&ED for the FY 2019-20 is provided in the table below:

Table 6.4: Own Generation Tariff Order Vs. P&ED filing for FY 2019-20 (MU)

Sl. No.	Particulars	Approved in T.O. dated 22.03.2019	As per Revised Estimate	Deviation
1	2	3	4	5
1	Total Generation (Net)	64.85	40.09	-24.76
	Total	64.85	40.09	-24.76

Commission's Analysis

The Commission in its order dated 22.03.2019 had approved own generation at 64.85 MU for FY 2019-20, but based on the data now furnished by P&ED for 2019-20 and the actuals indicated for FY 2018-19 **the Commission accords approval for own generation in FY 2019-20 at 40.09 MU similar to that was projected by P&ED after review.**

6.7 Purchase of Power & Share of allocation in ER & NER stations

P&ED has indicated the allocation of their share in from various Central Generating Stations in Eastern and North eastern Regions and from NEEPCO, TSECL-Baramura and OTPC-Palatana and the proposed units purchase in their ARR filings submission for FY 2019-20.

The power purchase units as approved in the T.O Dt 22.03.2019 for the FY 2019-20 was at 752.43 MUs. The revised estimate for power purchase units for the FY 2019-20 has been arrived at on the basis of actual power purchase for the H1 (1st

half year) of the FY 2019- 20 and actual purchase for H2 (2nd half year) of the FY 2018-19. Accordingly, the power purchase units estimate for the FY 2019-20 is revised at 802.59 MUs before considering the Tuirial HEP Free Power of 16.82 MU and Mizoram State Owned Generation of 40.09 MU.

The estimated power purchase units for FY 2019-20 are provided in the table below:

Table 6.5: Power share allocation & Energy purchases projected by P&ED from ER, NER and other stations for FY 2019-20

SI No	Source	Plant Capacity (MW)	Licensee's Share in %	Licensee's Share in MW	MU Purchased (Ex-Bus)
A	Central Generating Stations				
I	NTPC				
1	Bongaigaon TPS	250.00	5.415	13.54	156.36
2	Farakka STPS	1600.00	0.14	2.24	17.17
3	Kahalgaoon STPS	840.00	0.14	1.18	8.51
4	Talcher STPS	1000.00	0.14	1.40	7.48
	NTPC-Total	3690.00		18.35	189.51
II	NHPC				
1	Loktak HEP	105.00	5.02	5.27	15.68
	NHPC-Total	105.00		5.27	15.68
III	NEEPCO				
1	Kopili HEP	200.00	4.618	9.24	46.71
2	Kopili - II HEP	25.00	6.04	1.51	5.20
3	Khandong HEP	50.00	3.94	1.97	7.59
4	Ranganadi HEP	405.00	5.70	23.09	64.32
5	Doyang HEP	75.00	5.25	3.94	6.49
6	Pare HEP	110.00	5.765	6.34	23.63
7	a) Tuirial HEP	60.00	100.00	60.00	123.37
	b) Free Power units				16.82
8	AGBPP	291.00	5.41	15.74	82.52
9	AGTPP	148.00	6.00	8.88	39.30
	NEEPCO-Total	1364.00		130.70	415.95
IV	TSECL				
1	B'mura - IV	21.00	25.00	5.25	0.86
2	B'mura - V	21.00	25.00	5.25	52.54
	TSECL-Total	42.00		10.50	53.40
V	OTPC				
1	Palatana	726.000	3.03	22.00	144.87
	OTPC-Total	726.00		22.00	144.87
VI	Other Stations/IPPs				

SI No	Source	Plant Capacity (MW)	Licensee's Share in %	Licensee's Share in MW	MU Purchased (Ex-Bus)
1	Power exchange through IEX				0.00
	Others-Total				0.00
B	State generating Stations				
1	All Units	29.35	100.00	29.35	40.09
	State Generating Stations-Total	29.35		29.35	40.09
	GRAND TOTAL	5956.35		216.18	859.50

Commission Analysis:

Based on the estimations made by the P&ED in its review petition for 2019-20 on the power share allocation and purchase of energy in Central generating stations capacity, the commission now considers in detail below by indicating their share of allocations and quantity of energy for FY 2019-20 in the following table:

Table 6.6: Power Purchase Units Approved by Commission for FY 2019-20

(Figures in MWs & MU)

SI No	Station wise Source (FY 2019-20)	Plant Capacity (MW)	Licensee's Share in %	Share (in MW)	Energy in MUs
A	Central Generating Stations				
I	NTPC				
1	Bongaigaon TPS	250.00	5.415	13.54	156.36
2	Farakka STPS	1600.00	0.140	2.24	17.17
3	Kahalgaon STPS	840.00	0.140	1.18	8.51
4	Talcher STPS	1000.00	0.140	1.40	7.48
	NTPC-Total	3690.00		18.35	189.51
II	NHPC				
1	Loktak HEP	105.00	5.020	5.27	15.68
	NHPC-Total	105.00		5.27	15.68
III	NEEPCO				
1	Kopili HEP	200.00	4.618	9.24	40.81
2	Kopili - II HEP	25.00	6.040	1.51	4.54
3	Khandong HEP	50.00	3.940	1.97	6.63
4	Ranganadi HEP	405.00	5.700	23.09	56.20
5	Doyang HEP	75.00	5.250	3.94	5.67
6	Pare HEP	110.00	5.765	6.34	20.64
7	a) Tuirial HEP	60.00	100.000	60.00	107.79

SI No	Station wise Source (FY 2019-20)	Plant Capacity (MW)	Licensee's Share in %	Share (in MW)	Energy in MUs
	b) Free Power Units				16.82
8	AGBPP	291.00	5.410	15.74	72.09
9	AGTPP	148.00	6.000	8.88	34.34
	NEEPCO-Total	1364.00		130.70	365.53
IV	TSECL				
1	B'mura - IV	21.00	25.000	5.25	0.86
2	B'mura - V	21.00	25.000	5.25	40.74
	TSECL-Total	42.00		10.50	41.60
V	OTPC				
1	Palatana	726.000	3.030	22.00	136.75
	OTPC-Total	726.00		22.00	136.75
VI	Other Stations/IPPs				
1	Power exchange through IEX				
	Others-Total				
B	State generating Stations				
1	All Units	29.35	100.000	29.35	40.09
	State Generating Stations-Total	29.35		29.35	40.09
C	UI / Deviation				
	UI / Deviation-Total				
D	RPO Obligation / REC Certificate				0.00
	GRAND TOTAL	5956.35		216.18	789.16

The Commission in its Order dated 22.03.2019 had approved power purchase of 817.28MU which resulted in a surplus energy of 268.79MU after meeting energy sales requirement of LT & HT within the state at 426.59MU.

While the P&ED has estimated power purchase of 859.50MU at an average cost of Rs. 4.895 /kWh for meeting the energy sales requirement of 407.15 MU, this results in surplus of Power of 330.22MU which the P&ED had proposed to sell at an average of Rs.3.586/kWh.

As such, the Commission has considered power purchase from all those now projected by P&ED with suitable revision in the power purchase quantity in respect of those stations whose average cost is costly and thus the total power purchase

quantity approved during FY 2019-20 is limited to **789.16 MU** as against the 859.50MU filed by the P&ED. The breaks up details for the FY 2019-20 are indicated in the above table.

6.8 Energy Balance

The details of energy requirement and availability of power approved by the Commission for FY 2019-20 in its tariff order dated 22.3.2019, estimated by the P&ED in its review petition for FY 2019-20 and now approved by the Commission are furnished in the following Tables:

Table 6.7: Energy Balance for FY 2019-20 as per P&ED in its ARR Submission
(Figures in MU)

Sl. No.	Energy Balance	Approved in T.O. dated 22.03.2019	As per Revised Estimate	Deviation
A	Energy Requirement	(1)	(2)	3 = (2-1)
1	Energy Sales	426.59	407.15	-19.44
2	Distribution Loss (%)	16.52%	16.52%	--
3	Distribution Loss (MUs)	84.42	80.58	-3.84
	Total Energy Requirement (1+3)	511.01	487.73	-23.28
B	Energy Availability			
4	Own Generation	64.85	40.09	-24.76
5	Energy Purchase from ER	33.88	189.51	155.63
6	Less: ER Pool Loss (%)	1.95%	1.95%	---
7	Less: ER Pool Loss (Mus)	0.66	3.70	3.04
8	Net Energy for ER - (5-7)	33.22	185.81	152.59
9	Energy Purchase from NER	711.74	613.08	-98.66
10	Gross Energy handled at NER (8+9)	744.96	798.89	53.93
11	Less: NER Pool Loss (%)	2.85%	2.85%	---
12	Less: NER Pool Loss (Mus)	21.23	22.77	1.54
13	Net Energy at NERLDC (10-12)	723.37	776.13	52.75
14	Free Energy from Tuirial HEP	0.00	16.82	16.82
15	UI / RPO Purchase	7.03	0.00	-7.03
16	Energy Available - (4+13)	795.61	833.04	37.43
17	Less: Outside State - Trading	260.73	330.22	69.49
18	Total Energy Available (16-17)	534.88	502.82	-32.06
19	Less: Intra- State Tr. Loss (%)	3.00%	3.00%	0.00%
20	Less: Intra- State Tr. Loss (MUs)	23.87	15.08	-8.79
21	Net Energy Available	511.01	487.73	-23.28

Sl. No.	Energy Balance	Approved in T.O. dated 22.03.2019	As per Revised Estimate	Deviation
22	Less: Energy requirement at State Periphery	511.01	487.73	-23.28

Commission's Analysis

Upon scrutiny of the **Formats P-2 & P-3** as submitted by the P&ED, it is noted that the distribution losses are totally incomparable with those losses indicated in **Form-F1b** (Energy Balance) for the FY 2019-20. This has cautioned the Commission to delve deeper into this matter to realise that the losses in reality is much more than that is being reported in each year in their ARR Filings. The distribution losses relevant to the FY 2019-20 is derived at 152.85MU as against that of 80.58MU in filing.

This appears to have done with an intension to window dress the weak distribution network that is prevailing. It is also a strong feeling of the Commission that the Outside State Sales quantum is used for the showing excess T&D losses under this head and to undermine the overall losses of the Licensee to have a better picture. The NERLDC losses adopted at 2.85% is also on the higher side on verification with this loss percentage posted in the NERLDC website to be 2.74% only for FY 2018-19. Therefore, this actual loss percentage notified in the NERLDC website is adopted for FY 2019-20 also to reflect the possible realistic position.

In this process, this year the Commission has adopted a step by step procedure that is presently in vogue in real time energy handling and to depict the practical situation close to reality to arrive at the losses

sustained in the process and to deduce Outside State Sales quantity. In this process, Commission had to assumed the transmission losses at 3% of the energy injected at state periphery, since P&ED repeatedly expressed its inability of recording the incoming and outgoing energy at state periphery level.

Table 6.8: Energy Balance for FY 2019-20 as approved by the Commission

Sl.No.	Energy Balance details	2019-20
A	State Grid Energy requirement for Distribution activity	(MU)
1	Retail Sale of energy (LT & HT) **	407.15
2	Distribution Loss (%)	27.29%
3	Distribution Loss (MU) - (4-1)	152.85
4	Energy at Distribution Periphery (Sources - Circlewise input data)	560.00
5	Intra-State Transmission Loss (%) - (Assumed)	3%
6	Total Grid Energy requirement at State periphery (row-4 Grossed Up)	577.32
B	Sources of Energy Availability	(MU)
7	Purchases from Eastern Region (ER)	33.15
8	a) Inter-State Losses on ER Energy (%)	1.95%
	b) Inter-State Losses on ER Energy (MU)	0.65
9	Net ER Energy after Losses (7 - 8b)	32.50
10	Purchases from North Eastern Region (Exl. Tuirial HEP energy)	591.31
11	UI Energy Purchase	0
12	RPO obligation met from Outside the State	-
13	Energy handled at NER grid (9 to 12)	623.81
14	Inter-State Trans. loss in NER (%)	2.74%
	Inter-State Trans. loss in NER (MU)	17.09
15	Net energy available at NERLDC for Mizoram (13-14b)	606.72
16	Energy purchases from Tuirial HEP	107.79
17	Free Power from Tuirial HEP	16.82
18	State Owned Small HEPs Generation exported to Grid	40.09
19	Gross Solar Plants & RTS Metering System energy export to Grid	-
20	Energy export to Grid from Net Metering system of RTS	-
21	Gross energy available at Mizoram from all sources (15 to 20)	771.42
22	Available energy at State Periphery (Row-6)	577.32
22	Energy Surplus (+)/Deficit (-) (21 - 22)	194.10
23	Sale from Energy through Trading/Banking	-
24	Sale of energy at IEX (22-23)	194.10
25	Net Metered gross generation from RTS	0.00
26	Total energy consumption in Discom area (1+25-20)	407.15
**Total Grid energy consumed i.e grid energy imported by the consumers with/without RTS, Solar plants and Hydel Stations.		

Thus, the energy balance resulted in surplus of power at 194.10 MU which the P&ED shall sell through traders or under UI and realise maximum revenue by proper planning in SLDC. The higher surplus of 194.10MU was intentionally considered by the Commission, since the period was almost coming to closure and P&ED must have already made most of their purchases in the style of projection for 2019-20. However, the Commission has already made a directive in this matter upon observing the higher losses quantum in FY 2018-19. The Licensee shall endeavour strictly to comply that said directive in this matter also.

6.9 Fuel Cost

Petitioner's submission

The Commission in its order dated 22.03.2019 had approved Fuel Cost at Rs. 0.01 Crore for FY 2019-20 for DG set generation at Lengpui. The P&ED has now estimated the same fuel cost of Rs. 0.01 Crore without any revision as the plant is used a standby.

Commission's Analysis

The Commission accordingly approves Fuel Cost at Rs. 0.01 Crore for FY 2019-20 after review and it will be linked to the actual costs at the time of its true-up.

6.10 Generation Cost

Petitioner's submission

The Commission in its order dated 22.03.2019 had approved generation cost at Rs.8.93 Crores for FY 2019-20.

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.8.93 Crores is adopted.

Accordingly, the Commission now approves generation cost at Rs.8.93Crores for FY 2019-20 and to review the figures based on actuals after statutory audit of accounts.

6.11 Power Purchase Cost

Petitioner's submission

The Hon'ble Commission in the Tariff Order for the FY 2019-20 had approved a power purchase quantum of 752.43 MUs at a total cost of Rs.296.05 Crores. As submitted above the estimate of power purchase quantum for the FY 2019-20 is proposed to be revised to 802.59 MUs. Accordingly, the power purchase cost is also proposed to be revised. The detail calculation is provided in the Format No. F1(i) & F1a(i).

Further, Power purchase cost for the FY 2019-20 has been arrived at in following manner: -

i. Actual power purchase cost for the H1 of the FY 2019-20 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 2018-19 and source wise average cost of FY 2018-19 escalated at 5.72% 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 2019-20 is 19% **(10% for non-solar & 9% for solar)**. P&ED shall meet the requirement of non-solar RPO from its own hydro generation which is estimated at 40.09 MUs for the FY 2019-20. 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 9.00% has been applied on the base figure of 177.92 MUs. Accordingly, 16,012.97 MWh (16.01 MUs) is computed as the solar RPO for the FY 2019-20. **The rates as determined by CERC in the petition No.02/SM/2017, Dt.30th March 2017 has been considered to arrive at the cost of RPO of Rs.3.84 Crores for solar by the P&ED.**

Table 6.9: Power Purchase Cost for FY 2019-20 projected by P&ED

Sl. No.	Source	Capacity (MW)	Share (%)	Share (MW)	Energy (MU)	Total Cost Crs)	CPU (Rs/kwh)
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Sl. No.	Source	Capacity (MW)	Share (%)	Share (MW)	Energy (MU)	Total Cost Crs)	CPU (Rs/kwh)
A	Central Generating Stations						
I	NTPC						
1	Bongaigaon TPS	250	5.415	13.54	156.36	118.17	7.56
2	Farakka STPS	1600	0.14	2.24	17.17	7.93	4.62
3	Kahalgaoon STPS	840	0.14	1.18	8.51	3.90	4.58
4	Talcher STPS	1000	0.14	1.40	7.48	3.73	4.98
	NTPC-Total	3690		18.35	189.51	133.73	7.06
II	NHPC						
1	Loktak HEP	105	5.02	5.27	15.68	7.23	4.61
	NHPC-Total	105		5.27	15.68	7.23	4.61
III	NEEPCO						
1	Kopili HEP	200	4.618	9.24	46.71	10.09	2.16
2	Kopili - II HEP	25	6.04	1.51	5.20	1.04	2.01
3	Khandong HEP	50	3.94	1.97	7.59	1.88	2.48
4	Ranganadi HEP	405	5.70	23.09	64.32	15.85	2.46
5	Doyang HEP	75	5.25	3.94	6.49	3.47	5.35
6	Pare HEP	110	5.765	6.34	23.63	13.69	5.79
7	Tuirial HEP	60	100.00	60.00	140.19*	72.97	5.91
8	AGBPP	291	5.41	15.74	82.52	43.77	5.30
9	AGTPP	148	6.00	8.88	39.30	22.62	5.75
	NEEPCO-Total	1364		130.70	415.95	185.38	4.64
IV	TSECL						
1	B'mura - IV	21	25	5.25	0.86	0.27	3.08
2	B'mura - V	21	25	5.25	52.54	16.18	3.08
	TTSECL-Total	42		10.50	53.40	16.44	3.08
V	OTPC						
1	Palatana	726	3.03	22.00	144.87	60.76	4.19
	OTPC-Total	726		22.00	144.87	60.76	4.19
B	Own Generation	29.35	100	29.35	40.09		
C	UI / Deviation				0	4.83	
	UI / Deviation-Total				0	4.83	
D	Addl. Supplementary Bills					0.31	
E	REC certificate /RPO Obligation					3.84	
F	GRAND TOTAL	5956.35		216.18	859.50	412.52	4.80

(*) - Free Power of 16.82MU from Tuirial included.

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

**Table 6.10: Power Purchase Cost for FY 2019-20 estimated by P&ED
(Rs. Crs)**

Sl.	Particulars	Approved in T.O. dated	As per Revised	Deviation
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No.		22.03.2019	Estimate	
1	2	3	4	5
1	Power Purchase Cost	296.05	412.52	116.47
	Total	296.05	412.52	116.47

Commissions Analysis

As already discussed in Para-6.7, the power purchase cost of Rs.338.69 Crores including RPO Obligation of Rs.6.17 Crs (for 25.71MU) is approved by the Commission duly adopting the applicable forbearance rate to purchase the required quantum of energy of 789.16MU as detailed in the table below.

Table 6.11: Power Purchase Cost approved by the Commission for the FY 2019-20

Sl. No.	Source	Capacity (MW)	Share (%)	Share (MW)	Energy (MU)	Total Cost (Crs)	CPU (Rs/kwh)
A	Central Generating Stations						
1	Bongaigaon TPS	250	5.415	13.54	156.36	107.38	6.87
2	Farakka STPS	1600	0.14	2.24	17.17	5.65	3.29
3	Kahalgaon STPS	840	0.14	1.18	8.51	2.85	3.35
4	Talcher STPS	1000	0.14	1.40	7.48	2.16	2.88
	NTPC-Total	3690		18.35	189.51	118.04	6.23
II	NHPC						
1	Loktak HEP	105	5.02	5.27	15.68	6.29	4.008
	NHPC-Total	105		5.27	15.68	6.29	4.008
III	NEEPCO						
1	Kopili HEP	200	4.618	9.24	40.81	6.94	1.70
2	Kopili - II HEP	25	6.04	1.51	4.54	0.83	1.84
3	Khandong HEP	50	3.94	1.97	6.63	1.47	2.22
4	Ranganadi HEP	405	5.70	23.09	56.20	14.04	2.50
5	Doyang HEP	75	5.25	3.94	5.67	2.92	5.14
6	Pare HEP	110	5.765	6.34	20.64	12.36	5.99
7	Tuirial HEP	60	100.00	60.00	107.79	50.67	4.07
	Free Power				16.82		
8	AGBPP	291	5.41	15.74	72.09	35.08	4.87
9	AGTPP	148	6.00	8.88	34.34	17.84	5.19
	NEEPCO-Total	1364		130.70	365.53	142.15	3.89
IV	TSECL						
1	B'mura - IV	21	25	5.25	0.86	0.26	3.06
2	B'mura - V	21	25	5.25	40.74	12.49	3.07

Sl. No.	Source	Capacity (MW)	Share (%)	Share (MW)	Energy (MU)	Total Cost (Crs)	CPU (Rs/kwh)
	TTSECL-Total	42		10.50	41.60	12.75	3.07
V	OTPC						
1	Palatana	726	3.03	22.00	136.75	48.16	3.52
	OTPC-Total	726		22.00	136.75	48.16	3.52
B	Own Generation	29.35	100	29.35	40.09	0.00	0
C	UI / Deviation					4.83	
	UI / Deviation-Total						
D	Addl. Supplementary Bills					0.31	
E	REC under RPO Obligation					6.17	2.40
F	GRAND TOTAL	5956.35		156.18	789.17	338.69	4.29

The Commission accordingly approves power purchase cost of Rs.338.69 Crores for FY 2019-20 for purchase of 789.16 MU including own generation of 40.09MU and RPO Obligation of 25.71MU after review, at an average cost of Rs. 4.29/ kWh. RPO obligation is calculated as has been explained by the licensee but had taken into consideration total T&D Losses in calculation, while the licensee had omitted the transmission loss element while arriving at the RPO obligation quantity. **The Licensee shall follow the merit order despatch principles judiciously or limit to their minimum off-take of energy which is costly in each month so as to minimise the power purchase cost and to pass on any such benefit of gains to the consumers and at the same time they are directed to keep the Outside State sales quantity to the least possible level all the time.**

6.12 Inter-state Transmission Charges

The Commission in its order dated 22.03.2019 had approved inter-state transmission charges (PGCIL Charges) at Rs. 44.80 Crore for FY 2019-20. The P&ED in its review petition has revised the amount to be Rs. 35.11 Crs for FY 2019-20.

The Commission accordingly approves inter-state transmission charges (PGCIL charges) at Rs. 35.11 Crores for FY 2019-20 as submitted by P&ED after the review.

6.13 Intra-state Transmission Charges

The Commission in its order dated 22.03.2019 had approved intra-state transmission charges at Rs. 30.87 Crore for FY 2019-20. The P&ED in its review petition too had estimated the same amount at Rs.30.87 Crs towards Intra-state transmission charges for FY 2019-20.

Therefore, the Commission accordingly approves intra-state transmission charges to be at Rs.30.87 Crores for FY 2019-20 after the review.

6.14 O & M Expenses**i. Employee Cost:****Petitioner's submission**

The Commission in its Order dated 22.03.2019 had approved of employee cost approved for the FY 2019-20 at Rs. 51.23 Crores. The revised estimate of employee cost for the FY 2019-20 has been arrived at on the basis of actual employee cost for the H1 (1st half year) of the FY 2019-20 of Rs.102.40 Crores for P&ED. Further, P&ED proposed for new recruitment of the shortage of employee from sanctioned to actuals number of employees. Accordingly, the employee cost estimate for the FY 2019-20 is revised at Rs. 143.36 Crores for only relates to the distribution function. The approved & estimated employee cost for the FY 2019-20 is provided in the table below:

Table 6.12: Employee Cost for FY 2019-20 estimated by P&ED**(Rs. Cr)**

Sl. No.	Particulars	Approved in T.O. dated 22.03.2019	As per Revised Estimate	Deviation
1	2	3	4	5
1	Employee Cost	51.23	143.36	92.13
	Total	51.23	143.36	92.13

Commissions Analysis

The P&ED in its additional information to their ARR filings at one point of time has stated that as the employee cost between distribution, transmission and

generation cannot be segregated as combined annual accounts are maintained. On contrary, in their additional reply dt 5th March 2020 has replied that they have employee cost indicated for FY 2019-20 & FY 2020-21 relates only to Distribution cost only but on verification of the employee's strength considered for that is total employee strength and not for distribution alone. Therefore, the reply given is not reliable and don't stand to logic and contrary to reasoning, hence the content of the reply is discarded. The employee cost incurred during FY 2018-19 was Rs.108.75Cr for entire department as per the audited accounts. While it is also noted that total employee strength projected is varying each year from 2018-19 to 2020-21 is due to Muster roll strength variation. Besides, the salaries split-up amongst Filled-up posts, work-charged and Muster Rolls was not provided separately. Though employee strength came down by 256 Nos in FY2019-20, but the reason for increase in overall cost going up by Rs.34.61Cr left unexplained except indication of escalation rate (31.83%) and on contrary in FY 2020-21 strength of staff projection gone up again by 671 nos over FY 2019-20 but in reality, it has 692 vacant post and relatively the cost too was increased only by Rs.8.20Cr (5.72%) even after considering the fresh recruitment of 671 Muster Roll employees. This escalation appears erratic and no basis or explanation offered by the P&ED and not seems logical to accept.

The break-up of employees as furnished by P&ED in their ARR filing submission is as follows:

Sl.No.	Employee Type	2018-19	2019-20	2020-21
1	Filled up Posts (Regular)	1492	1492	1492
2	Work Charged	455	455	455
3	Muster Rolls	1770	1514	2185
4	Vacant	692	692	692
5	Total posts	4409	4153	4824
6	Projected Employee Cost (Cr)	108.75	143.36	151.56
7	YoY Escalation adopted	--	31.83%	5.72%

The Commission felt it imperative to recalculate and revise it to avoid unnecessary financial burden for the prospective consumers in FY2020-21. So, the Commission has allocated the employee cost in 2018-19 amongst the three broad types of staff in such a way that 55% of the total employee cost is attributed to filled up posts and the

balance expenditure is apportioned amongst Work Charged and Muster Rolls staff in 2:1 ratio in 2018-19 and thereafter the same proportion of expenditure for each type of employee cost is escalated at 8% for FY 2019-20 and 2020-21 respectively while at the same time giving due consideration to the decrease or increase in staff strength occurred in 2019-20 and 2020-21 and phasing of staff recruitment over four quarters.

Thus, the employee cost for the three years period determined & approved by the Commission is as follows:

S.No.	Type of Staff	2018-19	2019-20	2020-21
1	Filled up Posts (Nos)	1492	1492	1492
2	Work Charged (Nos)	455	455	455
3	Muster Rolls (Nos)	1770	1514	2185
4	Total Staff Posts (Nos)	3717	3461	4132
5	Employee cost approved (Rs.Crs)	108.75	115.504	129.887
6	YoY Cost Escalation (%)	--	6.21%	12.45%

The Commission accordingly approves employee expenses at Rs. 115.504 Crore for the FY 2019-20 as against Rs.143.36 Crore estimated by P&ED after review subject to verification with actuals at the time of true up.

ii. Repairs & Maintenance

Petitioner's submission

The value of Repair & Maintenance Expenses approved by the Commission in its tariff order dated 22.03.2019 for the FY 2019-20 is Rs.5.62 Crores. The revised estimate of Repair & Maintenance Expenses for the FY 2019-20 has been arrived at Rs. 8.98 Crores for only relates to the distribution function of P&ED. The approved & estimated Repair & Maintenance Expenses for the FY 2019-20 is provided in the table below:

Table 6.13: Repair & Maintenance Expenses FY 2019-20 estimated by P&ED
(Rs. Cr)

Sl. No.	Particulars	Approved in T.O. dated 22.03.2019	As per Revised Estimate	Deviation
1	2	3	4	5
1	Repair & Maintenance Expenses	5.62	8.98	3.36
	Total	5.62	8.98	3.36

The Commission accordingly approves the R&M expenses at Rs.8.98 Crores for the FY 2019-20 as projected by P&ED and these values will be verified with actuals at the time of true up.

iii. Administration & General Expenses

The value of Administration & General Expenses approved by the Commission in its tariff order dated 22.03.2019 for the FY 2019-20 is Rs. 1.49 Crore. The revised estimate of Administration & General Expenses for the FY 2019-20 has been arrived at on the basis of actual Administration & General Expenses for the H1 (1st half year) of the FY 2019-20 of Rs. 3.69 Crores for P&ED. Accordingly, the Administration & General Expenses estimate for the FY 2019-20 is revised at Rs. 5.17 Crores for only relates to the distribution function. The approved & estimated Administration & General Expenses for the FY 2019-20 is provided in the table below:

Table 6.14: Administration & General Expenses FY 2019-20 estimated by P&ED (Rs. Cr)

Sl. No.	Particulars	Approved in T.O. dated 22.03.2019	As per Revised Estimate	Deviation
1	2	3	4	5
1	Administration & General Expenses	1.49	5.17	3.68
	Total	1.49	5.17	3.68

The Commission accordingly approves Administration and General Expenses at Rs. 5.17 Crore for the FY 2019-20 as estimated by P&ED and these values will be verified with actuals at the time of true up.

iv. O&M Expenses

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

Table 6.15: O&M Expenses approved by the Commission for FY 2019-20 after Review

Sl. No.	Expenses details	Amount (Rs.Crs)
1	Employee Cost	115.504
2	Repair & Maintenance Expenses	8.98
3	Administration & General Expenses	5.17
	Grand Total	129.654

6.15 Depreciation**Petitioner's 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 2019-20 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 2019-20 is also being submitted. Therefore, the GFA & corresponding depreciation for the 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 6.16: Depreciation FY 2019-20 estimated by P&ED

Sl.No.	Particulars	Approved in T.O. dated 22.03.2019	As per Revised Estimate	Deviation
1	2	3	4	5
1	Depreciation	1.98	1.98	0.00
	Total	1.98	1.98	0.00

Commission's Analysis

As per revised estimate for FY 2019-20 and capital investment plan and Capitalization

during FY 2019-20 furnished vide Form No. F2C, the depreciation for FY 2019-20 is worked out as under.

**Table 6.17: Depreciation approved by the Commission for FY 2019-20 after review
(Rs. Cr)**

Sl. No	Particulars	Amount
1	Opening GFA as on 01.04.2019	1243.62
2	Additions during the year FY 2019-20	50.80
3	Closing GFA as on 31.03.2019	1294.42
4	Average GFA	1269.02
5	Average rates of Petition (As per annual accounts 2018-19)	3.366%
6	Depreciation for FY 2019-20	42.715
7	10 % of Depreciation (for entire Department)	4.27

As per the above calculation, though the Commission arrived at the depreciation for entire department as a whole at Rs.4.27Crore in FY 2019-20. Since the licence claimed the depreciation at Rs.1.98 Crores after review, so the same is approved by the Commission for the present and to review it with actuals later at the time of this cost element is trued up.

6.16 Interest & Finance Charges

The interest & finance charges approved for the FY 2019-20 was on the basis of the schedule of loan & repayment and there has been no change in the same as of now. However, the actuals shall be submitted at the time truing-up. The interest & finance charges as approved for the FY 2019-20 are provided in the table below:

**Table 6.18: Interest & Finance charges for FY 2019-20 estimated by P&ED
(Rs.Crs)**

Sl.No.	Particulars	Approved in T.O. dated 22.03.2019	As per Revised Estimate	Deviation
1	2	3	4	5
1	Interest & Finance Charges	1.54	1.54	0.00
	Total	1.54	1.54	0.00

Commission's Analysis

As verified from the format F-3b the interest and finance charges are worked out to

Rs.1.54 Crore for FY 2019-20 as detailed in the table below.

Table 6.19: Interest and Finance Charges approved by the Commission for FY 2019-20

(Rs. Cr)

Particulars	FY 2019-20						
	Gross Loan - Opening (Rs.Crs)	Add: Drawals during 2019-20 (Rs.Crs)	Less: Loan Repaid during 2019-20 (Rs.Crs)	Closing Balance of loan (Rs.Crs)	Average loan (Rs.Crs)	Rate of Interest on loan % (Average)	Interest on loan (Rs.Crs)
LIC Loans	4.00	0.00	1.00	3.00	3.50	8.00%	0.28
Rec loans	0.00	0.00	0.00	0.00	0.00	8.35%	0.00
REC (RGGVY) Loans	11.99	0.00	2.40	9.59	10.79	11.67%	1.26
Total Loan	15.99	0.00	3.40	12.59	14.29		1.54
Weighted average Rate of Interest on Loans %						10.78%	

The Commission accordingly approves Interest & Finance charges at Rs. 1.54 Crore for the FY 2019-20 as estimated by P&ED.

6.17 Interest on Working Capital

Petitioner's Submission

The interest on Working Capital approved for the FY 2019-20 is proposed to be revised. The working capital estimate has been reworked based on the changed determinants. The interest on working capital as approved and the revised estimate for the FY 2019-20 are provided in the table below:

Table 6.19: Interest & Finance charges for FY 2019-20 estimated by P&ED

(Rs.Crs)

Sl.No.	Particulars	Approved in T.O. dated 22.03.2019	As per Revised Estimate	Deviation
1	2	3	4	5
1	Interest on Working Capital	3.76	6.28	2.52
	Total	3.76	6.28	2.52

Commission's Analysis

As per the MYT Regulation 2014, the interest on working capital is a permissible element of ARR expenditure. However, it is observed that P&ED had not obtained any working capital loan during the entire financial year 2019-20 or was there any history of such loans being drawn. The admitting of Interest on working capital is only an additional burden on the consumers and there is no need for allowing this cost element as they are fully dependent/availing funding only from the State government and no other source drawn for day to day routine operations. Hence, no calculation is made afresh for this purpose in FY 2019-20.

The Commission approves Interest on Working Capital amount at Rs.3.76 crs as it was approved earlier for FY 2019-20 as against the P&ED claim of Rs.6.28 Crs. But these will be disallowed from FY2020-21 onwards if short-term loans are not availed during the period adopting the same analogy as that in the case of Return on Equity to off-load the unnecessary burden on Consumers.

6.18 Provision for Bad Debts

The Commission had not considered any Provision for Bad Debts for the FY 2019-20, since P&ED has not submitted the amount written off during FY 2019-20.

6.19 Return on Equity

The Commission had not considered any Return on Equity Capital for the FY 2019-20 as the P&ED is a Government Department.

6.20 Non-tariff Income

The Other Income approved for the FY 2019-20 is Rs. 2.71 Crores. Further, P&ED propose the Other Income of Rs. 2.71 Crores for the FY 2019-20 as same as approved in the Tariff Order dated 22.03.2019. The other income approved & estimated is provided in the table below:

**Table 6.20: Other Incomes for FY 2019-20 estimated by P&ED
(Rs.Crs)**

Sl.No.	Particulars	Approved in T.O.	As per Revised	Deviation
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		dated 22.03.2019	Estimate	
1	2	3	4	5
1	Non-Tariff Income	2.71	2.71	0.00
	Total	2.71	2.71	0.00

The Commission accordingly approves Rs.2.71 Crores towards Non-tariff Income for the FY 2019-20 same as the figure Rs.2.71 Crs estimated by P&ED.

6.21 Revenue from existing tariffs

The P&ED has considered the revised estimate of energy sale as detailed in Table 6.2 above for calculating the estimated revenue from sale of power. The comparison of approved revenue & revised estimate for the FY 2019-20 is provided in the table below:

Table 6.21: Revenue from sale of power with existing tariff projected by P&ED for FY 2019-20

(Rs. Crs)

Sl. No.	Category	Approved in T.O. dated 22.03.2019	As per Revised Estimate	Deviation
	LT Consumers			
1	KJ(Domestic)	1.27	1.28	0.01
2	Domestic	101.14	93.57	-7.58
3	Non- Domestic	4.06	12.56	
4	Commercial	18.29	15.16	-3.13
5	Public Lighting	1.40	1.60	0.20
6	Agriculture	0.00	0.07	0.06
7	Public Water Works	3.66	2.96	-0.70
8	Industrial	1.36	2.40	1.04
	Total LT	131.19	129.60	-10.088
	HT Consumers			
9	Domestic	3.44	5.78	2.34
10	Non- Domestic	1.29	3.28	
11	Commercial	6.50	4.12	-2.38
12	Agriculture	0.05	0.00	-0.05
13	Public Water Works	26.84	42.14	15.30
14	Industrial	7.60	6.69	-0.91
15	Bulk Supply	34.75	9.79	-24.96
	Total HT	80.47	71.79	-10.664
16	Outside State	79.59	118.43	38.84
	Total	291.24	319.82	18.09

(Source Table 1.23 of Petition)

Commission Analysis

Owing to changes noted in all losses (inter-state transmission losses, Intra-State Losses and Distribution losses) on adopting of the prevailing realistic pattern of energy handling being received from various purchase sources such as ER, NER minus Tuirial and separately Tuirial power along with its free power, the practical availability of surplus power has been derived to be 216.16MU as against the projected quantum of 330.22MU. Thus, the revenue from approved Tariffs worked out to Rs. 278.90 Crore including Outside State Sales as detailed in table below.

Table 6.22: Revenue at existing Tariff approved by the Commission for FY 2019-20 after review

Sl. No.	Category	Approved Sales (MU)	Average Revenue (Rs/kWh)	Total Cost (Rs Crore)
A	LT Supply			
1	Kutir Jyoti	3.53	3.63	1.2816
2	Domestic	225.71	4.15	93.5688
3	Non-Domestic	26.79	4.69	12.5568
4	Commercial	26.79	5.66	15.1608
5	Public Lighting	2.81	5.69	1.5984
6	Public water works	4.91	6.03	2.9592
7	Agriculture	0.23	2.82	0.0648
8	Industrial	3.58	6.71	2.4036
	Total LT	294.35	4.40	129.5940
B	HT Supply			
9	Domestic	10.13	5.699	5.7728
10	Non-Domestic	5.25	6.250	3.2813
11	Commercial	5.25	7.841	4.1166
12	Public water works	67.10	6.280	42.1386
13	Agriculture	0.00	0.000	0.00
14	Industrial	11.49	5.815	6.6811
15	Bulk supply	13.57	7.213	9.7877
	Total HT	112.79	6.364	71.7781
	Total LT + HT	407.15	4.946	201.37
16	Sale of Surplus power	216.16	3.587	80.18
	Grand Total	623.31	4.475	281.57

The Commission accordingly approves revenue from existing tariffs at Rs.281.57

Crore for FY 2019-20 including outside State sales revenue also after review.

6.22 Review of ARR.

The Annual Revenue Requirement approved for FY 2019-20 and revised value of Annual Revenue Requirement for FY 2019-20 is provided in the table below:

Table 6.23: Aggregate Revenue Requirement P&ED Vs. approved by the Commission for FY 2019-20 after review

(Rs. Cr)				
Sl. No.	Item of Expense	Approved in T.O. dated 22.03.2019	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	8.93	8.93	8.93
3	Cost of Power Purchase	296.05	412.52	338.69
4	Transmission Charges	44.80	35.11	35.11
5	Intra State Transmission	30.87	30.87	30.87
6	Employee Costs	51.23	143.36	115.504
7	R&M Expenses	5.62	8.98	8.98
8	Administration & General Expenses	1.49	5.17	5.17
9	Depreciation	1.98	1.98	1.98
10	Interest charges	1.54	1.54	1.54
11	Interest on Working Capital	3.76	6.28	3.76
12	Provision for bad debts	0.00	0.00	0.00
13	Return on NFA /Equity	0.00	0.00	0.00
14	Total Revenue Requirement	446.28	654.75	550.54
15	Less: Non- Tariff Income	2.71	2.71	2.71
16	Less: 1/3rd Surplus transferred from FY 2017-18	36.38	36.38	36.38
17	Net Revenue Requirement	407.19	615.66	511.45
18	Less: Revenue from Sale of Power	291.24	319.82	281.57
19	Net Gap	115.95	295.84	229.88

(Source 1.24 of Petition)

As seen from the above, the net ARR for FY 2019-20 works out to Rs. 511.45 Crs with revenue gap of Rs.229.88 Crs as against P&ED estimation of Rs.295.84 Cr after review and subject to the adjustment with Government Revenue Subsidy receivable besides all revenues to be realised actually.

6.23 Govt. Subsidy amount for FY 2019-20

As against the revised gap of Rs.231.41Crore the P&ED shall generate additional revenue by recovering the pending dues on sale of power to the tune of Rs.52.86crs on priority, besides the excess of 2/3rd portion of the 2018-19 amounting to Rs.38.28 Crs surplus shall also be utilised to reduce the revenue gap with the left-out amount after utilising it for repayment of interest on Loans outstanding as on 31.03.2019. The final gap status will be determined after considering the subsidy received from Government at the time of truing up in due course.

7 Aggregate Revenue Requirement (ARR) for FY 2020-21

7.1 Background

P&ED hereby submits its petition for approval of Tariff for the FY 2020-21. This petition is submitted in compliance with the Regulation 5(ii)(d) of MYT Regulations, 2014 read with First Amendment Regulations, 2019. The petitioner is attempting to comply with the various guidelines in the Act and regulations within the limitations of availability of data. P&ED is filing the petition based on the overall frame work of parameters approved by the Hon'ble Commission in the MYT Order. However, P&ED has also proposed revisions in certain determinants of ARR. P&ED has studied the past trends and taken cognizance of other internal and external developments to estimate the likely performance during the FY 2020-21.

Now the P&ED has filed ARR and Tariff petition for 2nd year in 2nd Block of five-year MYT period for FY 2020-21 seeking determination of ARR & retail tariff for FY 2020-21

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 2020-21 and approvals accorded as detailed below:

7.2 Number of consumers and Connected Load

Petitioner's Submission

P&ED has furnished category-wise consumers and their connected load projections for FY 2020-21 as detailed in the table below.

Table: 7.1 Category wise consumers and connected load for FY 2020-21 projected by P&ED

Sl. No.	Category	FY 2020-21 (Projection)		
		Sales (MU)	No. of Consumers	Connected Load (MW)
1	a) Kutir Jyoti - LT	3.70	23,070	4.68
	b) Domestic - LT	237.00	2,03,962	283.937
1	c) Domestic - HT	10.64	37	5.702

Sl. No.	Category	FY 2020-21 (Projection)		
		Sales (MU)	No. of Consumers	Connected Load (MW)
2	a) Non-Domestic - LT	28.13	8,370	23.417
	b) Non-Domestic - HT	5.52	93	10.213
3	a) Commercial - LT	28.13	8,370	23.417
	b) Commercial - HT	5.52	93	10.213
4	Public Lighting - LT	2.95	1,347	1.015
5	a) Irrigation & Agriculture - LT	0.24	25	0.042
	b) Irrigation & Agriculture - HT	0.00	0	0
6	a) Public Water Works - LT	5.15	11	4.463
	b) Public Water Works - HT	70.45	59	47.804
7	a) Industrial - LT	3.76	1,269	11.518
	b) Industrial - HT	12.07	17	9.876
8	Bulk Supply - HT	14.25	215	18.314
9	Temporary Connection & Theft			
10	Outside State Sale - UI / Trading	294.90		
	TOTAL	722.41	2,46,937	454.612

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	154.108 kW	Very High
2	Non-Domestic HT	109.872 kW	Very High
3	Commercial HT	109.8172	Very High
4	PWW LT	405.727 kW	Very High
4	PWW HT	810.2373 kW	Very High
5	Industrial HT	580.9412 kW	Very High
6	Bulk supply (HT)	85.18 kW	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

the inaction and lack of seriousness on the part of the Petitioner with much displeasure. The P & ED, Mizoram is directed to arrange for physical verification of the connections and report compliance in next ARR filing of next year. The Directive issued to submit quarterly report on the progress achieved to be submitted starting from 01.07.2019 onwards has been not complied with, besides it was reported in the recent filing on compliance that action taken report from field offices are not received. The directive which was issued in 2014 is still found to be uncompiled and still seeking excuses is very much deplorable and **the Commission would be compelled to take some penal action on account of this non-compliance, if it prevails unabated.**

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 2018-19 & revised estimate of FY 2019-20. The energy sales for the FY 2020-21 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 2020-21 projected by P&ED

(In MUs)

Sl. No.	Cat ego	Approved in T.O. dt. 12.03.2018	Proposed by P&ED	Deviation
	LT Consumers			
1	Kutir Jyoti	3.00	3.70	0.70
2	Domestic	278.00	237.00	-41.00
3	Non-Domestic	0	28.13	28.13
4	Commercial	35.00	28.13	-6.87
5	Public Lighting	5.00	2.95	-2.05
6	Agriculture	0.02	0.24	0.22
7	Public Water Works	6.00	5.15	-0.85
8	LT Industrial	2.00	3.76	1.76
	Total LT	329.02	309.07	-19.95

Sl. No.	Category	Approved in T.O. dt. 12.03.2018	Proposed by P&ED	Deviation
	HT Consumers			
9	Domestic	5.00	10.64	5.64
10	Non-Domestic		5.52	5.52
11	Commercial	9.00	5.52	-3.48
12	Agriculture	0.30	--	-0.30
13	Public Water Works	53.00	70.45	17.45
14	HT Industrial	11.00	12.07	1.07
15	Bulk Supply	24.00	14.25	-9.75
	Total HT	102.30	118.44	16.14
16	Outside State - Trading	84.06	294.90	210.84
	Total	515.38	722.41	207.03

Commission's Analysis

As verified from the above the P & ED has projected energy sales for FY 2020-21 at 427.51 barring surplus power of 294.90 MU as against 431.32 MU of retail sales approved in MYT Order dated 12.03.2018. The P & ED has submitted that the revised energy sales are projected based on actual energy sales during FY 2018-19 and estimated sales during FY 2019-20 based on revised estimates. The Commission approves retail energy sales at 427.51 MU at the same level preferred by the licensee and the break-up details are tabulated below.

Table 7. 3: Energy sales approved by the Commission FY 2020-21

Sl. No.	Category	Proposed by P&ED	Approved by Commission
	LT Consumers	(MU)	(MU)
1	Kutir Jyoti	3.70	3.70
2	Domestic	237.00	237.00
3	Non-Domestic	28.13	28.13
4	Commercial	28.13	28.13
5	Public Lighting	2.95	2.95
6	Agriculture	0.24	0.24
7	Public Water Works	5.15	5.15
8	LT Industrial	3.76	3.76
	Total LT	309.07	309.07
	HT Consumers		
9	Domestic	10.64	10.64

Sl. No.	Category	Proposed by P&ED	Approved by Commission
10	Non-Domestic	5.52	5.52
11	Commercial	5.52	5.52
12	Agriculture	-	-
13	Public Water Works	70.45	70.45
14	HT Industrial	12.07	12.07
15	Bulk Supply	14.25	14.25
	Total HT	118.44	118.44
	LT & HT Total	427.51	427.51
16	Outside State - Trading	294.90	93.82
	Total	722.41	521.33

The Commission approves retail energy sales during FY 2020-21 at 427.51 MU as projected by the P&ED, Mizoram with the modified Outside State sales quantum at 93.82MU as against 294.90MU.

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 2020-21 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 2020-21 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 2020-21 projected by P&ED

Sl. No.	Particulars	Approved in T.O. dated 12.03.2018	Proposed by P&ED	Deviation
1	2	3	4	5
1	Distribution Loss	18.10%	18.10%	0.00%

Commissions Analysis

As seen from the achievements made in FY 2018-19, P&ED had actually sustained the distribution loss at 30.11% but not the targeted loss at 16.52%. Similarly, in subsequent years also based on their ARR filing submissions the distribution loss levels would be at 27.29% and 26.29% for FY 2019-20 and 2020-21 respectively. No way, would they be in a position to achieve the projected low distribution losses for FY 2019-20 at 16.52% and at 18.10% for FY 2020-21 without rendering best efforts in plugging their flaws and arrest their commercial losses. However, the licensee had not attempted to reason out anywhere in their entire filing as to why the distribution losses would jump up to 18.10% in FY2020-21 while it was assumed at 16.52% in previous year i.e. FY 2019-20. This aspect appears to be beyond comprehension.

In this regard, it is high time that Licensee shall make a dedicated endeavour to immediately take steps to arrest theft and pilferage of energy (Commercial Losses) and lots of unmetered sales are going unaccounted. The Commission, therefore issues the following directive in this regard:

“The P&ED Department shall invariably submit details to the Commission on or before 15th of each month following the month in which the quantum of energy received (input) by each circle and the quantum of energy sold in that relevant month by each circle office separately for each of the twelve (12) months promptly starting from April to March without fail. The information so furnished by the licensee would form the basis to arrive at the distribution losses actually sustained by the P&ED in the entire year for truing-up purpose in future. Besides, the Licensee shall also submit the details of the net quantity of Outside State sales done in each month starting from April to March with a copy of the invoice issued to the party concerned for record.”

However, the Commission approves distribution Loss at 26.29% during FY 2020-21 as against 18.10% projected by P&ED Mizoram with an instruction to adhere to the above directive and submit the data promptly in each month.

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 P&ED filed Vs. Commission approved

Sl. No.	Energy Balance (FY 2020-21)	Approved in T.O. dated 12.03.2018	Proposed by P&ED	Commission Approved
A	Energy Requirement			
1	Energy Sales (MU)	431.32	427.51	427.51
2	Distribution Loss (%)	18.10%	18.10%	26.29%
3	Distribution Loss (MUs)	95.37	94.48	152.49
4	Total Energy Requirement	526.69	521.99	580.00

7.5.1 Sources of Power - Own Generation

Petitioner's submission

The P&ED is having 11 Mini Hydel Stations (MHS) with an installed capacity of 29.35 MW and net generation expected from 7 out of 11 MHS each station wise is indicated as 40.09MU. The installed capacities of one Diesel Generator of capacity of 0.5 MW and one HFO generator of 22.92 MW totalling to 23.42 MW is withdrawn in the filing for FY 2020-21. The Detailed station wise break up of expected net generation of 40.09MU is tabulated below.

Table 7.6: Details of station wise Own generation (FY 2020-21)

Sl. No	Name of Station	Capacity (MW)	Date of COD	Gross Generation (MU)	Net Generation (MU)
I	Hydel				
1	Khawiva	1.05	08.12.1988	4.139	4.098
2	Tuipui	0.50	15.12.1991	1.971	1.951
3	Kau Tlabung	3.00	05.05.2005	11.826	11.708
4	Maicham-I	2.00	05.01.1996	7.884	7.805
5	Maicham-II	3.00	11.11.2009	11.826	11.708
6	Lamsial	0.50	26.08.2008	1.971	1.951
7	Seruli 'B'	12.00	Not Yet Commissioned	0.854	0.769

Sl. No	Name of Station	Capacity (MW)	Date of COD	Gross Generation	Net Generation
	Sub Total	22.05		40.471	40.09

P & ED has furnished own power generation to be at 40.09 MU during FY 2020-21 in their Generation ARR filings.

Commissions Analysis

The Commission in its order dated 12.03.2018 had approved 64.85MU for FY 2020-21. But the P&ED in their additional information it was informed that the own generation for FY 2020-21 would be taken at 53.05 MU, but no supportive argument was provided for such upward revision of net generation from 40.09MU to 53.05MU.

The Commission however approves net generation from state own generating stations at 40.09 MU for FY 2020-21 as against 53.05MU revised in their additional information by P&ED, with a direction to reduce the outside power source purchases from ER & NER stations to the extent of additional generation from own station over and above 40.09MU initially projected so that the cost saving could be passed on to the benefit of the consumers.

7.5.2 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	Station wise Source (FY 2020-21)	Plant Capacity (MW)	Licensee's Share (in %)	Licensee's Share in MW
A	Central Generating Stations			
I	NTPC			
1	Bongaigaon TPS	250.00	5.415	13.54
2	Farakka STPS	1600.00	0.140	2.24
3	Kahalgaon STPS	840.00	0.140	1.18
4	Talcher STPS	1000.00	0.140	1.40

SI No	Station wise Source (FY 2020-21)	Plant Capacity (MW)	Licensee's Share (in %)	Licensee's Share in MW
	NTPC-Total	3690.00		18.35
II	NHPC			
1	Loktak HEP	105.00	5.020	5.27
	NHPC-Total	105.00		5.27
III	NEEPCO			
1	Kopili HEP	200.00	4.618	9.24
2	Kopili - II HEP	25.00	6.040	1.51
3	Khandong HEP	50.00	3.940	1.97
4	Ranganadi HEP	405.00	5.700	23.09
5	Doyang HEP	75.00	5.250	3.94
6	Pare HEP	110.00	5.765	6.34
7	Tuirial HEP	60.00	100.000	60.00
8	AGBPP	291.00	5.410	15.74
9	AGTPP	148.00	6.000	8.88
	NEEPCO-Total	1364.00		130.70
IV	TSECL			
1	B'mura - IV	21.00	25.000	5.25
2	B'mura - V	21.00	25.000	5.25
	TSECL-Total	42.00		10.50
V	OTPC			
1	Palatana	726.00	3.030	22.00
	OTPC-Total	726.00		22.00
VI	Other Stations/IPPs			
1	Power exchange through IEX			
	Others-Total			
B	State generating Stations			
1	All Units	29.35	100.000	29.35
	State Generating Stations-Total	29.35		29.35
C	GRAND TOTAL	5956.35		216.18

(Source: Extract of Form F1)

7.5.3 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.

7.5.4 Energy draws from CGS and other Stations:

P & ED has furnished station wise projection of power purchase including own generation of 40.09MU as detailed in the table below.

Table 7.8: Power Purchase from CGS excl. Owned generation as per P&ED for FY 2020-21

Sl. No	Source	Plant Capacity (MW)	Licensee' share (%)	Licensee's Share (MW)	MU Purchased (ex-bus)
A	Central Generating Stations				
I	NTPC				
1	Bongaigaon TPS	250	5.415	13.54	156.36
2	Farakka STPS	1600	0.14	2.24	17.17
3	Kahalgaoon STPS	840	0.14	1.18	8.51
4	Talcher STPS	1000	0.14	1.40	7.48
	NTPC-Total	3690		18.35	189.51
II	NHPC				
1	Loktak HEP	105	5.02	5.27	15.68
	NHPC-Total	105		5.27	15.68
III	NEEPCO				
1	Kopili HEP	200	4.618	9.24	46.71
2	Kopili - II HEP	25	6.04	1.51	5.20
3	Khandong HEP	50	3.94	1.97	7.59
4	Ranganadi HEP	405	5.70	23.09	64.32
5	Doyang HEP	75	5.25	3.94	6.49
6	Pare HEP	110	5.765	6.34	23.63
7	Tuirial HEP	60	100	60.00	123.37
	Free Power Units				16.82
8	AGBPP	291	5.41	15.74	82.52
9	AGTPP	148	6.00	8.88	39.30
	NEEPCO-Total	1364		130.70	415.95
IV	TSECL				
1	B'mura - IV	21	25	5.25	0.86
2	B'mura - V	21	25	5.25	52.54
	TSECL-Total	42		10.50	53.40
V	OTPC				
1	Palatana	726	3.03	22.00	144.87
	OTPC-Total	726		22.00	144.87
C	Own Generation	29.35	100	29.35	40.09

Sl. No	Source	Plant Capacity (MW)	Licensee' share (%)	Licensee's Share (MW)	MU Purchased (ex-bus)
D	UI / Deviation				
	UI / Deviation-Total				
E	RPO Obligation / REC Certificate				
	GRAND TOTAL	5956.35		216.18	859.50

Commission's Analysis

The Commission in its Order dated 12.03.2018 had approved power purchase of 579.56MU for FY 2020-21 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 84.06MU with distribution loss of 18.10%.

The power purchase during FY 2020-21 as approved by the Commission from all sources works out to be **711.16** MU are detailed in the table below.

Table 7.9: Power purchase quantum approved by the Commission during FY 2020-21

Sl. No	Source	Plant Capacity (MW)	Licensee's Share in %	Licensee's Share in MW	MU Purchased (ex-bus)
A	Central Generating Stations				
I	NTPC				
1	Bongaigaon TPS	250	5.415	13.54	131.36
2	Farakka STPS	1600	0.14	2.24	17.17
3	Kahalgaon STPS	840	0.14	1.18	8.51
4	Talcher STPS	1000	0.14	1.4	7.48
	NTPC-Total	3690		18.35	164.51
II	NHPC				
1	Loktak HEP	105	5.02	5.27	21.68
	NHPC-Total	105		5.27	21.68
III	NEEPCO				
1	Kopili HEP	200	4.618	9.24	50.81
2	Kopili - II HEP	25	6.04	1.51	4.54
3	Khandong HEP	50	3.94	1.97	6.63
4	Ranganadi HEP	405	5.7	23.09	46.20
5	Doyang HEP	75	5.25	3.94	5.67
6	Pare HEP	110		6.34	15.64
7	Tural HEP	60	100.00	60.00	82.79

Sl. No	Source	Plant Capacity (MW)	Licensee's Share in %	Licensee's Share in MW	MU Purchased (ex-bus)
	Tutorial Free Power Units				16.82
8	AGBPP	291	5.41	15.74	57.09
9	AGTPP	148	6.00	8.88	20.34
	NEEPCO-Total	1364		130.70	306.53
IV	TSECL				
1	B'mura - IV	21	25.00	5.25	0.86
2	B'mura - V	21	25.00	5.25	40.74
	TSECL-Total	42		10.50	41.60
V	OTPC				
1	Palatana	726	3.03	22	136.75
	OTPC-Total	726		22	136.75
B	State Generating Stations				
	All Units	29.35	100.00	29.35	40.09
C	UI / Deviation				
	UI / Deviation-Total				
D	RPO Obligation / REC Certificate				
	GRAND TOTAL	5927		216.18	711.16

UI purchase transactions are not considered as they have 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 and to overcome interruption in supply of power with in state. However, the RPO obligation requirement based on the Commission approved power purchases, the RPO obligation certificates procurement in terms of quantity and amount is arrived at in the similar lines as that of the methodology adopted by licence in the ARR filings and the relevant cost components were added in arriving the power purchase cost in FY2020-21.

7.6 Energy Balance:

P & ED has projected the energy balance for FY 2020-21 as detailed in the table below.

Table 7. 10: Energy Balance projected by P & ED for FY 2020-21

Sl. No.	Energy Balance	Approved in T.O. dated 12.03.2018	Proposed by P&ED	Deviation
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Sl. No.	Energy Balance	Approved in T.O. dated 12.03.2018	Proposed by P&ED	Deviation
A	Energy Requirement			
1	Energy Sales (MU)	431.32	427.51	-3.81
2	Distribution Loss (%)	18.10%	18.10%	0.00
3	Distribution Loss (MUs)	95.37	94.48	-0.89
4	Total Energy requirement	526.69	521.99	-4.70
B	Energy Availability			0.00
5	Own Generation (MU)	64.85	40.09	-24.76
6	Energy Purchase from ER (MU)	33.38	189.51	156.13
7	Less: ER Pool Loss (%)	2.11%	1.95%	0.00
8	Less: ER Pool Loss (MUs)	0.71	3.70	2.98
9	Net Energy for ER (MU)	33.17	185.81	152.64
10	Energy Purchase from NER (MU)	507.54	613.08	105.54
11	Sub Total	540.71	798.89	258.18
12	Less: NER Pool Loss (%)	2.60%	2.85%	0.00
13	Less: NER Pool Loss (MUs)	14.06	22.77	8.71
14	Net Energy at NERLDC (MU)	526.65	776.13	249.47
15	Free Energy from Tuirial HEP (MU)	0.00	16.82	16.82
16	UI / RPO Purchase (MU)	38.14	0.00	-38.14
17	Energy Available	629.64	833.04	203.40
18	Less: Outside State – Trading (MU)	84.06	294.90	210.84
19	Total Energy Available (MU)	545.58	538.14	-7.44
20	Less: Intra State Tr. Loss (%)	3.00%	3.00%	0.00
21	Less: Intra State Tr. Loss (MUs)	18.89	16.14	-2.75
22	Net Energy Available (MU)	526.69	521.99	-4.70
23	Less: Energy requirement at State Periphery (MU)	526.69	521.99	-4.70
24	ENERGY SURPLUS/(DEFICIT)	0.00	0.00	-0.01

Commissions' Analysis

Upon scrutiny of the Formats P-2 & P-3 as submitted by the P&ED, it is noted that the distribution losses are totally incomparable with those losses indicated in Form-F1b (Energy Balance) for the FY 2020-21. This has cautioned the Commission to delve deeper in this matter to realise that the losses in reality is much more than that is being reported in each year in their ARR Filings. The distribution loss relevant to the FY 2020-21 is derived as 152.49MU as against that of 94.48MU in filing. This appears to have done with an intension to window dress the weak distribution network that is prevailing. It is also a strong feeling of the Commission

that the Outside State Sales quantum is used as a buffer for the showing excess T&D losses under this head and to undermine the overall losses of the Licensee to have a better picture. In this process, this year the commission had adopted a step by step procedure that is in vogue in energy handling and in order to depict the situation close to reality in practice and to arrive at the losses and the Outside sales quantity after revising the quantum of energy from costly station judiciously. In this process the Commission had to assume the transmission losses to be at 3% of the energy input at state periphery, since P&ED repeatedly expressed its inability of recording the incoming and outgoing energy at state periphery level.

Table-7. 11: Energy Balance Approved by the Commission for FY 2020-21

Sl.No.	Energy Balance details	2020-21
A	State Grid Energy requirement for Distribution activity	(MU)
1	Retail Sale of energy (LT & HT) **	427.51
2	Distribution Loss (%)	26.29%
3	Distribution Loss (MU) - (4-1)	152.49
4	Energy at Distribution Periphery (Sources - Circlewise input data)	580.00
5	Intra-State Transmission Loss (%) - (Assumed)	3%
6	Total Grid Energy requiremet at State periphery (row-4 Grossed Up)	597.94
B	Sources of Energy Availability	(MU)
7	Purchases from Eastern Region (ER)	33.15
8	a) Inter-State Losses on ER Energy (%)	1.95%
	b) Inter-State Losses on ER Energy (MU)	0.65
9	Net ER Energy after Losses (7 - 8b)	32.50
10	Purchases from North Eastern Region (Exl. Tuirial HEP energy)	538.31
11	UI Energy Purchase	0
12	RPO obligation met from Outside the State	-
13	Energy handled at NER grid (9 to 12)	570.81
14	Inter-State Trans. loss in NER (%)	2.74%
	Inter-State Trans. loss in NER (MU)	15.64
15	Net energy available at NERLDC for Mizoram (13-14b)	555.17
16	Energy purchases from Tuirial HEP	82.79
17	Free Power from Tuirial HEP	16.82
18	State Owned Small HEPs Generation exported to Grid	40.09
19	Gross Solar Plants & RTS Metering System energy export to Grid	-
20	Energy export to Grid from Net Metering system of RTS	-
21	Gross energy available at Mizoram from all sources (15 to 20)	694.87
22	Available energy at State Periphery (Row-6)	597.94
22	Energy Surplus (+)/Deficit (-) (21 - 22)	96.93
23	Sale from Energy through Trading/Banking	-

Sl.No.	Energy Balance details	2020-21
24	Sale of energy at IEX (22-23)	96.93
25	Net Metered gross generation from RTS	0.00
26	Total energy consumption in Discom area (1+25-20)	427.51
**Total Grid energy consumed i.e grid energy imported by the consumers with/without RTS, Solar plants and Hydel Stations.		

Thus, the energy balance resulted in surplus of power at 96.93 MU which the P&ED may sell through traders or under UI and realise maximum revenue by proper planning in SLDC. The Commission has already made a directive in this matter upon observing the losses quantum for FY 2018-19. However, as already explained, the NERLDC losses were adopted at 2.74% upon verification with the website instead of the 2.85% adopted by the P&ED in the Energy Balance. The Licensee shall endeavour strictly comply to that said directive in this matter also.

7.7 Aggregate Revenue Requirement

ARR approved by the Commission in its Order dated 12.03.2018 and projected by P&ED for FY 2020-21 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 2020-21

(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	9.18	9.18	0.00
3	Cost of Power Purchase	211.12	431.72	220.60
4	Transmission Charges	52.32	37.11	-15.21
5	Intra State Transmission	33.56	33.56	0.00
6	Employee Costs	54.16	151.56	97.40
7	Repair & Maintenance Expenses	7.94	9.50	1.56
8	Administration & General Expenses	1.57	5.47	3.90

Sl. No.	Item of Expense	Approved in T.O. dated 12.03.2018	Proposed by P&ED	Deviation
9	Depreciation	6.09	2.08	-4.01
10	Interest charges	1.04	1.18	0.14
11	Interest on Working Capital	5.29	6.44	1.15
12	Provision for bad debts	0.00	0.00	0.00
13	Return on NFA /Equity	0.00	0.00	0.00
14	Total Revenue Requirement	382.28	687.81	305.53
15	Less: Non-Tariff Income	2.86	2.86	0.00
16	Net Revenue Requirement	379.42	684.95	305.53
17	Less: Revenue from Sale of Power at existing Tariff		317.84	317.84
18	Net Gap		367.11	-12.31

(Source Table 2.21 of petition)

Commissions Analysis

Item wise expenses and revenue are analysed as under:

7.7.1 Cost of Fuel

Fuel Cost approved by the Commission for FY 2020-21 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 2020-21 filed by the 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	Cost of Fuel	0.01	0.01	0.00
	Total	0.01	0.01	0.00

The Commission approves fuel cost at Rs. 0.01 Crore for FY 2020- 21 as projected by P & ED Mizoram.

7.7.2 Cost of Generation

Cost of Generation for FY 2020-21 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 2020-21 approved by the Commission
(Rs. Cr)

Sl. No.	Particulars	Approved in T.O. dated 12.03.2018	Proposed by P&ED	Commission Approved
1	2	3	4	5
1	Cost of Generation	9.18	9.18	5.38
	Tot	9.18	9.18	5.38

The Commission upon scrutiny of the Generation ARR filed by the P&ED approves cost of Generation at Rs.5.38 Crores for FY 2020-21 for the reasons detailed therein.

7.7.3 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 2020-21. As submitted above the estimate of power purchase quantum for the FY 2020-21 is proposed to be revised to 802.56 MUs. It is submitted that the power purchase cost for the FY 2020-21 has been revised based on the actual purchase for the FY 2018-19 & revised estimate for the FY 2019-20. Accordingly, the power purchase cost is also proposed to be revised. Power purchase cost for the FY 2020-21 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 2020-21 is 20.00% (10.00% for non-solar & 10.00% for solar). P&ED shall meet the requirement of non-solar RPO from its own hydro generation which is estimated at 40.09 MUs for the FY 2020-21. 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 10.00% has been

applied on the base figure of 212.18 MUs. Accordingly, 21,218.33 MWh (21.22 MUs) is computed as the solar RPO for the FY 2020-21. The rate as prescribed by CERC has been considered to arrive at the cost of RPO of Rs.5.09 Crores.

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 FY 2020-21

Sl. No.	Source	Capacity (MW)	Share (%)	Share (MW)	Energy (MU)	Total Cost Crs	CPU (Rs/kwh)
A	Central Generating Stations						
I	NTPC						
1	Bongaigaon TPS	250	5.415	13.54	156.36	124.93	7.99
2	Farakka STPS	1600	0.14	2.24	17.17	8.38	4.88
3	Kahalgaoon STPS	840	0.14	1.18	8.51	4.12	4.84
4	Talcher STPS	1000	0.14	1.40	7.48	3.94	5.27
	NTPC-Total	3690		18.35	189.51	141.38	7.46
II	NHPC						
1	Loktak HEP	105	5.02	5.27	15.68	7.64	4.87
	NHPC-Total	105		5.27	15.68	7.64	4.87
III	NEEPCO						
1	Kopili HEP	200	4.618	9.24	46.71	10.67	2.25
2	Kopili - II HEP	25	6.04	1.51	5.20	1.10	2.12
3	Khandong HEP	50	3.94	1.97	7.59	1.99	2.62
4	Ranganadi HEP	405	5.70	23.09	64.32	16.76	2.61
5	Doyang HEP	75	5.25	3.94	6.49	3.67	5.66
6	Pare HEP	110	5.765	6.34	23.63	14.47	6.13
7	Tuirial HEP	60	100.00	60.00	123.37	77.14	5.50
	Free Power Units				16.82		
8	AGBPP	291	5.41	15.74	82.52	46.27	5.61
9	AGTPP	148	6.00	8.88	39.30	23.91	6.08
	NEEPCO-Total	1364		130.70	415.95	195.99	4.71
IV	TSECL						
1	B'mura - IV	21	25	5.25	0.86	0.28	3.26
2	B'mura - V	21	25	5.25	52.54	17.10	3.26
	TTSECL-Total	42		10.50	53.40	17.38	3.26
V	OTPC						
1	Palatana	726	3.03	22.00	144.87	64.24	4.43
	OTPC-Total	726		22.00	144.87	64.24	4.43
B	Own Generation	29.35	100	29.35	40.09		
C	UI / Deviation				0	0.00	
	UI / Deviation-Total				0	0.00	
D	Addl. Supplementary Bills					0.00	

Sl. No.	Source	Capacity (MW)	Share (%)	Share (MW)	Energy (MU)	Total Cost Crs)	CPU (Rs/kwh)
E	REC certificate /RPO Obligation					5.09	
F	GRAND TOTAL	5956.35		216.18	859.50	431.72	5.02

Commission's analysis

The Commission in its Order dated 12.03.2018 had approved power purchase of 579.56MU which resulted in a surplus energy of 86.21MU after meeting energy sales requirement of LT & HT within the state at 431.32MU.

Now the P&ED has estimated power purchase of 859.50MU at an average cost of Rs. 5.02 /kWh for meeting the Retail sales requirement of 427.51 MU, this results in surplus of Power of about 294.90MU which the P&ED had proposed to sell at an average of Rs.3.586/kWh.

As such the Commission has now considered power purchase from all those now projected by P&ED with suitable revision in quantity from each of those stations whose average cost is costly and thus the total power purchase quantity approved for FY 2020-21 has been limited to **711.17 MU** as against the 859.50MU filed by the P&ED. Accordingly, the Power purchase cost is revised for FY 2020-21 as detailed in the tables below:

Table 7. 16: Power Purchase Cost approved by the Commission for the FY 2020-21

Sl. No.	Source	Capacity (MW)	Share (%)	Share (MW)	Energy (MU)	Total Cost Crs)	CPU (Rs/kwh)
A	Central Generating Stations						
I	NTPC						
1	Bongaigaon TPS	250	5.415	13.54	131.36	92.88	7.07
2	Farakka STPS	1600	0.14	2.24	17.17	5.80	3.38
3	Kahalgaoon STPS	840	0.14	1.18	8.51	2.97	3.50
4	Talcher STPS	1000	0.14	1.40	7.48	2.22	2.97
	NTPC-Total	3690		18.35	164.51	103.88	6.315
II	NHPC						
1	Loktak HEP	105	5.02	5.27	21.68	8.90	4.11
	NHPC-Total	105		5.27	21.68	8.90	4.11
III	NEEPCO						
1	Kopili HEP	200	4.618	9.24	50.81	9.00	1.77
2	Kopili - II HEP	25	6.04	1.51	4.54	0.86	1.90
3	Khandong HEP	50	3.94	1.97	6.63	1.52	2.30

Sl. No.	Source	Capacity (MW)	Share (%)	Share (MW)	Energy (MU)	Total Cost Crs)	CPU (Rs/kwh)
4	Ranganadi HEP	405	5.70	23.09	46.20	12.13	2.62
5	Doyang HEP	75	5.25	3.94	5.67	3.00	5.30
6	Pare HEP	110	5.765	6.34	15.64	9.58	6.13
7	Tuirial HEP	60	100.00	60.00	82.79	40.42	4.06
	Free Power Units				16.82		
8	AGBPP	291	5.41	15.74	57.09	28.65	5.02
9	AGTPP	148	6.00	8.88	20.34	10.89	5.35
	NEEPCO-Total	1364		130.70	306.53	116.06	3.79
IV	TSECL						
1	B'mura - IV	21	25	5.25	0.86	0.27	3.15
2	B'mura - V	21	25	5.25	40.74	12.81	3.15
	TTSECL-Total	42		10.50	41.60	13.09	3.15
V	OTPC						
1	Palatana	726	3.03	22.00	136.75	50.87	3.72
	OTPC-Total	726		22.00	136.75	50.87	3.72
B	Own Generation	29.35	100	29.35	40.09	0.00	
C	UI / Deviation				0	0.00	
	UI / Deviation-Total				0	0.00	
D	Addl. Supplementary Bills					0.90	
E	REC certificate /RPO Obligation					7.93	
F	GRAND TOTAL	5956.35		216.18	711.17	301.63	4.24

The Commission approves Power Purchase Cost of Rs.301.63 Crores for purchase of 711.17 MU during FY 2020-21 including state owned generation of 40.09MU.

7.7.4 Inter-State Transmission Charges

Transmission charges as approved by the Commission for FY 2020-21 in its MYT Order dated 12.03.2018, projected by P&ED Mizoram and now approved by the Commission is furnished in table below.

Table 7.17: Transmission Charges for FY 2020-21 approved by the Commission
(Rs. Cr)

Sl. No.	Particulars	Approved in T.O. dated 12.03.2018	Proposed by P&ED	Commission approved
1	2	3	4	5
1	Transmission Charges	52.32	37.11	37.11
	Total	52.32	37.11	37.11

The Commission approves transmission charges at Rs.37.11 Crore for FY 2020-21 as projected by P&ED.

7.7.5 Intra State Transmission Charges

Intra state transmission charges approved by the Commission for FY 2020-21 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 2020-21

				Rs. Cr
Sl. No.	Particulars	Approved in T.O. dated 12.03.2018	Proposed by P&ED	Commission approved
1	2	3	4	5
1	Intra-State Transmission Charges	33.56	33.56	10.11
	Total	33.56	33.56	10.11

The Commission after scrutiny of the submitted Transmission ARR filing approves Intra state Transmission charges at Rs. 10.11Cr for FY 2020-21.

7.7.6 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

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 2020-21 has been revised based on the actual Employee cost for the FY 2018-19 & revised estimate for the FY 2019-20. The Employee cost for the FY 2020-21 as projected & approved by the Hon'ble Commission is provided in the table below.

Table 7.19: Employee Cost FY 2020-21 filed Vs. Approved

(Rs. Cr)				
Sl. No.	Particulars	Approved in T.O. dt: 12.03.2018	Proposed by P&ED	Commission Approved
1	2	3	4	5
1	Employee Cost	54.16	151.56	133.74
	Total	54.16	151.56	133.74

Commission's Analysis

The P&ED in its additional information to their ARR filings at one point of time has stated that as the employee cost between distribution, transmission and generation cannot be segregated as combined annual accounts are maintained. On contrary, in their additional reply dt 5th March 2020 has replied that the employee cost indicated for FY 2019-20 & FY 2020-21 relates only to Distribution cost. But upon verification, the employee's strength considered for it is by taking total employee strength and not for distribution alone. Therefore, the reply given is not considered reliable, don't stand to logic and contrary to reasoning, hence the content of the reply is therefore discarded. The employee cost incurred during FY 2018-19 was said to be Rs.108.75 Crs for entire department as per the audited accounts. While it is also noted that total employee strength projected is varying each year from 2018-19 to 2020-21 is due to Muster roll strength variation. Besides, the salaries split-up amongst Filled-up posts, work-charged and Muster Rolls was not provided separately. Though employee strength came down by 256 Nos in FY2019-20, but the reason for increase in overall cost going up by Rs.34.61Crs left unexplained except indication of escalation rate (31.83%) and on contrary in FY 2020-21 strength of staff projection gone up again by 671 nos over FY 2019-20 but in reality, it has 692 vacant posts and relatively the cost increase was only by Rs.8.20Crs (5.72%) even after considering the fresh recruitment of 671 Muster Roll employees which can't be relied. This escalation appears erratic and has no basis or explanation offered by the P&ED and not seems logical to accept.

The break-up of employees as furnished by P&ED in their ARR filing submission is as follows:

Sl.No.	Employee Type	2018-19	2019-20	2020-21
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1	Filled up Posts	1492	1492	1492
2	Work Charged	455	455	455
3	Muster Rolls	1770	1514	2185
4	Vacant	692	692	692
5	Total posts	4409	4153	4824
6	Projected Employee Cost (Crs)	108.75	143.36	151.56
7	YoY Escalation adopted	--	31.83%	5.72%

The Commission felt it imperative to recalculate and revise it to avoid unnecessary financial burden for the prospective consumers in FY2020-21. So, the Commission has allocated the employee cost in 2018-19 amongst the three broad types of staff in such a way that 55% of the total employee cost is attributed to filled up posts and the balance expenditure is apportioned amongst Work Charged and Muster Rolls staff in 2:1 ratio in 2018-19 and thereafter the same proportion of expenditure for each type of employee cost is escalated at 8% for FY 2019-20 and 2020-21 respectively while at the same time giving due consideration to the decrease or increase in staff strength occurred in 2019-20 and 2020-21 and phasing of staff recruitment over four quarters.

Thus, the employee cost for the three years as determined & approved by the Commission is shown as follows:

S.No.	Type of Staff	2018-19	2019-20	2020-21
A	Filled up Posts (Nos)	1492	1492	1492
B	Work Charged (Nos)	455	455	455
C	Muster Rolls (Nos)	1770	1514	2185
D	Total staff Posts (Nos)	3717	3461	4824
E	Employee cost approved (Rs.Crs)	108.75	115.504	129.887
F	YoY Emp. Cost escalation (%)	--	6.21%	12.45%

Thus, the Commission has approved Employee expenses for FY 2020-21 at Rs.129.89 Crs as against Rs. 151.56 Crore projected by the petitioner. Since employees to supervise spends some time during its construction in progress, so at least some portion of employee costs are to be capitalization by transferring them to Gross Fixed Assets (GFA) on its completion, which was observed to have been ignored over years.

Therefore, at least 7% of the employee cost amounting to Rs.9.09 Crs is now capitalized in FY2020-21 as a beginning and shall not charge the consumer to that extent. So, the Employee cost allowed after the capitalization is at Rs.120.80crs for FY 2020-21 by the Commission. The amount capitalized will get phased-out over some year as its benefits get spread over the useful life of such asset.

(b) Administrative and General Expenses

Petitioner's submission

It is submitted that the Administration & General Expenses for the FY 2020-21 has been revised based on the actual Administration & General Expenses for the FY 2018-19 & revised estimate for the FY 2019-20. The Administration & General Expenses for the FY 2020-21 as projected & approved earlier by the Hon'ble Commission is provided in the table below.

Table 7.20: Administration & General Expenses FY 2020-21

(Rs. Cr)				
Sl. No.	Particulars	Approved in T.O. dated 12.03.2018	Proposed by P&ED	Deviation
1	2	3	4	5
1	Admin & General Exps	1.57	5.47	3.90
	Total	1.57	5.47	3.90

Commission's Analysis

Since the A&G Expenses now projected for FY 2020-21 was comparable with those of actuals incurred in FY 2018-19 and with that of figure adopted for 2019-20. Hence, the Commission approves A & G expenses at Rs.5.47Cr for FY 2020-21 as projected by the petitioner.

c) Repairs and Maintenance Expenses

It is submitted that the Repair & Maintenance Expenses for the FY 2020-21 has been revised based on the actual Repair & Maintenance Expenses for the FY 2018-19 & revised estimate for the FY 2019-20. The Repair & Maintenance Expenses for the FY 2020-21 as projected & approved by the Hon'ble Commission is provided in the table below.

Table 7.21: R&M Expenses projected by the P&ED for FY 2020-21

(Rs. Cr)

Sl. No.	Particulars	Approved in T.O. dated 12.03.2018	Proposed by P&ED	Deviation
1	2	3	4	5
1	Repair & Maintenance Expenses	7.94	9.50	1.56
	Total	7.94	9.50	1.56

The Commission approves R & M expenses at Rs. 9.45 Crore for FY 2020-21 as against the expenditure projected by the petitioner.

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

Table 7.22: O & M expenses approved by the Commission for FY 2020-21

(Rs. Crores)

Sl. No.	Item of Expense	Approved in T.O. dated 12.03.2018	Proposed by P&ED	Commission Approved
1	2	3	4	5
1	Employee Costs (after capitalisation)	54.16	151.56	120.80
2	Repair & Maintenance Expenses	7.94	9.50	9.45
3	Administration and General Expenses	1.57	5.47	5.47
	Total O&M Expenses abstract	63.67	166.53	135.72

7.7.7 Capital investment

Summary of CWIP from FY 2018-19 to FY 2020-21 as furnished by the P&ED vide Form F2C is provided in the table below.

Table 7.23: CWIP approved by the Commission for FY 2020-21

(Rs.Crs)

Sl. No.	Particulars	2018-19	2019-20	2020-21
A	Opening Balance of CWIP	829.22	996.72	1,081.88
B	Fresh Investment during the year	187.05	135.96	136.13
C	Investment capitalised out of opening CWIP	19.55	50.80	26.05

Sl. No.	Particulars	2018-19	2019-20	2020-21
D	Investment capitalised out of fresh investment plus expenses capitalised			+ 9.09
	Total Capitalisation during the year (C+D)	19.55	50.80	38.35
	Closing Balance of CWIP (A + B - C - D)	996.72	1,081.88	1,179.66

As seen from the format Form-F2b – Financing of Capitalised Works., the P&ED had projected the following amounts of Subsidy/Grants and the same is compared with the investment during the respective three years to note that **there is additional unspent amount by the end of FY2019-20 as Rs.14.93 Crs (30.67-15.74) remaining with the Licensee which can be used for system improvement** and the details are as under:

S.No.	Description	FY 2018-19 Rs.Crs	FY 2019-20 Rs.Crs	FY 2020-21 Rs.Crs
1	Capital Subsidies / Grants	171.31	166.63	136.13
2	CWIP in Progress	187.05	135.96	136.13
3	Excess (+)/ Shortage (-) (2-1)	-15.74	+30.67	nil

7.7.8 Gross Fixed Assets & Depreciation

7.7.8.1 Gross Fixed Assets

Based on the audited annual accounts for FY 2018-19 and summary of CWIP furnished in Para 7.7.7 supra the year wise GFA is furnished in the table below.

Table 7.24: GFA approved by the Commission for FY 2020-21

(Rs. Cr)				
Sl. No	Particulars	2018-19	2019-20	2020-21
1	Opening GFA	1224.07	1243.62	1294.42
2	Additional during the year	19.55	50.80	35.14
3	Closing GFA	1243.62	1294.42	1329.56
4	Avg. GFA	1213.85	1269.02	1311.99

7.7.8.2 Depreciation

Petitioners' submission

The Hon'ble Commission has approved the Depreciation for the FY 2020-21. In this regard it is submitted that the GFA for the FY 2018-19 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 2018-19 is also being submitted. Therefore, the GFA & corresponding depreciation for the FY 2019-20 & FY 2020-21 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 2020-21. The depreciation approved by the Hon'ble Commission and revised depreciation for the FY 2020-21 is provided in the table below:

Table 7.25: Depreciation projected by P&ED for FY 2020-21

(Rs. Cr)

Sl. No.	Particulars	Approved in T.O Dt. 12.03.2018	Proposed by P&ED	Deviation
1	2	3	4	5
1	Depreciation	6.09	2.08	-4.01
	Total	6.09	2.08	-4.01

Commission's Analysis

Since the 10% of the total depreciation as projected in the form-F2a for FY 2020-21 works out to 2.081crs, the Commission also approves the same depreciation projected by P&ED as per their submission. The average depreciation rate as adopted by the licensee for the FY 2020-21 is taken as 1.592% though the average depreciation adopted in audited accounts for FY 2018-19 works out to 3.37%.

7.7.9 Interest and Finance Charges¹³⁴

Petitioner's submission

The Interest & Finance charges for the FY 2020-21 as approved by the Hon'ble Commission & projected by P&ED are provided in the table below.

Table 7.26: Interest and Finance charges projected by P&ED for FY 2020-21

(Rs. Cr)

Sl. No.	Particulars	Approved in T.O. dated 12.03.2018	Proposed by P&ED	Deviation
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1	2	3	4	5
1	Interest & Finance Charges	1.04	1.18	0.14
	Total	1.04	1.18	0.14

Commission's Analysis

The Interest and Finance charges calculation as depicted in Form-F3b is adopted to arrive at the amount admissible and Commission approved amount details are in the table below:

Table 7.27: Interest and Finance charges approved by the Commission

(Rs. Crs)

Particulars	FY 2020-21						
	Opening Gross Loan	Drawals in the year	Repaid in the year	Closing Loan Balance	Average O/s Loan	ROI (%) (Average)	Interest on loan
LIC Loans	3.00	0.00	1.00	2.00	2.50	8.00%	0.20
REC loans	0.00	0.00	0.00	0.00	0.00	8.35%	0.00
REC (RGGVY) Loans	9.59	0.00	2.40	7.19	8.39	11.67%	0.98
Total Loan	12.59	0.00	3.40	9.19	10.89	10.83%	1.18

Accordingly, the Commission approves Interest and Finance charges for FY 2020-21 at Rs.1.18 Crs as projected by P&ED whose average interest rate is 10.83%.

7.7.10 Interest on Working Capital

Petitioner's Submission

The Interest on Working capital for the FY 2020-21 as approved by the Hon'ble Commission and the revised interest on working capital is provided in the table below:

Table 7.28: Interest on working capital FY 2020-21 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

Sl. No	Particulars	Approved in T.O. dated 12.03.2018	Proposed by P&ED	Deviation
1	Interest on Working Capital	5.29	6.44	1.15
	Total	5.29	6.44	1.15

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, 2018.

As per the MYT Regulation 2014, the interest on working capital is a permissible element of ARR expenditure. However, it is observed that P&ED had not obtained any working capital loan during the entire financial year 2019-20 or was there any history of such loans being drawn. The admitting of Interest on working capital is only an additional burden on the consumers and there is no need for allowing this cost element as they are fully dependent/availing funding only from the State government and no other source drawn for day to day routine operations. Hence, no calculation is made afresh for this purpose in FY 2020-21.

The Commission disapproves Interest on Working Capital amount for FY 2020-21 as against Rs.6.44 Crs furnished by P&ED adopting the same analogy as that of Return on Equity to off-load the unnecessary burden on Consumers as there was no instant of utilising the short-term loans from bank for their working capital needs as they were adequately funded by Govt. of Mizoram.

7.7.11 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 2020-21.

7.7.12 Return on Equity**Petitioner's submission**

P & ED has not proposed Return on Equity for FY 2020-21.

Commission's Analysis

Since P & ED is a Government Department Return on Equity is not considered for FY 2020-21.

7.7.13 Non-Tariff Income**Petitioner's submission**

The Other Income for the FY 2020-21 as approved by the Hon'ble Commission is provided and now projected by P&ED is furnished in the table below.

Table 7.29: 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	2.86	2.86	0.00
	Total	2.86	2.86	0.00

Commission's Analysis

The Commission in its MYT Order dated 12.03.2018 had approved power Non- tariff Income at Rs.2.8614 Crs for FY 2020-21 as projected by P&ED. Now it is not correct to reduce the amount without any details. As such already approved amount of Rs. 2.86 Cr is considered for FY 2020-21.

The Commission accordingly approved Non-Tariff Income at Rs.3.50 Cr which is

slightly more than what was projected by P & ED for FY 2020-21, with a direction to increase this income even more as per the circumstances to a required level to levy for recovery of the pending arrears of Rs.52.8575crs as on 31.03.2019 besides, the revenue dues that was billed but not paid by consumers to the tune of Rs.24.45crs is also shown in the sale of power of FY 2018-19 which will not be the real revenue unless cash is realised from them. Under no circumstance, this NTI amount shall be lower to the above as there are huge dues to be recovered. The least amount projected signifies the slackened attitude of the department towards arrear collection. The fund crunch is not experience as there has been financial support from Government in most of the needy time.

In this regard Commission wants to put Rs.5.30 Crs (being 10% of the arrears) as the dues collection amount this year under Internal efficiency gains and the Licensee is obligated to recover the mounting pending dues which is more than 2 months of yearly revenue. In addition, it is observed that, the Licensee is incurring revenue loss due to wrong classification of the consumer category, unauthorised energy consumption not being arrested and theft of energy left unchecked. As per the Audited Balance sheet, the debtors for sale of power at the end of FY2018-19 is Rs.52.86 Crs, while the opening dues are at Rs 39.84 Crs.

7.8 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 7.30: Aggregate Revenue Requirement for FY 2020-21 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	9.18	9.18	0.00
3	Cost of Power Purchase	211.12	431.72	220.60

Sl. No.	Item of Expense	Approved in T.O. dated 12.03.2018	Proposed by P&ED	Deviation
4	Transmission Charges	52.32	37.11	-15.21
5	Intra State Transmission	33.56	33.56	0.00
6	Employee Costs	54.16	151.56	97.40
7	Repair & Maintenance Expenses	7.94	9.50	1.56
8	Administration and General Expenses	1.57	5.47	3.90
9	Depreciation	6.09	2.08	-4.01
10	Interest charges	1.04	1.18	0.14
11	Interest on Working Capital	5.29	6.44	1.15
12	Provision for bad debts	0.00	0.00	0.00
13	Return on NFA /Equity	0.00	0.00	0.00
14	Total Revenue Requirement	382.28	687.81	305.53
15	Less: Non-Tariff Income	2.86	2.86	0.00
16	Net Revenue Requirement	379.42	684.95	305.53
17	Less: Revenue from Sale of Power at existing Tariff		317.84	317.84
18	Net Gap		367.11	-12.31

Commission's Analysis

Based on the approved costs the Aggregate Revenue Requirement for FY 2020-21 is furnished in the table below:

Table 7.31: Aggregate Revenue Requirement approved by the Commission for FY 2020-21
(Rs. Cr)

Sl. No.	Item of Expense	Approved by Commission
1	2	3
1	Cost of Fuel	0.01
2	Cost of Generation	5.38
3	Cost of Power Purchase	301.63
4	Transmission Charges	37.11
5	Intra State Transmission	8.76
6	Employee Costs	120.80
7	Repair & Maintenance Expenses	9.45
8	Administration and General Expenses	5.47
9	Depreciation	2.08

Sl. No.	Item of Expense	Approved by Commission
10	Interest charges	1.18
11	Interest on Working Capital	0.00
12	Provision for bad debts	0.00
13	Return on NFA /Equity	0.00
14	Total Revenue Requirement	491.87
15	1/3 rd surplus true-up of FY 2018-19	19.14
16	Less: Non-Tariff Income	3.50
17	Less: Efficiency Gains (for dues collection)	5.30
18	Net Revenue Requirement	463.93
19	Less: Revenue from Sale of Power at existing Tariff.	212.07
20	Less: Revenue from Outside state sales	34.80
21	Net Gap	217.09

7.9 Revenue from existing Tariff for FY 2020-21

Petitioner's submission

P&ED has calculated the Revenue from sale of power for the FY 2020-21 on the basis of the revised sales with existing tariff. The Revenue from sale of power for the FY 2020-21 is furnished in the Table below.

Table 7.32: Revenue from existing Tariff projected by P&ED for FY 2020-21
(Rs. Cr)

Sl. No.	Category	Revenue at Existing Tariff
A	LT Consumers	
1	Kutir Jyoti	1.35
2	Domestic	98.93
3	Non-Domestic	13.16
4	Commercial	15.89
5	Public Lighting	1.68
6	Agriculture	0.07
7	Public Water Works	3.11
8	LT Industrial	2.52
	Total - LT	136.71
B	HT Consumers	
9	Domestic	6.06
10	Non-Domestic	3.45
11	Commercial	4.32
12	Agriculture	0.00
13	Public Water Works	44.24
14	HT Industrial	7.02
15	Bulk Supply	10.27
	Total HT	75.36
16	Outside State sale	105.77
	Total	317.84

Commission's Analysis

Based on approved energy sales for FY2020-21, revenue from existing tariff is worked out including revenue from sale of surplus energy of 521.33 MU as detailed in the table below.

Table 7.33: Expected Revenue at Existing Tariffs for FY 2020-21

Sl. No.	FY 2020-21	Revenue at existing Tariff		
	Category	Energy	Revenue	CPU
	LT Consumers	(MU)	(Crs)	Rs./kWh
1	Kutir Jyoti	3.70	1.35	3.65
2	Domestic	237.00	98.93	4.17
3	Non-Domestic	28.13	13.16	4.68
4	Commercial	28.13	15.89	5.65
5	Public Lighting	2.95	1.68	5.69
6	Agriculture	0.24	0.07	2.92
7	Public Water Works	5.15	3.11	6.04
8	LT Industrial	3.76	2.52	6.70
	Total LT	309.06	136.71	4.42
	HT Consumers			
9	Domestic	10.64	6.06	5.70
10	Non-Domestic	5.52	3.45	6.25
11	Commercial	5.52	4.32	7.83
12	Agriculture	0.00	0	0.00
13	Public Water Works	70.45	44.24	6.28
14	HT Industrial	12.07	7.02	5.82
15	Bulk Supply	14.25	10.27	7.21
	Total HT	118.45	75.36	6.36
	Total LT & HT	427.51	212.07	4.96
16	Outside State - Trading	96.93	34.80	3.59
	Total	524.44	246.87	4.71

Note: Detailed calculation for revenue at existing tariffs is given in Annexure – III

7.10 Revenue Gap

Petitioner's Submission:

The revenue gap and the average tariff hike proposed are presented in the table below:

Table 7.34: Impact of Tariff projected by P&ED

Sl. No.	Particulars	Units	FY 2020-21	
			Existing	Proposed
1	ARR	Rs.in Crs	684.95	684.95
2	Revenue from revised tariff	Rs.in Crs	212.07	401.97
3	Revenue from sale of power outside the state	Rs.in Crs	105.77	105.77
4	Total Revenue	Rs.in Crs	317.84	507.74
5	Gap (1 – 2 - 3)	Rs.in Crs	367.11	177.21
6	Sales within State	MU	427.51	427.51
7	Sale of power outside the state	MU	294.90	294.90
8	Total Sales (6+7)	MU	722.41	722.41
9	Average Cost of Supply within state	Rs./kWh	13.55	13.55
10	Average Revenue (2/6)	Rs./kWh	4.96	9.40
11	Pure Gap (9-10)	Rs./kWh	8.59	4.15
12	Average Hike in Tariff	Rs./kWh		4.44
13	Hike in Tariff	%		89.52

Hence, it is submitted that the average tariff required to recover the gap attributable to FY 2020-21 is Rs.8.59/kWh but keeping in view the resultant burden on the consumers, the proposed hike has been restricted to Rs.4.44/kWh.

Commission's Analysis:

The Commission has deduced the following values and revised the existing tariffs for the FY 2020-21 and the results are indicated below:

Table 7.35: Revenue Gap for FY 2020-21 as approved by the Commission

Sl. No.	Particulars	Units	Existing Tariff	Post Revision
1	Gross Aggregate Revenue Requirement	Rs. Crs	463.93	463.93
2	Revenue from Outside state sale	Rs. Crs	34.80	34.80
3	Net ARR (1 - 2)	Rs. Crs	429.13	429.13
4	Revenue from tariffs	Rs. Crs	212.07	268.46
5	Revenue Gap (3 – 4)	Rs. Crs	217.06	160.67
6	Tariff subsidy from Govt.	Rs. Crs	160.67	160.70
7	Unmet Revenue Gap (5 – 6)	Rs. Crs	56.39	0.00
8	Retail Sales within State	MUs	427.51	427.51
9	Outside State power Sales	MUs	96.93	96.93
10	Total Sales all Sources (8 + 9)	MUs	524.44	524.44

Sl. No.	Particulars	Units	Existing Tariff	Post Revision
11	Average Cost of Supply within state (3/8)	Rs. /kWh	10.04	10.04
12	Average Revenue (4/8)	Rs./kWh	4.96	6.28
13	Pure Gap (11-12)	Rs./ kWh	5.08	3.76
14	Average Hike in Tariff - (7/8)	Rs./ kWh	1.32	0
15	Hike in Tariff (7/4)	%	26.59%	0%

7.11 Recovery of Revenue Gap for FY 2020-21

As seen from the Para 7.10 supra the revenue gap works out to Rs.217.09 Cr as against Rs.367.11Cr indicated by the P&ED which is about 63.38% of Net ARR for FY 2020-21. 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 89.52% 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 26.59% as against the proposed escalation 89.52% by the P&ED.

Accordingly, the revenue from approved tariff works to be Rs.268.46 crs as detailed in the table below.

Table 7.36: Revenue from revised & approved tariffs of FY 2020-21

Sl.No.	FY 2020-21 Category	Revised revenue Approved by Commission		
		Energy	Revenue	CPU
	LT Consumers	(MU)	(Rs./Crs)	Rs./kWh
1	Kutir Jyoti	3.70	1.49	4.01
2	Domestic	237.00	107.18	4.52
3	Non-Domestic	28.13	14.26	5.07
4	Commercial	28.13	17.08	6.07

	FY 2020-21	Revised revenue Approved by Commission		
Sl.No.	Category	Energy	Revenue	CPU
5	Public Lighting	2.95	3.05	10.33
6	Agriculture	0.24	0.07	3.00
7	Public Water Works	5.15	5.58	10.84
8	LT Industrial	3.76	2.85	7.58
	Total LT	309.06	151.56	4.90
	HT Consumers	(MU)	(Crs)	Rs./kWh
9	Domestic	10.64	6.41	6.02
10	Non-Domestic	5.52	3.70	6.70
11	Commercial	5.52	4.64	8.42
12	Agriculture	0.00	0.00	0.00
13	Public Water Works	70.45	82.45	11.70
14	HT Industrial	12.07	8.16	6.76
15	Bulk Supply	14.25	11.54	8.10
	Total HT	118.45	116.90	9.87
	Total LT & HT	427.51	268.46	6.28
16	Outside State - Trading	96.93	34.80	3.59
	Total	524.44	303.26	5.78

Note: Detailed calculation is given in Annexure – IV

With the proposed revision in tariff the P & ED will be generating additional revenue to the tune of Rs.56.39 Crs as against the projected figure of Rs. 189.90 Cr by P&ED. Thereby the net revenue gap is reduced to 160.67 Crs which is to be covered from Govt. subsidy. The Commission, in the process of upward revision of tariff, the requirement of Subsidy burden of the Government is reduced by **Rs.16.54 Crs (i.e.,177.21crs-160.67crs)**. At the same time, as strongly desired by the general public in the conducted Public Hearing, the Government owned category services like Public Lighting, Public Water Works under LT and HT categories were not apportioned with any subsidy amount, instead they were charged at a rate higher than average cost of supply (at Rs.10.04/kWh) to them to have some cross subsidy from them. Thereby, the revenue to be collected from categories namely Public Lighting Rs.0.09Crs, Public Water Works (LT) Rs.0.41Crs and Public Water Works (HT) Rs.11.73 Crs is more than the Average Cost of supply. In all the amount additionally

payable by these three categories would be Rs.12.23 Crs which is **still lesser by Rs.4.31 crs** than the saving in subsidy amount of Rs.16.54Crs.

7.12 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.160.67 Crores is arrived at by the Commission indicated at Para 7.11 supra, shall be met from Government subsidy/ support of Rs. 177.21 Crore as against projected by P&ED.

The ARR & Tariff Petition for FY 2020-21 was filed by the P&E Department with prior approval of the State Government. The Licensee, in their submitted Tariff Petition, had proposed a tariff hike of 89.52% over the prevailing tariffs of FY 2019-20 resulting in a revenue gap amounting to Rs.367.11 Crs which needs to be absorbed only by way of subsidy from the State Government of Mizoram to the tune of Rs.177.21 Crs.

To achieve the objective of year on year tariffs progressively to reflect 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 for 2020-21 to the extent of Rs.160.67 crore (Rupees One hundred and sixty crores and sixty-seven lakhs only) for FY 2020-21 upon revising the prevailing tariffs of FY 2019-20 suitably at an average rate of increase at **26.59% (Twenty-six-point five nine percent)** only in order not to cause much burden to the consumers unnecessarily in FY 2020-21.

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 subsidised Tariff in Table-8.2 (Detailed Revenue calculation is given at Annexure-IV). The State Government should release the above stated subsidy amount in Twelve (12) equal monthly instalments amounting to Rs.1338.92 lakhs (Rupees Thirteen hundred and thirty-eight lakhs and ninety-two thousand only) in each month in advance. However, in the event of non-receipt of subsidy in any month from the Government, the licensee can adopt the applicable full cost tariff (FCT) indicated at Table 8.3 while issuing the monthly energy bill for that month detailed calculation is given at **Annexure-V**. A brief summary is tabulated below for reference.

Table 7.37: Estimated Revenue for FY 2020-21 based on Full Cost Tariff

Sl. No	Category	Sales (MU)	Revenue (Crs)	CPU Rs./kWh
A	LT Category			
1	KJ(Domestic)	3.70	2.87	7.75
2	Domestic (LT)	237.00	210.86	8.90
3	Non-Domestic	28.13	27.81	9.88
4	Commercial	28.13	33.07	11.76
5	Public Lighting	2.95	3.19	10.83
6	PWW- LT	5.15	5.89	11.44
7	Agriculture LT	0.24	0.21	8.42
8	LT Industrial	3.76	4.56	12.14
	LT Total	309.06	288.46	9.33
B	HT Category			
1	Domestic - HT	10.64	10.15	9.54
2	Non-Domestic - HT	5.52	6.53	11.83
3	Commercial - HT	5.52	7.66	13.88
4	Agriculture HT	0	0	0.00
5	PWW- HT	70.45	84.80	12.04
6	HT Industrial	12.07	14.53	12.04
7	Bulk Supply	14.25	17.00	11.93
	HT Total	118.45	140.67	11.88
	LT & HT Total	427.51	429.13	10.04
8	Outside State - Trading	96.93	34.80	3.59
	Total	524.44	463.93	8.85

There could be a situation, where the outstanding monthly subsidy due was released by the government after passage of much time and thereby if consumers were billed at full cost tariffs in any such relevant month or months. Given the situation, the entire excess amount so charged to consumer 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 receipt of such subsidy relating to the past month/months. If the rebate amount is exceeding the monthly bill amount to be so adjusted, then such excess amount may be carried forward and be adjusted in the following monthly bill/bills issued to the consumer until full settlement of such dues is fully 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 7.38: 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	684.95	463.93
2	Sale of surplus power	Rs. Cr	105.77	34.80
3	Net ARR within the state (1-2)	Rs. Cr	579.18	429.13
4	Govt. subsidy/ Support	Rs. Cr	177.21	160.67
5	Net ARR after Govt. subsidy (3-4)	Rs. Cr	401.97	268.46
6	Energy sale within the state	MU	427.51	427.51
7	Average Cost of Supply (3/6)	Rs/KWH	13.55	10.04
8	Avg. Revn. realisation (If subsidy is paid) - (5/6)	Rs/KWH	9.40	6.28
9	Avg. per unit Subsidy (7-8)	Rs/kWh	4.15	3.76

8 Tariff Principles and Design

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 had introduced the MYT Regime in the State from 2015-16 onwards.

The National Tariff Policy of 2006 mandate that 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. But, the P&ED is still to 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 loss levels noticed were very high at the range of 30% in 2018-19 and had projected slight improvement in FY 2019-20 and 2020-21 and same needs to be monitored. 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 fixed are within \pm 20% of the average cost of supply except in the case of government category services like Public Lighting and Public Water Services under LT&HT at the expressed strong opinions of the general public in the Public Hearings conducted. 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 2020-21. 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 last year ARR and Tariff Petition of FY 2019-20, P&ED has proposed the

changes in the existing categories of consumers and the same is continued in this year also. The existing non-domestic/commercial category is made 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 and religious offices.

Tariff Rates proposed by P&ED:

- a) Fixed charge : Rs 65.00 per month per kW of contracted load.
- b) Energy charge (on monthly consumption)
 - i) First 150 kWh : @ Rs 7.95 per kWh.
 - ii) Above 150 kWh : @ Rs 8.35 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 proposed by P&ED:

- a) Fixed charge : Rs 80.00 per month per kW of contracted load.
- b) Energy charge (on monthly consumption)
 - i) First 150 kWh : @ Rs 10.15 per kWh.
 - ii) Above 150 kWh : @ Rs 11.15 per kWh.

The Commission considers in retaining the existing/proposed 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 2020-21 has proposed revision to the prevailing two-part retail supply tariffs of FY 2019-20 to various categories of consumers to earn additional revenue of Rs. 189.90 Crore to meet the huge revenue gap partially.

The P&ED has proposed tariff revision of both energy charges and Fixed Charges,

which were in existence since 1.4.2019 at an overall tariff hike of 89.52% over the existing charges.

The summary of the tariff proposal by P&ED for FY 2020-21 is furnished in table below:

Table 8.1: Existing v/s Proposed Tariff for FY 2020-21

Sl. No.	Type of installation	Existing Charges		Proposed Charges	
		Energy (Rs./Month)	Fixed Charges (in Rs.)	Energy (Rs./Month)	Fixed Charges (in Rs.)
		A	B	A	B
1	Kutir Jyothi				
i)	First 20 kWh	2.10/kWh	20/Connection	3.15/kWh	30/Connection
ii)	Balance above 20 kWh	3.00/kWh	20/Connection	4.25/kWh	30/Connection
2	Domestic				
A	LT				
i)	First 100 kWh	3.10/kWh	50/Contracted Load in kW	6.40/kWh	60/Contracted Load in kW
ii)	Next 100 kWh	4.60/kWh	50/Contracted Load in kW	7.40/kWh	60/Contracted Load in kW
iii)	Balance above 200 kWh	5.10/kWh	50/Contracted Load in kW	8.40/kWh	60/Contracted Load in kW
B	HT	4.80/kVAh	50/Billing Demand in kVA	9.40/kVAh	60/Billing Demand in kVA
3	Non-Domestic				
A	LT				
i)	First 150 kWh	3.90/kWh	55/Contracted Load in kW	7.95/kWh	65/Contracted Load in kW
iii)	Balance above 150 kWh	4.30/kWh	55/Contracted Load in kW	8.35/kWh	65/Contracted Load in kW
B	HT	4.40/kVAh	55/Billing Demand in kVA	7.70/kVAh	65/Billing Demand in kVA
4	Commercial				
A	LT				
i)	First 150 kWh	4.35/kWh	70/Contracted Load in kW	10.15/kWh	80/Contracted Load in kW
iii)	Balance above 150 kWh	5.40/kWh	70/Contracted Load in kW	11.15/kWh	80/Contracted Load in kW
B	HT	5.50/kVAh	70/Billing Demand in kVA	9.80/kVAh	80/Billing Demand in kVA
5	Public Lighting	5.40/kWh	70/Contracted Load in kW	13.20/kWh	80/Contracted Load in kW
6	Irrigation & Agriculture				
A	LT	2.70/kWh	50/Contracted	4.65/kWh	50/Contracted

Sl. No.	Type of installation	Existing Charges		Proposed Charges	
		Energy (Rs./Month)	Fixed Charges (in Rs.)	Energy (Rs./Month)	Fixed Charges (in Rs.)
			Load in kW		Load in kW
B	HT	2.60/kVAh	50/Billing Demand in kVA	4.55/kVAh	50/Billing Demand in kVA
7	Public Water Works				
A	LT	5.20/kWh	80/Contracted Load in kW	12.60/kWh	90/Contracted Load in kW
B	HT	5.00/kVAh	80/Billing Demand in kVA	11.45/kVAh	90/Billing Demand in kVA
8	Industrial				
A	Low Tension (LT)				
i)	First 400 kWh	4.10/kWh	70/Contracted Load in kW	8.35/kWh	85/Contracted Load in Kw
ii)	Balance above 400 kWh	4.80/kWh	70/Contracted Load in kW	9.05/kWh	85/Contracted Load in Kw
B	High Tension (HT)	4.55/kVAh	70/Billing Demand in kVA	9.55/kVAh	85/Billing Demand in KVA
9	Bulk Supply	5.10/kVAh	90/Billing Demand in kVA	8.85/kVAh	100/Billing Demand in KVA

8.2.3 Tariffs Approved by the Commission

(a) Approved Subsidised Tariff for FY 2020-21

The Commission worked out the average rate to be Rs. 4.96/kWh on adopting the existing tariff of FY 2019-20 for the FY 2020-21 on the basis of increased number of consumers and the 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. 217.09 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 26.59% as against 89.52% hike proposed by P&ED detailed below:

Table 8.2: Category wise subsidised Tariff approved by the Commission for FY 2020-21

Sl. No.	Type of installation	Existing Tariff		Approved Tariff	
		Energy Charges	Fixed Charges	Energy Charges	Fixed Charges

Sl. No.	Type of installation	Existing Tariff		Approved Tariff	
		Energy Charges	Fixed Charges	Energy Charges	Fixed Charges
		A	B	A	B
1	Kutir Jyothi (KJ)				
i)	First 20 kWh	2.10/kWh	20/Connection	2.10/kWh	25/Connection
ii)	Balance >20 kWh	3.00/kWh	20/Connection	3.00/kWh	25/Connection
2	Domestic				
A	Low Tension (LT)				
i)	First 100 kWh	3.10/kWh	50/Contracted Load in kW	3.30/kWh	50/Contracted Load in kW
ii)	Next 100 kWh	3.60/kWh	50/Contracted Load in kW	4.80/kWh	50/Contracted Load in kW
iii)	Balance > 200 kWh	5.10/kWh	50/Contracted Load in kW	5.30/kWh	50/Contracted Load in kW
B	High Tension (HT)	4.80/kVAh	50/Billing Demand in kVA	5.10/kVAh	50/Billing Demand in kVA
3	Non-Domestic				
A	Low Tension (LT)				
i)	First 150 kWh	3.90/kWh	55/Contracted Load in kW	4.30/kWh	60/Contracted Load in kW
iii)	Balance > 150 kWh	4.30/kWh	55/Contracted Load in kW	4.60/kWh	60/Contracted Load in kW
B	High Tension (HT)	4.40/kVAh	55/Billing Demand in kVA	4.70/kVAh	60/Billing Demand in kVA
4	Commercial				
A	Low Tension (LT)				
i)	First 150 kWh	4.35/kWh	70/Contracted Load in kW	4.70/kWh	80/Contracted Load in kW
iii)	Balance > 150 kWh	5.40/kWh	70/Contracted Load in kW	5.70/kWh	80/Contracted Load in kW
B	High Tension (HT)	5.50/kVAh	70/Billing Demand in kVA	5.80/kVAh	80/Billing Demand in kVA
5	Public Lighting	5.40/kWh	65/Contracted Load in kW	10.00/kWh	80/Contracted Load in kW
6	Irrigation & Agriculture				
A	Low Tension (LT)	2.70/kWh	50/Contracted Load in kW	2.90/kWh	50/Contracted Load in kW
B	High Tension (HT)	2.60/kVAh	50/Billing Demand in kVA	2.80/kVAh	50/Billing Demand in kVA
7	Public Water Works				
A	Low Tension (LT)	5.20/kWh	80/Contracted Load in kW	9.90/kWh	90/Contracted Load in kW
B	High Tension (HT)	5.00/kVAh	80/Billing Demand in kVA	9.80/kVAh	90/Billing Demand in kVA
8	Industrial				

Sl. No.	Type of installation	Existing Tariff		Approved Tariff	
		Energy Charges	Fixed Charges	Energy Charges	Fixed Charges
A	Low Tension (LT)				
i)	First 400 kWh	4.10/kWh	70/Contracted Load in kW	4.60/kWh	80/Contracted Load in Kw
ii)	Balance > 400 kWh	4.80/kWh	70/Contracted Load in kW	5.30/kWh	80/Contracted Load in Kw
B	High Tension (HT)	4.55/kVAh	70/Billing Demand in kVA	5.30/kVAh	80/Billing Demand in KVA
9	Bulk Supply	5.10/kVAh	90/Billing Demand in kVA	5.90/kVAh	90/Billing Demand in KVA

*** Fixed charge is at per kW of Contracted Load in LT supply except KJ and per kVA of Billing Demand in HT supply, Energy charge is at per kWh in LT supply and per kVAh in HT supply and LT high value services ought to have 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 2020-21, the Commission also works out the average cost of supply at the rate of Rs.6.28/kWh. In the event of non-receipt of subsidy in advance in any month from the State Government, the Commission considers to make full cost tariff for charging the consumer is tabulated below:

Table 8.3: Category wise full cost Tariff (i.e., without subsidy) approved by the Commission for FY 2020-21

Sl. No.	Consumer Category	Approved Full Cost Tariff (FCT)	
		Energy Charges (Rs/month.)	Fixed Charges (Rs.)
1	Kutir Jyothi		
i)	First 20 kWh	5.50/kWh	30/Connection
ii)	Balance above 20 kWh	5.60/kWh	30/Connection
2	Domestic		
A	Low Tension		
i)	First 100 kWh	8.00/kWh	60/Contracted Load in kW
ii)	Next 100 kWh	8.10/kWh	60/Contracted Load in kW

Sl. No.	Consumer Category	Approved Full Cost Tariff (FCT)	
		Energy Charges (Rs/month.)	Fixed Charges (Rs.)
iii)	Balance above 200 kWh	8.20/kWh	60/Contracted Load in kW
B	High Tension	8.20/kVAh	60/Billing Demand in kVA
3	Non-Domestic		
A	Low Tension		
i)	First 150 kWh	9.15/kWh	65/Contracted Load in kW
iii)	Balance above 150 kWh	9.30/kWh	65/Contracted Load in kW
B	High Tension	9.20/kVAh	65/Billing Demand in kVA
4	Commercial		
A	Low Tension		
i)	First 150 kWh	10.90/kWh	80/Contracted Load in kW
iii)	Balance above 150 kWh	11.00/kWh	80/Contracted Load in kW
B	High Tension	10.50/kVAh	90/Billing Demand in kVA
5	Public Lighting	10.50/kWh	80/Contracted Load in kW
6	Irrigation & Agriculture		
A	Low Tension	8.30/kWh	50/Contracted Load in kW
B	High Tension	8.90/kVAh	50/Billing Demand in kVA
7	Public Water Works		
A	Low Tension	10.50/kWh	90/Contracted Load in kW
B	High Tension	10.10/kVAh	90/Billing Demand in kVA
8	Industrial		
A	Low Tension		
i)	First 400 kWh	9.00/kWh	85/Contracted Load in kW
ii)	Balance above 400 kWh	9.25/kWh	85/Contracted Load in kW
B	High Tension	10.00/kVAh	85/Billing Demand in KVA
9	Bulk Supply	9.35/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 2020-21 by P&ED
(Rs. Cr)

Sl. No.	Particulars	FY 2020-21	FY 2020-21
		Total	Wheeling
1	2	3	4
1	Cost of Power Purchase	431.72	0.00
2	Cost of Generation	9.18	0.00
3	Cost of Fuel	0.01	0.00
4	Employee Cost	151.56	90.94
5	Administration & General Expenses	5.47	2.74
6	Repair & Maintenance Expenses	9.50	8.55
7	Transmission charges	37.11	0.00
8	Intra- state Transmission Charges	33.56	0.00
9	Interest & Finance Charges	1.18	1.06
10	Interest on Working Capital	6.44	0.64
11	Return on Equity	0.00	0.00
12	Provision for Bad Debt	0.00	0.00
13	Depreciation	2.08	1.87
14	Revenue Requirement	687.81	105.80
15	Non-Tariff Income	2.86	0.29
16	Net Revenue Requirement	684.95	105.51

Commissions Analysis

ARR for wheeling business arrived based on approved ARR and methodology vide Table 9.1 supra is as detailed in table below.

Table 9.3: ARR of wheeling business approved by the Commission for FY 2020-21

Sl. No.	Particulars	Total ARR	Wires Business	Retail Supply business	Wires ARR	Supply ARR
A	Expenditure	Rs.Crs	(%)	(%)	Rs.Crs	Rs.Crs
1	Cost of Generation	5.38	0%	100%	0	5.38
2	Cost of fuel	0.01	0%	100%	0	0.01
3	Cost of power purchase	301.63	0%	100%	0	301.63
4	Inter-State Transmission Charges	37.11	0%	100%	0	37.11

Sl. No.	Particulars	Total ARR	Wires Business	Retail Supply business	Wires ARR	Supply ARR
5	Intra-State Transmission charges	8.76	0%	100%	0	8.76
6	O&M Expenses	135.29			83.46	51.83
	Employee Expenses	120.80	60%	40%	72.48	48.32
	Repair & Maintenance expn.	9.45	90%	10%	8.51	0.95
	Administrative & General Expn	5.47	50%	50%	2.74	2.74
7	Depreciation	2.08	90%	10%	1.87	0.21
8	Interest on Loan	1.18	90%	10%	1.06	0.12
9	Interest on Working Capital	0.00	10%	90%	0.00	0.00
10	Provision for bad debts	0.00	0%	100%	0.00	0.00
11	Return on Equity	0.00	90%	10%	0.00	0.00
12	Income Tax	0.00	90%	10%	0.00	0.00
A	Total Gross ARR:	490.97			86.65	405.22
B	Less: Non-Tariff Income	3.50	10%	90%	0.35	3.15
	Less: Efficiency Gains	5.30	0%	100%	0	5.30
	1/3 rd of surplus in FY 2018-19	19.14	0%	100%	0	19.14
	Sub-total – B	27.94			0.35	27.59
	Net Aggregate Revenue Requirement (A-B)	463.03			86.30	377.63

9.2 Wheeling Tariff

The wheeling charges have been computed on the basis of approved costs of Distribution activity 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 Wheeling charges as filed by the Licensee and that Commission was approved and energy sales are detailed in table below.

Table 9. 4: Wheeling Tariff filed by the P&ED and approved by Commission

Sl. No.	Particular (2020-21)	As per P&ED	Commission Approved
1	ARR for wheeling function (Crs)	105.51	86.30
2	Total Energy sold (MU)	427.51	427.51
3	Wheeling Tariff (Rs./Unit)	2.47	2.02

The P&ED estimated the wheeling Tariff at Rs.2.47/kWh, while the Commission has approved these wheeling charges at Rs.2.02/kWh for FY 2020-21.

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).
	=	$(SHR \times Q_{pg}) (1+TSL)/GCV$, or actual whichever is less.
R_{c1}	=	Weighted average of base rate of coal supplied ex-power station coal yard as approved by the Commission for the adjustment period in Rs./MT
R_{c2}	=	Weighted average of base rate of coal supplied ex-power station coal yard for the adjustment period in Rs./MT
Q_o	=	Actual Quantity of oil (in KL) consumed during the adjustment period or normative oil consumption as per Tariff order whichever is less.
R_{o1}	=	Weighted average of base rate of oil ex-power station (Rs./KL) approved by the Commission for the adjustment period.
R_{o2}	=	Weighted average of actual rate of oil ex-power station supplied (Rs. / KL) during the adjustment period.
Q_{pp}	=	Total power purchased from different sources (kWh) =

		$Q_{pp2} + Q_{pp3}$
Q_{pp1}	=	$Q_{pp3} \left[1 - \frac{TL}{100} \right]$ in kWh
TL	=	Transmission loss (CTU) (in percentage terms).
Q_{pp2}	=	Power Purchase from sources with delivery point within the state transmission or distribution system (in kWh)
Q_{pp3}	=	Power Purchase from sources on which CTU transmission loss is applicable (in kWh)
R_{pp1}	=	Average rate of Power Purchase as approved by the Commission (Rs./kWh)
R_{pp2}	=	Average rate of Power Purchase during the adjustment period (Rs./kWh)
Q_{pg}	=	Own power generation (kWh)
Q_{pg1}	=	Own Power generation (kWh) at generator terminal – approved auxiliary consumption
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 2020-21

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 2020-21 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 State Generating sources as per the share allocation made 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 had to resort to additional short-term purchases through other sources such as energy over drawals under UI & through IEX purchases also.

Table 11.1: Power Availability sources/ share including own generation for FY 2020-21

Sl. No.	Source	Plant Capacity (MW)	Licensee's Share in %	Licensee's Share in MW
A	Central Generating Stations			
I	NTPC			
1	Bongaigaon TPS	250	5.415	13.538
2	Farakka STPS	1600	0.140	2.240

Sl. No.	Source	Plant Capacity (MW)	Licensee's Share in %	Licensee's Share in MW
3	Kahalgaon STPS	840	0.140	1.176
4	Talcher STPS	1000	0.140	1.400
	NTPC-Total	3690		18.35
II	NHPC			
1	Loktak HEP	105	5.020	5.271
	NHPC-Total	105		5.27
III	NEEPCO			
1	Kopili HEP	200	4.618	9.236
2	Kopili - II HEP	25	6.040	1.510
3	Khandong HEP	50	3.940	1.970
4	Ranganadi HEP	405	5.700	23.085
5	Doyang HEP	75	5.250	3.938
6	Assam GBPP	291	5.410	15.743
7	Assam GTPP	148	6.000	8.880
	NEEPCO-Total	1194		64.362
IV	TSECL			
1	B'mura - IV	21	25.000	5.250
2	B'mura - V	21	25.000	5.250
	TSECL-Total	42		10.500
V	OTPC			
1	Palatana	726	3.030	21.998
	OTPC-Total	726		21.99
VI	Total	5757		120.484

Table 11.2: Power Sources- Own Generation

Sl. No.	Name of 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

Sl. No.	Name of Station	Installed Capacity (MW)
7	Tuipanglui	3.00
8	Kau-Tlabung	3.00
9	Lamsial	0.50
10	Maicham-II	3.00
11	Serlui 'B'	12.00
Tot		29.35

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

Table 11.3: Estimated Transmission Network position as on 31.03.2021

Sl. No	Particulars	Additions in the year	Withdrawal from service	At the end of year
Length of lines (ckt-km)				
1	132 kV	15	--	842
2	66 kV	--	8	90
3	33 kV	7	--	1,316
4	11 kV	60	--	5,447
5	LT	90	--	3,405
Total		172	8	11099

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 2020-21 has been considered at 3% as approved by the

Hon'ble Commission's Order dated 12.03.2018.

Sl. No.	Description	Unit (MU)/ %	Approved in T. O. dated 12.03.2018	Proposed by P&ED	Deviation
1	Energy available at State Trans. Grid including local generation	MU	544.25	544.25	0.00
2	Transmission Loss % (as approved in Tariff Order for FY 2017-18)	%	3%	3%	0.00
3	Transmission Loss (1 X 2)	MU	16.33	16.33	0.00
4	Net Energy available for sale at Transmission level (1 - 3)	MU	527.92	527.92	0.00

Commission Analysis:

The above tabled data don't corroborate with the Distribution ARR filing part relating to transmission energy input or its losses quantity. The transmission energy indicated for FY2020-21 in the Distribution ARR filings as 538.14MU and considering the 16.14MU of transmission losses the net energy projected to be available for sale was 521.99MU. As seen from the above, there is no information correlation between Transmission and distribution ARR filings made and figures are not matching. Moreover, the share capacity in MWs from Pare HEP & Tuirial HEP were ignored to add in the Table-4.1. Thereby, it appears the Power sources/Share is undermined.

Upon comparing & correlating the data furnished in various Formats with that of the energy handled up to energy sales the Commission has noticed altogether a different kind of losses quantity of 29.95MU and the loss percentage was at 3.60%. The detailed working as was made by the Commission in this matter is provided at the energy balance table of Distribution ARR chapter for FY 2020-21.

Sl. No.	Description	Unit (MU)/ %	Proposed by P&ED	Commission approved
1	Energy available at State Trans. Grid including local generation	MU	544.25	597.94
2	Transmission Loss % (as approved in Tariff Order for FY 2017-18)	%	3%	3.00%
3	Transmission Loss (1 X 2)	MU	16.33	17.94
4	Net Energy available for sale at Transmission level (1 - 3)	MU	527.92	580.00

The Commission accordingly approves transmission loss of 17.94MU (in terms of percentage 3.00%) for FY 2020-21 same as the 3% transmission loss projected by P&ED.

11.4 Capital Expenditure & Capitalization

P&ED has undertaken significant capital expenditure during the previous year and has plans to implement schemes for development of infrastructure during the FY 2020-21. The infrastructure of P&ED is insufficient to cater to the present & projected load and hence to meet the increasing demand, capital expenditure is absolutely necessary.

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

11.5 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 for transmission function.

Commission's analysis

Item wise expenses are discussed in detail here under.

11.6 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 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 submission by the Licensee, the Commission too has not considered any ROE for transmission function for FY 2020-21 as has been following as an adopted convention even in the earlier years.

11.7 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 submission by the Licensee, the Commission too has not considered any Interest and Finance charges for transmission function in FY 2020-21 as has been following as an adopted as a convention even in the earlier years.

11.8 Gross Fixed Assets and Depreciation

11.8.1 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 2020-21 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 2019-20 and projected addition during FY 2020-21. Accordingly, GFA has been computed for the FY 2020-21. The GFA movement is given in the table below:

Table 11.4: GFA for FY 2020-21 projected by P & ED
(Rs. Cr)

FY 2020-21	Approved in T. O. dated 12.03.2018	Proposed by P&ED	Deviation
Opening Balance	402.65	402.65	0.00
Addition during year	87.16	87.16	0.00
Closing Balance	489.81	489.81	0.00

Commission's analysis

The Commission approves the growth of GFA for FY 2020-21 as per the details indicated in the above table as submitted by Licensee. Despite, the liberal approvals of CAPEX investment for strengthening the transmission network in each year, the transmission losses are still not yet achieved at desirable level and the losses are only presumed but not authenticated by the meter record. The Licensee still expresses his inability of accurately measure energy inflows and outflows at the State Grid on account of metering equipment shortage which cannot be considered as an excuse at this juncture and the same excuse is being repeated in the previous filings also. Besides, the licensee has not specifically indicated any action plan to tackle this perpetual problem. This kind of attitude of the licensee is very much frowned by the Commission and he shall come-out with a suitable investment on this aspect in the first quarter (by June 2020) of the FY 2020-21 for Commission's approval after seeking desirable fund approvals from the State Government also. Failing which, the Commission feels it high time to implement the Efficiency Gains concepts and adopt a

suitable quantum of cut in their ARR in future ARRs which may also include the true-ups to be given pertaining to FY 2019-20 onwards as a beginning in this matter very seriously until curbing this loss measuring and energy accounting deficiency.

11.8.2 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.

The Depreciation as approved by the Hon'ble Commission & proposed by the P&ED is given in the table below:

Table 11.5: Depreciation for FY 2020-21 projected by P & ED

(Rs. Cr)

FY 2020-21	Approved in T. O. dated 12.03.2018	Proposed by P&ED	Deviation
Opening GFA	402.65	402.65	0.00
Additions During the Year	87.16	87.16	0.00
Closing GFA	489.81	489.81	0.00
Average GFA	446.23	446.23	0.00
Average Rate of Depreciation	3.89	3.89	0.00
Total Depreciation	17.35	17.35	0.00
10% of Total Depreciation	1.74	1.74	0.00

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 2018-19 the average rate of depreciation is 3.37%. Accordingly, the depreciation is re-calculated as detailed in the table below.

Table 11.6: Depreciation for FY 2020-21 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	402.65	402.65	402.65
Additions during the Year	87.16	87.16	87.16
Closing GFA	489.81	489.81	489.81
Average GFA	446.23	446.23	446.23
Average Rate of Depreciation	3.89%	3.89%	3.366%
Total Depreciation	17.35	17.35	15.020
10% of Total Depreciation	1.74	1.74	1.50

However, the Commission accordingly approves depreciation for FY 2020-21 at Rs.1.50 Crs and the variation if any would be considered in true-up if needed.

11.9 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 details of operation & maintenance expenses viz. Employee Expenses,

Administration & General Expenses & Repairs & Maintenance Expenses are provided in the subsequent sections.

11.9.1 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 11.7: Employee Expenses projected by P&ED for FY 2020-21

Particulars	Approved in T. O. dated 12.03.2018	Proposed by P&ED	Deviation
Employee Expenses	23.21	23.21	0.00

It is therefore kindly requested that Hon'ble Commission may approve the employee expenses of Rs. 23.21 Cr for FY 2020-21.

Commission Analysis:

Since, the P&ED department categorically reported in their Distribution ARR filings for FY 2018-19 at Para 1.10 that segregation of actual employee cost function wise is not available and hence the entire employee cost as a whole is claimed in the Distribution ARR true-up itself. The entire employee cost of FY 2018-19 was escalated by 31.82% and 5.72% for FY 2019-20 and 2020-21 respectively. Therefore, the employee cost shown are for the department as a whole in their distribution ARR filings for the above two years and hence, no employee cost need be allowed separately for Transmission in FY2020-21.

Accordingly, the Commission allows NIL employee expenses for FY 2020-21 in the transmission ARR as it is already loaded in the Distribution ARR and to curtail duplication of the same expenditure element.

11.9.2 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 11.8: Administrative and General Expenses projected by P&ED for FY 2020-21

(Rs. Cr)

Particulars	Approved in T. O. dated 12.03.2018	Proposed by P&ED	Deviation
Administration & General Expenses	1.33	1.33	0.00

Commission's analysis

The Commission approves Administration and General Expenses for FY 2020-21 at Rs. 1.33Cr as projected by P & ED.

11.9.3 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.

The Licensee therefore requested the Hon'ble Commission to kindly approve the R & M expenses of Rs. 5.93 Cr for FY 2020-21.

Table 11.9: Repair and Maintenance expenses projected by P&ED for FY 2020-21

(Rs. Cr)

Particulars	Approved in T. O. dated 12.03.2018	Proposed by P&ED	Deviation
Repair & Maintenance Expenses	5.93	5.93	0.00

Commission's analysis

The Commission approves R & M expenses for FY 2020-21 at Rs. 5.93 Cr as projected by the P&ED as detailed in the table below.

Table 11.10: Summary of O & M expenses for FY 2020-21 approved by the Commission

(Rs. Crore)

Particulars	Approved in T. O. dated 12.03.2018	Proposed by P&ED	Commission Approved
Employee Expenses	23.21	23.21	0.00
Administration & General Expenses	1.33	1.33	1.33
Repair & Maintenance Expenses	5.93	5.93	5.93
Total O&M Expenses	30.47	30.47	7.26

11.10 Interest on Working Capital

Petitioner's submission

The P & ED has computed the Interest on Working Capital for the FY 2020-21 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 1st 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 11.11: interest on Working Capital projected by P & ED for FY 2020-21

(Rs. Cr)

Sl. No.	Particulars	Approved in T. O. dated 12.03.2018	Proposed by P&ED	Deviation
1	O&M Exp for 1 Month	2.54	2.54	0.00
2	Maintenance Spares @1% of Historical Cost escalated @6% from COD	4.25	4.25	0.00
3	One Month Receivables	2.80	2.57	0.23
4	Total	9.61	9.36	0.25
5	Rate of Interest as on 01/04/2017	14.05%	14.05%	0.00
6	Interest for the Year	1.35	1.35	0.00

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 taken into consideration. Accordingly, interest on working capital is worked out as detailed in the table below.

The Commission disapproves Interest on Working Capital of Rs. 1.35 Crs for FY 2020-21 as was projected by P&ED as there are no short-term loans have been

drawn to claim this element and would be considered only on availing any short-term loans.

11.11 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 2020-21.

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 2020-21

11.12 Aggregate Revenue Requirement

Based on the approved expenses the ARR for transmission function approved by the Commission for FY 2020-21 is given in table below.

Table 11.12: Aggregate Revenue Requirement filed by the P&ED for FY 2020-21
(Rs. Cr)

Sl. No.	Particulars	Approved in T. O. dated 12.03.2018	Proposed by P&ED
1	Return on Equity	0.00	0.00
2	Interest & Finance Charges	0.00	0.00
3	Depreciation	1.74	1.74
4	O&M Expenses	30.47	30.47
5	Interest on Working Capital	1.35	1.35
6	Contribution to Contingency Reserve	0.00	0.00
7	Non -Tariff Income	0.00	0.00

Sl. No.	Particulars	Approved in T. O. dated 12.03.2018	Proposed by P&ED
8	Income from Other Business	0.00	0.00
	Total	33.56	33.56

P&ED requests the Hon'ble Commission to kindly consider the submission and approve the ARR for the FY 2020-21 in accordance with the Joint Electricity Regulatory Commission for Manipur and Mizoram (Multi Year Tariff) Regulations, 2014.

Commission Analysis:

The Commission has approved the Transmission ARR for FY 2020-21 as follows:

(Rs.Crores)

Sl. No.	Particulars	Proposed by P&ED	Commission approved
1	Return on Equity	0.00	0.00
2	Interest & Finance Charges	0.00	0.00
3	Depreciation	1.74	1.50
4	O&M Expenses	30.47	7.26
5	Interest on Working Capital	1.35	0.00
6	Contribution to Contingency Reserve	0.00	0.00
7	Non -Tariff Income	0.00	0.00
8	Income from Other Business	0.00	0.00
	Total	33.56	8.76

11.13 Transmission Charges

Petitioner's submission

P&ED has not calculated any transmission charges in accordance with Regulation 65 of the JERC for Mizoram and Manipur (MYT) Regulations 2014 and **had not** filed any details in this regard.

Commissions Analysis

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

Table11.13: Transmission charges approved by the Commission for FY 2020-21

Sl. No	Particulars	Unit	FY 2020-21
1	Aggregate Revenue Requirement	Rs. Cr	8.76
2	Total MW allocation	MW	216.18
3	Total energy to be transmitted	MU	802.61
4	Transmission charges	Rs./MW/Month	33768.16
5	Transmission charges	Rs./MW/Day	1110.19
6	Transmission Tariff	Rs/kWh	0.109

12 ARR of Generation Function for FY 2020-21

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 (Small Hydro Power Station)

Details of SHPS are provided in the table below.

Table12. 1: Details of Small Hydro Power Station 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'	12.00	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-B SHP 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 2020-21 considering the following.

- i. Actual Performance in FY 2018-19.
- ii. Estimated performance for FY 2019-20 based on the Actual Performance for the period 01.04.2019 to 30.09.2019.
- iii. Projection for FY 2020-21 based on the Actual performance in FY 2018-19 and estimated performance in FY 2019-20.
- 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

Small Hydro Power details

- Installed capacity & CoD
- Capital Cost
- Designed Energy

Proposed Capital Expenditure and capitalization

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

Determination of the Aggregate Revenue Requirement

- Loan & Finance Charges
- Operation and Maintenance Expenses
- Depreciation
- Interest on working capital
- 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

$$\begin{aligned}
 d(n) &= [a*\{(SI(n-1)/SI(0))-1\}+b*\{(EI(n-1)/EI(0))-1\}]/(a+b) \\
 &= [0.6\{(105.80/100.00)-1\}+0.40\{(108.20/100.00)-1\}]/(0.60+0.40) \\
 &= \mathbf{0.068}
 \end{aligned}$$

$$\begin{aligned}
 P\&M(n) &= P\&M(0)*\{1+d(n)\} \\
 &= 550\{1+ 0.068\} \\
 &= \mathbf{587.18}
 \end{aligned}$$

$$\begin{aligned}
 CC(n) &= P\&M(n)*(1+F1+F2+F3) \\
 &= 587.18(1+0.40) \\
 &= \mathbf{822.05}
 \end{aligned}$$

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

**Table 12. 5: Capital Cost projected by P & ED for SHPS
(Rs. Crs)**

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

Sl. No.	Name of Station	Installed Capacity (MW)	Capital Cost (@822.05 Lakhs/MW)
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
	Total	17.35	142.62

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 2020-21

(Rs. Crs)			
Sl. No	Name of Station	Installed Capacity (MW)	Capital Cost (@ Rs. 822.05 Crs/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
	Total	10.05	82.61

12.4 DETERMINATION OF ANNUAL REVENUE REQUIREMENT

12.4.1 Loan and Finance Charges

Loan has not been availed by the P&ED, therefore interest on Loan and Finance charges has been considered as Nil for the purpose of calculating the AFC

12.4.2 O & M expenses

Petitioner's Submission

The Operation and Maintenance Expenses of the SHPs as approved by the Hon'ble Commission and proposed by the P&ED for FY 2020-21 is given below:

Table12. 7: Operation and Maintenance Expenses for FY 2020-21

(Rs. Cr)

Sl. No.	Name of Station	Approved in T. O. dated 12.03.2018	Proposed by P&ED	Deviation
1	Khawiva	0.41	0.41	0.00
2	Tuipui	0.20	0.20	0.00
3	Maicham-I	0.78	0.78	0.00
4	Kau-Tlabung	1.17	1.17	0.00
5	Lamsial	0.20	0.20	0.00
6	Maicham-II	1.17	1.17	0.00
7	Total	3.93	3.93	0.00

Table12.8: O & M expenses approved by the Commission for FY 2020-21

(Rs. Cr)

Sl. No	Name of Station	Capacity (MW)	FY2020-21	50% of the O&M Expenses
1	Khawiva	1.05	0.4096	0.2048
2	Tuipui	0.5	0.1951	0.0976
3	Maicham-I	2	0.7802	0.3901
4	Kau-Tlabung	3	1.1704	0.5852
5	Lamsial	0.5	0.1951	0.0976
6	Maicham-II	3	1.1704	0.5852
	Total	10.05	3.9207	1.9605

The Commission approves the full O&M expenses at Rs. 3.9207 Cr based on the methodology adopted in the Tariff Order Dt 12.03.2018 as against the same Rs. 3.93 Cr projected by P&ED for FY 2020-21. But in the Distribution ARR filings the licensee has adopted the employee cost for the entire sector, stating the difficulty in segregation of these charges functional wise. Hence, the commission feels it appropriate to adopt 50% of the total O&M cost to be attributable towards Employee cost of Generation function. To that extent, the O&M Expenses are to be reduced to Rs.1.9605Crs in order to avoid the duplication of this expenditure already reflected in full in Distribution ARR.

12.4.3 Depreciation

Petitioner's Submission

The depreciation of the SHPs as approved by the Hon'ble Commission and proposed by the P&ED is given below:

Tables 12. 9: Calculation of Depreciation for FY 2020-21 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	0.01	0.01	0.00
2	Tuipui	0.01	0.01	0.00
3	Maicham-I	0.02	0.02	0.00
4	Kau-Tlabung	0.03	0.03	0.00
5	Lamsial	0.02	0.02	0.00
6	Maicham-II	0.03	0.03	0.00
7	Total	0.11	0.11	0.00

Commission's Analysis

The depreciation rate as revised in the Regulation for Renewable Energy Sources (first Amendment) regulation 2014 under clause-8 is adopted on the useful life of 35 (thirty five) year for the Small Hydro Plant indicated in the said Regulation 2016. These rates are applied on the Capital cost as filed by the licensee at Table-4.3 for capital cost in their ARR filing submission without change. The details of the depreciation calculation approved by the Hon'ble Commission is tabulated below.

Table 12. 10: Calculation of Depreciation by the Commission and approved for FY 2020-21
(Rs. Cr)

Sl. No	Name of Station	Date of COD	Capital Cost	No. of Years since COD	Balance useful Life	Depreciation rate adopted		Depreciation for FY2020-21
						Upto 12 th year	From 13 th Year	
1	Khawiva	08.12.1988	8.6315	32	3	5.83%	0.87%	0.0075
2	Tuipui	15.12.1991	4.1103	29	6	5.83%	0.87%	0.0036
3	Maicham-I	05.01.1996	16.4410	24	11	5.83%	0.87%	0.0143
4	Kau-Tlabung	05.05.2005	24.6616	15	20	5.83%	0.87%	0.0215
5	Lamsial	26.08.2008	4.1103	12	23	5.83%	0.87%	0.0036
6	Maicham-II	11.11.2009	24.6616	11	24	5.83%	0.87%	0.1438
	Total		82.6162					0.19427

Therefore, Commission approves depreciation at Rs. 0.1943 Crore for FY 2020-21.

12.4.4 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 2020-21.

The Commission approves ROE at Rs. NIL for FY 2020-21.

12.4.5 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 2020-21:

Table 12. 11: Interest on Working Capital for the FY 2020-21 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	0.00
2	Tuipui	0.01	0.01	0.00
3	Maicham-I	0.05	0.05	0.00
4	Kau-Tlabung	0.07	0.07	0.00
5	Lamsial	0.01	0.01	0.00
6	Maicham-II	0.07	0.07	0.00
7	Total	0.23	0.23	0.00

Commission's Analysis

Table 12. 12: Interest on Working Capital approved by the Commission for FY 2020-21

Sl. No	Name of the station	Operation & Maintenance expenses for one month	Receivable for two months	Maintenance spares-15% of O&M	Total	Interest (14.05%)
1	Khawiva	0.034	0.068	0.061	0.164	0.023
2	Tuipui	0.016	0.0324	0.029	0.078	0.011
3	Maicham-I	0.065	0.1294	0.117	0.311	0.044
4	Kau-Tlabung	0.098	0.1942	0.176	0.467	0.066
5	Lamsial	0.016	0.0353	0.029	0.081	0.011
6	Maicham-II	0.098	0.2117	0.176	0.294	0.041
	Total	0.327	0.480	0.588	1.395	0.196

The Commission approves interest on working capital at 0.196 Cr for FY 2020-21 as detailed supra.

12.4.6 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 2020-21

(Rs. Cr)

Sl. No.	Name of Station	Approved in T. O. dated 12.03.2018	Proposed by P&ED	Deviation
1	Khawiva	0.44	0.44	0.00
2	Tuipui	0.21	0.21	0.00
3	Maicham-I	0.85	0.85	0.00
4	Kau-Tlabung	1.27	1.27	0.00

Sl. No.	Name of Station	Approved in T. O. dated 12.03.2018	Proposed by P&ED	Deviation
5	Lamsial	0.23	0.23	0.00
6	Maicham-II	1.27	1.27	0.00
7	Total	4.27	4.27	0.00

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 2020-21

(Rs. Crores)

Head of Expense	Khawiva	Tuipui	Maicham-I	Kau-Tlabung	Lamsial	Maicham-II	Total
O&M Expense	0.2048	0.0976	0.3901	0.5852	0.0976	0.5852	1.9605
Return on Equity	0	0	0	0	0	0	0
Interest on Loan	0	0	0	0	0	0	0
Depreciation	0.0075	0.0036	0.0143	0.0215	0.0036	0.1438	0.1943
Interest on Working Capital	0.023	0.011	0.044	0.066	0.011	0.041	0.1960
Total	0.2353	0.1122	0.4484	0.6727	0.1122	0.77	2.3508

Therefore, Commission approves the adjusted ARR for the above six generating stations at Rs. 2.3508 Cr for FY 2020-21 as detailed supra.

12.4.7 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	4.139
2	Tuipui	0.50	1.971
3	Maicham-I	2.00	7.884
4	Kau-Tlabung	3.00	11.826
5	Lamsial	0.50	1.971
6	Maicham-II	3.00	11.826

Commission's Analysis

The Commission approved gross generation from the above six stations at 39.6171 MU for FY 2020-21

12.4.8 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	0.020	1.951

Sl. No.	Name of Station	Generation at 45% CUF	Auxiliary Consumption @1%	Net Generation
3	Maicham-I	7.884	0.079	7.805
4	Kau-Tlabung	11.826	0.118	11.708
5	Lamsial	1.971	0.020	1.951
6	Maicham-II	11.826	0.118	11.708

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 2020-21.

12.4.9 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 (Rs. in Crores)	Tariff
3	Khawiva	4.098	0.44	1.08
4	Tuipui	1.951	0.21	1.09
5	Maicham-I	7.805	0.85	1.08
8	Kau-Tlabung	11.708	1.27	1.08
9	Lamsial	1.951	0.23	1.20
10	Maicham-II	11.708	1.27	1.08

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	0.2353	0.574
2	Tuipui	1.951	0.1122	0.575
3	Maicham-I	7.805	0.4484	0.575
4	Kau-Tlabung	11.708	0.6727	0.575
5	Lamsial	1.951	0.1122	0.575
6	Maicham-II	11.708	0.77	0.658

12.4.10 TARIFF FOR THE ENERGY SUPPLIED FROM SERLUI 'B' SHP

The Serlui 'B' 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.

Petitioner's submission

Energy Generation

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

Table 9.1: Energy Generation from Serlui 'B':
(In MUs)

Generation Details of Serlui 'B'				
Sl. No.	Name of Station	Approved in T. O. dated 12.03.2018	Proposed by P&ED	Deviation
1	Gross Generation	47.30	47.30	0.00
2	Auxilliary Consumption	0.95	0.95	0.00
3	Net Generation	46.35	46.35	0.00

Commission Analysis:

Considering the Performance achieved by this plant in FY 2018-19 which is still to be commissioned and even in the energy projections for the FY 2020-21 also the licensee had expected same energy as that was in FY 2018-19, the Commission feels it appropriate to take the same quantum for this purpose. Accordingly, the Gross energy and net energy to be adopted by the Commission for FY 2020-21 would be at 29.57MU and 28.59 MU respectively.

The Gross generation and net energy output details from each State-Owned Generating Station for the three (3) years period from FY2018-19 to FY2020-21 uniformly projected in the ARR filings by the Licensee is as follows:

S.No.	Own Stations	Ins/Cap (MW)	PLF	Gross (MU)	Loss (MU)	Loss (%)	Net (MU)
1	Khawiva	1.05	13%	1.19	0.02	1.68%	1.17
2	Tuipui	0.50	15%	0.67	0.01	1.49%	0.66
3	Kau-Tlabung	3.00	27%	6.99	-	-	6.99
4	Maicham-I	2.00	7%	1.19	-	-	1.19
5	Maicham-II	3.00	5%	1.33	-	-	1.33
6	Lamsial	0.50	4%	0.16	-	-	0.16
7	Serlui-B	12.00	28%	29.27	0.68	2.32%	28.59
	Grand Total	22.05	21%	40.80	0.71	1.74%	40.09

Energy Charges

Rate of energy charge has been considered as Rs. 1.06 per unit as approved by the Hon'ble Commission in the Tariff Order dated 12.03.2018. The total energy charge for the FY 2020-21 has been provided accordingly. The table below provided the details of energy charges.

Table 9.2: Energy Charges for Serlui 'B':

(In ` Crores)

Energy Charges for Serlui 'B'				
Sl. No.	Name of Station	Approved in T. O. dated 12.03.2018	Proposed by P&ED	Approved by Commission
1	Net Generation (MU)	46.35	46.35	28.59
2	Rate	1.06	1.06	1.06
3	Total Energy Charge	4.91	4.91	3.03

The Commission approves energy charges from Serlui B during FY 2020-21 at Rs. 3.03 Cr Per Annum only.

12.4.11 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. 19: ARR of Generation Function projected by P & ED for FY 2020-21**(Rs. Cr)**

Sl. No.	Name of Project	Approved in T. O. dated 12.03.2018	Proposed by P&ED	Deviation
1	Khawiva	0.44	0.44	0.00
2	Tuipui	0.21	0.21	0.00
3	Maicham-I	0.85	0.85	0.00
4	Kau- Tlabung	1.27	1.27	0.00
5	Lamsial	0.23	0.23	0.00
6	Maicham-II	1.27	1.27	0.00
7	Serlui 'B'	4.91	4.91	0.00
	Total	9.18	9.18	0.00

The ARR for the above six stations in operation and Serlui 'B' (not yet commissioned) approved by the Commission at Rs.5.381 Crs as detailed below:

Table 12. 20: ARR for Generation Function now approved by the Commission for FY 2020-21**(Rs. Crore)**

Sl.No	Name of the station	FY 2020-21
1	Khawiva	0.2353
2	Tuipui	0.1122
3	Maicham-I	0.4484
4	Kau- Tlabung	0.6727
5	Lamsial	0.1122
6	Maicham-II	0.7700
7	Serlui 'B'	3.0300
	Total	5.3808

13. Directives

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:

The P&ED have maintained data in respect of energy sales and revenue and also category wise/slabwise number of consumers, contracted load demand etc. which can be viewed from web portal <https://www.powermizoram.gov.in/irj/portal> by SAP-ISU (Systems Applications and Products in Data Processing) users who are authorised to view the page. In addition to this, any consumer can create customer portal login username and password from web portal <https://www.powermizoram.gov.in> and after logging into this portal, a consumer may view his energy consumption history, electricity bill history and payment history for the past 8(eight) months and print the invoices and receipts if he wishes so, and can also add 9(nine) other child consumers, may be his relatives or his tenants and view their energy consumption history, electricity bill history and payment history

for the past 8 eight months and print the invoices and receipts if he wishes so.

At present P&ED is using two energy billing software out of which SAP-ISU is suitable for creditable management information system and MYT principles and P&ED is putting up all efforts as prime target to have an accurate database.

Presently SAP-ISU is already used under RAPDRP covered area and in addition another 12 towns under IPDS are also using SAP-ISU which is expected to complete by December,2020. Remaining consumers (Non-RAPDRP) are also to be covered by this SAP-ISU which is also expected to be completed by 2022.

Commission's comment

The progress achieved report on the SAP-ISU is already used under RAPDRP along with the probable/expected period with in which it would be completed may be submitted latest by 15th June 2020 positively. While, in the case of remaining consumers (Non-RAPDRP) who are covered by this SAP-ISU, the details of action plan and the status achieved report shall be furnished to the commission by 15th August 2020.

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

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 19th 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.

Checking of illegal connection and unauthorised use of electricity is carried on and Theft report for FY 2018-19 and FY 2019-20 submitted to Head office of P&ED is produced below:

<u>DETAILS OF THEFT OF ENERGY for FY 2018-19</u>		
No of cases where inspection were carried out		18972
No of cases where theft or misuse detected		
a)	Meter by-pass	319
b)	Hooking	111
c)	Unauthorized extension	115
d)	Tampering	89
	Total (a+b+c+d)	634
Estimate quantity of energy pilfered		980
No of cases where sentences were imposed		8
Quantity of energy for which cost were recovered (kWh)		980
Amount realized (Rs)		9797

<u>DETAILS OF THEFT OF ENERGY for 1st & 2nd QUARTER for FY 2019-20</u>		
No of cases where inspection were carried out		10000
No of cases where theft or misuse detected		
a)	Meter by-pass	11
b)	Hooking	9
c)	Unauthorized extension	10
d)	Tampering	0
	Total (a+b+c+d)	30
Estimate quantity of energy pilfered		4198

No of cases where sentences were imposed	1
Quantity of energy for which cost were recovered (kWh)	4198
Amount realized (Rs)	35050

Commission's comment

As seen from the details reported, it is felt that the amount so far recovered is very nominal and this action for recovery of theft & pilferage is to be intensified more and realise more amount in order to reduce the prevailing distribution losses at 30.11% in FY 2018-19 and the Commission needs to appraised of the status of number of cases booked and the amount of penalties recovered shall be reported every quarter continuously throughout the FY 2020-21 for Commission to monitor the progress being made.

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 31st 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 31st March 2011. Power & Electricity Department is directed to report to the Commission by 31st 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

In order to achieve 100% metering with working meters, replacement of damaged/defective meter by working energy meter, preferably with MDI facilities is going on under various field Sub Divisions of the Department and status of progress received so far upto 2nd Qtr of 2019-20 from field offices is shown below :

Description	Total installed upto 31.03.2019	Installed during FY 2019-20 (upto 30.09.2019)	G.total
Installation of Energy meter with MDI	31698	5455	37153
Replacement of damaged/ defective meter with MDI facility	7631	1873	9504

Commission's comments

The progress achieved with the status of completion shall be reported to the Commission every six months till such time the 100% metering is achieved.

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 Commission also feels that the directive is complied with and hence it is dropped.

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

Improvement of Input/output Feeder metering system at 33kV and above substations with rectification of damaged/defective/doubtful meter is in progress at various substations. But as the works of metering system improvement is under progress, correct data of the energy flow in all the transmission, sub-transmission and distribution level is yet difficult to obtain at present. However, the Department tried its level best and constant effort is being given to reduce the AT&C Loss to 15%

Commission's comments

The reply given is not satisfactory as the distribution losses at a peak of 30.11% in FY 2018-19. There needs a lot of effort is required to put to arrest all the losses by rectifying/replacing the damaged/defective/struck-up meters at all substations rapidly to capture the actual energy flows occurring at all level in transmission, sub-transmission and distribution levels to assess the practical losses for T&D in P&ED and precisely indicate the T&D Losses by next year ARR filing submission. The assumptions will not be considered.

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 and the spot billing machine procured and loaded with billing software and Meter readers under Kolasib Power Division were trained for successful implementation of

the project. But while preparing for implementation of the pilot project new Tariff order come up and implementation of the project is still delayed as there is problem faced by TCS in updation of the software with new tariff in the billing machine.

Commission's comments

The main reason for sustaining revenue loss is due to improper meter reading and considerable delay in issuance of monthly bills resulting in delayed collections causing the financial crisis. Thereby, to cover up the same P&ED is resorting to higher revision of tariff without actually attending to the real cause. It is not understandable, as to why the revision of tariff cannot be updated quickly into the software and if so the consultancy engaged may be changed to be helpful to the organisation but not for the detriment.

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

The reply seems to be irrelevant to the context of Directive. The P&ED needs to obtain prior approval of the Commission before execution of the major capital works costing Rs.5 crores and above. A report may be send to the Commission as to various works executed with and without approval of the Commission so far from FY 2017-18 onwards latest by 31st July 2020.

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, filling up of vacant post under the department is very difficult and number of working staff under the Department is in a decreasing trend. Position of employee staff during the last three years with current year upto December 2019 is shown below:

Sl. No	Particulars	No of employees at the beginning of			
		FY 2016-17 (Actual)	2017-18 (Actual)	2018-19 (Actual)	2019-20(upto Dec2019)
1	Regular Employees	1728	1675	1490	1492
2	Contract Employees	2	2	NIL	NIL
3	Work charge	484	478	473	455
4	Muster Roll	2188	2253	2190	2185
Total Employees		4402	4409	4153	4132

Commission's comments

Despite the directive, the employee cost projected for FY 2019-20 is very high and there seen a 100% enhancement in employers salaries of all employees, which is impractical and unreasonable in reality. The directive is intended to be more judicious in the recruitment of staff based on the need but not for other reasons. Any further recruitment in staff needs to be intimated to the Commission for justification of such indiscriminate appointment which will be disallowed if not done without Commissions concurrence.

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

Maximum Demand Meters should be provided for HT Consumers.

Compliance

Progress of replacement of Energy Meter of all HT consumers which was installed earlier and unable to record kVAH reading with compatible Energy Meters capable of recording kVAH reading is going-on and in progress to cope up with new Tariff structure as instructed. With the introduction of MDI meters it is intended that all non-MDI consumer meters are to be replaced by MDI meters not only for HT consumers but also for all LT consumers.

Commission's comments

The status of achievement report may be submitted to Commission latest by 30th June 2020 duly indicating the number of cases of meter replacements pending and deadline for completion of the same.

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. Updation

of billing software for calculation of Fixed charge on the basis of declared Contracted load by the consumers had been done already.

Commission's comments

The reference indicated is very old dating back to 2017, while the status communicated is for 2020. Therefore, the latest action taken report with details in this matter may be communicated by 30th June 2020.

Directive 16: Restructuring of Staff

PED has stated that the number of employee as on 31st 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 31st 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

The restructuring of staff referred to in the above directive is in the context of higher number of staff strength resulting in huge employee cost. Does the proposal submit for approval with Government of Mizoram has any reference for staff reduction and for cost reduction in the context of our Direction? The copy of the report submitted

to GoM may be made available to Commission for reference during April 2020.

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.

Commission's comments

The direction is dating back to 2014 and reply in this regard is not acceptable and hence, the latest action taken report and the progress made upto FY 2019-20 shall be submitted to the commission immediately with in the month April 2020.

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

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. 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 3MVA, 132/33 kV Transformer feeding 33/11kV Bairabi Sub-station and 33/11kV Zamuang Sub-station, complete abandonment of the generating plant is considered not advisable 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

This is already included in the Tariff Petition for FY 2020-21 in Para 6.2 of Chapter-5. Accordingly, P&ED requested to the Hon'ble Commission to drop the Directive.

Commission's Comments

The directive is treated as complied with and hence dropped.

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
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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 discrepancies had been reconciled as below.

Sl No	GFA	FY 2018-19	FY 2019-20	FY 2020-21
1	Generation	486.95	486.95	486.95
2	Transmission	215.70	261.03	348.20
3	Distribution	540.96	591.76	617.81
4	Total	1243.62	1339.75	1452.96

It is therefore, requested that the directive may kindly be dropped.

Commission's Comments

The directive is treated as complied with and hence dropped.

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

There is an intention to re-structure the Department and for which the Administrative Staff College of India(ASCI), Hyderabad is engaged as a consultant by the Department Vide letter no. CE(RE)/01/2019-P&E/58 Dt.06.02.2019. Final Report prepared by the consultant is being awaited.

Commission's comment

The final report of ASCI was already submitted in January 2020 and hence the latest status on this directive may be communicated sooner with due discussions with Government of Mizoram.

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

P&ED has noted and followed the instruction given by the Commission. It is therefore requested to drop this Directive.

Commission's comment

The directive is treated as complied with and hence 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

Installation of Energy Meter with MDI facilities and replacement of damaged/defective meter by energy meter with MDI facilities in progress and status of progress received so far upto 2nd Qtr of 2019-20 is shown below :

Description	Total installed upto 31.03.2019	Installed during FY 2019-20 (upto 30.09.2019)	G.total
Installation of Energy meter with MDI	31698	5455	37153
Replacement of damaged/defective meter with MDI facility	7631	1873	9504

Commission's comment

The status achieved pertaining from 1st to 4th quarter of FY2019-20 may be furnished with all details latest by 20th May 2020.

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

In view of the above reply, the directive is still treated as not complied with.

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:

P&ED submitted data in the required format in Tariff Petition

Commission's Comments

The directive is treated as dropped.

Directive 38

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

Sl. No	Particulars
A	Income from Investment, Fixed and Call Deposits
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)
	Sub-Total
B	Other Non-Tariff Income
1	Interest on loans and Advances to staff

Sl. No	Particulars
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
	Sub-Total
	Total (A+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 as per the required format during the past years. P&ED is intending to record & 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

The Directive is treated as not complied with and the P&ED is still to comply the directive by next ARR petition.

Directive 40

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

Compliance:

Introduction of Prepaid-meter and Smart meter as per MOP Guideline is under consideration of the Department. Area covered under Zarkawt 11kV feeder that consist of approximately 694 consumers (Single phase= 644nos and Three phase= 50nos) is selected as a pilot project for smart metering and for which Administrative Approval of Rs 233 lakhs already obtained under NEDP and tender for the project already floated. Mode of metering may either be Pre-paid or Post-paid depending upon choice of the consumers.

Commission's Comments

The reply does not provide any practical figure on the achievement made, hence, the actual progress achieved with number of consumers installed with meters may be submitted to the Commission latest by end of 1st quarter of 2020-21.

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

The directive is treated as not complied with and awaits the compliance report.

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.

Commission's Comments

The Directive is treated as not complied with and the compliance report is awaited

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:

Reply to this directive is furnished in a separate sheet (Annexure-D1) attached.

Commission's Comments

The directive is treated as complied with and hence dropped.

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%	23.79%	NA

Commission's Comments

The figured achieved by the P&ED in FY 2018-19 is not 23.79%, but 30.11% as assessed by the Commission based on your ARR proposals and hence, the P&ED shall put in its best efforts to reach the target set for FY 2019-20 at least in FY 2020-21. The directive is therefore is still in force and needs compliance by FY 2020-21.

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.

Compliance:

Improvement of Input/output Feeder metering system at 33kV and above substations with rectification of damaged/defective/doubtful meter is in progress at various substations as mentioned under Directive 8. But as the improvement works of metering system is under progress, correct data of the energy flow in all the transmission, sub-transmission and distribution level is yet difficult to obtain at the present stage. The P&ED shall comply this directive soon after completion of improvement of metering system and obtaining reliable data at all voltage levels.

Commission's Comments

The Directive is treated as not complied with and the compliance report is awaited as this matter is also being pursued by the CERC for the compliance and commission is awaiting your report at the earliest.

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 15th 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.

Compliance :

It is regretted to state failure of submission of the required data in the specified time. However the actual data is furnished in a separate sheet (ANNEXURE-D2) enclosed.

Commission's Comments

The directive is hence treated as dropped.

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.

Compliance :

After having many discussion regarding grant of tariff subsidy, the Government had agreed to release required subsidy amount as per the Tariff order vide I.D.No.FIN(EA)331/19 Dt.22.10.2019. But as the month of November 2019 is already arrived when decision for release of subsidy amount was finalised, the subsidy amount of Rs. 77,29,84,000.00 (Rupees Seventy seven crore twenty nine

lakh eighty four thousand)only which is the sum of eight installments @Rs.966.23lakhs per month to meet the revenue gap for the month of April 2019 to November 2019. is released by the Government. Allocation of fund for next instalments for the remaining months from December 2019 upto March 2020 as per Tariff Order for FY 2019-'20 under process and details of receipt etc. of such instalments shall be submitted to the commission as directed.

Commission's Comments

The directive is treated as not complied pending the report from the P&ED and all the issues referred to in items (a), (b) and (c). The same may be furnished to Commission in the month of April 2020.

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 1st week of January 2020 and again by end of March

2020 to the Commissions to monitor progress.

Compliance :

P&E Department has an intention to implement Smart Metering System within its jurisdiction. Area covered under Zarkawt 11kV feeder that consist of approximately 694 consumers (Single phase= 644nos and Three phase= 50nos) is selected as a pilot project for smart metering. Administrative Approval of Rs 233 lakhs already obtained under NEDP and tender for the project already floated. Progress of action taken report will be submitted as directed.

Commission's Comments

The directive is treated as a pending and considered as not complied with.

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.

Compliance :

The State Government has approved release of the Revenue subsidy of Rs.115.95crores vide Letter No : I.D.No.FIN(EA)331/19 Dt.22.10.2019 for the FY 2019-20. Fund for Subsidy Amount Rs 77,29,84,000.00 (Rupees Seventy seven crore twenty nine lakh eighty four thousand) only which is the sum of eight installments @Rs.966.23lakhs per month to meet the revenue gap for the month of April 2019 to November 2019. allocated by the Government and Expenditure sanction is already accorded. Allocation of remaining fund for next instalments for the remaining months from December 2019 upto March 2020 as per Tariff Order for FY 2019-'20

under process and details of receipt etc. of such instalments shall be submitted to the commission as directed.

The Directive of the Hon'ble Commission is noted by P&ED.

Commission's Comments

The directive is treated as a pending and considered as not complied with.

Fresh Directives in FY 2020-21 based on ARR Submission

1. District-Wise AT&C Losses & Outside State sales

The Energy Input for all circles is put together as per the Format-P2 at page 107 for FY 2018-19 was shown as 554.82 MU in respect of five circles is as follows.

Sl. No.	Particulars	FY 2018-19 (Actual)			
		Energy Input (MU)	Consumer Billed Energy (MU)	Distribution Loss (MU)	Amount Billed (Crores)
1	Aizawl Power Circle	364.44	222.90	141.55	137.72
2	Lunglei Power Circle	72.59	58.68	13.91	29.64
	CE (System Operation)	437.04	281.58	155.46	167.36
3	Champhai Power Circle	33.91	32.05	1.86	13.24
4	Transmission Circle	35.28	32.28	3.01	15.32
5	Project Circle - I	48.58	41.86	6.73	25.55
	CE (Distribution)	117.78	106.19	11.59	54.11
	Grand Total	554.82	387.76	167.06	221.46

As per the above information, it is evident that the Distribution losses incurred for was 167.06 MU to make Retail sale of 387.76 MU during FY 2018-19. This indicates a distribution Loss of 30.11% (on 167.06 MU loss quantity) taking upon the Distribution input quantity of 554.82 MU.

On contrary, while submitting the Energy Balance format, it was reported that distribution loss is only 82.68 MU instead of actual loss of 167.06 MU. Thereby the distribution losses were undermined to a rosy figure of 17.58% instead of the 30.11% loss percentage based on actuals. Moreover, the Outside state sales quantum of 286.21MU as indicated in the ARR is

not appears to be correct and the as per the calculations made by the Commission it works out to 182.33MU.

The Same query was raised in the additional information with the P&ED for a clarification. It was informed that the District wise figures are not accurate and they have to be reconciled. This clearly signifies that either the formats are not properly verified before making the submission or taking an excuse upon pointing out the discrepancy.

The Commission feels that this kind of replying will not serve any purpose and it amounts to prevaricating/evasive answer to cover the shortcomings deliberately. Therefore, the Hon'ble Commission after careful consideration hereby issues the following directive in this matter:

"The P&ED Department shall invariably submit the details to the Commission on 15th of each month following the month in which the quantum of energy input/received by each circle and also the quantum of energy sold in the relevant month by each circle separately for each of the twelve (12) months promptly starting from April to March without fail. The information so furnished by the licensee would form the basis to arrive at the Distribution losses incurred by the P&ED in the entire year for truing-up purpose in future. At the same time, along with the above data the Licensee shall also submit the details of the quantity of Outside state sales achieved in each month starting from April to March for record along with the Circle wise sales information."

2. Outstanding Interest and Financial charges to State Government Loans

Keeping In view of the above, the actual Interest & Finance charges amount of Rs. 1.90 Crores for the FY 2018-19 though not paid back to State government Loans, the Commission approves these charges in true-up **but directs the P&ED to clear all the outstanding arrears to the respective lenders by the end of the FY 2020-21 as all those interest charges were passed on to the consumers and were reimbursed to the Department. In case of failure to repay these charges, then the entire amount outstanding as on 31.03.2021 would be clawed back by the Commission in the ensuing ARR determination.**

3. Levy of penalties for non-payment of revenue dues

The Commission feels, that the imposing of penalties/late payment surcharges is not happening at the level expected and unless penalties are strictly imposed the revenue collections is bound to be poor and the Organisation will have to face financial crunch on account of their own inaction. This is not a healthy practice and P&ED shall take serious note of the situation and order for intensive special revenue collections drive and see that these huge dues from sale of power comes down very soon by drawing an action plan and intimate the same to the Commission.

4. Adopting Merit Order Despatch technique in Power purchases to minimise cost of power purchase and reduce the surplus power for sale

It is observed that the P&ED is procuring the quantum of power purchase which is much more than their state sale requirement. The surplus power procured would be about one-third of their total quantity of purchase. At the same time, they are resorting to selling these surplus quantities in the outside state sale through IEX at a loss of above Rs.1.20/kWh for each such unit sold. This will erode the profitability of the organisation due to excess payment for power purchases and also to absorb the loss sustained due to Outside state sale for each unit sold.

The Licensee shall follow the merit order despatch principles judiciously or limit to their minimum off-take of energy which is costly in each month so as to minimise the power purchase cost and to pass on any such benefit of gains to the consumers and at the same time they are directed to keep the Outside State sales quantity to the least possible level all the time.

In this regard, the P&ED is directed to review their power purchase quantity agreements with all the Central generating and neighbouring state power generators and limit the minimum off-take quantity to the reasonable quantities of requirement and report the compliance latest by 15th September 2020 positively.

5. Levying of the applicable charges in the case of Mixed Loads services:

Where any part of the connection given under one specific category, it shall not be utilized for any other purpose other than for which it is released that involves different higher applicable rate in the tariff schedule. A separate connection shall have to be taken invariably for such other 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 the category of consumption that corresponds to a higher applicable tariff for which any part of that connection is utilised.

6. Levy of rebate/surcharge on availing supply at a voltage higher/lower than the applicable base load.

In dealing with such consumption loads, the billing shall be made strictly as per the clause 1.1as stipulated under general conditions of supply in Tariff Schedule.

7. Classification of the power supply being availed from NTPC, Bongaigoan TPS:

Despite, having clarified under para 7.7-Energy Balance, under chapter-7 of the last year Tariff Order Dt.22-03-2019 that the Bongaigoan TPS falls under NER region, the licensee still repeatedly considering the above station under Eastern Region and accordingly the losses are being arrived. This procedure shall have to be rectified in the next ARR submission by considering the above station under North Eastern Region but not under Eastern Region anymore.

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'
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- 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:

c)

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

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

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

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. Applicable Taxes or Duties:

The tariff notified above does not include any taxes or duties etc., on electrical energy that may be payable at any time in accordance with changes in any Law or State Government Rules in force. Such charges, if any, shall be payable in addition to tariff charges by the consumer/user.

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: Kutir Jyoti 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 25.00 per month per Connection
b) Energy charge per month		
1)	First 20 kWh	@ Rs 2.10 per kWh
2)	>200 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 1st/2nd/3rd 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. **The Domestic consumer is qualified to be in this category, if it is with attached kitchen/kitchen**

facility. 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 3.30 per kWh
2)	Next 100 kWh	@ Rs 4.80 per kWh
3)	Above 200 kWh	@ Rs. 5.30 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 60.00 per month per kW of contracted load	
b) Energy charge per month		
1)	First 150 kWh	@ Rs 4.30 per kWh
2)	>150 kWh	@ Rs 4.60 per kWh

2.4 LT Category - 4: Commercial Service

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, 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-operators' 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 80.00 per month per kW of contracted load
b) Energy charge per month	
1) First 150 kWh	@ Rs 4.70 per kWh
2) >150 kWh	@ Rs 5.70 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 80.00 per month per kW of contracted load.
b) Energy charge per month:-	
All kWh	@ Rs 10.00 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 90.00 per month per kW of contracted load.
b) Energy charge per month:-	
All kWh	@ Rs 9.90 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 2.90 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 80.00 per month per kW of contracted load.
b) Energy charge per month:-	
First 400 kWh	@ Rs 4.60 per kWh
> 400 kWh	@ Rs 5.30 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 follows:

Rates:

a) Demand charge	Rs 50.00 per month per kVA of Billing Demand.
b) Energy charge per month:-	
All kVAh	@ Rs 5.10 per kVAh

3.2 HT Category - 2: Non-Domestic

Applicability: This tariff is applicable to similar purposes defined in LT Category-3 as follows:

Rates:

a) Demand charge	Rs 60.00 per month per kVA of Billing Demand.
b) Energy charge per month:-	
All kVAh	@ Rs 4.70 per kVAh

3.3 HT Category - 3: Commercial Service

Applicability: This tariff is applicable to similar purposes defined in LT Category-4 as follows:

Rates:

a) Demand charge	Rs 80.00 per month per kVA of Billing Demand.
b) Energy charge per month:-	
All kVAh	@ Rs 5.80 per kVAh

3.4 Category 4 : Public Water Works (PWW)

Applicability: This tariff is applicable to similar purposes defined in LT Category-6 as follows:

Rates:

a) Demand charge	Rs 90.00 per month per kVA of Billing Demand.
b) Energy charge per month:-	
All kVAh	@ Rs 9.80 per kVAh

3.5 HT Category - 5: Irrigation & Agriculture Service

Applicability: This tariff is applicable to similar purposes defined in LT Category- 7 as follows:

Rates:

a) Demand charge	Rs 50.00 per month per kVA of Billing Demand.
b) Energy charge per month:-	
All kVAh	@ Rs 2.80 per kVAh

3.6 HT Category -6: Industrial Service

Applicability: This Tariff is applicable to similar purpose defined in LT Category – 8 as follows:

Rates:

a) Demand charge	Rs 80.00 per month per kVA of Billing Demand.
b) Energy charge per month:-	
All kVAh	@ Rs 5.30 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 follows:

Rates:

a) Demand charge	Rs 90.00 per month per kVA of Billing Demand.
b) Energy charge per month:-	
All kVAh	@ Rs 5.90 per kVAh

B: FULL COST TARIFF (FCT) (i.e., WITHOUT SUBSIDY)

Sl. No.	Consumer Category	Full Cost Tariff (FCT)	
		Energy Charges (Rs/month.)	Fixed Charges (Rs.)
1	Kutir Jyothi		
i)	First 20 kWh	5.50/kWh	30/Connection
ii)	Balance above 20 kWh	5.60/kWh	30/Connection
2	Domestic		
A	Low Tension		
i)	First 100 kWh	8.00/kWh	60/Contracted Load in kW
ii)	Next 100 kWh	8.10/kWh	60/Contracted Load in kW
iii)	Balance above 200 kWh	8.20/kWh	60/Contracted Load in kW
B	High Tension	8.20/kVAh	60/Billing Demand in kVA
3	Non-Domestic		
A	Low Tension		
i)	First 150 kWh	9.15/kWh	65/Contracted Load in kW
iii)	Balance above 150 kWh	9.30/kWh	65/Contracted Load in kW
B	High Tension	9.20/kVAh	65/Billing Demand in kVA
4	Commercial		
A	Low Tension		
i)	First 150 kWh	10.90/kWh	80/Contracted Load in kW
iii)	Balance above 150 kWh	11.00/kWh	80/Contracted Load in kW
B	High Tension	10.50/kVAh	90/Billing Demand in kVA
5	Public Lighting	10.50/kWh	80/Contracted Load in kW
6	Irrigation & Agriculture		
A	Low Tension	8.30/kWh	50/Contracted Load in kW
B	High Tension	8.90/kVAh	50/Billing Demand in kVA
7	Public Water Works		
A	Low Tension	10.50/kWh	90/Contracted Load in kW
B	High Tension	10.10/kVAh	90/Billing Demand in kVA
8	Industrial		
A	Low Tension		
i)	First 400 kWh	9.00/kWh	85/Contracted Load in kW
ii)	Balance above 400 kWh	9.25/kWh	85/Contracted Load in kW
B	High Tension	10.00/kVAh	85/Billing Demand in KVA
9	Bulk Supply	9.35/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 18th 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.

- a) Rs 5.00 per pole per cable per month in case of internet cable/ media cables/visual media cables
- b) 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 follows: -

- (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 arrange 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

MINUTES OF 22nd MEETING OF THE STATE ADVISORY COMMITTEE OF MIZORAM

Date: 27th FEBRUARY, 2020 Time :11:00 A.M.

Venue: HOTEL FLORIA CONFERENCE HALL, BARA BAZAR, AIZAWL.

The Chairman of the Committee, Mr. Ng Sarat Singh, Chairperson, chaired the meeting. The list of the members and participants attending the meeting is appended. Welcoming the members and participants, the Chairman initiated agenda wise discussion as follows:

List of Members and Participants attended the meeting is appended/

Agenda No.1. Confirmation on the Minutes of the 21st meeting of the State Advisory Committee, Mizoram held on 21st February, 2019.

After obtaining nods from the Members, the Chairman declares that the minutes of the 21st meeting as confirmed.

Agenda No.2. Review on discussion taken on the minutes of 21st SAC Meeting, Mizoram.

i) **Formation of Vigilance Committee:** - Er. Lalduhzuala Sailo, E-in-C, P&E Department informed the meeting that the Vigilance Committee has been formed in all Circles of P&ED, Mizoram. In this regard, Mr Vanlalruata, President, Central Young Mizo Association informed the Committee that the YMA has consented to be a part of the Vigilance Committee. But, stated that modalities on conduct of raids etc. is not finalized by the department. Er. Lalchharliana Pachuau, Member of the Commission informed the members that the penalties for imposing fines, etc. are already there in the Supply Code Regulation.

The meeting recommends that the P&E Department should form modalities for the Vigilance Committee. It was also proposed that members of the Committee should be appointed by designation and not by name. The E-in-C, P&ED shall make circulation of all Vigilance Committee and its members with specific modality to work within March, 2020. Report of inspection/raid carried out by the Vigilance Committee shall be submitted quarterly to the Commission.

ii) **Installation of meters at 132kV, 33kV, 11kV level and at DTs:-** Mr. Lalduhzuala Sailo, E-in-C, P&ED stated that requisite meters have been installed at all 11kV level and above. It was decided that the monthly assessment report of AT&C losses for the last three months i.e. November 2019, December 2019 and January 2020 in Kolasib town is to be submitted alongwith the status of 11kV and DT metering covering the whole Mizoram as on 1st March, 2020 to the Commission by 15th April, 2020.

iii) **Report on updating contracted and connected load:-** Mr. Vanlalrema, CE(SO), P&ED informed the Committee that the survey of contracted load and connected load have been completed and these figures are to be displayed in the bill body with effect from the bill of February, 2020 onwards. The survey report covering the whole Mizoram is to be submitted by June, 2020.

iv) Up-to-date Status of unbundling/restruction of P&E Department:-

E-in-C, P&E Department informed the Committee that the Government has taken steps for restructuring of the department which may include the corporatisation of the department. The Chairman informed the Committee that corporatisation

of the department is the need of the hour and Mizoram is one of the few states which has not been unbundled and corporatised in the country. Mr. Vanlalruata, President, CYMA also stated that it is very different between corporate and department functioning and stated that the government should take a strong stand for corporatisation of the department at an early date for the benefit of the state.

v) Opening of Revenue Collection Centre at Sakawrdai:-

Mr. Lalduhzuala Sailo, E-in-C, P&E Department informed the Committee that the department has taken steps for opening of more revenue collection at various places in Mizoram and that Sakawrdai is the priority area. That the collection center at Sakawrdai will open by the end of March, 2020. Er. Lalchharliana Pachuau, Member of the Commission also states that a permanent revenue collection center is not required in remote areas and that during 1 (one) month, the department may give prior information and open the center for 5 (five) days requesting the public to pay their dues during this period.

Agenda No.3. Determination of Retail Tariff of P&E Department for FY 2020-21.

The P&E Department gave a PowerPoint Presentation on the Tariff proposal for FY 2020-21 with a revenue gap of Rs.177.20 cr being 25.87% of the proposed ARR of Rs. 684.94 cr. P&ED in their Tariff Petition proposed a tariff hike of 89.52% over the existing tariff. After discussion amongst the members, it was decided that an affordable tariff hike is agreed keeping in mind the general trend in rising cost of commodities.

Agenda No.4. Losses in Power Purchase Management.

The Chairman of the Committee informed the Committee that as per the data received from the department, it clearly works out that the department is losing money every day due to poor power purchase management. P&ED is buying power which is not required by the state and then selling it at a lower rate than the purchased rate. And he further stated that the department should take exercise to ascertain the actual requirement of the state and review the existing Power Purchase Agreements to minimize losses. Approval of the Commission is to be obtained for signing any PPA as per Regulations. It is required to surrender partial or full share of power of very high rate to minimize losses.

In this regard, the Committee recommended that the department should constitute Study Group to look into the matter and be ready to submit the report in the next State Advisory Committee Meeting which may be held within 3 months.

Agenda No.5.Increasing trend of consumer outstanding arrear from year to year.

On the data furnished by the department it has been found out that there is a rising trend on increasing consumer outstanding arrears. As suggested by Chairman of the Committee, it was decided that the P&E Department should launch an intensive revenue collection drive to collect all the outstanding dues of Rs.43.31 cr in a phased manner so that there is no outstanding dues at the end of the coming year.

If the outstanding amount increases every year and remain uncollected, the P&E Department will never meet the Aggregate Revenue Requirement. This shall finally cause steep hike in tariff resulting in heavy burden to the consumers. It was decided that P&E Department should prepare reliable report of outstanding arrear on which strong action for recovery shall be initiated immediately. This

detail report and action taken for recovery should be submitted in the next SAC meeting for further discussion. It was further decided that the P&E Department should review the performance of meter readers quarterly to eliminate unfair practices including their engaging substitutes and theft of energy. Actions taken report should be submitted in next SAC meeting.

During the discussion some members also mentioned that pilferage of energy is becoming prevalent at various places particularly in the new construction/modification of buildings. It was also mentioned that illegal power supply/theft of electricity is rampant particularly in Tuirial Airfield areas and along the roadside from Lower Chawnpui to Government Complex. P&E Department should conduct surprise inspection of these areas and disconnect all illegal tapping of power and seize all material evidence including wires/cables, service line, etc from the premises in line with clause 7.8 of the Electricity Supply Code Regulations, 2013 and its subsequent amendments immediately and submit report to the Commission within May, 2020. This surprise inspection should be followed scrupulously by strict vigilance of the area to curtail recurrence. The P&E Department should also conduct inspection of electricity supply frequently of suspected energy theft – prone areas including the premises of the consumers where reconstruction / modification are in progress / nearing completion or finished to eliminate any chance of pilferage of energy.

Agenda No.6. Effect of outstanding power purchase bill with surcharge there on.

The E-in-C, P&E Department informed the Committee that due to quarterly sanctioning of payment by the P&E Department, surcharge on power purchase bill has been decreasing. The Members of the Committee are happy to note on the improvement of payment mechanism. However, the meeting was informed that the Treasury Office frequently withheld payment of power purchase bills. Therefore, it was decided to request Chief Secretary to take action for immediate release of any payment of power purchase bills from the Treasury Offices.

Agenda No.7. Installation of Prepayment metering system.

On installation of prepaid and smart metering in Mizoram, the department has taken pilot project on installing prepaid and smart meters at Zarkawt area in Mizoram. It was expected that by April 2020, implementation report could be submitted. Chairman of the Committee also informed the department to take necessary steps in advance to enable availing fund for installation of smart meters as Government of India, Ministry of Power has taken a huge step for implementation of smart metering for the whole country.

Agenda No.8. Case study of Transmission loss (132kV level) and Sub-Transmission (Distribution) loss at 33kV level.

Mr. Lalduhzuala Sailo, E-in-C, P&ED informed the meeting that adequate meters have been installed at all 11kV level and above. Mr. Lalchharliana Pachuau, Member of the Commission, briefly stated the need for reliable transmission loss percentage in tariff determination as the present 3% loss is on assumption only considering the prevailing losses in ER and NER. It is, therefore, decided to conduct case study on the following 132kV and 33kV and 11kV also the following lines to get reliable loss data and submit three monthly data report from January, 2020 to March, 2020 to the Commission by 20th of April 2020.

132kV lines

1. Zuangtui to Power Grid
2. Zuangtui to Champhai

33kV lines

1. Zuangtui to Indoor
2. Zuangtui to Mualpui

3. Zuangtui to Lunglei

3. Zuangtui to Durtlang

Agenda No.9. With the permission of the chair Mr. Lalchharliana Pachau, Member proposes that the department should inform the public through media that replacement of meters are to be borne by the consumers and that the department is to levy the fixing charge only and that correct meter reading should be observed scrupulously and details of consumer profile is to be maintained by the department and information to be kept in soft and hard copies.

The meeting ended at 2:45 pm with a vote of thanks from the chair.

Sd/- NG SARAT SINGH
Chairperson

Memo No. H.11019/27/16-JERC Dated Aizawl, the 17th March, 2020

Copy to:

1. P.S to Hon'ble Minister, i/c P&E Department, Government of Mizoram for kind information to the Hon'ble Minister.
2. Secretary, P&E Department, Government of Mizoram for kind information and necessary action on the Minutes of the Meeting.
3. E-in-C, P&E Department, Government of Mizoram for kind information and necessary action in the Minutes of the Meeting. He is requested to submit action taken report as stipulated in the Minutes of the Meeting positively.
4. All Members / Invitees of the State Advisory Committee for kind information and necessary action on the Minutes of the Meeting.
5. Guard File.

List of Members and Participants attended**The 22nd Meeting of State Advisory Committee of Mizoram****Date & Time :** 27th February, 2020 (Thursday) 11:00 a.m.**Venue :** Hotel Floria, Conference Hall, Bara Bazar, Aizawl

SI No.	Name	Designation
1	Mr. Ng Sarat Singh	Chairperson, JERC (M&M)
2	Mr. Lalchharliana Pachuau	Member, JERC (M&M)
3	Mr. C.Lalramliana	Joint Secretary, P&E Deptt., Govt. of Mizoram (representing Secretary)
4	Mr. Lalropuia	S.E. PHE Deptt., Govt. of Mizoram (for –E-in-C, PHE)
5	Mr. David Ramnunsanga	Director, ZEDA
6	Mr. Michael Lalthanmawia	Secretary (Project Finance), Mizoram Chamber of Industries and Commerce
7	Mr. Vanlalruata	President, CYMA
8	Mr. R.Laltluanga	President, AMFU Gen. Hqrs., Aizawl
9	Mr. K. Thanmawia	AGS, MUP Gen. Hqrs., Aizawl
10	Mr. Lalduhzuala Sailo	E-in-C, P&E Deptt., Govt. of Mizoram
11	Mr. Vanlalrema	C.E, P&E Deptt., Govt. of Mizoram
12	Mr. C. Lallawmsanga	S.E., (Commercial), P&E Deptt., Govt. of Mizoram
13	Mr. H.Lalnunsanga	A.E., (Commercial), P&E Deptt., Govt. of Mizoram
14	Mr. Sanjib Majhi	Consultant, P&E Deptt., Govt. of Mizoram
15	Mr. Jolly Newman	C.E., P&E Deptt., Govt. of Mizoram
16	Mr. Vanlaltlana	S.E., (Transmission Circle), P&E Deptt., Govt. of Mizoram
17	Mr. Lalbiaksanga	S.E., SLDC
18	Mr. H.Zoliana	S.E., LPC
19	Mr. K. Hari Prasad	Consultant, ASCI, Hyderabad
20	Mr. H. Thanthianga	Asst. Chief (Engineering), JERC(M&M)
21	Mr. Richard Zothankima	Asst. Secretary, JERC (M&M)
22	Mr. Lalrinmawia	S.E., APC
23	Mr. Lalduhawma	Sr. E.E. (Distribution), P&E Deptt., Govt. of Mizoram
24	Mr. Lalzorama	S.E., Champhai Power Circle

ANNEXURE-II

**LIST OF PARTICIPANTS ATTENDED IN PUBLIC HEARING
ON FY 2020-21 ARR & TARIFF PETITION OF POWER & ELECTRICITY DEPARTMENT,
GOVT. OF MIZORAM**

Venue : Hotel Floria Conference Hall, Aizawl, Mizoram

Date & Time : 28th February, 2020 (Friday) at 11:00 a.m

SI. No.	NAME OF THE PARTICIPANT	DESIGNATION & ORGANIZATION
1	Mr. Ng. Sarat Singh	Chairperson, JERC (M&M)
2	Mr. Lalchharliana Pachuau	Member, JERC (M&M)
3	Mr. H. Thanthianga	Asst. Chief (Engg.), JERC (M&M)
4	Mr. Richard Zothankima	Asst. Secy., JERC (M&M)
5	Mr. C. Lallawmsanga	SE (Comml), P&ED
6	Mr. Vanlalruata	President, CYMA
7	Mr. Lalrinmawia	SE, APC
8	Ms. R.L. Muanpuui	EO to E-in-C, P&ED
9	Mr. H. Lallianmawia	SDO, P&ED
10	Mr. K. Hari Prasad	Consultant, ASCI
11	Mr. C.C. Lalrinmawia	SDO (Luangmual)
12	Mr. Sanjib Majhi	Consultant, P&ED
13	Mr. Lalhminghlua	EE (Rev. Div.), P&ED
14	Mr. Lalduhawma	Sr. EE (Dist. Div), P&ED
15	Mr. H. Lalnunsanga	AE (Comml.)
16	Mr. Lalmuanpuia Punte	General Public representative
17	Mr. B.C. Lalremruata	General Public representative

P&ED-Mizoram - Expected Revenue during FY2020-21 from existing Tariff of FY2019-20													
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)
1	2	3	4	5	6	7	8	9	10	11	12=(9+11)	13	14
1	Kutir Jyothi (Domestic)												
i)	First 20 kWh	13124		1.14	7.25		2.10		15.23	2.00			
ii)	Balance >20 kWh	9946		2.56	21.46	Connection	3.00		46.38	4.61			
	Sub Total (a)	23070	4680.11	3.70		20		4.61	61.61	6.61	11.22	134.64	3.64
2	Domestic (General)												
i)	First 100 kWh	109376		65.05	49.56		3.10		153.64	168.04			
ii)	Next 100 kWh	44520		58.56	109.62		4.60		354.25	157.71			
iii)	Balance >200 kWh	50066		113.39	188.74		5.10		712.57	356.76			
	Sub Total (b)	203962	283937	237.00		50		141.97	1220.46	682.51	824.48	9893.76	4.17
3	Domestic HT (c)	37	5702	10.64	23655.22	50	4.80	3.17	126161.17	47.29	50.46	605.49	5.69
	Total Domestic (a+b+c)	227069	294319	251.34				149.75	127443.24	736.41	886.16	10499.25	4.18
4	Non-Domestic												
i)	First 150 kWh	5317		6.56	102.79		3.90		400.88	21.31			
ii)	Balance >150 kWh	3053		21.57	588.85		4.30		2472.06	75.48			
	Sub Total (a)	8370	23417	28.13		55		12.88	2872.94	96.79	109.67	1316.04	4.68
5	Non-Domestic (HT) (b)	93	10213	5.52	4963.13	55	4.40	6.24	24264.19	22.47	28.71	344.54	6.25
	Total Non-Domestic (a & b)	8462	33630	33.65				19.12	27137.13	119.26	138.381	1660.58	4.94
4	Commercial												
i)	First 150 kWh	5317		6.56	102.79		4.35		447.14	23.77			
ii)	Balance >150 kWh	3053		21.57	588.85		5.40		3022.29	92.28			
	Sub Total (a)	8370	23417	28.13		70		16.39	3469.43	116.05	132.44	1589.28	5.65
5	Commercial (HT) (b)	93	10213	5.52	4963.13	70	5.50	7.94	30330.24	28.09	36.03	432.40	7.84
	Total Commercial (a&b)	8462	33630	33.65				24.33	33799.67	144.14	168.474	2021.68	6.01
6	Public Lighting	1347	1015	2.95	182.41	70	5.40	0.71	985.01	13.27	13.98	167.76	5.69
7	Public Water Supply - LT	11	4463	5.15	38939.18	80	5.20	3.57	202483.74	22.32	25.89	310.68	6.03
8	Public Water Supply - HT	59	47804	70.45	99111.69	80	5.00	42.49	550620.50	326.17	368.66	4423.95	6.28
9	Agriculture - LT	25	42	0.24	804.48	50	2.70	0.02	2172.10	0.55	0.57	6.84	2.81
10	Agriculture - HT	0	0	0.00	0.00	50	2.60	0.00	0.00	0.00	0.00	0.00	#DIV/0!
11	Industrial LT												
i)	First 400 kWh	1079		2.63	203.06		4.10		832.55	8.99			
ii)	Balance >400 kWh	190		1.13	495.50		4.80		2098.40	3.98			
	Total Industrial	1269	11518	3.76		70		8.06	2930.95	12.97	21.03	252.36	6.72
12	Industrial - HT	17	9876	12.07	60801.87	70	4.55	7.68	307387.23	50.83	58.51	702.14	5.82
13	Bulk Supply HT	215	18314	14.25	5524.19	90	5.10	18.31	31303.74	67.30	85.61	1027.37	7.21
	Grand Total	246937	454612	427.51				274.05	1286263.31	1493.22	1767.27	21207.25	4.96

P&ED-Mizoram - Expected Revenue during FY2020-21 from Approved Subsidised Tariff w.e.f 1.04.2020														
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)	Avg.rate/ ACS (%)
1	2	3	4	5	6	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)	13	14	15
1	Kutir Jyothi (Domestic)													
i)	First 20 kWh	13124		1.14	7.25		2.10		15.23	2.00				
ii)	Balance >20 kWh	9946		2.56	21.46	Connection	3.00		46.38	4.61				
	Sub Total (a)	23070	4680.11	3.70		25		5.77	61.61	6.61	12.38	148.56	4.01	39.94%
2	Domestic (General)													
i)	First 100 kWh	109376		45.05	34.32		3.30		113.26	123.88				
ii)	Next 101 to 200 kWh	44520		68.56	128.34		4.80		466.03	207.48				
iii)	Balance >200 kWh	50066		123.39	205.38		5.30		838.51	419.81				
	Sub Total (b)	203962	283937	237.00		50		141.97	1417.80	751.17	893.14	10717.68	4.52	45.02%
3	Domestic HT (c)	37	5702	10.64	23655.22	50	5.10	3.17	134046.25	50.25	53.42	641.01	6.02	59.96%
	Total Domestic (a+b+c)	227069	294319	251.34				150.91	135525.66	808.03	958.94	11358.69	4.52	
4	Non-Domestic													
i)	First 150 kWh	5317		6.56	102.82		4.30		442.13	23.51				
ii)	Balance >150 kWh	3053		21.57	588.68		4.60		2662.93	81.31				
	Sub Total (a)	8370	23417	28.13		60		14.05	3105.06	104.82	118.87	1426.44	5.07	50.50%
5	Non-Domestic (HT) (b)	93	10213	5.52	4946.24	60	4.70	6.81	25830.36	24.02	30.83	369.94	6.70	66.73%
	Total Non-Domestic (a & b)	8463	33630	33.65				20.86	28935.42	128.84	149.699	1796.38	5.34	
4	Commercial													
i)	First 150 kWh	5317		6.56	102.79		4.70		483.11	25.68				
ii)	Balance >150 kWh	3053		21.57	588.85		5.70		3206.45	97.90				
	Sub Total (a)	8370	23417	28.13		80		18.73	3689.56	123.58	142.31	1707.72	6.07	60.46%
5	Commercial (HT) (b)	93	10213	5.52	4963.13	80	5.80	9.08	31984.62	29.62	38.70	464.38	8.42	83.86%
	Total Commercial (a&b)	8462	33630	33.65				27.81	35674.18	153.2	181.008	2172.1	6.46	
6	Public Lighting	1347	1015	2.95	182.41	80	10.00	0.81	1824.10	24.58	25.39	304.68	10.33	102.89%
7	Public Water Supply - LT	11	4463	5.15	38939.18	90	9.90	4.02	385497.88	42.50	46.52	558.24	10.84	107.97%
8	Public Water Supply - HT	59	47804	70.45	99111.69	90	9.80	47.80	1079216.2	639.29	687.09	8245.13	11.70	116.53%
9	Agriculture - LT	25	42	0.24	804.48	50	2.90	0.02	2332.99	0.59	0.61	7.32	3.00	29.88%
10	Agriculture - HT	0	0	0.00	0.00	50	2.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00%
11	Industrial LT													
i)	First 400 kWh	1079		2.63	203.06		4.60		934.08	10.08				
ii)	Balance >400 kWh	190		1.13	495.50		5.30		2346.15	4.45				
	Total Industrial	1269	11518	3.76		80		9.21	3280.23	14.53	23.74	284.88	7.58	75.50%
12	Industrial - HT	17	9876	12.07	60801.87	80	5.30	8.78	358055.46	59.21	67.99	815.87	6.76	67.33%
13	Bulk Supply HT	215	18314	14.25	5524.19	90	5.90	18.31	36214.13	77.86	96.17	1154.09	8.10	80.68%
	Grand Total	246938	454612	427.51				288.53	2066556.2	1948.63	2237.16	26845.94	6.28	62.55%
													ACS	10.04

P&ED-Mizoram - Expected Revenue during FY2020-21 from approved Full Cost Tariff (i.e., without subsidy) w.e.f 1.04.2020															
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. Crore	Avg. Revenue (Rs/kWh)	Ratio of ABR to ACOS (%)	
1	2	3	4	5	6	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)	12=(9+11)	13=(12/100)	14	15
1	Kutir Jyothi (Domestic)														
i)	First 20 kWh	13124		1.14	7.25		5.50		39.88	5.23					
ii)	Balance >20 kWh	9946		2.56	21.46	Connection	5.60		118.18	11.75					
	Sub Total (a)	23070	4680.11	3.70		30.00		6.92	158.06	16.98	23.90	2.87	7.75	77.19%	
2	Domestic (General)														
i)	First 100 kWh	109376		45.05	34.32		8.00		274.56	300.30					
ii)	Next 101 to 200 kWh	44520		68.56	128.34		8.10		1029.55	458.36					
iii)	Balance >200 kWh	50066		123.39	205.38		8.20		1654.12	828.16					
	Sub Total (b)	203962	283937	237.00		60		170.36	2958.23	1586.82	1757.18	210.86	8.90	88.65%	
3	Domestic HT (c)	37	5702	10.64	23655.22	60	8.20	3.80	215525.34	80.79	84.59	10.15	9.54	95.02%	
	Total Domestic (a+b+c)	227069	294319	251.34				181.08	218641.63	1684.59	1865.67	221.01	8.79		
4	Non-Domestic														
i)	First 150 kWh	5317		6.56	102.82		9.15		940.80	50.02					
ii)	Balance >150 kWh	3053		21.57	588.68		9.30		5452.22	166.48					
	Sub Total (a)	8370	23417	28.13		65		15.22	6393.02	216.50	231.72	27.81	9.88	98.41%	
5	Non-Domestic (HT) (b)	93	10213	5.52	4946.24	65	9.20	7.38	50561.56	47.02	54.40	6.53	11.83	117.83%	
	Total Non-Domestic (a & b)	8463	33630	33.65				22.60	56954.58	263.52	286.116	34.33	10.20		
4	Commercial														
i)	First 150 kWh	5317		6.56	102.79		10.90		1120.41	59.57					
ii)	Balance >150 kWh	3053		21.57	588.85		11.00		6462.35	197.31					
	Sub Total (a)	8370	23417	28.13		80		18.73	7582.76	256.88	275.61	33.07	11.76	117.13%	
5	Commercial (HT) (b)	93	10213	5.52	4963.13	90	10.50	10.21	57903.18	53.62	63.83	7.66	13.89	138.35%	
	Total Commercial	8462	33630	33.65				28.94	65485.94	310.5	339.443	40.73	12.11		
6	Public Lighting	1347	1015	2.95	182.41	80	10.50	0.81	1915.31	25.81	26.62	3.19	10.83	107.87%	
7	Public Water Supply - LT	11	4463	5.15	38939.18	90	10.50	4.02	408861.39	45.08	49.10	5.89	11.44	113.94%	
8	Public Water Supply - HT	59	47804	70.45	99111.69	90	10.10	47.80	1112253.41	658.86	706.66	84.80	12.04	119.92%	
9	Agriculture - LT	25	42	0.24	804.48	50	8.30	0.02	6677.18	1.69	1.71	0.21	8.42	83.86%	
10	Agriculture - HT	0	0	0.00	0.00	50	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	
11	Industrial LT														
i)	First 400 kWh	1079		2.63	203.06		9.00		1827.54	19.73					
ii)	Balance >400 kWh	190		1.13	495.50		9.25		4483.38	8.50					
	Total Industrial	1269	11518	3.76		85		9.79	6310.92	28.23	38.02	4.56	12.14	120.92%	
12	Industrial - HT	17	9876	12.07	60801.87	85	10.00	9.33	675576.33	111.72	121.05	14.53	12.04	119.92%	
13	Bulk Supply HT	215	18314	14.25	5524.19	90	9.35	18.31	57390.20	123.38	141.69	17.00	11.93	118.82%	
	Grand Total	246938	454612	427.51				322.71	2610066.89	3253.38	3576.09	429.13	10.04	100.00%	



JOINT ELECTRICITY REGULATORY COMMISSION FOR MANIPUR AND MIZORAM

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