



# **TARIFF ORDER**

**TRUE UP FOR FY 2016-17, REVIEW FOR FY 2017-18 AND  
DETERMINATION OF AGGREGATE REVENUE REQUIREMENT**

**FOR MYT PERIOD FY 2018-2019 TO 2022-2023**

**&**

**RETAIL TARIFF FOR FY 2018-19**

**FOR**

**MANIPUR STATE POWER DISTRIBUTION COMPANY LIMITED**

**Petition (ARR & Tariff) No. 1 of 2018**

**JOINT ELECTRICITY REGULATORY COMMISSION**

**FOR MANIPUR AND MIZORAM**



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**ABBREVIATIONS**

<b>Abbreviation</b>	<b>Description</b>
A&G	Administrative and General
AAD	Advance Against Depreciation
ARR	Aggregate Revenue Requirement
CAG	Controller and Auditor General of India
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CWIP	Capital Work in Progress
DG	Diesel Generation
DPS	Delayed Payment Surcharge
EA, 2003	Electricity Act, 2003
EDM	Electricity Department, Manipur
EHT	Extra High Tension
FSA	Fuel Surcharge Adjustment
FY	Financial Year
GFA	Gross Fixed Assets
GOI	Government of India
HT	High Tension
IEGC	Indian Electricity Grid Code
ISGS	Inter State Generating Station
IR	Inter Regional
JERC	Joint Electricity Regulatory Commission for Manipur and Mizoram
kV	Kilovolt
kVA	Kilovolt-ampere
kW	kilowatt
kWh	kilowatt-hour
LT	Low Tension
MAT	Minimum Alternate Tax
MDI	Maximum Demand Indicators
MSPCL	Manipur State Power Company Limited
MSPDCL	Manipur State Power Distribution Company Limited
MUs	Million Units
MYT	Multi Year Tariff
NLDC	National Load Despatch Centre
NTI	Non-Tariff Income
O&M	Operation and Maintenance
PGCIL	Power Grid Corporation of India Ltd
PLF	Plant Load Factor
PLR	Prime Lending Rate
POSO	Power System Operation Corporation Ltd.
PPA	Power Purchase Agreement

PWW	Public Water Works
R&M	Repair and Maintenance
RoE	Return on Equity
RGVY	Rajiv Gandhi Gramin Vidyutikaran Yojana
SBAR	State Bank Advance Rate
SLDC	State Load Despatch Centre
T&D	Transmission and Distribution
UI	Unscheduled Interchange
RE	Revised Estimate
REC	Renewable Energy Certificate

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

**TBL Bhawan, 2<sup>nd</sup> to 5<sup>th</sup> Floor  
Peter street, E-18, Khatla,  
Aizawl, Mizoram – 796001**

**Petition (ARR & Tariff) No. 1 of 2018**

In the matter of

True up for FY 2016-17, Annual Performance Review for FY 2017-18 and determination of Aggregate Revenue Requirement (ARR) for 2018-2019 to FY 2022-2023 and retail Tariff for FY 2018-19 for sale of electricity by the Manipur State Power Distribution Company Limited (MSPDCL) in the State of Manipur

**AND**

Manipur State Power Distribution Company Limited ----- Petitioner

**Present**

**Mr. Ngangom Sarat Singh  
Chairperson**

**ORDER**

1. The Manipur State Power Distribution Company Limited (hereinafter referred to as MSPDCL) is a deemed licensee in terms of section 14 of the Electricity Act 2003 (hereinafter referred to as Act), engaged in the business of distribution of electricity in the state of Manipur.
2. JERC (M&M) (MYT) Regulations, 2014 specify that the distribution licensee shall file ARR and Tariff Petition in all aspects along with requisite fee as specified in Commission's fees, fines and charges regulations, on or before 30<sup>th</sup> November of the preceding year. The MSPDCL has requested for extension of time upto 30.12.2017 vide Letter No 2/62/2016/MSPDCL (Comml)/2875-78, date 29.11.2017 and the Commission had accorded extension upto 20.12.2017. Again MSPDCL has requested further extension of time upto 15<sup>th</sup> January, 2018 vide Letter No2/62/2016/MSPDCL (Comml)/ 3175-78

dated 19.12.2017. Accordingly MSPDCL has filed petition for determination of ARR for second block of MYT period FY 2018-19 to FY 2022-23 and retail tariffs for FY 2018-19 along with true up petition for FY 2016-17 on 15<sup>th</sup> January, 2018 vide letter No 2/62/2016/MSPDCL (Comml)/ 3524-27. The petition for Annual Performance Review is however submitted on 21<sup>st</sup> February, 2018

**3. ARR & Tariff Petition**

As per the directive of the Commission, the MSPDCL has filed the Petition for True-up for FY 2016-17 and APR for FY 2017-18 and determination of Aggregate Revenue Requirement (ARR) for FY 2018-19 to FY 2022-23 and Retail Tariff for FY 2018-19. In the petition MSPDCL has estimated ARR of Rs. 699.88 Crore, Rs. 739.02 Crore, Rs. 791.96 Crore, Rs. 841.85 Crore and Rs. 892.85 Crore for FY 2018-19 to FY 2022-2023 respectively and Revenue from existing tariff at Rs. 324.83 and considered a tariff support of Rs. 392.99 Crore from the Govt. of Manipur for FY 2018-19 thereby showing a gap of Rs. 36.51 Crore, which the MSPDCL proposed to recover through proposed tariff.

**4. Admission of the petition**

The Commission observed that the ARR filed by the Petitioner was incomplete and lacking critical and vital information required as specified in JERC for M&M Multi Year Tariff Regulations, 2014. Therefore, MSPDCL was asked to submit the required information vide Commission letters No. H.20013/22/16-JERC, dated 17<sup>th</sup> January, 2018, No. H.20013/22/16-JERC dated 18<sup>th</sup> January, 2018, No. H.20013/22/16-JERC dated 24<sup>th</sup> January, 2018, No. H.20013/22/16-JERC dated 1<sup>st</sup> February 2018 & No. H.20013/22/16-JERC dated 2<sup>nd</sup> January 2018.

Pending receipt of additional information the Petition was admitted on 19<sup>th</sup> January, 2018 and marked as petition (ARR and Tariff) No. 1 of 2018 to avoid delay in processing of ARR.

The MSPDCL has submitted some data/information/clarifications etc. vide its letters No. 2/62/2016/MSPDCL(Comml)/7789-90, dated 25<sup>th</sup> January, 2018, and No. 2/62/2016/MSPDCL(Comml)/3705-07, dated 30<sup>th</sup> January, 2018.

**5. True up of ARR for FY 2016-17**

As per Regulation 10(2) of JERC (M&M) (MYT) Regulations, 2014 the licensee shall file an application for True up of the previous year along with Audited Annual Accounts.

MSPDCL has submitted true up petition along with MYT ARR petition along with unaudited annual accounts for FY 2016-17 and shown a revenue gap of Rs. 257.49 Crore. After detailed analysis the Commission provisionally arrived a revenue gap of Rs. 197.99 Crore.

**Annual Performance Review for FY 2017-18**

Though the JERC for M&M (MYT) Regulations 2014 do not provide annual performance review, the Commission considers it appropriate to review the previous year ARR with reference to RE, but without changing the principles. Accordingly review for FY 2017-18 is carried out which resulted in a revenue gap of Rs. 218.71 Cr as against Rs. 292.12 Cr estimated by MSPDCL.

**6. Public Hearing Process**

Regulation 17 of the MYT Regulations, 2014 provides giving adequate opportunity to all stake holders and general public for making suggestions/objections on the Tariff Petition as mandated under section 64 of the Electricity Act 2003. Accordingly the Commission directed MSPDCL vide letter No.H.20013/22/16-JERC dated 19.01.2018 to publish the ARR and Tariff Petition for the FY 2018-19 to FY2022-2023 in an abridged form as public notice in newspapers having wide circulation in the state inviting suggestions/objections on the Tariff Petition.

Accordingly MSPDCL has published the Tariff Petition in an abridged form as public notice in the following newspapers and the Tariff petition was also placed on the website of MSPDCL. The last date of submission of suggestions/objections was fixed on 05.02.2018.

Sl. No.	Name of the Newspaper	Language	Date of Publication
1	The Sangai Express	English	21 <sup>st</sup> January, 2018
2	Poknapham	Manipuri	22 <sup>nd</sup> January, 2018

The Commission received one objection / suggestion from all Manipur Power Consumers' Association on the petition filed by the MSPDCL. The Commission passed on the objection received to MSPDCL for communicating their response on the objections raised.

The Commission, to ensure transparency in the process of Tariff determination and for providing proper opportunity to all stake holders and general public for making suggestions/objections on the Tariff petition and for convenience of the consumers and general public across the state, has decided to hold a public hearing at the headquarters

of the state.

**7. Notice for Public Hearing**

Accordingly the Commission published a notice in the following leading newspapers giving due intimation to the general public, interested parties, objectors and the consumers about the public hearing to be held at Imphal on 20.02.2018.

Sl. No	Name of the news paper	Language	Date of Publication
1	Poknapham	Manipuri	9 <sup>th</sup> February, 2018 & 10 <sup>th</sup> February 2018
2	Imphal Free Press	English	14 <sup>th</sup> February, 2018, 15 <sup>th</sup> February, 2018 & 10 <sup>th</sup> February 2018

**8. Public Hearing**

The Public hearing was held as scheduled on 20.02.2018 at Hotel Classic Grande, Imperial Hall, Imphal from 10:30 AM to 12:30 PM. During the public hearing, each objector was provided a time slot for presenting before the Commission his/her views on the petition of the MSPDCL. The main issues raised by the objectors during the public hearing and corresponding response of the MSPDCL are briefly narrated in Chapter - 4.

9. The proposal of MSPDCL was also placed before the State Advisory Committee in its meeting held on 19.02.2018 at Hotel Classic Grande, Dynasty Hall, Imphal from 11.00 AM and various aspects of the Petition were discussed by the Committee.
10. The Commission took into consideration the facts presented by the MSPDCL in its Petition and subsequent filings, the suggestions/objections received from stakeholders, consumer organizations, general public and State Advisory Committee and response of the MSPDCL to those suggestions/objections for approval of the ARR for FY 2018-2019 to FY 2022-2023 and tariff for FY 2018-19.
11. The Commission has reviewed the directives issued earlier in the Tariff orders for FY 2010-11 to FY 2017-18 and noted that some of the directives are complied and some are partially attended. The Commission has dropped the directives which are complied fully and the remaining directives are consolidated and fresh directives are added.
12. In exercise of the powers vested under section 62 read with section 64 of the Electricity Act 2003 and Regulation 16 JERC for M&M (Multi Year Tariff) Regulations, 2014

(hereinafter referred to as Tariff Regulations) and other enabling provisions in this behalf the Commission issues this order approving of the ARR for FY 2018-19 to FY2022-2023 and determination of retail Tariff for FY 2018-19 for supply of electricity in the state of Manipur.

13. This order is in Eleven chapters as detailed below;
- Chapter 1: Introduction.
  - Chapter 2: Summary of ARR for MYT Second Control Period FY 2018-19 to FY 2022-2023.
  - Chapter 3: Power Sector in Manipur - An overview.
  - Chapter 4: Public Hearing process.
  - Chapter 5: True up for FY 2016-17
  - Chapter 6: Annual Performance Review for FY 2017-18.
  - Chapter 7: Analysis of ARR for MYT Second Control Period FY 2018-19 to FY 2022-2023 and Commission's decisions.
  - Chapter 8: Tariff Principles and Design.
  - Chapter 9: Wheeling charges for FY 2018-19.
  - Chapter 10: Directives.
  - Chapter 11: Fuel and Power Purchase Cost Adjustment.
14. The MSPDCL should ensure implementation of the order from the effective date after issuance of a public notice, in such a font size which is clearly visible in two daily newspapers having wide circulation in the state within a week and compliance of the same shall be submitted to the Commission by the MSPDCL.
15. This order shall be effective from 1st April, 2018 and shall remain in force till the next Tariff Order of the Commission.



**(NGANGOM SARAT SINGH)**  
Chairperson

**Place : Aizawl**

**Date : 12.03.2018**

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## 1. Introduction

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

In exercise of the powers conferred by the Electricity Act 2003, (hereinafter referred to as Act) the Government of India 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 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 January 24th, 2008.

- a) In accordance with the Act, the Commission discharges the following functions:
- i. Determine the tariff for generation, transmission, distribution and wheeling of electricity, wholesale, bulk or retail, as the case may be, within the State: Provided that where open access has been permitted to a category of consumers under Section 42 of the Act, the State Commission shall determine only the wheeling charges and surcharge thereon, if any, for the said category of consumers;
  - ii. 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;
  - iii. Facilitate intra-State transmission and wheeling of electricity
  - iv. Issue licenses to persons seeking to act as transmission licensees, distribution licensees and electricity traders with respect to their operations within the State;



- v. 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;
  - vi. Adjudicate upon the disputes between the licensees and generating companies; and to refer any dispute for arbitration;
  - vii. Levy fee for the purposes of this Act;
  - viii. Specify State Grid Code consistent with the Central Grid Code specified under Clause (h) of sub-section (1) of Section 79 of the Act;
  - ix. Specify or enforce standards with respect to quality, continuity and reliability of service by licensees;
  - x. Fix the trading margin in the intra-State trading of electricity, if considered, necessary;
  - xi. Discharge such other functions as may be assigned to it under the Act.
- b) Further, the Commission also advises the State Government on all or any of the following matters namely:
- i. Promotion of competition, efficiency and economy in activities of the electricity industry;
  - ii. Promotion of investment in electricity industry;
  - iii. Reorganization and restructuring of electricity industry in the State;
  - iv. Matters concerning generation, transmission, distribution and trading of electricity or any other matter referred to the State Commission by the State Government.
- c) The State Commission ensures transparency while exercising its powers and in discharging its functions.
- d) In discharge of its functions, the State Commission is guided by the national Tariff Policy (NTP) as brought out by GOI in compliance to Section 3 of the Act. The objectives of the NTP are to:
- Ensure availability of electricity to consumers at reasonable and competitive rates;

- Ensure financial viability of the power sector and attract investments;
- Promote transparency, consistency and predictability in regulatory approaches across jurisdictions and minimize perceptions of regulatory risks;
- Promote competition, efficiency in operations and improvement in quality of supply.

## **1.2 Manipur State Power Distribution Company Ltd (MSPDCL)**

In pursuance Electricity Act 2003, herein after referred to as Act, the erstwhile. State Electricity Department was unbundled into 2 (two) state owned functionally independent successor entities is, (i) Manipur State Power Company Ltd (herein after referred has MSPCL) a deemed transmission licensee and (ii) Manipur State Power Distribution Company Ltd (herein after referred has MSPDCL) a deemed distribution Licensee w.e.f 1<sup>st</sup> of Feb 2014, by a Gazette notification of the Government of Manipur vide Manipur state electricity reforms transfer scheme 2013 (or Transfer scheme 2013) dated 31<sup>st</sup> December 2013. MSPDCL is a 100% subsidiary of MSPCL and under takes power distribution within the state of Manipur. MSPDCL holds the entire network in the state at a voltage level of 11kv and below. All the existing generation assets of about 45 MW which are primarily function as back up generation facilities are transferred to MSPDCL. These generation assets are included as other business for MSPDCL. MSPDCL also carries out the trading activity.

The objectives of the MSPDCL are:

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

## 2. Summary of ARR and Tariff Petition

### 2.1 Aggregate Revenue Requirement (ARR)

The MSPDCL, in its petition, has submitted the Aggregate Revenue Requirement for the MYT Second Control Period FY 2018-19 to FY 2022-2023 for meeting its expenses as shown in Table below.

**Table 2. 1: ARR for Control period projected by MSPDCL for FY 2018-19 to FY 2022-23**

(Rs. Crore)

S. No	Particulars	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
<b>A</b>	<b>Expenditure</b>						
1	Cost of power purchase	374.10	435.49	469.80	506.51	538.47	571.14
2	Inter-state Transmission charges	49.35	58.21	61.12	64.18	67.39	70.76
3	Intra-state transmission charges	68.15	92.62	98.57	111.58	123.49	135.45
4	Wheeling charges payable to other distribution licensee	0.00	0.00	0.00	0.00	0.00	0.00
5	O &M expenses	97.76	125.00	132.15	139.71	147.70	156.15
6	Depreciation	0.21	5.91	7.44	8.91	10.42	11.74
7	Advance against Depreciation	0.00	0.00	0.00	0.00	0.00	0.00
8	Interest on loan	5.43	5.94	5.17	4.24	3.13	1.86
9	Interest on Working Capital	5.22	11.38	12.33	13.44	14.54	15.54
10	Provision for bad debt	3.00	3.00	3.00	3.00	3.00	3.00
11	<b>Total Cost</b>	<b>603.22</b>	<b>737.55</b>	<b>789.58</b>	<b>851.57</b>	<b>908.14</b>	<b>965.64</b>
<b>B</b>	<b>Add: RoE</b>	1.56	1.95	1.95	1.95	1.95	1.95
12	Add: Income Tax	0.39					
13	<b>B: Total</b>	1.95	1.95	1.95	1.95	1.95	1.95
14	<b>Total ARR: A+B</b>	<b>605.17</b>	<b>739.50</b>	<b>791.53</b>	<b>853.52</b>	<b>910.09</b>	<b>967.59</b>
<b>C</b>	<b>Less(Non Tariff Income)</b>						
15	Other Income(including income from trading)	32.58	39.62	52.51	61.56	68.24	74.74
16	Income from other business allocated to Licensed business	0.00	0.00	0.00	0.00	0.00	0.00
17	<b>Sub Total</b>	32.58	39.62	52.51	61.56	68.24	74.74
18	<b>Net Aggregate Revenue requirement (A-B)</b>	<b>572.59</b>	<b>699.88</b>	<b>739.02</b>	<b>791.96</b>	<b>841.85</b>	<b>892.85</b>

**Prayer**

The MSPDCL has requested the Hon'ble Commission to:

- Admit the Aggregate Revenue Requirement for MYT Second Control Period and the Tariff Revision proposal for FY 2018-19 as submitted herewith.
- Admit the limited provisional True up Petition for FY 2016-17.
- Condone any inadvertent omissions/errors/shortcomings and permit the Petitioner to add/change/modify/alter this filing and make further submission as may be required at a future date.
- Permit submission of any additional information required by the Commission during the processing of the Petition.
- And pass such other and further orders as are deemed fit and proper in the facts and circumstances of the case.

### 3. Power Sector in Manipur- An Overview

#### 3.1 Geographical Reality

The MSPDCL is responsible for distribution of electricity in the State of Manipur, which has a total area of 22,347 Sq KM with nine districts namely, Bishnupur, Churachandpur, Chandel, Imphal-East, Imphal-West, Senapati, Tamenglong, Thoubal and Ukhrul. Manipur occupies an area of great strategic importance in North East corner of India. Manipur is bounded by States of Nagaland in the North, Mizoram in the South, Assam in the West and sharing international boundary with Myanmar in the East. The total population of Manipur State is 27.22 lakhs as per 2011 census. MSPDCL serves about 3.46 lakh consumers of various categories. Per capita consumption is about 188 kWh as on 31.03.2017.

#### 3.2 Power Supply

##### a) Own Generation

The MSPDCL has own generation plants micro hydel, diesel with installed capacity of 45.11 MW. The units generated from the plants and the total fuel cost is summarised in Table below:

**Table 3. 1: Own Generation**

Sl. No	Item	Unit	FY 2016-17
1	Generation from Hydel	NA	NA
2	Diesel	MU	0.68
3	Total Units Generated	MU	0.68
4	Total Fuel Cost	Rs .Crore	1.19

##### b) Power Purchase

The MSPDCL is mostly dependent on Central Generating Stations (CGS) located in different parts of the North Eastern Region for meeting its energy requirement. The total firm share from the Central Sector Generating Stations of NEEPCO and NHPC and Tripura is 174.30 MW as shown in the Table below. The actual peak and off-peak availabilities are however always less because of low plant load factors.

Table 3. 2: Energy Allocation from Central Generating Stations (CGS)

Sl. No	Station	Installed Capacity MVA	FY 2016-17 (Actual)	
			Manipur Allocation (MW)	AVG Allocation in %
<b>A</b>	<b>NEEPCO(Hydro)</b>			
1	Kopili I HEP	200	14.78	7.39%
2	Kopili II HEP	25	1.74	6.95%
3	Khandong HEP	50	3.28	6.56%
4	Ranganadi HEP	405	33.90	8.37%
5	Doyang HEP	75	5.90	7.87%
	<b>Sub total</b>	<b>755</b>	<b>59.60</b>	
<b>B</b>	<b>NEEPCO(Gas Based)</b>			
1	Assam Gas based Power Project	291	23.60	8.11%
2	Agartala Gas Turbine Power Project	84	6.98	8.31%
	<b>Sub total</b>	<b>375</b>	<b>30.58</b>	
<b>C</b>	<b>NHPC(Loktak HEP)</b>			
1	Purchased	105	31.62	30.12%
	<b>Sub total</b>	<b>105</b>	<b>31.62</b>	
<b>D</b>	<b>TRIPURA</b>			
1	Baramura (Gas Based)(Unit IV)	21	5.25	25%
2	Baramura(Gas Based)(Unit V)	21	5.25	25%
	<b>Sub total</b>	<b>42</b>	<b>10.56</b>	<b>25%</b>
<b>E</b>	<b>New Projects</b>			
1	OTPC-(Pallatana-Unit I)	363	21.00	5.79%
2	OTPC-(Pallatana-Unit II)	363	21.00	5.79%
	<b>Sub Total</b>	<b>726</b>	<b>42.00</b>	
	<b>Total</b>	<b>2003</b>	<b>174.30</b>	

The energy draws from various central generating stations and Tripura during 2016-17 are given Table below:

Table3. 3: Energy Draws from Central Generating Stations &amp; Tripura

Station	FY 2016-17 (MU)
<b>NEEPCO (Hydro)</b>	
Kopili I HEP	71.27
Kopili II HEP	7.03
Khandong HEP	12.43
Ranganadi HEP	104.31
Doyang HEP	19.43
<b>Sub total</b>	<b>214.47</b>
<b>NEEPCO (Gas Based)</b>	
Assam Gas based Power Project	118

Agartala Gas Turbine Power Project	73.27
Agartala Gas Extension	
<b>Sub total</b>	<b>191.27</b>
<b>NHPC (Loktak HEP)</b>	
Purchased (20.02MW)	218.27
Free Power (12.60 MW)	85.84
<b>Sub total</b>	<b>304.11</b>
<b>TRIPURA</b>	
Baramura (Gas Based)- (Unit IV and V)	73.53
OTPC-Pallatana (Unit I)	230.44
OTPC-Pallatana (Unit II)	
<b>Sub Total</b>	<b>303.97</b>
NTPC Bongaigaon (Unit I)	<b>57.37</b>
NTPC Bongaigaon (Unit II & III)	-
<b>Total</b>	<b>1071.91</b>
<b>UI Purchases</b>	<b>33.58</b>
<b>Gross Power Purchase</b>	<b>1104.77</b>

(Source: Table 28 of the Petition)

### 3.3 Transmission and Distribution

For the purpose of drawing power from the Central Sector generating stations and other sources in the North Eastern Region, the MSPDCL has utilized 1 no. of 400 kV D/C line presently charged at 132 kV and 4 No's single circuit 132kV interstate transmission lines, 3 (three) being owned by PGCIL and two by MSPCL, as detailed below.

#### Owned by MSPCL

- Leimatak-Ningthoukhong-Karong-Kohima-132 kV line.
- Leimatak-Jiribam-132 kV line

#### Owned by PGCIL

- Silchar – Imphal – 400 kV D/C line charged at 132 kV
- Leimatak – Imphal - Dimapur – 132 kV line.
- Leimatak - Jiribam – 132 kV line.

Manipur, being a hilly state with its population unevenly dispersed and spread over remote corners, it is having large network of Sub-Transmission and Distribution system. The details of Distribution network, owned & operated by MSPDCL as on 31.03.2017, are given in Table below.

**Table3. 4: Distribution Network as on 31.3.2017**

Sl. No	Voltage	Distribution lines (Ckt. Km)		Sub-stations (nos.)	Sub- station/ transformer MVA
		Double Ckt. Km	Single Ckt. Km		
1	11kV lines	16.090	7055.88		
2	LT lines		11888.679		
3	Distribution transformers			5522	408.5
4	11 kV (UG)		0.010		
5	LT cable (UG)		44.43		

### 3.4 Distribution Loss

The Distribution loss of MSPDCL system is 36.46% during the year 2016-17. The technical and commercial losses are not segregated.

### 3.5 Consumer Profile

The category wise consumers and corresponding energy sales during the year 2016-17 are given in Table below:

**Table3. 5: Number of consumers and connected load of MSPDCL for FY 2016-17**

Sl. No.	Consumer Category	FY 2016-17
		No. of consumers (Nos.)
1	Kutir Jyoti	73620
2	Domestic	254511
3	Commercial	14153
4	Public lighting	441
5	Public waterworks LT	180
6	Agriculture & Irrigation LT	64
7	Small and cottage industry	2317
8	Medium industry	73
9	PWS HT	165
10	Agriculture HT	25
11	Large industry	25
12	Bulk supply	710
<b>13</b>	<b>Grant Total</b>	<b>346115</b>

### 3.6 Demand

The energy demand of the MSPDCL is met by supply of power from own generation, central generating stations of North Eastern Region and Baramura Gas Based Plants in Tripura State. The annual energy requirement during FY 2016-17 is 735.77 MU. As per Load Generation Balance Report (LGBR) of NERPC for FY 2016-17 the Maximum Demand during FY 2016-17 is 184 MW.



**3.7 Energy Audit**

The MSPDCL is not conducting Energy Audit effectively either at the incoming stage or at the consumer end. At present, the MSPDCL is arriving at the losses by taking the input at 11kV point and compare it with energy sales at consumer end and showing the difference as distribution loss. Proper energy audit should be carried out to find out the actual distribution loss.

**3.8 Energy Metering**

MSPDCL has stated in compliance to directive 12 that unauthorized connections and connected load are being taken care under the prepaid metering plan. MSPDCL has already achieved 100 % prepaid metering for EC-I. For EC-II & EC-III 100 % prepaid metering will be achieved by end of FY 2017-18. But there is no confirmation regarding the regularization of about 33,384 nos. of unauthorized connections.

**3.9 Power Supply**

The Power Supply in the state has been improved. The duration of power supply to the rural areas is about 14 to 18 hours a day while in urban and state capital is 24 hours a day.

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## 4. Public Hearing Process

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### 4.1 Introduction

On admitting the ARR and Tariff Petition for FY 2018-19 to FY 2022-2023, the Commission directed the MSPDCL to make available the copies of petition to the general public, post the petition on their website and also publish the same in newspapers in an abridged form and invite comments/objections/suggestions from them.

One written objection is received, received from all Manipur Power Consumers Association, Imphal.

### 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 Hotel Classic Grande Imperial Hall, Imphal on 20.02.2018 from 10:30 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 2018-19 to FY 2022-2023 of MSPDCL. The list of stakeholders who attended the Public Hearing is given in Annexure-II. The Officers of MSPDCL who attended the Public Hearing responded on the issues raised by the objectors.

### 4.3 Proceedings of Public Hearing

All Manipur Power Consumers Association has raised the following objections.

#### 4.3.1 Objection-1

Electricity tariffs in Manipur state are higher than those in Mizoram state.

#### Reply of MSPDCL

Net ARR of Manipur for FY 2017-18 is Rs. 559.55 Crore as against Rs. 310.46 Crore for Mizoram.

The energy sales in Manipur during FY 2017-18 are 576 MU as against 382 MU in Mizoram. Thus the total sales of Manipur are 33 % more than Mizoram.

The power Purchase Cost in Manipur during FY 2017-18 is 393.55 Crore as against Rs. 242.43 crore in Mizoram which is 62 % higher than Mizoram. Therefore the energy charges in Manipur are higher than those of in Mizoram. If the energy charges are

kept uniform it would lead to surge in revenue gap and increase the dependency on Government subsidy.

As regards to fixed charges, Manipur Intra state transmission charges are about 69% higher than those of Mizoram. Further the employee cost in MSPDCL is about 45 % higher than that of Mizoram. As such the fixed charges in Manipur are higher than that of Mizoram.

Lastly it can be seen that major chunk of revenue lies with 0-100 slab of domestic category. Hence moderate increase in tariff is sought to improve the financial health of MSPDCL and to reduce dependency on Government subsidy.

#### **4.3.2 Objection-2**

The per capita consumption in Manipur is lower than rest of India and even in North Eastern States and it is in decreasing trend from 298 to 279 units from FY 2015-16 to FY2016-17. So for bringing per capita consumption on par with national level and also to promote remote area of Manipur, the tariff revision is not required.

#### **Reply of MSPDCL**

The per capita consumption in Manipur in FY 2016-17 is 326 units as against 236 Units in FY 2011-12, while that of Mizoram is 523 in FY 2016-17 as against 507 Units in FY 2011-12. So there is an average increase of 10 % growth in per capita consumption. Further MSPDCL would like to reiterate that it is in constant pursuit of connecting more and more rural households and striving hard to give quality and reliable power supply to each and every consumer. Further rural electrification is being executed under SAUBHAGYA scheme of Government of India and regularly reporting progress. Hence notional tariff revision is of utmost importance to ensure quality of power supply and reduction of losses.

#### **4.3.3 Objection-3**

Monthly fixed charges in Manipur are higher than rest of north eastern states and Delhi. The fixed charges in FY 2017-18 for normal domestic category are as follows.

Manipur – Rs. 60/ KW, Mizoram- Rs. 35/ KW ,Meghalaya- Rs. 50/KW , Delhi- Rs. 35/KW. So there is no need to revise fixed charges in Manipur.

**Reply of MSPDCL**

It has already been replied in Objection No.1. However it is reiterated that the fixed charges are dependent on fixed cost. If fixed charges are not increased there is need to revise energy charges to the extent to normalize the revenue requirement.

**4.3.4 Objection-4**

Transmission losses in the system are assumed at 10 % straight without providing meters to 132 KV, 33KV and 11 KV feeders. As such the assumption is on very high side. 30.42 % distribution loss in FY 2016-17 is also on high side as against 19.4 % approved by the JERC for M & M.

Further with the above losses, the targeted AT & C loss of 15 % under UDAY scheme become impracticable.

As such the meters to all feeders may be arranged.

Also as per UDAY scheme Manipur state has to cut establishment costs to improve their finances and to meet their target of installing smart/ prepaid meters

**Reply of MSPDCL**

MSPDCL's distribution periphery is 11KV and below network. So the loss pertaining to 11 KV feeder and LT network and distribution transformer accounts for MSPDCL losses. Any loss at 132 KV , 33 KV or transformation loss has to be accounted for by MSPCL.

In the absence of voltage wise metering MSPCL loss is notional, which the MSPDCL has assumed at 10 %. In view of the above the MSPDCL requests the Commission to be lenient and approve the requested targets.

**Commission's observation**

The objections and reply of MSPDCL are noted.

## 5. Provisional True up for FY 2016-17

### 5.1 Background

The Commission had approved the ARR and tariffs for FY 2016-17 vide Tariff Order dated 29.02.2016 based on projected data by MSPDCL. The Commission had carried out annual performance review for FY 2016-17 in its Tariff Order dated 28.02.2017 of FY 2017-18 based on revised estimates of MSPDCL. Now the MSPDCL has filed petition for Provisional True up for FY 2016-17 based on actuals without audited accounts. As per Regulation 10.6(ii) JERC(MYT) Regulation 2014 the Commission has to undertake true up based on audited accounts and pass an order recording approved aggregate gain or loss on account of controllable factors and the amount of such gain or loss may be shared in accordance with Regulation 13 of JERC(MYT) Regulations 2014 and the components of approved cost pertaining to uncontrollable factors which were not recovered during previous years shall pass through as per Regulations 12 of JERC (MYT) Regulations 2014. As per Regulation 12 of JERC (MYT) Regulations 2014 the gains or losses on account of uncontrollable factors shall be passed through as an adjustment in the tariff of the distribution licensee for such period as may be specified in the order of the Commission passed under these regulations.

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

“13.1 (1) 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

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

13.2 The approved aggregate loss to the distribution licensee on account of controllable factors shall be dealt with in the following manner.

1) one third of the amount of such loss may be passed on as an additional change in tariffs over such period as may be stipulated in the order of the Commission under Regulation 10.6 and

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

Though the MSPDCL has filed annual accounts for FY 2016-17, since they are not audited the same are not considered. As MSPDCL has not filed audited accounts, the Commission has carried out provisional true up as requested by MSPDCL without passing on profit/ loss.

## 5.2 Energy Sales

### Petitioner’s Submission:

The category wise actual number of consumers as compared to the earlier estimates for FY 2016-17 as mentioned in the tariff order for FY 2016-17 dated 28 February 2016 are as given below.

**Table 5.1: Category-wise consumers for 2016-17 furnished by the MSPDCL**

Sl. No	Category	Approved FY 2016-17	Actuals FY 2016-17
1	Kutir Jyoti	28947	73620
2	Domestic	286914	254511
3	Commercial LT	13141	14153
4	Commercial HT	11	11
5	Public lighting	452	441
6	LT Public water works	8	10
7	HT Public water works	167	170
8	Agriculture and Irrigation	64	64
9	Cottage and Small Industries	2780	2317
10	Bulk	836	710
11	Medium Industries	87	73
12	Large Industries	34	25
<b>13</b>	<b>Total</b>	<b>333441</b>	<b>346115</b>

The actual category wise energy sales as compared with the energy sales as approved by the Hon’ble Commission for FY 2016-17 are given below:

**Table 5.2: Category wise Energy sales furnished by MSPDCL for FY 2016-17**

Sl. No	Category	Approved 2016-17	Actuals 2016-17
1	Kutir Jyoti	15	16.78
2	Domestic	406	305.32
3	LT Commercial	50	42.94

Sl. No	Category	Approved 2016-17	Actuals 2016-17
4	HT Commercial	4	
5	Public Lighting	6	4.45
6	LT Public Water-works	3	1.5
7	HT Public Water-works	15	16.49
8	LT Agri. & Irrigation	1	1.17
9	HT Agri. & Irrigation	3	0.75
10	Cottage & Small Industries	28	17.46
11	Bulk	156	96.73
12	Medium Industries	4	3.38
13	Large Industries	16	4.82
14	Temporary		0.13
	<b>TOTAL</b>	<b>707</b>	<b>511.92</b>

MSPDCL in FY 2016-17 made a total energy sale of 511.92 MU. It can be observed that the actual energy sales while truing up were found to be 511.92 MU which is lesser than the approved figures. While the growth rates taken into consideration for the approved figures were positive and very high, the actual sales growth historically has mostly remained consistent since 2014-15. However, due to continuous effort of Government of India and MSPDCL to electrify all rural households under schemes like DDUGJY and SAUBHAGYA there have been significant additions in Kutir Jyoti and domestic consumers

#### Commission's Analysis

As seen from the above the total numbers of consumers have increased than the approved figures in respect of Kutir Jyoti, Commercial and PWS categories. In respect of other categories the numbers of connections are in decrease. In respect of Energy sales except Kutir Jyoti and HT public water works other categories of sales are decreased.

Based on the actual sales for FY 2016-17 furnished by the MSPDCL the category wise energy sales approved by the Commission are as detailed in Table below:

**Table 5.3: Category wise energy sales approved by the Commission for FY 2016-17 after true up**

Sl. No.	Energy Sales	Energy sales approved by the Commission (MU)
1	Kutir Jyoti	16.48
2	Domestic	305.32
3	Commercial	42.94

Sl. No.	Energy Sales	Energy sales approved by the Commission (MU)
4	Small Industry	17.46
5	Medium Industry	3.38
6	Large Industry	4.82
7	Bulk	96.73
8	Street Lighting	4.45
9	Irrigation	1.92
10	Public Water Works	17.99
	<b>Total Energy Sales</b>	<b>511.79</b>
	<b>Temporary supply</b>	<b>0.13</b>

The Commission provisionally approves energy sales at 511.92 MU for FY 2016-17 after True up.

### 5.3 Distribution Loss

#### Petitioner's Submission:

The aggregate T & D losses as approved by the Hon'ble Commission as compared to actual T & D losses are as given below.

**Table 5.4: Distribution and T & D losses for FY 2016-17**

Particulars	Approved FY 2016-17	Actual FY 2016-17
<b>Distribution Loss</b>	19.4%	30.42%

It can be observed that distribution losses are higher as compared to approved figured which can be attributed to the fact that majority of the new connections through various schemes are in L.T. category, which inherently incurs higher distribution losses. The computation of Distribution losses which is 30.42 % for FY 2016-17 is shown below.

**Table 5.5: Calculation of Actual Distribution loss by MSPDCL for FY 2016-17**

Sl. No	Particulars	Unit	Actual FY 2016-17
A	Own Generation	MU	0.68
B	Power purchase from CGS in NER	MU	1065.53
C	Pool losses	%	3.22
D	Pool losses	MU	34.31
E	ADD: UI purchases	MU	28
F	Less: UI sales	MU	242.37
G	Energy available	MU	817.53



H	Less: Intra state transmission loss till KV at 10%	MU	81.75
I	Net energy available for sale	MU	735.77
J	Energy sales within the state	MU	511.92
K	Distribution Loss	MU	223.85
L	Distribution Loss%	%	30.42%

MSPDCL has submitted that in FY 2016-17 and FY 2017-18 a large number of rural consumers have been added in the distribution utility. As compared with FY 2015-16, around 50,000 new Kutir jyoti and domestic consumers have been in 2016-17 alone. Moreover, the approximate number of 1.70 Lakhs consumers is envisaged to be added under 24 x 7 plan, DDUGJY and SAUBHAGYA. Due to addition in the number of consumers it is expected the distribution losses cannot reduce drastically till FY 2016-17. The present trajectory of Distribution Losses was aimed at 19.40 % losses in FY 2016-17 which is far below the actual losses of the utility. MSPDCL has signed a tripartite Memorandum of Understanding (MoU) of Ujwal Discom Assurance Yojana with the Ministry of power, Government of India on 26<sup>th</sup> July, 2016. In UDAY scheme the Discoms have targeted to reduce the AT & C losses and bring it to the level of 15 % by FY 2018-19.

It is to be noted that MSPDCL network periphery included only 11KV system and below whereas 33 KV and above transmission network falls under the MSPCL network. For the purpose of segregating the MSPDCL distribution losses and MSPCL network losses, a network loss of 10 % for MSPCL is considered, which is inclusive of loss of 132KV till 33/11 KV injection point.

Moreover MSPDCL, would like to humbly submit to the Commission that it has made some sincere efforts in reducing distribution loss, which can be observed in the trend of distribution losses from 2014-15 till FY 2015-16.

FY 2014-15	FY 2015-16	FY 2016-17
41.89%	33.67%	30.42%

Hence MSPDCL requests the Hon'ble Commission to consider the actual distribution loss of 30.42% as mentioned above.

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

The pool losses in NER adopted by MSPDCL are not correct. As per actual average

weekly losses from 04.04.2016 to 02.04.2017 the pool losses in NER system are 2.7% but not 3.22%. Intra state transmission loss are however adopted at 3.6% instead of 10% as proposed by MSPDCL. Thus the distribution loss during FY 2016-17 is recalculated as detailed in the table below.

**Table 5.6: Calculation of distribution loss during FY 2016-17 approved by the Commission**

Sl. No	Particulars	Unit	Actual FY 2016-17
A	Own Generation	MU	0.68
B	Power purchase from CGS in NER	MU	107.19
C	Pool losses	%	2.7
D	Pool losses	MU	28.92
E	ADD: UI purchases	MU	33.58
F	Less: UI sales	MU	242.37
G	Energy available (A+B+E)-(D+F)	MU	834.16
H	Less: Intra state transmission loss till KV at 3.6%	MU	30.03
I	Net energy available for sale	MU	804.13
J	Energy sales within the state	MU	511.92
K	Distribution Loss	MU	293.21
L	Distribution Loss%	%	36.46

Thus the distribution loss works out to 36.46% as against 30.42% furnished by MSPDCL. In the tariff order dated 27<sup>th</sup> February 2015 for the year 2015-16 distribution loss trajectory approved by the Commission (vide table 5.8 ) is as follows:

Sl. No	Year	Distribution loss approved
1	2015-16	20.4%
2	2016-17	19.4%
3	2017-18	18.4%

**The Commission accordingly approves distribution loss at 19.4 % for FY 2016-17 after true up.**

**The MSPDCL shall conduct system studies and energy audit very seriously after proper metering systems are put into operation. Further, proper segregation of technical and commercial losses is to be completed by Sept-2018.**

#### **5.4 Energy Requirement**

Based on the distribution loss, energy requirement approved by the Commission in its Tariff order dated 29.02.2016 and actuals by the MSPDCL and now approved by

the Commission are furnished in Table below:

**Table 5.7: Energy Requirement Approved by the Commission for FY 2016-17**

Particulars	Units	Approved by the Commission in T.O dated 29-02-2016	Estimated by MSPDCL	Now approved by the Commission
Sales	MU	707	511.92	511.92
T&D Loss (%)	%	19.4%	30.42	19.40
T&D Loss (MU)	MU	170.17	225.85	128.88
Energy Requirement	MU	877.17	735.77	635.14

## 5.5 Energy Availability and Source of Power

### 5.5.1 Own Generation

MSPDCL is having its own generation plants such as small hydel, diesel and HFO with installed capacity of 45.11 MW. Own generation approved by the Commission in its order dated 29.02.2016, estimated by MSPDCL and now approved by the Commission after true up for FY 2016-17 are furnished in Table below:

**Table 5.8: Own Generation approved by the Commission for FY 2016-17**

Particulars	(MU)		
	Approved by the Commission in T.O dated 29.02.2016	Actuals furnished by the MSPDCL	Now approved by the Commission
Hydel	0.33	-	-
Diesel	0.68	0.68	0.68
<b>Total</b>	<b>1.01</b>	<b>0.68</b>	<b>0.68</b>

The Commission provisionally approves own generation at 0.68 MU for FY 2016-17 after true up.

### 5.5.2 Power Purchase from central generating stations

Power purchase approved by the Commission in its order dated 29.02.2016, actuals furnished by MSPDCL and now approved by the Commission after True-up for FY 2016-17 are furnished in the Table below:

**Table 5.9: Power purchase approved by the Commission for FY 2016-17 after True up**  
(MU)

Sl. NO	Particulars	Approved by the Commission in its Tariff Order dated 29.02.2016	Actuals furnished by MSPDCL	Now Approved by the Commission
A	NEEPCO			

Sl. NO	Particulars	Approved by the Commission in its Tariff Order dated 29.02.2016	Actuals furnished by MSPDCL	Now Approved by the Commission
1	Kopili I	46.71	71.27	71.27
2	Kopili II	5.80	7.03	7.03
3	Khandong	9.32	12.43	12.43
4	Ranganadi	92.36	104.31	104.31
5	Doyang	15.41	19.43	19.43
6	Kamang stage I	6.04		
7	Pare	8.59		
8	<b>Sub total</b>	<b>184.23</b>		
<b>B</b>	<b>NEEPCO (GB )</b>			
9	AGBPP	138.67	118.00	118.00
10	AGTPP	51.15	73.27	73.27
11	AGTPP ext	20.68		
12	Monarchank Gas based P.P.	29.33		
13	<b>Sub Total</b>	<b>239.83</b>		
<b>C</b>	<b>NHPC</b>			
14	Loktak			
14(i)	Purchased	117.76	218.27	218.27
14(ii)	Free Power	74.12	85.84	85.84
15	<b>Sub total</b>	<b>191.88</b>		
<b>D</b>	<b>TRIPURA</b>			
16	Baramura IV& V	82.59	73.53	73.53
<b>E</b>	<b>O T P C</b>			
17	Pallatana I & II	152.98	230.44	230.44
18	<b>Sub total</b>	<b>235.57</b>		
<b>F</b>	<b>N T P C</b>			
19	Bongaigaon I	90.84	57.37	57.37
20	Renewable II	90.82		
21	Renewable III	22.39		
22	Solar			
23	Non Solar			
24	<b>Sub Total</b>	<b>204.05</b>	<b>1071.19</b>	<b>1071.19</b>
25	UI Purchases		33.58	33.58
26	<b>Total</b>	<b>1055.56</b>	<b>1104.77</b>	<b>1104.77</b>

The Commission provisionally approves power purchase of 1104.77 MU including free power of 85.84 MU from Loktak and UI purchases of 33.58 MU for FY 2016-17 after true up.

#### 5.6 Energy Balance

Energy Balance approved by the Commission in its order dated 29.02.2016 and actuals furnished by MSPDCL and now approved by the Commission are furnished in Table below:

Table 5.10: Energy Balance approved by the Commission for FY 2016-17 after true up

Sl. No	Particulars	Unit	Approved by the commission in T.O dated 29.02.2016	Actuals Furnished by MSPDCL already connected	Now Approved by the Commission
<b>A</b>	<b>Energy Requirement</b>				
1	Energy Sales	MU	707	511.92	511.92
2	Distribution loss	%	19.40 %	30.42	19.40
3	Distribution loss	MU	170.11	223.85	123.22
4	Energy Requirement	MU	877.17	735.77	635.14
<b>5</b>	<b>Transmission Loss</b>	%		10%	
<b>6</b>	<b>Transmission loss</b>	<b>MU</b>		81.75	
<b>7</b>	<b>Energy requirement at state periphery</b>	<b>MU</b>		817.53	
<b>B</b>	<b>Energy Availability</b>				
8	Own Generation (Net)	MU	1.01	0.68	0.68
9	Power Purchase	MU	1055.56	1065.53	1071.19
10	Less: External Losses	%	3.25%	3.60%	2.70
11	Less: External Losses	MU	34.31	38.36	28.92
12	Net energy available at state periphery (9-11)	MU	1021.25	1027.85	1042.27
13	UI Purchase		-		33.58
14	Total (8+12+13)		1022.26		1076.53
15	Transmission Loss @ 3.6%	MU	36.80		38.76
16	Energy Available for Distribution	MU	985.46		1037.78
17	Surplus (16-4)	MU	108.29		402.64
18	Surplus grossed up by 3.6% for sale outside the state	MU	112.33	210.32	417.67

(Source Table 7 and 9 of Petition)

### Commission's Analysis

As seen from the data furnished by MSPDCL it is observed that the petitioner has calculated energy requirement at state periphery by grossing up energy requirement at distribution periphery by 10% which is not in order. Further the MSPDCL has purchased 1071.19 MU power excluding U.I purchase of 33.58 MU. But in the energy balance power purchase is shown as 1065.53 MU which is also not correct. In view of the above the energy balance is recalculated.

While calculating energy balance the NER transmission losses are considered at 2.7 % being the average weekly loss in NER during 04.04.2016 to 02-04-2017 the intra state

transmission losses are however considered at 3.6% as furnished by MSPCL. Thus considering net energy 1042.27 MU available at state periphery the surplus of power works out to 417.67MU.

## 5.7 Power Purchase Cost

### Petitioner's submission

Actual power purchase cost furnished by MSPDCL is Rs 267.93 Crore for purchase of 1104.77 MU including UI purchase of 33.58 MU and free power of 85.84 MU during FY 2016-17 as detailed in Table below:

**Table 5.11: Power Purchase cost furnished by MSPDCL for FY 2016-17**

Sl. No	Particulars	Quantity (MU)	Average Rate adopted MSPDCL (Rs./kWh)	Total cost (Rs. Cr)
1	NEEPCO (Hydro )			
2	Koppilil I	71.27	1.15	8.19
3	Koppilil II	7.03	1.80	1.26
4	Khandong	12.43	2.02	2.51
5	Ranganadi	104.31	2.29	23.89
6	Doyang	19.43	4.98	9.66
7	Kamang stage I			
<b>8</b>	<b>Sub Total</b>			
9	NEEPCO(G			
10	A G B P P	118.00	3.38	39.85
11	A G T P P	73.27	2.84	20.79
<b>12</b>	<b>Sub Total</b>			
13	N H P C			
14	Loktak			
15	Power Purchases	218.27	2.70	58.94
16	Free Power	85.84		
<b>17</b>	<b>Sub Total</b>			<b>58.94</b>
18	TRIPURA			
19	BARAMURA IV & V	73.53	3.01	22.15
20	O T P C			
21	Pallatana I& II	230.44	2.93	67.51
<b>22</b>	<b>Sub Total</b>			
23	N T P C			
24	Bangaigaon	57.37	8.55	49.07
25	Renewable			
26	solar			
27	Non solar			
<b>28</b>	<b>Sub Total</b>	<b>1071.19</b>	<b>2.42</b>	<b>259.70</b>
29	U I Purchases	33.58	2.20	7.39
30	NERLDC charges			0.84
<b>31</b>	<b>Total</b>	<b>1104.77</b>	<b>2.43</b>	<b>267.93</b>

**Commission's Analysis**

Commission in its order dated 29.02.2016 had approved power purchase cost of Rs. 348.69 Crore for purchase of 1163.47 including free power of 74.12 MU from Loktak for FY 2016-17. Now actual power purchase cost is Rs. 267.09 Crore for purchase of 1104.77 MU including free power of 85.84 and UI purchase of 33.58 MU but excluding SLDC charges of Rs. 0.84 Crore which considered reasonable.

But MSPDCL has stated that it had paid supplementary bills of Rs. 37.97 Crore during FY 2016-17 as detailed below.

Sl. No	Particulars	Amount (Rs. Cr)
1	NEEPCO	12.90
2	NHPC	1.59
3	OTPC	14.08
4	PGCIL	6.40
5	Total	34.97

It is stated that the above cost has been loaded in FY 2018-19 ARR, which is not in order. As the amount is paid during FY 2016-17 and the same amount has been reflected in FY 2016-17 annual accounts it is appropriate to consider in FY 2016-17 true up. Accordingly the total power purchase cost for FY 2016-17 is considered at Rs. 302.06 Crore (267.09+34.97).

**The Commission provisionally approves power purchase cost of Rs. 302.06 Crore for purchase of 1104.77 MU including UI purchase of 33.58 MU and free power of 85.84 MU for FY 2016-17 and payment of supplementary bills of Rs. 34.97 Crore after true up.**

**5.8 Transmission Charges**

The MSPDCL has furnished actual intra state transmission charges at Rs 36.08Crore for FY 2016-17. The Commission has approved Transmission ARR of MSPCL at Rs. 34.52 Crore for FY 2016-17 after true up. As such the same are considered as intra-state transmission charges for FY 2016-17. The PGCIL charges are however considered at Rs 47.00 Crore as per actuals furnished by MSPDCL. Thus the total transmission charges approved by the Commission for FY 2016-17 are as detailed in Table below:

**Table 5.12: Transmission charges approved by the Commission for FY 2016-17 after true up (Rs. Crore)**

Sl. No	Particulars	Approved by the Commission in T.O dated 29.02.2016	Actuals furnished by MSPDCL	Now Approved by the Commission
1	MSPCL Transmission Charges	36.08	36.08	34.52
2	PGCIL Transmission Charges	51.70	47.00	47.00
3	NERLDC		0.84	0.84
	<b>Total</b>	<b>87.78</b>	<b>83.92</b>	<b>82.36</b>

The Commission provisionally approves transmission charges at Rs 82.36 Crore for FY 2016-17 after true-up.

### 5.9 Employee Cost

The employee cost approved by the Commission for FY 2016-17 in its order dated 29.02.2016 and actuals furnished by the MSPDCL and now approved by the Commission are furnished in Table below:

**Table 5.13: Employee Cost approved by the Commission for FY 2016-17 after true-up**

(Rs. Crore)

Sl. No.	Particulars	Approved in Tariff Order dated 29.02.2016	Actuals furnished by MSPDCL	Now approved by the Commission
1	Employees Cost	77.58	77.58	77.58

The Commission provisionally approves employee cost at Rs 77.58 Crore as per actuals furnished by MSPDCL for FY 2016-17 after true-up.

### 5.10 R&M Expenses

R&M expenses approved by the Commission for FY 2016-17 in its order dated 29.02.2016 and actuals furnished by the MSPDCL and now approved by the Commission are furnished in Table below:

**Table 5.14: R&M Expenses approved by the Commission for FY 2016-17 after true up**

(Rs. Crore)

Sl. No	R&M Cost	Approved	Actuals furnished by MSPDCL	Now Approved by the Commission
1	Grand Total	6.11	6.11	6.11



The Commission provisionally approves R&M expenses at Rs 6.11 Crore as estimated by MSPDCL for FY 2016-17 after true up.

#### 5.11 Administration and General Expenses

The A&G expenses for FY 2016-17 approved by the Commission and actuals furnished by the MSPDCL and now approved by the Commission are furnished in Table below:

**Table 5.15: Administrative & General Expenses approved by the Commission for FY 2016-17 after true up**

(Rs. Crore)				
Sl. No	Administrative & General Expenses	Approved	Actuals furnished by MSPDCL	Now Approved by the Commission
1	Grand Total	2.53	10.98	10.98

The Commission provisionally approves Rs 10.98 Crore for Administration and General Expenses as actuals furnished by MSPDCL for FY 2016-17 after true up.

#### 5.12 Gross Fixed Assets and Depreciation

The Commission in its order dated 29.02.2016 had approved depreciation of Rs 0.23 Crore for FY 2016-17. The MSPDCL has now Rs 0.23 Crore.

##### Commission's analysis

As per calculation the depreciation works out to Rs. 0.17 Cr as detailed in the table below.

**Table 5.16: Depreciation approved by the Commission for FY 2016-17**

(Rs. Crore)		
Sl. No	Particulars	FY 2016-17
1	Opening GFA	638.99
2	Additions	103.24
3	Closing GFA	742.23
4	Average GFA	690.61
5	Average rate of depreciation	2.42%
6	Depreciation	16.72
7	1 % of Depreciation	0.17

The Commission provisionally approves depreciation of Rs 0.17 Crore for FY 2016-17 after true up.

### 5.13 Interest and Finance Charges

The Commission had approved interest and finance charges of Rs 0.07 Crore for FY 2016-17 in its tariff order dated 29 February, 2016. The actual Interest and Finance charges are Rs. 6.11 Cr. for FY 2016-17. The actual expenses are considered for true up of FY 2016-17.

**Table 5.17: Interest and Finance Charges approved by the Commission for FY 2016-17**

Particulars	Gross loan-Opening	Add: Drawals during the year	Less: Repayment of loan during the year	Closing balance of loan	Rate of Interest	(Rs. Crore)
						Interest of Loan
REC I	39.88	0.00	0.00	39.88	11.70%	4.67
REC II	11.83	4.15	0.82	15.16	10.71%	1.44
Total Loan	51.71	4.15	0.82	55.04	11.45%	6.11

**The Commission provisionally approves Interest and Finance Charges at Rs. 6.11 Cr for FY 2016-17 as per actuals by MSPDCL after true up.**

### 5.14 Interest on Working Capital

The Commission in its Order dated 29.02.2016 had approved interest on working capital at Rs. 6.02 Cr for FY 2016-17. The MSPDCL has now furnished Rs. 6.13 Crore. MSPDCL has adopted rate of Interest at 14.75 % instead of 14.05%

Interest on working capital worked out by the commission as per JERC M&M (MYT) Regulations 2014, based on approved costs and the rate of interest at 14.05% being SBAR as on 01.04.2016 is as detailed in Table below:

**Table 5.18: Interest on working capital approved by the Commission for FY 2016-17 after true up**

Sl. No	Particulars	FY 2016-17	
		Total Cost	One Month Cost
1	Employee Cost	77.58	6.47
2	R&M Expenses	6.11	0.51
3	A&G Expenses	10.98	0.92
4	Maintenance of Spares @1% of GFA	633.98	6.72
5	Receivables equivalent to one month	205.22	17.10
<b>6</b>	<b>Total</b>		<b>31.72</b>
7	Rate of Interest (%)	-	14.05%
8	<b>Interest on Working Capital</b>	-	<b>4.46</b>

The Commission provisionally approves interest on working capital at Rs 4.46 Crore for FY 2016-17 after true up.

#### 5.15 Provision for bad debts

The Commission in its order dated 29.02.2016 had approved provision for bad debts at Rs 3.00 Crore for FY 2016-17. The MSPDCL has not written off any amount.

##### Commission Analysis

As no amount is written off during FY 2016-17 the Commission has not considered any amount.

The Commission provisionally approves Rs NIL Crore towards provision for bad debts for FY 2016-17 after true up.

#### 5.16 Return on Equity

The Commission in its Order dated 29.02.2016 had approved RoE at Rs 1.95 Crore for FY 2016-17. The MSPDCL has now furnished RoE at Rs 1.56 Crore for FY 2016-17

The Commission provisionally approves RoE at Rs 1.56 for FY 2016-17 after true up.

#### 5.17 Non-Tariff Income

The Commission in its order dated 29.02.2016 had approved non-Tariff Income at Rs. 0.34 Crore for FY 2016-17.

The Commission provisionally approves non-tariff income at Rs. 0.34 Crore for FY 2016-17 after true up.

#### 5.18 Aggregate Revenue Requirement

Aggregate Revenue Requirement approved by the Commission in its order dated 29.02.2016 and estimated by the MSPDCL and now approved by the Commission are furnished in table below:

**Table 5.19: Aggregate Revenue Requirement approved by the Commission for FY 2016-17 after true up**

(Rs. Crore)				
Sl. No	Particulars	Approved in T.O	Actuals by MSPDCL	Approved by the Commission
1	Fuel Cost	1.19	-	-
2	Power purchase cost	310.82	267.93	302.06
3	Transmission charges (MSPCL)	36.08	36.08	34.52
4	Transmission charges	51.70	47.00	47.00
5	SLDC Charges	-	-	0.84
5	Employee costs	77.58	77.58	77.58

Sl. No	Particulars	Approved in T.O	Actuals by MSPDCL	Approved by the Commission
6	Repair & Maintenance expense	6.11	6.11	6.11
7	Administration & General Expenses	2.53	10.98	10.98
8	Depreciation	0.23	0.23	0.17
9	Interest & Finance Charges	0.07	6.11	6.11
10	Interest on Working capital	6.02	6.13	4.46
11	Provision for bad debts	3.00	3.00	-
	<b>Total Cost</b>	<b>495.33</b>	<b>505.28</b>	<b>489.83</b>
12	Add: Return on Equity / ROE	1.95	1.56	1.56
13	Less: Non Tariff income	0.34	0.34	0.34
	<b>Aggregate Revenue Requirement</b>	<b>496.94</b>	<b>462.37</b>	<b>491.05</b>

### 5.19 Revenue from approved Tariff for FY 2016-17

Based on energy sales of 511.92 MU now approved by the Commission and the surplus power of 417.67 MU arrived the revenue from sale of power worked out to be Rs. as detailed below:

**Table 5.20: Revenue from approved tariff for FY 2016-17 after true up**

Sl. No	Particulars	Energy (MU)	Amount (Rs. Cr)	Average revenue (Rs/kWh)
1	Revenue from sale of power within the state	511.92	205.22	4.00
2	Sale of surplus power	417.67	87.71	2.10
3	Total	921.59	292.93	

### 5.20 Revenue Gap

Revenue gap approved by the Commission in its order dated 29.02.2016 and actuals furnished by the MSPDCL and now approved by the Commission are furnished in table below:

**Table 5.21: Revenue gap approved by the Commission for FY 2016-17 after true up**

Sl. No	Category	Unit	Approved by the Commission	Actuals furnished by the MSPDCL	Now approved by the Commission
1	Net ARR	Rs. Cr	496.94	506.84	491.07
2	Revenue from Sale of power	Rs. Cr	291.52	205.22	205.22
3	Sale of surplus power	Rs. Cr	35.05	44.13	87.71
4	Total revenue	Rs. Cr	326.57	249.35	292.93
5	Gap	Rs. Cr	170.37	257.49	198.14
6	Energy Sales	MU	707.00	511.92	511.92
7	UI Sales	MU	112.33	210.32	417.67
8	Total Sales	MU	819.33	722.24	929.59
9	Cost of Supply	Rs./kWh	6.06	6.40	5.28
10	Average realisation	Rs./kWh	4.12	4.00	4.00

## 6. Annual Performance Review 2017-18

### 6.1 Background

The Commission in its Order dated 28.2.2017 had approved ARR and Tariffs for FY 2017-2018 based on projected data by MSPDCL. Now MSPDCL has not filed the petition for annual performance review for FY 2017-2018. Though the JERC for M&M (MYT) Regulations, 2014 does not provide annual performance review, the Commission considers it appropriate and fair to revisit and review the approvals granted by it in the tariff order for FY 2017-18 with information for FY 2017-18 now furnished by the MSPDCL without altering the principles and norms adopted earlier. These matters are discussed with in succeeding paragraphs.

### 6.2 Energy sales

The MSPDCL has furnished revised estimated energy sales at 524.20 MU during FY 2017-18 as against 576 MU approved by the Commission in its Order dated 28.2.2017. The category wise sales approved by the Commission in its Order dated 28.2.2017 and revised estimated sales now furnished by the MSPDCL and now approved by the Commission are furnished in table below.

**Table 6.1: Energy sales approved by the Commission for FY 2017-18 after review (MU)**

Sl. No	Name of category	Energy sales approved by the Commission in T.O dt. 28-02-2017	Revised Estimate furnished	Now approved by the Commission
1	<b>Domestic</b>			
	Kutir Jyoti	7	17.43	13.58
	Domestic	372	312.82	372
2	<b>Commercial</b>	<b>42.17</b>	<b>44.79</b>	<b>44.79</b>
3	<b>Industrial</b>			
	(a) Cottage & Small Industry	18	17.98	18
	(b) Medium Industry (HT)	4	3.38	4
	(c) Large Industry (HT)	6	4.82	6
4	<b>Bulk Supply (HT)</b>	<b>95</b>	<b>98.59</b>	<b>98.59</b>
5	<b>Public Lighting</b>	<b>5</b>	<b>4.45</b>	<b>5</b>
6	<b>Public Water Works</b>	<b>19</b>		
	(a) LT	4	1.51	1.51
	(b) HT	15	16.49	16.49
7	<b>Irrigation &amp; Agriculture</b>	<b>2</b>		
	(a) LT	1	1.18	1.18
	(b) HT	1	0.76	1
	<b>Total</b>	<b>576</b>	<b>524.2</b>	<b>582.14</b>

(Source Table 16 of Petition)

The Commission approved energy sales at 582.14 MU for FY 2017-18 as against 524.20 MU furnished by MSPDCL after review as per revised estimate.

### 6.3 Distribution loss

The Commission in its Order dated 28.2.2017 had approved distribution loss at 18.4% for FY 2017-18. Now the MSPDCL has furnished revised distribution loss at 30.28%.

#### Commission analysis

The MSPDCL has not furnished detailed calculation for distribution loss. As such, with the revised given data the distribution loss is calculated as detailed in table below.

**Table 6.2: Distribution loss calculated by the Commission for FY 2017-18 after review**

Sl. No.	Particulars	Unit	Actuals for FY 2017-18
1	Power purchase from CGS	MU	1040
2	Interstate transmission loss in NER for FY 2017-18 @ 2.6%	MU	27.04
3	Net power purchase (1-2)		1012.96-
4	UI purchases		-
5	Own generation		-
6	UI sales	MU	176.76
7	Net power available at state periphery	MU	836.20
8	Intra state transmission loss @ 3.6%	MU	26.76
9	Net energy available for sale	MU	809.44
10	Sales within the state	MU	582.14
11	Distribution loss	MU	227.30
12	Distribution loss	%	28.08

Thus the distribution loss works out to 28.08% as against 30.28% furnished by MSPDCL.

The Commission however retains distribution loss at 18.40% for FY 2017-2018 approved in its order dated 28.02.2017 as against 30.28% furnished by MSPDCL after review.

### 6.4 Energy Requirement

The Commission its Order dated 28.2.2017 had approved energy requirement at 705.88 MU with distribution loss of 18.40 %

But as Tripartite Memorandum of understanding dated 26.07.2016 amongst MOP Government of India, Government of Manipur and MSPDCL at New Delhi, transmission losses have to be reduced from 3.6% to 3.2% by FY 2018-19 and AT & T loss be reduced to 25.15 % in 2016-17, 18.70% in 2017-18 and 15% in 2018-19.

The estimated energy requirement furnished by MSPDCL and now approved by the Commission are furnished in table below.

**Table 6.3: Energy requirement for FY 2017-18 approved by the Commission after review**

Sl. No.	Particulars	Unit	Approved in T.O Dated	Estimated by MSPDCL	Now approved by the Commission
1	Energy sales	MU	576	524.34	582.14
2	Distribution loss	%	18.40%	30.28	18.4
3	Distribution loss	MU	129.88	227.77	131.27
4	Energy requirement	MU	705.88	752.11	713.41

## 6.5 Energy availability

### 6.5.1 Own generation

MSPDCL is having a capacity of 0.60 MW Micro Hydel Station at Leimakhong and various diesel generating stations of capacity 44.51 MW, total 45.11 MW capacity. MSPDCL states that the data relating to own generation is not available.

**The Commission approves own generation at NIL MU for FY 2017-18 after review**

### 6.5.2 Power Purchase from Central Generating Stations

The MSPDCL is having allocation of power from various CGS plants of NEEPCO, NHPC and OTPC Pallatana as detailed in the table below:

The station wise allocation and power purchase and approved by the Commission are furnished in table below:

Table 6.4: Energy Allocation from Central Generating Stations (CGS)

Sl. No	Station	Installed Capacity MVA	FY 2016-17 (Actual)	
			Manipur Allocation (MW)	AVG Allocation in %
<b>A</b>	<b>NEEPCO(Hydro)</b>			
1	Kopili I HEP	200	14.78	7.39%
2	Kopili II HEP	25	1.74	6.95%
3	Khandong HEP	50	3.28	6.56%
4	Ranganadi HEP	405	33.90	8.37%
5	Doyang HEP	75	5.90	7.87%
	<b>Sub total</b>	755	59.60	
<b>B</b>	<b>NEEPCO(Gas Based)</b>			
1	Assam Gas based Power Project	291	23.60	8.11%
2	Agartala Gas Turbine Power Project	84	6.98	8.31%
	<b>Sub total</b>	375	30.58	
<b>C</b>	<b>NHPC(Loktak HEP)</b>			
1	Purchased	105	31.62	30.12%
	<b>Sub total</b>	105	31.62	
<b>D</b>	<b>TRIPURA</b>			
1	Baramura (Gas Based)(Unit IV)	21	5.25	25%
2	Baramura(Gas Based)(Unit V)	21	5.25	25%
	<b>Sub total</b>	42	10.56	25%
<b>E</b>	<b>New Projects</b>			
1	OTPC-(Pallatana-Unit I)	363	21.00	5.79%
2	OTPC-(Pallatana-Unit II)	363	21.00	5.79%
	<b>Sub Total</b>	<b>726</b>	<b>42.00</b>	
	<b>Total</b>	<b>2003</b>	<b>174.30</b>	

Table 6.5: Power purchase quantum estimated by MSPDCL for FY 2017-18

Sl. No	Source	MU Purchased/generated
		Ex-bus
<b>A</b>	<b>Own Generation</b>	
1	Leimakhong - Micro Hydel	NA
2	Various Diesel Generating plants	NA
<b>B</b>	<b>CGS - NEEPCO</b>	
1	Kopili -I HEP	67.46
2	Kopili-II HEP	7.31
3	Khandong HEP	15.07
4	Ranganadi HEP Project	113.22
5	Doyang HEP Project	19.79
6	Assam GBPP	125.31



Sl. No	Source	MU Purchased/generated
		Ex-bus
7	Agartala GTPP I & II	57.7
8	Kameng HEP Stage - 1 (Upcoming on September 2016)	
<b>C</b>	<b>CGS - NHPC</b>	
1	Loktak HE	208.52
2	Loktak Free Power	81.09
<b>D</b>	<b>Others</b>	
1	Baramura GBPP Unit IV and V	73.53
2	OTPC Pallatana I & II	214
<b>E</b>	<b>New Plants</b>	<b>1002.56</b>
I	NTPC Bongaigaon I	57.00
	<b>Total Energy purchase</b>	<b>1040</b>

Table 6.6: Power purchase approved by the Commission for FY 2017-18 after review

Sl. No	Name of source	Power purchase approved by the Commission
<b>A</b>	<b>CGS- NEEPCO</b>	
1	Kopili I HEP	67.46
2	Kopili II HEP	7.31
3	Khandong HEP	15.07
4	Ranganadi HEP	113.22
5	Doyang HEP	19.79
6	AGBPP	125.31
7	AGTPP	57.70
<b>B</b>	<b>CGS-NHPC</b>	
1	Loktak HEP	
2	Purchased	208.52
<b>C</b>	<b>Free Power</b>	81.09
<b>D</b>	<b>Others</b>	
1	Baramura IV & V	73.53
2	OTPC-Pallatana I & II	214.00
3	NTPC-Bongaigaon	57.00
	<b>Total</b>	<b>1040</b>

#### Commission's analysis

The Commission approves power purchase of 1040 MU for FY 2017-18 including free power of 81.09 MU from Loktak after review.

#### 6.6 Energy balance

The energy balance approved by the Commission in its order dated 28.2.2017 and estimated by the MSPDCL and now approved by the Commission are furnished in table below.

Table 6.7: Energy balance approved by the Commission for FY 2017-18 after review

Sl. No.	Particulars	Unit	Approved by the Commission in Order dated 28.2.2017	Estimated by MSPDCL	Now approved by the Commission
<b>A</b>	<b>Energy requirement</b>				
1	Energy sales	MU	576	524.34	528.14
2	Distribution loss	%	18.4	30.28	18.4
3	Distribution loss	MU	129.88	227.77	131.27
4	Energy requirement (1+3)	MU	705.88	752.11	713.41
<b>5</b>	<b>Transmission Loss %</b>			10	
	<b>Transmission Loss MU</b>			83.57	
	<b>Energy requirement at State periphery</b>			835.68	
<b>B</b>	<b>Energy availability</b>				
5	Own generation	MU	0.68		
6	Power purchase	MU	1067.95	1040	1040
7	Interstate loss on (6)	%	2.65%	2.65	2.60%
8	Interstate loss on (6)	MU	28.3	27.56	27.04
9	UI purchase	MU			
10	Energy available at state periphery (5+6-8+9)	MU	1040.33	1012.44	1012.96
11	Intra state transmission loss @ 3.6%	MU	37.45		36.47
12	Net energy available at distribution periphery		1002.88	1012.44	976.49
13	Surplus (12-4)		297		263.08
14	Grossed up by 3.6%		307.69	176.76	272.55

### 6.7 Power purchase cost

The MSPDCL has estimated power purchase cost at Rs. 416.51 Cr for purchase of 1040 MU at an average cost of Rs. 3.87/kWh including free power of 81.09 MU. The average cost works out to Rs. 3.87/ kWh as detailed in the table below.

Table 6.8: Power purchase cost estimated by MSPDCL for FY 2017-18

Name of source	Energy purchased / generated (ex-bus) ( MU)	Average rate (Rs/kWh)	All charges total in (Rs. Cr)
<b>CGS-NEEPCO</b>			
Kopili – I HE	67.46	1.74	11.74
Kopili – II HE	7.31	2.06	1.51

Name of source	Energy purchased / generated (ex-bus) ( MU)	Average rate (Rs/kWh)	All charges total in (Rs. Cr)
Khangdong HE	15.07	2.69	4.06
Ranganadi HE Project	113.22	3.41	38.61
Doyang HE Project	19.79	7.10	14.05
Assam GBPP	125.31	5.34	66.91
Agartala GTPP I & II	57.7	3.88	22.41
<b>CGS-NHPC</b>			
Loktak HE	208.52	4.14	86.34
Loktak Free Power	81.09	0.00	0.00
<b>Other</b>			
Baramura GBPP Unit IV & V	73.53	2.16	15.89
OTPC Pallatana Unit I & II	214	3.70	79.28
<b>Sub total</b>			
NTPC Bongaigoan I	57	10.54	60.08
<b>Sub total</b>		<b>4.00</b>	<b>400.88</b>
<b>Supplementary bills/Arrears</b>	-	-	-
<b>Total</b>	1040	4.00	<b>400.88</b>

### Commission's analysis

The power purchase cost estimated by the MSPDCL is on very high side. The Commission in its order dated 28.02.2017 had approved power purchase cost of Rs. 317.33 Crore for purchase of 1067.95 MU including free power of 70.83 MU at an average cost of Rs. 2.97 /KWh. Generally Central generation stations are not frequently enhancing the rates as such the Commission considers to adapt the average rate approved by the Commission in its order dated 28<sup>th</sup> February 2017 as detailed in the table below:

**Table 6.9: Power Purchase Cost approved by the Commission for FY 2017-18 after review**

Name of source	MU purchased / generated (ex-bus) (MU)	Average rate (Rs/kWh)	All charges total (Rs. Cr)
<b>CGS-NEEPCO</b>			
Kopili – I HE	67.46	0.97	6.544
Kopili – II HE	7.31	1.84	1.345
Khangdong HE	15.07	2.64	3.978

Name of source	MU purchased / generated (ex-bus) (MU)	Average rate (Rs/kWh)	All charges total (Rs. Cr)
Ranganadi HE Project	113.22	2.96	33.513
Doyang HE Project	19.79	4.33	8.569
Assam GBPP	125.31	3.96	49.623
Agartala GTPP I & II	57.7	4.36	25.157
<b>CGS-NHPC</b>			0.000
Loktak HE	208.52	2.93	61.096
Loktak Free Power	81.09		0.000
<b>Other</b>			
Baramura GBPP Unit IV & V	73.53	3.1	22.794
OTPC Pallatana Unit I & II	214	2.82	60.348
<b>Sub total</b>			0.000
NTPC Bongaigoan I	57	3.09	17.613
<b>Sub total</b>			
<b>Supplementary bills/Arrears</b>			
<b>Total</b>	1040	3.87	290.58

The Commission approves power purchase cost of Rs. 290.58 Cr for FY 2017-18 after review.

#### 6.8 Fuel cost

The MSPDCL has not furnished fuel cost for 2017-18

The Commission approves fuel cost at Rs. NIL Cr for FY 2017-18 after review.

#### 6.9 Transmission cost

The MSPDCL has furnished PGCIL cost at Rs. 49.35Cr and SLDC charges at Rs. 0.29 Cr and MSPCL charges at Rs. 68.15 Crore. But the Commission has approved MSPCL ARR for FY 2017-18 at Rs. 64.54 Crore and the same are considered as MSPCL charges for MSPDCL. Accordingly the approved transmission charges of MSPDCL are as detailed in the table below.

**Table 6.10: Transmission charges approved by the Commission for FY 2017-18 after true up (Rs. Crore)**

Sl. No.	Particulars	Furnished by MSPDCL	Approved by the Commission
1	PGCIL charges	49.35	49.35
2	MSPCL charges	68.15	64.54
3	SLDC charges	0.58	0.58
4	Total	118.08	114.47

The Commission approves transmission charges at Rs. 114.47 Cr for FY 2017-18 after review.

**6.10 Operation & Maintenance Expenses**

Operation & Maintenance Expenses comprises of

- (a) Employee cost
- (b) R&M expenses
- (c) Administrative and General expenses

**6.10.1 Employee cost**

The Commission in its Order dated 28.02.2017 had approved Employee cost at Rs. 83.98 Crore for FY 2017-18. The MSPDCL has now estimated the same amount.

**The Commission approves employee expenses at Rs. 83.98 Cr for FY 2017-18 after review.**

**6.10.2 Repair & Maintenance Expenses**

The Commission in its order dated 28.02.2017 had approved R & M expenses at Rs. 6.88 Crore for FY 2017-18. The MSPDCL has estimated the same amount.

**The Commission approves R&M expenses at Rs. 6.88 Cr for FY 2014-15 after review.**

**6.10.3 Administrative and General Expenses**

The Commission in its Order dated 28.02.2017 had approved administration and General Expenses at Rs. 2.65 Crore for FY 2017-18

The MSPDCL has furnished revised estimated Administrative and General expenses at Rs. 6.90 Cr for FY 2017-18.

**Commission analysis**

**The Commission approves Administrative and General Expenses at Rs. 6.90 Cr for FY 2017-18 after review.**

**Table 6.11: Summary of O&M expenses approved by Commission for FY 2017-18 after review.**

(Rs. Crore)				
Sl. No.	Particulars	Approved by the Commission in its T.O dated 28.02.2017	Estimated by MSPDCL	Approved by Commission
1	Employee cost	83.88	83.98	83.98
2	R&M expenses	6.88	6.88	6.88
3	Administrative and General expenses	2.65	6.90	6.90
4	Total	93.51	97.76	97.76

### 6.11 Capital investment

The MSPDCL has furnished revised capital investment of Rs. 55 crore and capitalization of Rs. 90.21 Cr during FY 2017-18 as detailed in table below.

**Table 6.12: CWIP projected by MSPDCL**

(Rs. Crore)

Sl. No.	Particulars	FY 2017-18
A	Opening balance of CWIP	1068.93
B	Fresh investment during the year	55.00
C	Investment capitalized out of opening CWIP	60.21
D	Investment capitalized out of fresh investment	30.00
	<b>Total capitalization during the year (C+D)</b>	90.21
	<b>Closing balance of CWIP (A+B-C-D)</b>	1033.72

Capitalisation is not commensurate with the investment. The licensee is directed to gear up the works and complete them within the targeted dates. With the above observation the investment of Rs. 55.00 Cr and Capitalisation of Rs. 90.21 Cr is considered.

### 6.12 Gross Fixed Assets and Depreciation

#### Petitioner's Submission

The growth of GFA and depreciation as per revised estimates are furnished in table below.

Depreciation is charged on the basis of straight-line method, on the GFA in use at the beginning of the year and addition in assets during the financial year. The depreciation is based on the original cost of the Gross Fixed Assets.

**Table 6.13: Depreciation**

(Rs Crore)

Sl. No	Particulars	FY 2017-18
1	Opening GFA	890.01
2	Additions	90.43
3	Closing GFA	980.44
4	Average GFA	935.23
5	Average rate of depreciation	2.78%
6	Depreciation	26
7	10% of gross depreciation amount	0.26

The opening GFA for FY 2017-18 is Rs. 742.23 which is closing GFA of FY 2016-17 as per annual accounts for FY 2016-17 but not Rs. 890.01 Crore furnished by MSPDCL. Further the additions during FY 2017-18 are Rs. 90.21 Crore but not Rs. 90.42 Crore. Further the MSPDCL has claimed 10 % of gross depreciation .But actually calculated at 1 % of Gross depreciation at Rs. 0.26 Crore (1 % of Rs. 26 Crore).

As such the depreciation is calculated as detailed in the table below.

**Table 6.14: GFA and Depreciation for FY 2017-18 approved by the Commission after review**

(Rs. Crore)		
Sl. No.	Particulars	Amount
1	Opening GFA	742.23
2	Additions	90.21
3	Closing GFA	832.44
4	Average GFA	787.34
5	Average rate of Depreciation	2.42%
6	Depreciation	19.05
7	1% of Depreciation	0.19

**The Commission approves depreciation at Rs. 0.19 Cr for FY 2017-18 after review.**

### 6.13 Interest and Finance charges

Details of the loan amounts and Interest cost computed for FY 2017-18 summarized in the Table below.

**Table 6.15: Interest and Finance charges estimated by MSPDCL for FY 2017-18**

(Rs. Crore)						
Particulars	Gross Loan-Opening	Add: Drawals during the year	Less: repayment of loan during the year	Closing balance of Loan	Rate of Interest	Interest on Loan
REC 1	39.88	0	0.21	39.67	11.45%	4.55
REC2	15.16	0	0	15.16	5.76%	0.87
Total Loan	55.04	0	0.21	54.83	9.88%	5.43

**The Commission approves Interest and Finance charges at Rs.5.43 Crore for FY 2017-18 after review.**

### 6.14 Interest and Working Capital

As per Regulation 29.4 of JERC (M&M) MYT Regulations, 2014, interest on working capital shall be allowed on estimated level and shall be computed as follows.

- O & M expenses for one month plus
- Maintenance of spares at one (1) percent of historical cost escalates at 6% for the rates of commercial operations plus
- Receivable equivalent to one (1) month of the expected revenue from the interest shall be allowed at the rate equal to State Bank Advance Rate (SABR) as on 1st April of the financial year in which the petition is filed.

Interest on working capital furnished by MSPDCL for FY 2017-18 is furnished in table below.

**Table 6.16: Interest on Working capital estimated by MSPDCL for FY 2017-18**  
(Rs. Crore)

S. No.	Particulars (Rs Cr)	FY 2017-18
A)	Receivables	
A) i)	Annual Revenue for Wheeling and Retail supply Charges	572.59
A) ii)	Receivables equivalent to 1months average billing	<b>47.72</b>
B) i)	Maintenance spare (GFA)	980.44
B) ii)	1% of GFA escalated by 6%from the CoD	<b>9.80</b>
C) i)	O&M Expenses	97.76
C) ii)	O&M Expenses one month	<b>8.15</b>
D)	Total Working capital A) ii) - B) ii) - C)ii)	<b>65.67</b>
E)	Less : Total Security Deposit	
F)	Net working Capital requirement	65.67
	Interest Rate	14.75%
	<b>Interest on working capital</b>	<b>9.69</b>

#### Commission's Analysis

Claiming one month ARR as receivables is not in order.

Maintenance of spares at 1 % is calculated on GFA of Rs. 980.44 above is not correct as the opening GFA for FY 2017-18 is Rs. 742.23 Crore. As such the interest on working capital is recalculated as detailed in the table below.



**Table 6.17: Interest on Working Capital approved by the Commission for FY 2017-2018 after review**

(Rs. Crore)			
Sl. No.	Particulars	Total cost	One month cost
1	O & M Expenses one month	97.76	8.15
2	Maintenance of spares @ 1% of GFA	742.23	7.87
	Escalated by 6%		
3	Receivable one month	283.64	23.64
<b>4</b>	<b>Total</b>		<b>39.66</b>
5	SBAR as on 01-04-2017		14.05
6	Interest on working capital		5.57

**The Commission approves interest on working capital at Rs. 5.57 Cr for FY 2017-18 as against Rs. 5.22 Cr estimated by MSPDCL after review.**

#### **6.15 Return on equity**

The MSPDCL has estimated ROE at Rs. 1.95 Crore for FY 2017-18

The Commission approves ROE at Rs. 1.95 Crore as estimated by MSPDCL after review.

#### **6.16 Provision for bad debts**

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

The MSPDCL has considered provision for bad debts as 1.00% of receivables as provided in the Regulation 89.8 of the JERC (Multi Year Tariff) Regulations, 2014 issued by the Hon'ble Central Electricity Regulatory Commission and requested to consider Rs. 3.00 Cr towards provision for bad and doubtful debts for FY 2017-18.

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

The MSPDCL has misrepresented Regulation, 89.8 of JERC for M&M (MYT) Regulations, 2014 and claimed Rs. 3.00 Cr towards provision for bad and doubtful debts.

The Regulation 89.8 read as follows:

“The Commission may allow bad debts written off as a pass through in the aggregate revenue requirement...” which means the Commission may allow the bad debts written off but not 1% of receivables. As during FY 2017-18 no amount is shown as written off the Commission has not considered any provision for bad and doubtful debts for FY 2017-18.

The Commission approves Rs. NIL towards provision for bad and doubtful debts for FY 2017-18.

#### 6.17 Non tariff income

The MSPDCL has estimated non tariff income at Rs. 0.37 Cr for FY 2017-18.

##### Commission analysis

The Commission approves non tariff income at Rs. 0.37 Cr for FY 2017-18 after review.

#### 6.18 Revenue from energy sales for FY 2017-18

The revenue from energy sales as per revised estimates FY 2017-18 are as detailed in table below:

**Table 6.18: Revenue from energy sales for FY 2017-18 after review**

Category	Energy sales (MU)	Average Cost Rs/KWH	Revenue for FY 2017-18 (Rs. Cr)
Kutir Jyoti	13.58	2.77	3.76
Domestic	372	4.35	161.82
Commercial	44.79	6.66	29.83
Public lighting	5	6.18	3.09
Public water works LT	1.51	6.41	0.97
Agriculture and Irrigation LT	1.18	3.44	0.41
Cottage and Small Industries	18	4.32	7.78
Bulk	98.59	5.74	56.59
Agriculture HT	1	4.34	0.43
PWW HT	16.49	7.50	12.37
Medium Industries HT	4	7.30	2.92
Large Industries HT	6	6.12	3.67
<b>Total revenue from own sales</b>	<b>582.14</b>		<b>283.64</b>
UI Sales	272.55	1.82	49.60
<b>Total</b>	<b>854.69</b>		<b>333.24</b>

#### 6.19 Aggregate Revenue Requirement

Based on the approved data, the ARR furnished by MSPDCL and approved by the Commission are furnished in table below:

**Table 6.19: Aggregate Revenue Requirement approved by the Commission for FY 2017-18 after review**

Sl. No.	Particulars	Estimated by MSPDCL (in Rs. Cr)	Approved by Commission for FY 2017-18 (in Rs. Cr)
1	Fuel cost		
2	Power purchase cost	374.10	290.58
3	Interstate transmission charges	49.35	49.35
4	Intra state transmission charges	68.15	64.54
5	SLDC charges	0.58	0.58
6	Employee cost	83.98	83.98
7	R&M expenses	6.88	6.88
8	Administration & General expenses	6.90	6.90
9	Depreciation	0.21	0.19
10	Interest and finance charges	5.43	5.43
11	Interest on working capital	5.22	5.57
12	Provision for bad debt	3.00	-
13	RoE	1.95	1.95
14	Less non tariff income	0.37	0.37
15	<b>Net ARR</b>	<b>605.38</b>	<b>516.32</b>

**6.20 Revenue Gap****Table 6.20: Revenue Gap**

Sl. No.	Particulars	Estimated by MSPDCL (in Rs. Cr)	Approved by Commission for FY 2017-18 (in Rs. Cr)
1	Net ARR	605.38	516.32
2	Total revenue	313.26	333.24
3	Revenue gap	292.12	183.08

**Commission's analysis**

As seen from the above table the revenue gap works out to Rs. 183.08 Crore as against 292.12 Crore estimated by the MSPDCL.

## **7. Analysis of Aggregate Revenue Requirement for the MYT Second Control Period from FY 2018-19 to FY 2022-23**

### **7.1 Background**

The first block of three year MYT Control period is over by 31.03.2018. Now the MSPDCL has submitted Tariff Petition for 2<sup>nd</sup> block of MYT Control period from FY 2018-19 to FY 2022-23 as per clause 2(19) of JERC for (MYT) Regulations 2014.

### **7.2 Energy Sales**

Proper estimation of category wise energy sales is essential to determine the quantum of power purchase and the likely revenue. This section examines in detail the consumer category wise sales projected by the MSPDCL in its petition for assessment of ARR.

### **7.3 Consumer Categories**

The MSPDCL serves about 3,46,115 consumers as on 31.03.2017 in its licensed area and the consumers are categorized as under:

- a) Kutir Joyti (LT)
- b) Domestic(LT)
- c) Commercial(LT&HT)
- d) Public Lighting(LT)
- e) Agricultural(LT&HT)
- f) Public water works(LT&HT)
- g) Cottage & Small industry(LT)
- h) Medium industry(HT)
- i) Large industry(HT)
- j) Bulk supply(HT)

The MSPDCL serves the consumers at different voltages according to the consumer's requirement. In the categories, of Commercial, Agriculture and public water works there are LT consumers as well as HT consumers, while medium Industry, Large Industry and Bulk Supply categories are under HT only and Kutir Jyoti and domestic categories are under LT only.

#### 7.4 Growth of Consumers and Connected Load

##### Petitioner's submission

The MSPDCL has furnished the category wise number of consumers and their connected load for the years 2016-17 (actuals) and estimated for FY 2017-18 and projected for FY 2018-19 to FY 2022-23 as detailed in Tables below:

**Table 7.1: No. of consumers projected by MSPDCL for MYT Control Period FY 2018-19 to FY2022-23**

Number of Consumers	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
	Estimated	Projected				
Kutir Jyoti	69939	66442	63120	59964	56966	54117
Domestic	278049	303764	331857	362548	396078	432709
LT Commercial	15161	16240	17397	18636	19963	21384
HT Commercial	35	37	40	43	46	49
Public lighting	441	441	441	441	441	441
LT Public water	15	15	15	15	15	15
HT Public water	169	173	177	181	185	189
LT Agriculture and Irrigation	39	39	39	39	39	39
HT Agriculture and Irrigation	25	25	26	26	26	26
Cottage and Small Industries	2317	2328	2333	2341	2347	2355
Bulk	718	726	735	743	752	760
Temporary	23	25	28	31	34	37
Medium Industries	73	73	73	73	73	73
Large Industries	27	28	30	32	34	16
<b>Total</b>	<b>367031</b>	<b>390358</b>	<b>416310</b>	<b>445112</b>	<b>476999</b>	<b>512232</b>

**Table 7.2: Connected Load (KW) projected by MSPDCL for MYT Control period FY 2018-19 to FY 2022-23**

Category	Growth rate assumed for FY 2017-18	Growth rate assumed for FY 2018-19	Growth rate assumed for FY 2019-20	Growth rate assumed for FY 2020-21	Growth rate assumed for FY 2021-22	Growth rate assumed for FY 2022-23
Kutir Jyoti	10491	10543	10595	10647	10699	10752
Domestic	472683.37	483646	494863	506340	518083	530099
LT Commercial	37902.04	38561	39230	39912	40605	41311
HT Commercial	1097	1112	1127	1142	1158	1174

Category	Growth	Growth	Growth	Growth	Growth	Growth
Public Lighting	1144	1150	1155	1161	1167	1172
LT Public water works	190	191	192	193	194	195
HT Public Water- works	14845	14918	14992	15066	15140	15215
LT Agriculture &	117	118	118	119	119	120
HT Agriculture &	625	628	631	634	637	641
Cottage & Small	18845	18938	19031	19125	19220	19314
Bulk	28725.51	28867	29010	29153	29296	29441
Temporary	-	0	0	0	0	0
Medium Industries	1095	1116	1137	1158	1180	1203
Large Industries	3992.87	4013	4432	4052	4072	4092
<b>Total</b>	<b>591753</b>	<b>603799</b>	<b>616113</b>	<b>628702</b>	<b>641572</b>	<b>654728</b>

**Commission’s Analysis**

As verified from the Connected load with reference to number of connections during FY 2018-19 the average connected load is not in conformity with the definition of the that particular category as detailed below.

Sl. No	Category	Number of Consumers	Connected Load (KW)	Average Connected load (KW)	Remarks
1	Commercial HT	37	1112	30.054	As per definition of HT supply the connected load should be above 50 KW.
2	Agriculture HT	25	628	25.120	As per definition of HT supply the connected load should be above 50 KW.
3	Medium Industries(HT)	73	1116	15.288	As per definition of HT supply the connected load should be above 50 KW.
4	Bulk supply(HT)	726	28867	39.762	As per definition of HT supply the connected load should be above 50 KW.
5	Temporary supply	25	0		It is surprising to note how the connections are projected without connected load.

Similar situation is prevailed in respect of balance Control period. The MSPDCL is directed to verify the connected load of all the connections in the above category and furnish actual connected load on or before 30.06.2018. Further in respect of temporary supply connections how NIL connected load is projected may be elucidated. There is a clear lack of seriousness on the part of MSPDCL while carrying out the exercise.

## 7.5 Overall Approach to Sales Projection

### Petitioner's Submission:

The MSPDCL has furnished the category-wise, year-wise actual sales during FY 2016-17 estimated for FY 2017-18 and projection for Control period FY 2018-19 to FY 2022-23 as detailed below.

**Table 7.3: Consumer category wise energy sales from FY 2018-19 to FY 2022-23 projected by MSPDCL**

Energy Sales (MU)	(MU)						
	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
	Actual	CY	Projected				
Kutir Jyoti	16.78	17.43	17.91	18.50	19.06	19.66	20.27
Domestic	305.32	312.82	318.20	324.84	331.03	337.63	344.22
LT Commercial	42.94	44.79	45.27	46.49	47.37	48.45	49.46
HT Commercial	-	-	0.00	0.00	0.00	0.00	0.00
Public Lighting	4.45	4.45	4.45	4.45	4.45	4.45	4.45
LT Public Water-works	1.50	1.51	1.52	1.53	1.54	1.55	1.56
HT Public Water-works	16.49	16.49	16.99	17.24	17.63	17.96	18.33
LT Agriculture & Irrigation	1.17	1.18	1.19	1.21	1.22	1.23	1.24
HT Agriculture & Irrigation	0.75	0.76	0.77	0.77	0.78	0.79	0.80
Cottage & Small Industries	17.46	17.98	18.18	18.56	18.85	19.20	19.53
Bulk	96.73	98.59	99.54	100.98	102.20	103.56	104.87
Temporary	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Medium Industries	3.38	3.38	3.42	3.43	3.46	3.48	3.51
Large Industries	4.82	4.82	4.87	4.90	4.93	4.96	5.00
<b>Total Energy Sales</b>	<b>511.92</b>	<b>524.34</b>	<b>532.44</b>	<b>543.03</b>	<b>552.65</b>	<b>563.05</b>	<b>573.36</b>

As can be seen, MSPDCL overall energy sales are significantly dependent on the domestic consumers to the extent of around 50%. MSPDCL is of the view that there are various factors contributing to the growth in the energy sales and beyond the control of the utility including factors such as Rural Electrification, Government

Policy, economic climate, weather conditions and force majeure events like natural disasters, etc. MSPDCL therefore, for projecting the category-wise consumption for the FY 2018-19 to FY 2022-23 has considered the past growth trends of last 4 years in each of the consumer category sales and the availability of supply. It is also submitted that the sales in Domestic category are going to increase due to launch of Saubhagya Scheme.

The category wise CAGR has been applied on sales volume of FY 2016-17. This is because of the fact that, in FY 2016-17, we have got actual total energy sales data for FY 2016-17. On this sales data of FY 2016-17, the historical growth trend percentage is applied to project sales for FY 2017-18.

**Table 7.4: Category wise CAGR (%) of Units Billed furnished by MSPDCL**

Energy Sales (MU)	4 Yr. CAGR	3 Yr. CAGR	2 Yr. CAGR	Y-o-Y CAGR
Kutir Jyoti	20.57%	10.32%	15.00%	7.78%
Domestic	11.75%	14.76%	11.87%	7.78%
LT Commercial	8.64%	7.68%	9.47%	7.78%
HT Commercial				
Public Lighting	-1.78%	-6.77%	0.55%	7.78%
LT Public Water-works	-49.80%	-62.42%	-70.29%	-91.02%
HT Public Water-works				
LT Agriculture & Irrigation	-7.37%	-27.87%	-30.30%	-34.32%
HT Agriculture & Irrigation				
Cottage & Small Industries	0.32%	5.52%	-1.86%	7.78%
Bulk	4.71%	-0.30%	-0.07%	7.78%
Temporary	-30.21%	12.48%	106.62%	6.33%
Medium Industries	9.42%	12.59%	10.11%	7.78%
Large Industries	-23.29%	-30.52%	-23.40%	7.78%

Domestic Category is the main consumption category in Manipur, contributing to approx.50% of the total sale of energy in the State. For the domestic consumers, the MSPDCL has projected the energy sales for FY 17-18 by applying a Growth Rate of 2.46% i.e. 25% of average of 2 year CAGR on actual sales of FY 2015-16 and FY 16-17. For FY 18-19, FY 19-20, FY 20-21, FY 21-22 and FY 22-23 growth rate of 1.72%, 2.09%, 1.90%, 2.00% and 1.95% has been assumed for each year respectively on the projected sales of FY 2017-18.



For the LT Commercial category, an average of 2 year (FY 2015-16 and FY 16-17) CAGR i.e.4.31% has been applied over the actual sales of FY 2016-17 for projecting sales for FY 17-18. For FY 18-19 a growth rate of 1.08% is considered while for FY 19-20, FY 20-21, FY 21-22 and FY 22-23 growth rate of average of growth rate of last two year has been assumed for each year respectively on the projected sales of FY 2018-19. In the small industry growth rate of 2.96% has been applied over the actual sales of FY 2016-17 for projecting sales for FY 2017-18. For FY 18-19 growth rate of 1.15% is considered while for FY 19-20, FY 20-21, FY 21-22 and FY 22-23 growth rate of average of growth rate of last two year has been assumed for each year respectively on the projected sales of FY 2018-19 for small industries. However, for medium industries, growth rate of 1.00% is assumed for FY 18-19 while for FY 19-20, FY 20-21, FY 21-22 and FY 22-23 growth rate of average of growth rate of last two year has been assumed for each year respectively on the projected sales of FY 2018-19. For the large industries, growth rate of 1% is considered to project the sale for FY 2018-19 looking at the negative growth rate in each of the CAGR calculated. For FY 18-19, FY 19-20, FY 20-21, FY 21-22 and FY 22-23 growth rate of average of growth rate of last two year has been assumed for each year respectively on the projected sales of FY 2018-19 for large industries.

For Bulk consumer categories, one year CAGR of 1.93% has been applied over the actual sales of FY 2016-17 to project the sale for FY 17-18 looking at the negative growth in sales in this category in recent years. For FY 18-19 growth rate of 0.96% is considered while for FY 19-20, FY 20-21, FY 21-22 and FY 22-23 growth rate of average of growth rate of last two year has been assumed for each year respectively on the projected sales of FY 2018-19 for bulk consumers.

For other categories like Agriculture & Irrigation, Public water works and Public Lighting no much significant increase has been observed in recent years. As such the growth rate assumed for these categories in FY 2017-18 to FY 22-23 are same. However, there is an exponential increase in the consumption by Temporary connections. Thus a growth rate of 1% has been assumed for FY 18-19 while for FY 19-20, FY 20-21, FY 21-22 and FY 22-23 growth rate of average of growth rate of last

two year has been assumed for each year respectively on the projected sales of FY 2018-19 in such category. It is to be noted that the energy availability for Manipur in FY 2016-17 has increased as MSPDCL's share from NTPC's Unit I of Bongaigaon has been commissioned and has started supplying power to MSPDCL since April, 2016. Also, NTPC's Unit II and III are also expected to start supplying power in April 2018 and November FY 2018 respectively. However, commissioning of NEEPCO Monarchak Gas based power project is yet to supply power to MSPDCL. Because of new generation capacity, the restriction in demand would be relaxed and the sale is expected to be increased accordingly. The supply of additional power would imply an increased burden on the revenue expenditure gap of the company which needs to be met by rational increase in retail supply tariff as well as necessary subsidy support from the State Government, as detailed in the subsequent sections. MSPDCL is committed to improve its performance of revenue collection and bridge the gap of revenue and expenditure in the coming years. However, in the initial years, MSPDCL shall require the necessary subsidy support as well as rational increase in tariff to meet the increased quantum of power supply and sales.

#### **Commission's Analysis of Energy Sales Projection**

The MSPDCL has projected the energy sales for different categories of consumers for FY 2018-19 to FY2022-23 as given in Table above. The MSPDCL has not furnished the basis for CAGR. As per the tariff schedule commercial, public water works, and irrigation & agricultural categories are mix of HT and LT categories and domestic, public lighting and cottage & small industries are under LT category, while medium Industry, Large Industry and Bulk Supply are under HT category. The energy sales are not following any definite trend. However, based on CAGR of actual sales during FY 2013-14 to FY 2016-17, the projected sales for control period FY 2018-19 to FY2022-23 are arrived as discussed below:

**Table 7.5: Compound Annual Growth Rate approved by the Commission**

Sl. No	Particulars	FY (2013-14) (Actuals)	FY (2014-15) (Actuals)	FY (2015-16) (Actuals)	FY (2016-17) (Actuals)	3 Year CAGR	2 Year CAGR	YOY
1	Kutir Jyoti	12.5	12.69	15.57	16.78	10.31%	14.99%	7.77%
2	Domestic	202.03	243.95	283.28	305.32	14.76%	11.87%	7.78%
3	Commercial LT & HT	34.39	35.83	39.84	42.94	7.68%	9.47%	7.78%
4	Public Lighting	5.49	4.4	4.13	4.45	-6.76%	0.57%	7.75%
5	PWW LT & HT	28.25	16.99	16.69	17.99	-13.97%	2.90%	7.79%
6	Irrigation & Agriculture LT & HT	3.12	2.41	1.78	1.92	-14.94%	-10.74%	7.87%
7	Cottage and small Industries	14.86	18.13	16.2	17.46	5.52%	-1.87%	7.78%
8	Medium Industries	2.37	2.79	3.14	3.38	12.56%	10.07%	7.64%
9	Large Industries	14.98	8.22	4.48	4.82	-31.48%	-23.42%	7.59%
10	Bulk supply	97.61	96.86	89.75	96.73	-0.30%	-0.07%	7.78%
11	<b>Total</b>	<b>415.6</b>	<b>442.27</b>	<b>474.86</b>	<b>511.79</b>	<b>7.19%</b>	<b>7.57%</b>	<b>7.78%</b>

**a) Kutir Jyoti**

Kutir Jyoti is generally single point supply and as per the definition of Kutir Jyoti total consumption during any three months should not exceed 45 KWH and if the consumption exceeds 45KWH in any consecutive three months the connection has to be billed under LT domestic category.

Accordingly the energy sales are fixed as follows.

Year	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
MU	15	16	17	17	18

**The Commission approves energy sales during MYT Control period as detailed supra**

For domestic category which is the major consumption category in Manipur contributing 50% of sales (approx.) in the state, a growth of YOY CAGR of 7.78 is considered reasonable. Thus the energy sales (MU) during MYT Control period work out to be as follows.

FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
337	363	391	422	454

**The Commission approves energy sales to domestic category during MYT Control period as detailed supra.**

**b) Commercial LT & HT**

A growth of 3 year CAGR 7.68 % is considered reasonable. Thus the energy sales to commenced category during MYT period FY 2018-19 to FY 2022-23 works out to be as follows.

Year	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
Commercial LT MU	42	45	48	53	56
Commercial HT MU	6	6	7	7	8

**The Commission approves energy sales to Commercial category during MYT Control period as detailed supra.**

**c) Public Lighting**

A growth of 2 year CAGR of 0.57 % is considered reasonable. Thus the energy sales to public lighting category during MYT Control period work out as follows.

Year	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
MU	5	5	5	5	5

**Commission approves energy sales to public lighting during MYT Control period as detailed supra.**

**d) Public water works (LT &HT)**

A growth of 2 year CAGR of 2.90 % is considered reasonable. Thus the energy sales to PWW during MYT Control period work out as under.

Particulars	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
PWW LT (MU)	2	2	2	2	2
PWW HT(MU)	17	17	18	18	19

**Thus Commission approves energy sales to Public water works during Control period FY 2018-19 to FY 2022-23 as detailed supra.**

**e) Irrigation and Agriculture LT & HT**

Commission considers an increase of 2 % P.A. Thus the energy sales to Irrigation and agriculture category during MYT period works out as under

Particulars	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
Irrigation LT (MU)	1.20	1.20	1.25	1.25	1.30
Irrigation HT(MU)	0.77	0.80	0.80	0.85	0.85

**The Commission approves energy sales to Irrigation and agriculture category during MYT Control period as detailed supra.**

**f) Cottage and Small Industries**

A growth of 2 year CAGR of 5.52 % is considered reasonable. Thus the energy sales to cottage and small industries during control period FY 2018-19 to FY 2022-23 as detailed below.

Year	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
MU	19	20	21	22	23

**The Commission approves energy sales during MYT Control period as detailed supra.**

**g) Medium Industries**

A growth of YOY CAGR 7.64 % is considered as reasonable during Control period FY 2018-19 to FY 2022-23 as detailed supra.

Year	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
MU	4	4	4	5	5

**The Commission approves energy sales during MYT Control period as detailed supra.**

**h) Large Industries**

The Commission considers growth of YOY CAGR of 7.59 %. Thus the energy sales to large industries during Control period work out as under:

Year	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
MU	5	5	6	6	7

**The Commission approves energy sales of Large Industries during MYT Control period as detailed supra.**

**i) Bulk Supply**

A growth of YOY CAGR of 7.78 % is considered reasonable. Thus the energy sales to Bulk supply during MYT Control period as follows.

Year	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
MU	106	114	123	133	143

The Commission approves energy sales to Bulk supply during MYT Control period as detailed supra.

#### 7.6 Category wise Energy Sales Approved

As discussed above the category wise energy sales for during Control period FY 2018-19 to FY 2022-23 approved by the Commission segregating LT & HT categories as against the projected sales by the MSPDCL are given in Table below:

**Table 7.6: Category-Wise Energy Sale approved by the Commission for FY 2018-19 to FY2022-23**

Sl. No	Particulars	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
(MU)						
A. LT Supply						
1	Kutir Jyoti	15	16	17	17	18
2	Domestic	337	363	391	422	454
3	Commercial LT	42	45	48	53	56
4	Commercial HT	6	6	7	7	8
5	Public Lighting	5	5	5	5	5
6	PWW	2	2	2	2	2
7	Irrigation and agriculture	1.20	1.20	1.25	1.25	1.30
8	Cottage and small industries	19	20	21	22	23
9	Total LT	427.2	458.20	492.25	529.25	567.30
B. HT supply						
10	PWW	17	17	18	18	19
11	Irrigation and agriculture	0.77	0.80	0.80	0.85	0.85
12	Medium Industries	4	4	4	5	5
13	Large Industries	5	5	6	6	7
14	Bulk supply	106	114	123	133	143
15	Total HT	132.77	140.80	151.80	162.85	174.85
16	Grand Total (LT & HT)	559.97	599	644.05	692.10	742.15

#### 7.7 Distribution loss Petitioner's submission

- Being a hilly terrain and characterized by population spread out throughout the State, the system network of the State consist of long length of distribution and LT lines, with aging components which are being upgraded through various schemes. The MSPDCL (erstwhile EDM) has achieved a significant reduction in transmission & distribution losses in the past.

2. It is to be noted that MSPDCL network periphery includes only 11KV system whereas 33KV and above transmission network falls under the MSPCL network. Thus, MSPDCL's standalone distribution loss is much lesser than when accounted along with the transmission loss of 33 kV. In the absence of actual energy injection data at 132 KV, 33KV and 11 KV, for the purpose of segregating the MSPDCL network losses and MSPCL network losses, a network loss of 10% for MSPCL is considered. This 10% assumed transmission loss is inclusive of all transmission and transformation loss from 132 KV till 11 KV injection point.
3. The T&D losses for FY 2011-12, FY2012-13 and FY 2013-14 were 34.75%, 30.09% and 30.79% respectively. For FY 2014-15 and the MSPDCL has incurred an increase in losses and achieved T&D loss of 43.90% because of increased availability and supply especially in rural areas, as mentioned earlier. For FY 2016-17 MSPDCL has incurred an actual Distribution loss of 30.42%.

The present trajectory of Distribution Loss was aimed at 19.40% loss in FY 2016-17 which is far below the actual losses of the utility. MSPDCL has signed a tripartite Memorandum of Understanding (MoU) of Ujwal Discom Assurance Yojna with the Ministry of Power, Government of India on 26<sup>th</sup> July, 2016. In UDAY scheme the Discoms have targeted to reduce the AT&C losses and bring it to the level of 15% by FY 2018-19.

Owing to large number of connections to be released till FY 2018-19 under 24x7 Power for All Plan and SAUBHAGYA scheme, the losses can increase due to addition in rural consumers. MSPDCL humbly requests that it should be given an achievable target for reduction of Distribution losses as in the coming 2 years as losses can't be reduced at a faster pace owing to large number of rural connections. Also, it is to be ensured to the Commission that the utilities are making their best efforts to reduce the losses with the introduction of feeder separation schemes, spot billing etc. and various other IT initiatives. Moreover MSPDCL would like to humbly submit to the Commission that it has made some sincere efforts in reducing distribution loss, which can be observed in the trend of distribution loss from 2014-15 to FY 2016-17 as shown in Table 5 above.

MSPDCL has considered the T&D loss of 30.28% and 28.00% for FY 2017-18 and FY 2018-19 respectively. Due to increase rural electrification work and expansion of LT network, MSPDCL could not meet the Commission approved distribution loss as mentioned in the earlier order. However, MSPDCL has been proactively pursuing loss reduction activities for holistic benefit of all stakeholders and consumers as well as to meet compliance target under UDAY scheme of Central Government as can be observed in the table above. Also due to launch of Saubhagya scheme it is envisaged that a substantial number of households will be connected through LT system catering to significant amount of distribution loss, thus MSPDCL has considered a reduction of 2.28% of distribution loss from FY 2017-18 to FY 2018-19. But thereafter, MSPDCL proposes a gradual 2% T&D loss reduction for FY 2019-20 and 3% T&D loss reduction from FY 2019-20 to FY 22-23.

4. The T&D loss trajectory is summarized in the table given below.

**Table 7.7: T&D Losses for MYT Second Control Period**

Particulars	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21	FY 21-22	FY 22-23
	Actual	Anticipated	Projected				
<b>T&amp;D Losses</b>	30.42%	30.28%	28.00%	26.00%	23.00%	20.00%	17.00%

The MSPDCL submits to the Commission to approve the distribution losses submitted herein.

**Commission’s Analysis**

The MSPDCL is considering T&D loss as Distribution loss which is not in order. Consequent on unbundling of Manipur Electricity Department into two companies namely MSPCL and MSPDCL transmission loss is gone to MSPCL while MSPDCL is responsible for Distribution loss only but not T&D loss.

The Commission in its order dated 28.02.2017 had approved distribution loss at 18.40 % for FY 2017-18. The Commission considers a reduction of 2 % on the distribution loss of 18.40% of FY 2017-18 to arrive at distribution loss for FY 2018-19 and further reduction of 1.4 % to arrive at distribution loss for FY 2019-20 and further reduction of 0.8 % to arrive at distribution loss for 2020-21 and 0.7 % to arrive at distribution loss for FY 2021-22 and further reduction of 0.5 % for FY 2022-23 .



Accordingly the Commission approves distribution loss for Control period FY 2018-19 to FY 2022-23 as follows.

Year	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
Distribution loss%	16.4%	15%	14.2%	13.5%	13%

This is to subject to conducting system studies and energy audit.

Segregation of Technical and Commercial loss shall also be completed by installation and activation of appropriate energy meters by October 2018.

#### 7.8 Intra state Transmission loss

##### Commission's Analysis

In Para 7.7 the petitioner has considered Intra state transmission loss (MSPCL loss) at 10 % . The MSPCL in its MYT ARR petition for Control period FY 2018-19 to FY 2022-23 has furnished Intra state Transmission loss as follows.

Particulars	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
Intra State Transmission Loss%	3.6%	3.5%	3.4%	3.3%	3.2%

But as per Tripartite Memorandum of Understanding made on 26<sup>th</sup> July, 2016 between Ministry of Power, Government of India and Government of Manipur and Manipur State Power Distribution Company Limited inter alia the government of Manipur will endeavour to reduce the Transmission loss from 3.6 % to 3.2 % by FY 2018-19 .

Accordingly the Commission considered Intra state Transmission loss during MYT Control period FY 2018-19 to FY 2022-23 as follows.

Particulars	End of FY 2018-19 (Projected)	End of FY 2019-20 (Projected)	End of FY 2020-21 (Projected)	End of FY 2021-22 (Projected)	End of FY 2022-23 (Projected)
Intra State Transmission Loss%	3.2%	3%	2.8%	2.7%	2.6%

The Commission approved Intra state transmission loss during MYT Control period FY 2018-19 to FY 2022-23 as detailed supra.

## 7.9 Energy Requirement

### Petitioner's submission

To arrive at the total energy requirement, the total sales in MUs as projected above has been grossed up by factoring in transmission and distribution losses. It may be noted that intra-state transmission losses are assumed as per the projection by MSPCL. The inter-state transmission losses viz. PGCIL pooled losses are assumed at same level as in FY 2016-17 for the entire control period. Further, the distribution losses are taken as per the projections above. Based on the projected sales for FY2017-18, FY 2018-19 and the T&D loss target as shown above, the overall energy requirement at the state periphery of Manipur is projected to be 835.68 MU and 821.71 MU in FY 2017-18 and FY 2018-19 respectively. The projections for energy requirement for the MYT Second Control Period from FY 2018-19 to FY 2022-23 is shown in the table below:

**Table 7.8: Energy Requirement projected by MSPDCL**

Sl. No.	Particular	Unit	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 22-23
<b>A</b>	<b>Energy Requirement</b>	<b>MU</b>							
1	Energy Sales	MU	511.92	524.34	532.44	543.03	552.65	563.05	573.36
2	Distribution loss	%	30.42%	30.28%	28.00%	26.00%	23.00%	20.00%	17.00%
3	Distribution loss	MU	223.85	227.77	207.1	190.84	165.12	140.8	117.47
4	Energy Requirement at Distribution Periphery	MU	735.77	752.11	739.54	733.87	717.76	703.86	690.83
5	Transmission Network Loss	%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
6	Transformation loss quantum	MU	81.75	83.57	82.17	81.54	79.75	78.21	76.76
7	Energy Requirement	MU	<b>817.53</b>	<b>835.68</b>	<b>821.71</b>	<b>815.41</b>	<b>797.52</b>	<b>782.06</b>	<b>767.58</b>
<b>B</b>	<b>Energy Availability</b>	<b>MU</b>							
8	Own Generation (Net)	MU	0.68	0	0	0	0	0	0
9	Power Purchase	MU	1065.53	1040	1065.25	1131.36	1163.86	1185.52	1207.19
10	Less: External Losses	%	3.60%	2.65%	2.65%	2.65%	2.65%	2.65%	
11	Less: External Losses	MU	38.36	27.56	28.23	29.98	30.84	31.42	31.99
12	Net energy available at state								
13	periphery(8+9-11)	MU	1027.85	1012.44	1037.02	1101.38	1133.02	1154.11	1175.2
14	Surplus (12-7)	MU	<b>210.32</b>	<b>176.76</b>	<b>215.31</b>	<b>285.96</b>	<b>335.5</b>	<b>372.04</b>	<b>407.61</b>

(source Table 27 of petition)

### Commission's Analysis

To arrive at energy requirement at state periphery it is not correct to gross up the energy requirement at distribution periphery with transmission loss % as it leads to wrong assessment. So it is appropriate to arrive at energy requirement at distribution periphery as power flows from state periphery to distribution periphery and in turn to the consumer end.

Further unless we know the power availability at state periphery the power availability at distribution periphery cannot be decided. So it is enough to arrive the power requirement at distribution periphery at this level.

Thus with the approved sales within the state and distribution loss the power requirement at distribution periphery during control period of FY 2018-19 to FY 2022-23 is arrived as follows.

**Table 7.9: Energy requirement approved by the Commission during Control period FY 2018-19 to FY 2022-23**

Sl. No	Particulars	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
1	Energy sales (MU)	559.97	599	644.05	692.10	742.15
2	Distribution loss%	16.40%	15.00%	14.20%	13.50%	13%
3	Distribution loss MU	109.85	105.71	106.59	108.02	110.90
4	Energy Requirement (MU)	669.82	704.71	750.64	800.12	853.05

### 7.10 Energy Availability and Sources of Power Petitioner's submission Power Purchase Quantum

1. The energy requirement for the MSPDCL is met by supply of power from Central Generating Stations, Tripura and very less quantum is purchased through short term market. Manipur, mainly relies on the allocations of power from Central Generating Stations like NHPC, NEEPCO, OTPC Pallatana Unit I and Unit II, Tripura based Baramura power plant to meet its energy requirement. Further, MSPDCL has started getting power from NTPC Bongaigaon Unit I since the first quarter of FY2016-17. The total allocation from NTPC Bongaigaon Unit I is 18.76 MW. MSPDCL is also expecting 18.76 MW out of 250 MW power from NTPC Bongaigaon Unit II and III in the last quarter of FY 17-18 and FY 2018-19 respectively.

2. The MSPDCL for the purpose of estimation of the power availability during FY 2017-18 has considered the following sources of power:
  - NHPC (Loktak HEP) Central Public Sector Generating Stations, (NE Region);
  - NTPC Bongaigaon Unit I
  - NEEPCO (Hydro) Central Public Sector Eastern Region Generating Stations, (NE Region);
  - NEEPCO (Gas) Central Public Sector Eastern Region Generating Stations, (NE Region);
  - Baramura (Gas turbine), Unit IV & V; Tripura State Electricity Corporation Ltd.
  - OTPC, Pallatana-Unit I and Unit II
  - NTPC Bongaigaon Unit I
  - Over-drawl under unscheduled interchange during peak hours at lean period.
3. MSPDCL has power allocation from the Central Public Sector Generating Stations including hydro and gas based power stations. Since FY 2011-12, Unit V of Baramura gas turbine power project of TSECL is also giving power to Manipur. However, for meeting the supply-demand gap during the peak hours especially in lean period, the Petitioner has to rely on over-drawl from the grid (UI).
4. For projection of FY 2018-19 energy availability and allocation from various existing generating stations of NHPC, NEEPCO, NTPC, OTPC and TSECL has been considered. The power purchase has already commenced from NTPC Bongaigaon Unit II from November 2017. In addition to that 18.76 MW out of 250 MW is expected from NTPC Bongaigaon III. The detailed methodology for projecting the power availability to MSPDCL from various sources is summarized below.
5. The power purchase cost has been computed considering annual fixed charges for all MYT Second control period same as FY 18-19. Also, a hike of 5% in the energy charge is considered FY 19-20 onwards till FY 2022-23.
6. It is envisaged from the past trend that MSPDCL has paid supplementary bills to the tune of Rs 20 Crore to the Central Generating Stations. Thus an approximate figure of Rs 15 Crore is considered as the supplementary bills from FY 18-19 to FY 22-23.

7. Manipur has allocations in Central Sector Generating Stations of NHPC, NEEPCO (Hydro), NEEPCO(Gas), Tripura Baramura gas based Power Plant, OTPC Pallatana unit 1&2 (Gas) and NTPC Bongaigaon plant.
8. For FY 2018-19, the energy availability from hydro generating plants of NHPC Loktak and NEEPCO for Kopili-I, Kopili-II, Khandong HEP, Ranganadi HEP and Doyang HEP has been taken at the PLF at which energy is estimated to be scheduled from the respective Generating Plants during FY 2016-17.
9. Average energy scheduled during the last year i.e. FY 2016-17 has been taken respectively for Assam Gas based Power Project, Agartala Gas Turbine Power Project and TSECL Baramura plant to arrive at the energy availability for FY 2017-18 based on the latest performance achieved by these plants.
10. For estimating the energy availability from NTPC Bongaigaon Unit I in FY 2017-18, scheduled energy during the previous year has been taken. That average PLF has been used for the remaining months to determine the estimated generation.
11. Actual allocation of power to MSPDCL from central generating stations has been taken from the latest monthly report of Energy Accounting of North Eastern Regional Power Committee.
12. Inter State Transmission Losses @ 3.6% for all Power purchased from central generating stations has been considered to arrive at the energy available at the state bus of Manipur.

**Table 7.10: Power Purchase Quantum projected by MSPDCL for FY 2018-19 to FY 2022-23**

S. No	Sources	(MU)					
		FY 2017-18	FY2018-19	FY2019-20	FY2020-21	FY2021-22	FY2022-23
		CY	Projected				
Purchased / generated (ex-bus)							
A	Own Generation						
1	Leimakhong - Micro Hydel						
2	Various Diesel Generating plants						
<b>B</b>	<b>CGS - NEEPCO</b>						
<b>1</b>	Kopili -I HE	67.46	62.82	65.41	67.35	68.65	69.94
<b>2</b>	Kopili-II HE	7.31	6.93	7.24	7.47	7.62	7.77

S. No	Sources	FY 2017-18	FY2018-19	FY2019-20	FY2020-21	FY2021-22	FY2022-23
3	Khandong HE	15.07	12.85	13.42	13.85	14.14	14.43
4	Ranganadi HE Project	113.22	109.18	115.12	119.58	122.55	125.52
5	Doyang HE Project	19.79	17.1	18.13	18.9	19.42	19.94
6	Assam GBPP	125.31	127.62	131.75	134.85	136.92	138.98
7	Agartala GTPP I & II	57.7	62.67	64.55	65.95	66.89	67.82
<b>C</b>	<b>CGS - NHPC</b>						
1	Loktak HE	208.52	188.49	194.1	198.31	201.12	203.92
2	Loktak Free Power	81.09	74.16	76.37	78.02	79.13	80.23
<b>D</b>	<b>Other</b>						
1	Baramura GBPP Unit IV and V	73.53	75.47	77.31	78.69	79.61	80.53
2	OTPC Pallatana Unit I& II	214	214.06	221.42	226.94	230.63	234.31
<b>E</b>	<b>New Plants</b>						
1	NTPC Bongaigaon Unit I	57	45.56	48.85	51.31	52.96	54.6
2	NTPC Bongaigaon Unit II		45.56	48.85	51.31	52.96	54.6
3	NTPC Bongaigaon Unit III		22.78	48.85	51.31	52.96	54.6
4	Monarchak Gas Based Power Project NEEPCO						
5	Kameng HEP Stage I						
6	Kameng HEP Stage II						
7	Pare HEP						
8	Tuirial HEP						
9	Lower Subansiri Stage I						
	Renewable- Solar		0	0	0	0	0
	Renewable- Non Solar		0	0	0	0	0
F	Inter-state Transmission loss	37.44	38.35	40.73	41.9	42.68	43.46
	<b>Sub Total</b>	<b>1040</b>	<b>1065.25</b>	<b>1131.36</b>	<b>1163.86</b>	<b>1185.52</b>	<b>1207.19</b>

### Commission's Analysis

In this para the quantum of energy purchased has to be arrived based on the station wise power purchased at ex bus of respective generating stations and the power purchased at state periphery if any i.e UI Purchase/ Power purchased through IEX. So the transmission losses need not be considered at this level. Thus the station wise

projected energy purchase approved by the Commission during MYT Control period FY 2018-19 to FY 2022-23 are as detailed in the table below.

**Table 7.11: Power Purchase Quantum approved by the Commission for MYT Control period FY 2018-19 to FY 2022-23**

S. No	Sources	(MU)				
		FY2018-19	FY2019-20	FY2020-21	FY2021-22	FY2022-23
		<b>MU Purchased / generated (ex-bus)</b>				
<b>B</b>	<b>CGS - NEEPCO</b>					
1	Kopili -I HE	62.82	65.41	67.35	68.65	69.94
2	Kopili-II HE	6.93	7.24	7.47	7.62	7.77
3	Khandong HE	12.85	13.42	13.85	14.14	14.43
4	Ranganadi HE Project	109.18	115.12	119.58	122.55	125.52
5	Doyang HE Project	17.1	18.13	18.9	19.42	19.94
6	Assam GBPP	127.62	131.75	134.85	136.92	138.98
7	Agartala GTPP I & II	62.67	64.55	65.95	66.89	67.82
<b>C</b>	<b>CGS - NHPC</b>					
1	Loktak HE	188.49	194.1	198.31	201.12	203.92
2	Loktak Free Power	74.16	76.37	78.02	79.13	80.23
<b>D</b>	<b>Other</b>					
1	Baramura GBPP Unit IV and V	75.47	77.31	78.69	79.61	80.53
2	OTPC Pallatana Unit I& II	214.06	221.42	226.94	230.63	234.31
<b>E</b>	<b>New Plants</b>					
1	NTPC Bongaigaon Unit I	45.56	48.85	51.31	52.96	54.6
2	NTPC Bongaigaon Unit II	45.56	48.85	51.31	52.96	54.6
3	NTPC Bongaigaon Unit III	22.78	48.85	51.31	52.96	54.6
	<b>Sub Total</b>	<b>1065.25</b>	<b>1131.37</b>	<b>1163.84</b>	<b>1185.52</b>	<b>1207.19</b>

The Commission approves power purchase quantum including free power from Loktak HEP as detailed supra.

#### 7.11 Energy Balance

##### Petitioner's Submission

To arrive at the total energy requirement, the total sales in MUs as projected above have been grossed up by factoring in transmission and distribution losses. It may be noted that intra-state transmission losses are assumed as per the projection by MSPCL. The inter-state transmission losses viz. PGCIL pooled losses are assumed at same level as in FY 2016-17 for the entire control period. Further, the distribution losses are taken as per the projections above. Based on the projected sales for FY2017-18, FY 2018-19 and the T&D loss target as shown in Table 7.7 above, the overall energy requirement at the state periphery of Manipur is projected to be

835.68 MU and 821.71 MU in FY 2017-18 and FY 2018-19 respectively. The projections for energy requirement for the MYT Second Control Period from FY 2018-19 to FY 2022-23 are shown in the table below:

**Table 7.12: Energy balance projected by MSPDCL for MYT Control period FY 2018-19 to FY 2022-23**

Sl. No	Particular	Unit	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
<b>A</b>	<b>Energy</b>	<b>MU</b>					
1	Energy Sales	MU	<b>532.44</b>	<b>543.03</b>	<b>552.65</b>	<b>563.05</b>	<b>573.36</b>
2	Distribution	%	28.00%	26.00%	23.00%	20.00%	17.00%
3	Distribution loss quantum	MU	207.1	190.84	165.12	140.8	117.47
4	Energy Requirement at Distribution Periphery	MU	739.54	733.87	717.76	703.86	690.83
	Transmission						
5	Network Loss	%	10.00%	10.00%	10.00%	10.00%	10.00%
6	Transmission and Transformation loss quantum	MU	82.17	81.54	79.75	78.21	76.76
7	Energy Requirement at State Periphery	MU	<b>821.71</b>	<b>815.41</b>	<b>797.52</b>	<b>782.06</b>	<b>767.58</b>
<b>B</b>	<b>Energy</b>	<b>MU</b>					
8	Own	MU	0	0	0	0	0
9	Power	MU	1065.25	1131.36	1163.86	1185.52	1207.19
10	Less: External Losses-3.6%	%	2.65%	2.65%	2.65%	2.65%	2.65%
11	Less:	MU	28.23	29.98	30.84	31.42	31.99
12	Net energy available at state periphery(8+9-11)	MU	1037.02	1101.38	1133.02	1154.11	1175.2
13	Surplus (12-	MU	<b>215.31</b>	<b>285.96</b>	<b>335.5</b>	<b>372.04</b>	<b>407.61</b>

**Commission’s Analysis**

Energy requirement for a distribution company is energy required at distribution periphery but not at the state periphery.



Further the Commission has approved Distribution loss for the MYT Control period in Para 7.7 supra and intra state transmission loss in Para 7.8 supra. Considering the above distribution loss and transmission loss and Interstate transmission loss at 2.6 % being the average weekly losses in North Eastern region from 03.04.2017 to 12.11.2017 the energy balance for the Control period FY 2018-19 to FY 2022-23 approved by the Commission are as detailed in the table below.

**Table 7.13:Energy Balance approved by the Commission for Control period FY 2018-19 to FY 2022-23**

Sl. No	Particulars	Unit	FY	FY	FY	FY	FY
			2018-19	2019-20	2020-21	2021-22	2022-23
A	Energy Requirement						
1	Energy sales	MU	559.97	599	644.05	692.1	742.15
2	Distribution loss	%	16.40%	15%	14.20%	13.50%	13%
3	Distribution loss	MU	109.85	105.71	106.59	108.02	110.90
4	Energy requirement		669.82	704.71	750.64	800.12	853.05
<b>B</b>	<b>Energy availability</b>						
5	Own generation(Net)	MU	-	-	-	-	-
6	Power purchase	MU	1065.25	1131.37	1163.84	1185.56	1207.19
7	Less External loss	%	2.60%	2.60%	2.60%	2.60%	2.60%
8	Less external loss	MU	27.70	29.42	30.26	30.82	31.39
9	Add RPO Purchases	MU	-	-	-	-	-
10	Add UI purchases	MU	-	-	-	-	-
11	Net Energy available at state periphery(5+6-8+9+10)	MU	1037.55	1101.95	1133.58	1154.74	1175.80
12	Less Transmission loss	%	3.20%	3%	2.80%	2.70%	2.60%
13	Less Transmission loss	MU	33.20	33.06	31.74	31.18	30.57
14	Energy available for distribution(11-13)	MU	1004.35	1068.90	1101.84	1123.56	1145.23
15	Surplus (14-4)	MU	334.53	364.19	351.20	323.44	292.19
16	Surplus gross up by transmission loss %	MU	345.24	375.12	361.03	332.17	299.78

Thus the energy balance resulted in surplus power as detailed in the above Table. The MSPDCL is directed to sell these surplus power under UI through IEX by proper planning in SLDC and realize maximum revenue.

## 7.12 Power Purchase Cost

### **Petitioner's submission**

The cost of purchase from the central generating stations for FY 2018-19 is estimated based on the following method: The power purchase cost has been computed considering annual fixed charges for MYT Second control period same as FY 18-19. Also, a hike of 5% in the energy charge is considered FY 19-20 onwards till FY 2022-23.

It is envisaged from the past trend that MSPDCL has paid supplementary bills to the tune of Rs 20 Crore to the Central Generating Stations. Thus an approximate figure of Rs 15 Crore is considered as the supplementary bills from FY 18-19 to FY 22-23.

The per unit power purchase rate for various stations was calculated for FY2016-17.

The latest invoices for each of the stations of NHPC and NEEPCO were analyzed from the month of April 2017 till October 2017. Per unit power purchase rate for FY 2017-18 till the month of October has been taken as per actuals. For the remaining months, previous year's rate has been considered. For estimation of power purchase rates for FY 2018-19, Commission approved rates have been considered. The tariff of the new generating plants of NTPC Bongaigaon Unit II and Unit I has been taken similar to that of Unit I.

The power purchase cost has been calculated by multiplying the per unit average power purchase rate as estimated above and projected units from each of the stations for FY2017-18 and FY 2018-19. Besides the current power purchase bills for FY 2017-18, MSPDCL shall also be required to clear the pending arrears of the power purchase invoices. It is observed that for FY 2014-15 as well as FY 2015-16 and FY 2016-17, MSPDCL had to pay arrears of Rs 34.97 crore. These supplementary bills are considered in the power purchase cost for FY 2018-19. It is envisaged from the past trend that MSPDCL has paid supplementary bills to the tune of Rs 20 Crore to the Central Generating Stations. Thus an approximate figure of Rs 15 Crore is considered as the supplementary bills from FY 18-19 to FY 22-23.

The method of estimating average power purchase rate for each of the stations and the per unit rates for FY 2017-18 and MYT Second Control Period from FY 2018-19 to FY2022-23 is summarized in the table below:

**Table 7.14: Power purchase cost for FY 2018-19 projected by MSPDCL**

Sl. No	Source	FY 2018-19		
		MU Purchased / generated (ex-bus)	All Charges Total (in Rs. Cr)	Average rate (Rs./KWH)
<b>A</b>	<b>Own Generation</b>			
1	Leimakhong - Micro Hydel	NA	NA	NA
2	Various Diesel Generating plants	NA	NA	NA
<b>B</b>	<b>CGS - NEEPCO</b>			
1	Kopili -I HE	62.82	12.38	1.97
2	Kopili-II HE	6.93	1.39	2
3	Khandong HE	12.85	3.73	2.9
4	Ranganadi HE Project	109.18	36.5	3.34
5	Doyang HE Project	17.1	13.74	8.04
6	Assam GBPP	127.62	46.39	3.64
7	Agartala GTPP I & II	62.67	16.96	2.71
8	Kameng HEP Stage - 1 (Upcoming on September 2016)	NA	NA	NA
<b>C</b>	<b>CGS - NHPC</b>			
1	Loktak HE	188.49	89.75	4.76
2	Loktak Free Power	74.16	0	0
<b>D</b>	<b>Other</b>			
1	Baramura GBPP Unit IV and V	75.47	13.21	1.75
2	OTPC Pallatana Unit I & II	214.06	81.67	3.82
<b>E</b>	<b>New Plants</b>			
1	NTPC Bongaigaon Unit I	45.56	24.67	5.41
2	NTPC Bongaigaon Unit II	45.56	24.67	5.41
3	NTPC Bongaigaon Unit III	22.78	12.33	5.41
4	Monarchak Gas Based Power Project NEEPCO	NA	NA	NA
5	Kameng HEP Stage I	NA	NA	NA
6	Kameng HEP Stage II	NA	NA	NA
7	Pare HEP	NA	NA	NA
8	Tuirial HEP	NA	NA	NA
9	Lower Subansiri Stage	NA	NA	NA

Sl. No	Source	FY 2018-19		
		MU Purchased / generated (ex-bus)	All Charges Total (in Rs. Cr)	Average rate (Rs./KWH)
	I			
10	Lower Subansiri Stage II	NA	NA	NA
	Renewable-Solar	0	20.71	0
	Renewable-Non Solar	0	1.73	0
F	Inter-state Transmission loss	38.35		
	<b>Sub Total</b>	<b>1065.25</b>	<b>399.81</b>	<b>3.75</b>
	Power available at State Periphery	1026.9	399.81	3.89
G	Power Purchased under UI/ Trading	0	0	0
	<b>TOTAL</b>	<b>1026.9</b>	<b>399.81</b>	<b>0</b>
H	Power Sold under UI/ Trading	215.31	39.23	1.82
	Supplementary bills/Arrear bills	0	34.97	0
	NERLDC Charges	0	0.71	0
I	<b>Total energy input to State periphery (132 kV) (E-F)</b>	<b>811.59</b>	<b>396.26</b>	

Table 7.15: Power purchase cost for FY 2019-20 projected by MSPDCL

Sl. No	Source	FY 2019-20		
		MU Purchased/ generated (ex-bus)	All Charges Total (in Rs. Cr)	Average rate (Rs./KWH)
<b>A</b>	<b>Own Generation</b>			
1	Leimakhong - Micro Hydel	NA	NA	NA
2	Various Diesel Generating plants	NA	NA	NA
<b>B</b>	<b>CGS - NEEPCO</b>			
1	Kopili -I HE	65.41	13.54	1.97
2	Kopili-II HE	7.24	1.52	2
3	Khandong HE	13.42	4.09	2.9
4	Ranganadi HE Project	115.12	40.41	3.34
5	Doyang HE Project	18.13	15.29	8.04
6	Assam GBPP	131.75	50.29	3.64
7	Agartala GTPP I & II	64.55	18.34	2.71
8	Kameng HEP Stage - 1 (Upcoming on	NA	NA	NA
<b>C</b>	<b>CGS - NHPC</b>			
1	Loktak HE	194.1	97.04	4.76
2	Loktak Free Power	76.37	0	0

Sl. No	Source	FY 2019-20		
		MU Purchased/generated (ex-bus)	All Charges Total (in Rs. Cr)	Average rate (Rs./KWH)
<b>D</b>	<b>Other</b>			
1	Baramura GBPP Unit IV and V	77.31	14.2	1.75
2	OTPC Pallatana Unit I & II	221.42	88.7	3.82
<b>E</b>	<b>New Plants</b>			
1	NTPC Bongaigaon Unit I	48.85	27.77	5.41
2	NTPC Bongaigaon Unit II	48.85	27.77	5.41
3	NTPC Bongaigaon Unit III	48.85	27.77	5.41
4	Monarchak Gas Based Power Project	NA	NA	NA
5	Kameng HEP Stage I	NA	NA	NA
6	Kameng HEP Stage II	NA	NA	NA
7	Pare HEP	NA	NA	NA
8	Tuirial HEP	NA	NA	NA
9	Lower Subansiri Stage I	NA	NA	NA
10	Lower Subansiri Stage II	NA	NA	NA
11	Renewable-Solar	0	23.12	0
12	Renewable-Non Solar	0	2.81	0
	<b>Sub Total</b>	<b>1131.36</b>	<b>454.05</b>	
	<b>Power available at State Periphery</b>	<b>1090.63</b>	<b>454.05</b>	4.16
G	Power Purchased under UI/ Trading	0	0	0
	TOTAL	1090.63	454.05	0
H	Power Sold under UI/ Trading	285.96	52.11	1.82
	Supplementary bills/Arrear bills	0	34.97	0
	NERLDC Charges	0	0.71	0
I	Total energy input to State periphery (132	804.67	417.69	

Table 7.16: Power purchase cost for FY 2020-21 projected by MSPDCL

Sl. No	Source	FY 2020-21		
		MU Purchased / generated (ex-bus)	All Charges Total (in Rs. Cr)	Average rate (Rs./KWH)
<b>A</b>	<b>Own Generation</b>			
1	Leimakhong - Micro Hydel	NA	NA	NA
2	Various Diesel Generating plants	NA	NA	NA
<b>B</b>	<b>CGS - NEEPCO</b>			
1	Kopili -I HE	67.35	14.64	1.97
2	Kopili-II HE	7.47	1.65	2
3	Khandong HE	13.85	4.43	2.9
4	Ranganadi HE Project	119.58	44.07	3.34

Sl. No	Source	FY 2020-21		
		MU Purchased / generated (ex-bus)	All Charges Total (in Rs. Cr)	Average rate (Rs./KWH)
5	Doyang HE Project	18.9	16.75	8.04
6	Assam GBPP	134.85	54.05	3.64
7	Agartala GTPP I & II	65.95	19.67	2.71
8	Kameng HEP Stage - 1 (Upcoming on September 2016)	NA	NA	NA
<b>C</b>	<b>CGS - NHPC</b>			
1	Loktak HE	198.31	104.1	4.76
2	Loktak Free Power	78.02	0	0
<b>D</b>	<b>Other</b>			
1	Baramura GBPP Unit IV and V	78.69	15.18	1.75
2	OTPC Pallatana Unit I & II	226.94	95.46	3.82
<b>E</b>	<b>New Plants</b>			
1	NTPC Bongaigaon Unit I	51.31	30.63	5.41
2	NTPC Bongaigaon Unit II	51.31	30.63	5.41
3	NTPC Bongaigaon Unit III	51.31	32.16	5.41
4	Monarchak Gas Based Power Project NEEPCO	NA	NA	NA
5	Kameng HEP Stage I	NA	NA	NA
6	Kameng HEP Stage II	NA	NA	NA
7	Pare HEP	NA	NA	NA
8	Tuirial HEP	NA	NA	NA
9	Lower Subansiri Stage I	NA	NA	NA
10	Lower Subansiri Stage II	NA	NA	NA
11	Renewable-Solar	0	25.12	0
12	Renewable-Non Solar	0	2.19	0
	<b>Sub Total</b>	<b>1163.86</b>	<b>490.73</b>	<b>3.75</b>
	Power available at State Periphery	1121.96	490.73	4.37
G	Power Purchased under UI/ Trading	0	0	0
	TOTAL	1121.96	490.73	4.37
H	Power Sold under UI/ Trading	335.5	61.13	1.82
	Supplementary bills/Arrear bills	0	15	0
	NERLDC Charges	0	0.79	0
I	Total energy input to State periphery (132 kV) (E-F)	786.46	445.38	

Table 7.17: Power purchase cost for FY 2021-22 projected by MSPDCL

Sl. No	Source	FY 2021-22		
		MU Purchased / generated (ex-bus)	All Charges Total (in Rs. Cr)	Average rate (Rs./KWH)
<b>A</b>	<b>Own Generation</b>			
1	Leimakhong - Micro Hydel	NA	NA	NA

Sl. No	Source	FY 2021-22		
		MU Purchased / generated (ex-bus)	All Charges Total (in Rs. Cr)	Average rate (Rs./KWH)
2	Various Diesel Generating plants	NA	NA	NA
<b>B</b>	<b>CGS - NEEPCO</b>			
1	Kopili -I HE	68.65	15.66	1.97
2	Kopili-II HE	7.62	1.76	2
3	Khandong HE	14.14	4.75	2.9
4	Ranganadi HE Project	122.55	47.42	3.34
5	Doyang HE Project	19.42	18.06	8.04
6	Assam GBPP	136.92	57.62	3.64
7	Agartala GTPP I & II	66.89	20.95	2.71
8	Kameng HEP Stage - 1 (Upcoming on September 2016)	NA	NA	NA
<b>C</b>	<b>CGS - NHPC</b>			
1	Loktak HE	201.12	110.86	4.76
2	Loktak Free Power	79.13	0	0
<b>D</b>	<b>Other</b>			
1	Baramura GBPP Unit IV and V	79.61	16.13	1.75
2	OTPC Pallatana Unit I & II	230.63	101.86	3.82
<b>E</b>	<b>New Plants</b>			
1	NTPC Bongaigaon Unit I	52.96	33.19	5.41
2	NTPC Bongaigaon Unit II	52.96	33.19	5.41
3	NTPC Bongaigaon Unit III	52.96	33.19	5.41
4	Monarchak Gas Based Power Project NEEPCO	NA	NA	NA
5	Kameng HEP Stage I	NA	NA	NA
6	Kameng HEP Stage II	NA	NA	NA
7	Pare HEP	NA	NA	NA
8	Tuirial HEP	NA	NA	NA
9	Lower Subansiri Stage I	NA	NA	NA
10	Lower Subansiri Stage II	NA	NA	NA
11	Renewable-Solar	0	25.87	0
12	Renewable-Non Solar	0	2.13	0
	Sub Total	1185.52	522.64	3.75
	Power available at State Periphery	1142.84	522.64	4.57
G	Power Purchased under UI/ Trading	0	0	0
	TOTAL	1142.84	522.64	0
H	Power Sold under UI/ Trading	372.04	67.79	1.82
	Supplementary bills/Arrear bills	0	15	0
	NERLDC Charges	0	0.83	0
I	Total energy input to State periphery (132 kV) (E-F)	770.8	470.68	

Table 7.18: Power purchase cost for FY 2022-23 projected by MSPDCL

S. No	Source	FY 2022-23		
		MU Purchased / generated (ex-bus)	All Charges Total (in Rs Cr)	Average rate (Rs/kWh)
<b>A</b>	<b>Own Generation</b>			
1	Leimakhong - Micro Hydel	NA	NA	NA
2	Various Diesel Generating plants	NA	NA	NA
<b>B</b>	<b>CGS - NEEPCO</b>			
1	Kopili -I HE	69.94	16.76	54.76
2	Kopili-II HE	7.77	1.89	65.17
3	Khandong HE	14.43	5.09	85.28
4	Ranganadi HE Project	125.52	51.00	108.20
5	Doyang HE Project	19.94	19.47	226.26
6	Assam GBPP	138.98	61.41	169.94
7	Agartala GTPP I & II	67.82	22.30	123.35
8	Kameng HEP Stage – 1 (Upcoming on September 2016)	NA		
<b>C</b>	<b>CGS - NHPC</b>			
1	Loktak HE	203.92	118.02	131.57
2	Loktak Free Power	80.23	0.00	-0.93
<b>D</b>	<b>Other</b>			
1	Baramura GBPP Unit IV and V	80.53	17.13	68.22
2	OTPC Pallatana Unit I & II	234.31	108.66	117.62
<b>E</b>	<b>New Plants</b>			
1	NTPC Bongaigaon Unit I	54.6	35.93	336.36
2	NTPC Bongaigaon Unit II	54.6	35.93	-0.21
3	NTPC Bongaigaon Unit III	54.6	35.93	-0.21
4	Monarchak Gas Based Power Project NEEPCO	NA	NA	-0.03
5	Kameng HEP Stage I	NA	NA	-0.03
6	Kameng HEP Stage II	NA	NA	-0.03
7	Pare HEP	NA	NA	-0.03
8	Tuirial HEP	NA	NA	-0.03
9	Lower Subansiri Stage I	NA	NA	-0.03
10	Lower Subansiri Stage II	NA	NA	-0.03
	Renewable-Solar	0	25.39	-0.46
	Renewable-Non Solar	0	2.07	-0.46
	<b>Sub Total</b>	<b>1207.19</b>	555.28	-0.22
<b>G</b>	Power Purchased under UI/ Trading	0	0.00	127.23
	<b>TOTAL</b>	<b>1163.73</b>	555.28	132.01
<b>H</b>	Power Sold under UI/ Trading	407.61	74.27	-0.09
	Supplementary bills/Arrear bills	0	15.00	-0.93
	NERLDC Charges	0	0.87	57.38
<b>I</b>	<b>Total energy input to State periphery (132 kV) (E-F)</b>	<b>756.12</b>	496.87	-0.93



### Renewable Purchase Obligation

1. As per the JERC Order No. H 13011/5/10-JERC dated 23<sup>rd</sup> May, 2016, MSPDCL is required to meet a total of 7.5% of its energy requirement through renewable sources for FY 2017-18. It includes 5.5% of solar RPO, and the rest 2 % would be therefore, through non-solar resources. Currently, there are very limited sources of renewable generation within the state and MSPDCL and some of the solar plants in Manipur are also not connected to the grid. Hence, MSPDCL has considered power purchased from KOPLI-II (25 MW) under the RPO. In order to meet the solar obligation, MSPDCL along with MANIREDA is planning to introduce a policy for grid connected roof top solar power plants. However, the actual generation from such sources and its purchase by MSPDCL may take some more time.

2. Accordingly, MSPDCL has planned to meet its Renewable Purchase Obligation (RPO) in FY 2017-18 by purchasing Renewable Energy Certificates (RECs) from IEX at the prevailing market rates for the ensuing year FY 2016-17. The current Market rates are as follows:

- a. Solar REC @ Rs. 3.50 per unit
- b. Non Solar REC @ Rs.1.50 per unit

#### RPO Trajectory (in %)

Trajectory	Solar	Non Solar
2017-18	5.50%	2%
2018-19	8%	2.50%
2019-20	9%	3.50%
2020-21	10%	3%
2021-22	10.50%	3%
2022-23	10.50%	3%

Accordingly, the renewable purchase quantum to be met is described in the table below:

#### RPO Trajectory (in MU)

Trajectory	Solar	Non Solar
2017-18	41.37	15.04
2018-19	59.16	18.49
2019-20	66.05	25.69
2020-21	71.78	21.53
2021-22	73.9	21.12
2022-23	72.54	20.72

**Commission's Analysis**

In the Power purchase cost from FY 2018-19 to FY 2022-23 the petitioner has included the arrear bills and SLDC charges as follows. Further the surplus of power sold under UI is deducted from the Power purchase cost which is not in order since the surplus power sold under UI has to be accounted for under the head revenue from sale of power. The power purchase cost has to be paid to the generators as per the invoices raised and the SLDC charges are to be accounted for in transmission charges. For supplementary arrears bills the MSPDCL has not furnished the details of arrears outstanding such as invoice numbers and amount due. Further the MSPDCL has claimed supplementary arrears to a tune of Rs. 34.97 Crore in FY 2018-19 and Rs. 34.97 in FY 2019-20 and 15 Crore each from FY 2021-22 To FY 2022-23. In view of the above the arrear bills and SLDC Charges and revenue from sale of surplus power are not considered to the power purchase cost. Barring the above the Commission has approved power purchase cost as detailed in the tables below.

**Table 7.19: Power Purchase Cost approved by the Commission for FY 2018-19**

S. No	Source	FY 2018-19		
		MU Purchased / generated (ex-bus)	All Charges Total (in Rs Cr)	Average rate (Rs/kWh)
<b>A</b>	<b>CGS - NEEPCO</b>			
1	Kopili -I HE	62.82	12.38	1.97
2	Kopili-II HE	6.93	1.39	2.01
3	Khandong HE	12.85	3.73	2.90
4	Ranganadi HE Project	109.18	36.50	3.34
5	Doyang HE Project	17.1	13.74	8.04
6	Assam GBPP	127.62	46.39	3.64
7	Agartala GTPP I & II	62.67	16.96	2.71
8	Kameng HEP Stage - 1 (Upcoming on September 2016)	NA		
<b>B</b>	<b>CGS - NHPC</b>			
1	Loktak HE	188.49	89.75	4.76
2	Loktak Free Power	74.16	0.00	0.00
<b>C</b>	<b>Other</b>			
1	Baramura GBPP Unit IV and V	75.47	13.21	1.75
2	OTPC Pallatana Unit I & II	214.06	81.67	3.82
<b>D</b>	<b>New Plants</b>			

S. No	Source	FY 2018-19		
		MU Purchased / generated (ex-bus)	All Charges Total (in Rs Cr)	Average rate (Rs/kWh)
1	NTPC Bongaigaon Unit I	45.56	24.67	5.41
2	NTPC Bongaigaon Unit II	45.56	24.67	5.41
3	NTPC Bongaigaon Unit III	22.78	12.33	5.41
4	Monarchak Gas Based Power Project NEEPCO	NA		
5	Kameng HEP Stage I	NA		
6	Kameng HEP Stage II	NA		
7	Pare HEP	NA		
8	Tuirial HEP	NA		
9	Lower Subansiri Stage I	NA		
10	Lower Subansiri Stage II	NA		
11	Renewable-Solar	0	20.71	
12	Renewable-Non Solar	0	1.73	
	<b>Total</b>	<b>1065.25</b>	<b>399.83</b>	<b>3.75</b>

Commission approves Power purchase cost of Rs. 399.83 Crore for purchase of 1065.25 MU including free power of 74.16 MU from Loktak for the FY 2018-19.

Table 7.20: Power Purchase Cost approved by the Commission for FY 2019-20

S. No	Source	FY 2019-20		
		MU Purchased / generated (ex-bus)	All Charges Total (in Rs Cr)	Average rate (Rs/kWh)
<b>A</b>	<b>CGS - NEEPCO</b>			
1	Kopili -I HE	65.41	13.54	2.07
2	Kopili-II HE	7.24	1.52	2.10
3	Khandong HE	13.42	4.09	3.05
4	Ranganadi HE Project	115.12	40.41	3.51
5	Doyang HE Project	18.13	15.29	8.43
6	Assam GBPP	131.75	50.29	3.82
7	Agartala GTPP I & II	64.55	18.34	2.84
8	Kameng HEP Stage - 1 (Upcoming on September 2016)	NA		
<b>B</b>	<b>CGS - NHPC</b>			
1	Loktak HE	194.1	97.04	5.00

S. No	Source	FY 2019-20		
		MU Purchased / generated (ex-bus)	All Charges Total (in Rs Cr)	Average rate (Rs/kWh)
2	Loktak Free Power	76.37	0.00	0.00
<b>C</b>	<b>Other</b>			
1	Baramura GBPP Unit IV and V	77.31	14.20	1.84
2	OTPC Pallatana Unit I & II	221.42	88.70	4.01
<b>D</b>	<b>New Plants</b>			
1	NTPC Bongaigaon Unit I	48.85	27.77	5.68
2	NTPC Bongaigaon Unit II	48.85	27.77	5.68
3	NTPC Bongaigaon Unit III	48.85	27.77	5.68
4	Monarchak Gas Based Power Project NEEPCO	NA		
5	Kameng HEP Stage I	NA		
6	Kameng HEP Stage II	NA		
7	Pare HEP	NA		
8	Tuirial HEP	NA		
9	Lower Subansiri Stage I	NA		
10	Lower Subansiri Stage II	NA		
	Renewable-Solar	0	23.12	
	Renewable-Non Solar	0	2.81	
	<b>Total</b>	<b>1131.37</b>	<b>452.66</b>	<b>4.00</b>

Commission approves Power purchase cost of Rs. 452.66 Crore for purchase of 1131.37 MU including free power of 76.37 MU from Loktak for the FY 2019-20.

Table 7.21: Power Purchase Cost approved by the Commission for FY 2020-21

S. No	Source	FY 2020-21		
		MU Purchased / generated (ex-bus)	All Charges Total (in Rs Cr)	Average rate (Rs/kWh)
<b>A</b>	<b>CGS - NEEPCO</b>			
1	Kopili -I HE	67.35	14.64	2.17
2	Kopili-II HE	7.47	1.65	2.21
3	Khandong HE	13.85	4.43	3.20
4	Ranganadi HE Project	119.58	44.07	3.69
5	Doyang HE Project	18.9	16.75	8.86
6	Assam GBPP	134.85	54.05	4.01
7	Agartala GTPP I & II	65.95	19.67	2.98
8	Kameng HEP Stage - 1 (Upcoming on September 2016)	NA		
<b>B</b>	<b>CGS - NHPC</b>			

S. No	Source	FY 2020-21		
		MU Purchased / generated (ex-bus)	All Charges Total (in Rs Cr)	Average rate (Rs/kWh)
1	Loktak HE	198.31	104.10	5.25
2	Loktak Free Power	78.02	0.00	0.00
<b>C</b>	<b>Other</b>			
1	Baramura GBPP Unit IV and V	78.69	15.18	1.93
2	OTPC Pallatana Unit I & II	226.94	95.46	4.21
<b>D</b>	<b>New Plants</b>			
1	NTPC Bongaigaon Unit I	51.31	30.63	5.97
2	NTPC Bongaigaon Unit II	51.31	30.63	5.97
3	NTPC Bongaigaon Unit III	51.31	32.16	6.27
4	Monarchak Gas Based Power Project NEEPCO	NA		
5	Kameng HEP Stage I	NA		
6	Kameng HEP Stage II	NA		
7	Pare HEP	NA		
8	Tuirial HEP	NA		
9	Lower Subansiri Stage I	NA		
10	Lower Subansiri Stage II	NA		
	Renewable-Solar	0	25.12	
	Renewable-Non Solar	0	2.19	
	<b>Total</b>	<b>1163.84</b>	<b>490.73</b>	4.22

Commission approves Power purchase cost of Rs. 490.73 Crore for purchase of 1163.84 MU including free power of 78.02 MU from Loktak for the FY 2020-21.

Table 7.22: Power Purchase Cost approved by the Commission for FY 2021-22

S. No	Source	FY 2021-22		
		MU Purchased / generated (ex-bus)	All Charges Total (in Rs Cr)	Average rate (Rs/kWh)
<b>A</b>	<b>CGS - NEEPCO</b>			
1	Kopili -I HE	68.65	15.66	2.28
2	Kopili-II HE	7.62	1.76	2.31
3	Khandong HE	14.14	4.75	3.36
4	Ranganadi HE Project	122.55	47.42	3.87
5	Doyang HE Project	19.42	18.06	9.30
6	Assam GBPP	136.92	57.62	4.21

S. No	Source	FY 2021-22		
		MU Purchased / generated (ex-bus)	All Charges Total (in Rs Cr)	Average rate (Rs/kWh)
7	Agartala GTPP I & II	66.89	20.95	3.13
8	Kameng HEP Stage - 1 (Upcoming on September 2016)	NA		
<b>B</b>	<b>CGS - NHPC</b>			
1	Loktak HE	201.12	110.86	5.51
2	Loktak Free Power	79.13	0.00	0.00
<b>C</b>	<b>Other</b>			
1	Baramura GBPP Unit IV and V	79.61	16.13	2.03
2	OTPC Pallatana Unit I & II	230.63	101.86	4.42
<b>D</b>	<b>New Plants</b>			
1	NTPC Bongaigaon Unit I	52.96	33.19	6.27
2	NTPC Bongaigaon Unit II	52.96	33.19	6.27
3	NTPC Bongaigaon Unit III	52.96	33.19	6.27
4	Monarchak Gas Based Power Project NEEPCO	NA	NA	
5	Kameng HEP Stage I	NA	NA	
6	Kameng HEP Stage II	NA	NA	
7	Pare HEP	NA	NA	
8	Tuirial HEP	NA	NA	
9	Lower Subansiri Stage I	NA	NA	
10	Lower Subansiri Stage II	NA	NA	
	Renewable-Solar	0	25.87	
	Renewable-Non Solar	0	2.13	
	<b>Total</b>	<b>1185.56</b>	<b>522.64</b>	4.41

Commission approves Power purchase cost of Rs. 522.64 Crore for purchase of 1185.56 MU including free power of 79.13 MU from Loktak for the FY 2021-22.

Table 7.23: Power Purchase Cost approved by the Commission for FY 2022-23

S. No	Source	FY 2022-23		
		Purchased / generated (ex-bus) (MU)	All Charges Total (in Rs Cr)	Average rate (Rs/kWh)
<b>A</b>	<b>CGS - NEEPCO</b>			
1	Kopili -I HE	69.94	16.76	2.40
2	Kopili-II HE	7.77	1.89	2.43
3	Khandong HE	14.43	5.09	3.53

S. No	Source	FY 2022-23		
		Purchased / generated (ex-bus) (MU)	All Charges Total (in Rs Cr)	Average rate (Rs/kWh)
4	Ranganadi HE Project	125.52	51.00	4.06
5	Doyang HE Project	19.94	19.47	9.76
6	Assam GBPP	138.98	61.41	4.42
7	Agartala GTPP I & II	67.82	22.30	3.29
8	Kameng HEP Stage - 1 (Upcoming on September 2016)	NA		
<b>B</b>	<b>CGS - NHPC</b>			
1	Loktak HE	203.92	118.02	5.79
2	Loktak Free Power	80.23	0.00	0.00
<b>C</b>	<b>Other</b>			
1	Baramura GBPP Unit IV and V	80.53	17.13	2.13
2	OTPC Pallatana Unit I & II	234.31	108.66	4.64
<b>D</b>	<b>New Plants</b>			
1	NTPC Bongaigaon Unit I	54.6	35.93	6.58
2	NTPC Bongaigaon Unit II	54.6	35.93	6.58
3	NTPC Bongaigaon Unit III	54.6	35.93	6.58
4	Monarchak Gas Based Power Project NEEPCO	NA	NA	
5	Kameng HEP Stage I	NA	NA	
6	Kameng HEP Stage II	NA	NA	
7	Pare HEP	NA	NA	
8	Tuirial HEP	NA	NA	
9	Lower Subansiri Stage I	NA	NA	
10	Lower Subansiri Stage II	NA	NA	
	Renewable-Solar	0	25.39	
	Renewable-Non Solar	0	2.07	
	<b>Total</b>	<b>1207.19</b>	<b>556.98</b>	4.61

**Commission approves Power purchase cost of Rs. 556.98 Crore for purchase of 1207.19 MU including free power of 80.23 MU from Loktak for the FY 2022-23.**

### 7.13 Transmission Charges

#### Petitioner's submission

1. Transmission charges payable to PGCIL are based on the point of connection charges per MW per month as notified by CERC and the scheduled generation and drawl by the applicable entity. MSPDCL has allocations from various Central Generating Stations and other generating stations located outside state which

determines the transmission charges payable by MSPDCL. Therefore, considering the increased capacity allocation of MSPDCL in MYT period, the transmission charges payable by MSPDCL would increase proportionally based on the average allocation available to MSPDCL for the MYT Second Control Period and FY 2017-18 as compared to the actual allocation in FY 2016-17.

- The inter-State transmission charges for FY 2016-17 have been taken as per the latest Commission Order which amounts to Rs 47 crore. The interstate transmission charges for MYT Second Control Period are projected by increasing transmission charges of FY 17-18 by 5% and so on.

**Table 7.24: Interstate Transmission charges for MYT Second Control Period**

Transmission Charges (Rs Cr)	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21	FY 21-22	FY 22-23
	Actual	Estimated	Projected				
Inter State	47.00	49.35	58.21	61.12	64.18	67.39	70.76

- Besides transmission charges for PGCIL, MSPDCL shall also be liable to pay transmission charges for intra state transmission to MSPCL during MYT period after the notification of transmission charges by JERC. These charges has taken to be Rs. 36.08 Crores as per MSPCL Petition (ARR & Tariff) No. 2 of 2015 dated 29<sup>th</sup> February 2016 for FY 2016-17 and Rs 68.15 Crores As per MSPCL order Petition (ARR & Tariff) No. 1 of 2016 dated 28<sup>th</sup> February, 2017 for FY 2017-18. The interstate transmission charges for MYT Second Control Period are considered as submitted by MSPCL for FY 2018-19 to FY 22-23.

**Table 7.25: Intra state Transmission Charges for MYT Second Period**

Transmission Charges (Rs Cr)	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21	FY 21-22	FY 22-23
	Actual	CY	Projected				
Intra State	36.08	68.15	92.62	98.57	111.58	123.49	135.45

- Besides, the transmission and the SLDC charges payable to NERLDC as per the actual of FY 16-17 and estimated figures for FY 2017-18 is tabulated below:

**Table 7.26: Transmission Charges projected by MSPDCL**

Particulars	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21	FY 21-22	FY 22-23
(Rs Cr)	Actual	CY	Projected				
PGCIL charges	47.00	49.35	58.21	61.12	64.18	67.39	70.76
MSPCL Charges	36.08	68.15	92.62	98.57	111.58	123.49	135.45



SLDC charges	0.84	0.29					
<b>Total Transmission Charges</b>	<b>83.92</b>	<b>117.79</b>	<b>150.83</b>	<b>159.69</b>	<b>175.76</b>	<b>190.88</b>	<b>206.21</b>

### Commission's Analysis

In this chapter the ARR for MYT Control period FY 2018-19 to FY 2022-23 are examined. The ARR for FY 2016-17 is considered in true up Chapter-5 and ARR of FY 2017-18 is considered in APR for FY 2017-18 in Chapter-6. As such the expenditure details for these two years are not considered in this chapter. PGCIL charges for Control period FY 2018-19 to FY 2022-23 are considered as projected by MSPDCL. The Intra state transmission charges (MSPCL) are considered as approved by the Commission for MSPCL. SLDC charges for the MYT Control period FY 2018-19 to FY 2022-23 are considered as projected by MSPDCL. Summary of transmission charges approved by the Commission for Control period FY 2018-19 to FY2022-23 are furnished in the table below.

**Table 7.27: Transmission Charges approved by the Commission for Control period FY 2018-19 to FY 2022-23**

Particulars	FY 18-19	FY 19-20	FY 20-21	FY 21-22	FY 22-23
(Rs Cr)	Projected				
PGCIL charges	58.21	61.12	64.18	67.39	70.76
MSPCL Charges	81.49	87.87	97.30	106.69	112.43
SLDC charges	0.71	0.71	0.79	0.83	0.87
<b>Total Transmission Charges</b>	<b>140.41</b>	<b>149.70</b>	<b>162.27</b>	<b>174.89</b>	<b>184.06</b>

**The Commission approves transmission charges for MYT Control period FY 2018-19 to FY 2022-23 as detailed supra.**

## 7.14 Operation and Maintenance Expenses

### Petitioner's submission

- Operation and Maintenance expenses comprise of the following heads:
  - Employees Expenses which includes the basic pay, dearness pay, dearness allowances, house rent allowances, and other allowances, new pension scheme paid to the staff;

- Repair and Maintenance (R&M) Expenses, which include all expenditure incurred on the maintenance and upkeep of distribution assets; and
  - Administrative and General Expenses, which include all expenditure incurred in operating a business such as office and IT expenses, consultancy and regulatory fee etc.
2. The methodology adopted by MSPDCL for projecting the values of each component of the O&M expense for FY 2017-18 has been explained in the following section.

#### 7.14.1 Employee Expense

However, in the absence of any documentary evidence against the actual cost incurred for FY 2017-18 so far, the employee cost is considered to be the same as approved by the Commission in its latest tariff Order of February 2017. The Projection for MYT Second Control Period is done by taking 5.72% year on year growth on employee expenses of approved 2017-18 figure.

**Table 7.28: Employee Cost projected by MSPDCL**

Particular	(Rs. Crore)				
	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
Employee expenses	98.78	106.68	112.78	119.24	126.06

It is submitted that there are fresh recruitments planned for FY 18-19. In addition, MSPDCL has also included provision for the implementation of recommendations of 7<sup>th</sup> pay commission. MSPDCL submits to the Hon'ble Commission to consider additional provision of 20 Cr for fresh recruitment and 7<sup>th</sup> pay commission. Thereby, approve the employee costs as projected by the Petitioner.

#### Commission's Analysis

The MSPDCL has estimated employee costs during 2017-18 at an escalation of 8.25% over the actual employee cost during FY 2016-17. The employee expenses for FY 2018-19 are projected at an escalation of 5.72 % over the estimated cost of FY 2017-18 plus additional amount of Rs. 20 Crore and for subsequent years. The year wise projection is at 5.72 % per annum over the previous years. Regarding VII pay Commission no notification is given from which date the VII pay commission will be

implemented. Further no details are furnished regarding new recruitment. However in the MYT Control petition for FY 2016-17 to FY 2017-18, MSPDCL hinted that 13 employees will be recruited in FY 2018-19 without giving cadre wise details.

Under the above circumstances the commission considers an additional amount of Rs. 10 Crore during FY 2018-19 as against Rs. 20 Crore requested by the MSPDCL and the employee cost computed for the Control period FY 2018-19 to FY 2022-23 at an escalation of 5.72 % over the estimated employee cost of 2017-18 as detailed in the table below.

**Table 7.29: Employee Cost approved by the Commission for FY 2018-19 to FY 2022-23**

(Rs. Crore)

Particular	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
Employee expenses(Rs. Cr)	98.78	106.68	112.78	119.24	126.06

**The Commission approves employee cost during the Control period FY 2018-19 to FY 2022-23 as detailed supra.**

#### 7.14.2 Repairs and Maintenance expenses

##### Petitioner's submission

1. These expenses include expenses on repairs and maintenance of Plant and Machinery, Transformers, Lines, cable network etc., Vehicles, Office equipment, etc.
2. In the absence of any documentary evidence against the actual cost incurred for FY 2017-18 so far, the repair and maintenance expenses is considered to be the same as approved by the Commission in its latest tariff Order of February 2017. The Projection for MYT Second Control Period is done by taking 5.72% year on year growth on employee expenses approved for FY 2017-18.
3. MSPDCL submits to the Commission that it is important for MSPDCL to incur the R&M expenses as mentioned above in order to maintain and strengthen the system and quality of supply.
4. The R&M cost for FY 2017-18 along with projections for MYT Second Control Period is summarized in table below:

**Table 7.30: Repairs & Maintenance Expense projected by MSPDCL for the Control period FY 2018-19 to FY 2022-23**

Year	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
R&M Cost (Rs. Cr)	6.88	7.27	7.69	8.13	8.59	9.09

The MSPDCL requested the Commission to approve the expenses without any disallowance as the same is necessary for proper maintenance and strengthening of the system and quality of supply in the region in order to ensure consumer satisfaction.

#### Commission's Analysis

The Commission approves R & M expenses for the MYT Control period FY 2018-19 to FY 2022-23 as detailed below, as projected by MSPDCL.

**Table 7.31: Repairs and maintenance expenses approved by the Commission during MYT Control period FY 2018-19 to FY 2022-23**

year	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
R & M expenses	7.27	7.69	8.13	8.59	9.09

(Rs. Crore)

#### 7.14.3 Administrative and General Expenses

##### Petitioner's submission

- Administrative and General (A&G) expense comprise of various sub-heads including the following:
  - Travel and conveyance expenses
  - Consultancy and regulatory fees
  - IT services and outsourcing cost
  - Office expenses
  - Publication expenses
  - Other administration expenses

In the absence of audited balance sheet, the administrative and general expenses for FY 18-19 are computed based on the average provisional expenditure in FY2016-17 and FY 2017-18. The Projection for MYT Second Control Period is done by

taking 5.72% year on year growth on employee expenses approved for FY 2017-18.

The A&G Expense for FY 2018-19 along with projections for MYT Second ControlPeriod is summarized in table below:

**Table 7.32: Administrative & General Expenses projected by MSPDCL**

Year	FY 18-19	FY 19-20	FY 20-21	FY 21-22	FY 22-23
A&G expenses	8.94	9.45	9.99	10.57	11.17

### Commission's Analysis

The Commission approves A & G expenses during Control period FY 2018-19 to FY 2022-23 projected by MSPDCL as detailed in the table below.

**Table 7.33: A & G expenses approved by the Commission during Control period FY 2018-19 to FY 2022-23**

Year	(Rs. Crore)				
	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
A&G expenses	8.94	9.45	9.99	10.57	11.17

**Table:7.34 Summary of O & M expenses approved by the Commission**

Sl. No	Particulars	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
1	Employee Cost	98.78	106.68	112.78	119.24	126.06
2	R & M expenses	7.27	7.69	8.13	8.59	9.09
3	Administration and General expenses	8.94	9.45	9.99	10.57	11.17
	Total	114.99	123.82	130.90	138.40	146.32

## 7.15 Capital Expenditure Plan

### Petitioner's submission

1 .Considering the increase in demand from HT & LT consumers, MSPDCL would be required to undertake significant capital expenditure for system augmentation and strengthening. System augmentation would not only help MSPDCL in handling increased load but would also ensure better quality of supply and network reliability to the consumers. Since, the current T&D loss levels are high, the capital expenditure would help in reduction in the T&D loss level.

2. Each year, MSPDCL prepares an Annual Plan for the capital investment for new schemes and continuing schemes which it plans to incur in the ensuing year. The MSPDCL has to undertake various capital projects for distribution functions mainly focusing on the strengthening electricity network and augment new networks for ensuring reliable power to its consumers.

Ongoing Capital Expenditure Schemes undertaken by MSPDCL:

- Strengthening and upgrading of existing 11 KV line
- Improvement of Distribution system in Greater Imphal and other Town
- Providing prepaid energy meters in Imphal and all district headquarters and other towns
- Replacement of old electromechanical and defective meters with electronic meters
- GOI schemes of RGGVY and R APDRP

Apart from the above schemes, MSPDCL has also planned to undertake large scale augmentation and improvement of electricity infrastructure under the newly introduced schemes of GoI namely Deen Dayal Upadhyaya Gram Jyoti Yojana (DUGJY) and Integrated Power Development Scheme (IPDS). MSPDCL has prepared the project reports under the new schemes and will start the implementation of the schemes from FY 2016-17 onwards.

4. Deen Dayal Upadhyaya Gram Jyoti Yojana aims at augmenting power supply in rural areas via feeder separation. A capital expenditure of Rs.5 Crores has been allocated by MSPDCL for each of FY 2015-16, FY 2016-17 and FY 2017-18 for implementing these objectives. The main objectives of the scheme are as follows:
- a. To separate agricultural and non-agricultural feeders in rural areas
  - b. Strengthening and augmentation of sub transmission and distribution infrastructure in rural areas.
5. Integrated power development initiative also aims at strengthening sub-transmission and distribution systems, including 100% metering and underground cabling. A capital expenditure of Rs.5 Crores has been allocated by MSPDCL for each of FY 2016-17, FY 2017-18 and FY 2018-19 for implementing these objectives. The main objectives of the scheme are as follows:

- a. Strengthening of sub transmission and distribution infrastructure in Urban and Semi Urban areas.
6. Metering in Urban and Semi-Urban areas.
7. Following Table depicts the ongoing capital schemes being undertaken by MSPDCL and the plan for current and ensuing year:

**Table 7.35: Proposed Capital Expenditure (Rs Cr) for FY 2017-18 and 2018-19**

Name of the scheme /work (Rs.cr)	Plan for FY 2017-18				Plan for FY 2018-19			
	Total Plan	Funded by Grant	Funded by Equity	Funded by Loan	Total Plan	Funded by Grant	Funded by Equity	Funded by Loan
<b>11 KV &amp; Below System</b>								
Improvement of Distribution System of Greater Imphal including 11KV feeder segregation	2	1.91	0.09	0	2.5	2.25	0.25	
Improvement of Distribution System of other towns and District Head Quarters (AB Cables/MRI etc.)	1	0.96	0.04	0	20	18	2	
Completion of Ongoing APDRP Scheme	4	3.82	0.18	0	4.5	4.05	0.45	
Providing of Pre-paid Energy Meter at Imphal areas	2	1.91	0.09	0	28	25.2	2.8	
Procurement of prepaid meters and accessories for other areas	15	14.33	0.67	0	11	9.9	1.1	
Street lamps and High mast	5	4.78	0.22	0	0	0	0	
Replacement of Elect-mechanical Meters with static meters	3	2.87	0.13	0	0	0	0	
<b>Rural Electrification</b>								
Electrification of Tribal Villages (left out) of Tousem Sub-Division	1	0.96	0.04	0	1	0.9	0.1	
Electrification of Tribal Villages (left out)of Nungba Sub-Division	1	0.96	0.04	0	1	0.9	0.1	
GGVY	7.5	7.17	0.33	0	12	10.8	1.2	
<b>Total: RE</b>	<b>9.5</b>	<b>9.08</b>	<b>0.42</b>	<b>0</b>				
<b>Misc. Schemes</b>								
Civil Work and Office Construction	3.5	3.34	0.16	0	5	4.5	0.5	

Name of the scheme /work (Rs.cr)	Plan for FY 2017-18				Plan for FY 2018-19			
	Total	Funded	Funded	Funded	Total	Funded	Funded	Funded
<b>New Schemes</b>								
Integrated Power Development Scheme(IPDS)	5	4.5		0.5	25	22.5	2.5	
R-APDRP (Part-B)					32.5	29.25	3.25	
Deen Dayal Upadhyaya Gram Jyoti Yojana	5	4.5		0.5	14.5	13.05	1.45	
Refurbishment & Enhancement project, (Phase -1)					8	7.2	0.8	
Refurbishment & Enhancement project,(Phase -2)					15	13.5	1.5	
<b>Recent Scheme</b>								
Saubhagya								
<b>TOTAL</b>	<b>55</b>	<b>52</b>	<b>2</b>	<b>1</b>	<b>180</b>	<b>162</b>	<b>18</b>	

Table 7.36: Proposed Capital Expenditure for FY 2019-20 and 2020-21

(Rs. Crore)

Name of the scheme /work (Rs.cr)	Plan for FY 2019-20				Plan for FY 2020-21			
	Total Plan	Funded by Grant	Funded by Equity	Funded by Loan	Total Plan	Funded by Grant	Funded by Equity	Funded by Loan
<b>11 KV &amp; Below System</b>								
Improvement of Distribution System of Greater Imphal including 11KV feeder segregation	5	4.5	0.5		10	9	1	
Improvement of Distribution System of other towns and District Head Quarters (AB Cables/MRI etc.)					7	6.3	0.7	
Completion of Ongoing APDRP Scheme	0	0	0		0	0	0	
Providing of Pre-paid Energy Meter at Imphal areas	30	27	3		34.3	30.87	3.43	
Procurement of prepaid meters and accessories for other areas	2.5	2.25	0.25		5	4.5	0.5	
Street lamps and High mast		0	0		5	4.5	0.5	
Replacement of Elect-mechanical Meters with Static Meters		0	0					



Name of the scheme /work (Rs.cr)	Plan for FY 2019-20				Plan for FY 2020-21			
	Total	Funded	Funded	Funded	Total	Funded	Funded	Funded
<b>Rural Electrification</b>								
Electrification of Tribal Villages (left out) of Tousem Sub-Division		0	0		0	0	0	
Electrification of Tribal Villages (left out) of Nungba Sub-Division		0	0		0	0	0	
RGGVY	2	1.8	0.2		2	1.8	0.2	
<b>Total: RE</b>								
<b>Misc. Schemes</b>								
Civil Work and Office Construction	6	5.4	0.6		4	3.6	0.4	
<b>New Schemes</b>								
Integrated Power Development Scheme (IPDS)	20	18	2		10.45	9.405	1.045	
R-APDRP (Part-B)	18	16.2	1.8		12	10.8	1.2	
Deen Dayal Upadhyaya Gram Jyoti Yojana	14.5	13.05	1.45		13.25	11.925	1.325	
Refurbishment & Enhancement project, (Phase -1)	7	6.3	0.7					
Refurbishment & Enhancement project, (Phase -2)	15	13.5	1.5		5	4.5	0.5	
<b>Recent Scheme</b>								
Saubhagya					12	10.8	1.2	
<b>TOTAL</b>	<b>120</b>	<b>108</b>	<b>12</b>		<b>120</b>	<b>108</b>	<b>12</b>	

Table 7.37: Proposed Capital Expenditure (Rs Cr) for FY 2021-22 and 2022-23

Name of the scheme /work (Rs.cr)	Plan for FY 2021-22				Plan for FY 2022-23			
	Total Plan	Funded by Grant	Funded by Equity	Funded by Loan	Total Plan	Funded by Grant	Funded by Equity	Funded by Loan
11 KV & Below System								
Improvement of Distribution System of Greater Imphal including 11KV feeder segregation	15	13.5	1.5		15	13.5	1.5	
Improvement of Distribution System of other towns and District Head Quarters (AB Cables/MRI etc.)	12	10.8	1.2		12	10.8	1.2	

Completion of Ongoing APDRP Scheme	0	0	0		0	0	0	
Providing of Pre-paid Energy Meter at Imphal areas	37	33.3	3.7		37	33.3	3.7	
Procurement of prepaid meters and accessories for other areas	5	4.5	0.5		5	4.5	0.5	
Street lamps and High mast	5	4.5	0.5		5	4.5	0.5	
Replacement of Elect-mechanical Meters with Static Meters								
Rural Electrification								
Electrification of Tribal Villages (left out) of Tousem Sub-Division	0	0	0		0	0	0	
Electrification of Tribal Villages (left out) of Nungba Sub-Division	0	0	0		0	0	0	
RGGVY	2	1.8	0.2		2	1.8	0.2	
Total: RE								
Misc. Schemes								
Civil Work and Office Construction	6	5.4	0.6		6	5.4	0.6	
New Schemes								
Integrated Power Development Scheme (IPDS)	5	4.5	0.5		5	4.5	0.5	
R-APDRP (Part-B)	5	4.5	0.5		5	4.5	0.5	
Deen Dayal Upadhyaya Gram Jyoti Yojana	3	2.7	0.3		3	2.7	0.3	
Refurbishment & Enhancement project,(Phase -1)								
Refurbishment & Enhancement project, (Phase -2)	10	9	1		10	9	1	
Recent Scheme								
Saubhagya	15	13.5	1.5		15	13.5	1.5	
TOTAL	120	108	12		120	108	12	

8. For MYT period, the MSPDCL has proposed a plan capital expenditure of Rs.180.00Crore for FY 2018-19 and Rs. 120 Cr for each FY 19-20, FY 20-21, FY 21-22 and FY22-23under various existing and new schemes.
9. It may be noted that funding for most of the schemes except that of RGGVY, R- - APDRP DUGJY and IPDS (for MYT period), are covered by grants from State Government and there are no loans or equity for funding of such schemes. For RGGVY, MSPDCL is furnishing loans from REC for 10% of the project cost, as per the directions of Ministry of Power, Government of India, in this regard. For RGGVY, the Central Government is providing 90% grant and 10% is covered through loan. Similarly for DUGJY and IPDS, since Manipur is a special category state, the Central Government is providing a maximum of 90% grant and 10% is covered through loan. MSPDCL submits that the company has no direct loan liability on itself.
10. A summary of the capital expenditure and capitalization for FY 2018-19 and for entire MYT Second Control Period is summarized in Table below:

**Table 7.38: Capital Expenditure & Proposed Capitalization**

(Rs. Crore)

S.No	Particulars (Rs Cr)	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
A	Opening Balance of	1068.93	1033.72	909.39	752.56	590.73	416.9
B	Fresh Investment during the year	55.5	180	120	120	120	120
C	Investment capitalised out of	60.21	174.33	186.83	196.83	214.33	127.17
D	Investment capitalised out of	30	130	90	85	80	80
	<b>Total Capitalisation during the year (C+D)</b>	90.21	304.33	276.83	281.83	294.33	207.17
	<b>Closing Balance of CWIP (A + B - C - D)</b>	1033.72	909.39	752.56	590.73	416.4	329.23

**Commission's Analysis**

**The Commission considers the Capital investment and Capitalization during Control period FY 2018-19 to FY 2022-23, as proposed by MSPDCL supra.**

## 7.16 Gross Fixed Assets & Depreciation

### 7.16.1 Gross Fixed Assets

#### Petitioner's submission

1. The accounts of FY 2014-15 for the restructured companies have been finalised and audited.
2. The GFA values are taken as approved in the latest JERC Tariff Order. Since no data is available on capital expenditure and capitalisation, we have projected Commission approved figures.

### 7.16.2 Depreciation

#### Petitioner's Submission.

Depreciation is charged on the basis of straight-line method, on the GFA in use at the beginning of the year and addition in assets during the financial year. The depreciation is based on the original cost of the Gross Fixed Assets.

**Table 7.39: Depreciation projected by MSPDCL for MYT Control period FY 2018-19 to FY2022-23**

(Rs. Crore)							
S. No	Particulars	FY 2017-18 (Estimated)	FY 2018-19 (Projected)	FY 2019-20 (Projected)	FY 2020-21 (Projected)	FY 2021-22 (Projected)	FY 2022-23 (Projected)
1	Opening GFA	890.01	980.44	1285.13	1562.17	1844.19	2138.74
2	Additions	90.43	304.69	277.04	282.02	294.55	207.49
3	Closing GFA	980.44	1285.13	1562.17	1844.19	2138.74	2346.23
4	Average GFA	935.23	1132.79	1423.65	1703.18	1991.47	2242.48
5	Average rate of depreciation	2.78%	5.22%	5.22%	5.23%	5.23%	5.23%
6	Depreciation	26.00	59.11	74.38	89.05	104.19	117.36
7	10% of gross depreciation amount	0.26	5.91	7.44	8.91	10.42	11.74

#### Commission's Analysis

The Closing balance GFA of Rs. 742.23 Crore as per annual accounts for FY 2016-17 is adopted as opening balance for FY 2017-18 and year wise amounts capitalised are considered as additions during the year and year wise gross depreciation is arrived with the average rate of depreciation of 2.42 % as per annual accounts for FY 2016-17.

Till 2017-18 MSPDCL has claimed depreciation at 1% of the gross depreciation since 99 % of capital investment is funded through grants. In the present MYT petition the

MSPDCL has claimed 10 % of the gross depreciation. This requires elucidation. Pending receipt of reply depreciation of 1 % of gross depreciation is allowed as was done in earlier years tariff orders . However if any balance depreciation is due the same will be examined either in APR or true up. Accordingly the Commission considers 1% of Gross depreciation as detailed in the table below.

**Table 7.40: Depreciation approved by the Commission for FY 2018-19 to FY 2022-23**

(Rs. Crore)							
Sl. No	Particulars	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
1	Opening GFA	742.23	832.66	1136.99	1413.82	1695.65	1989.98
2	Additions	90.43	304.33	276.83	281.83	294.33	207.17
3	Closing GFA	832.66	1136.99	1413.82	1695.65	1989.98	2197.15
4	Average GFA	787.44	984.82	1275.40	1554.73	1842.82	2093.56
5	Average Rate of depreciation	2.42%	2.42%	2.42%	2.42%	2.42%	2.42%
6	Gross depreciation	19.05	23.83	30.86	37.62	44.59	50.66
7	1 % of Gross Depreciation	0.19	0.24	0.31	0.38	0.45	0.51

**The Commission approves depreciation during MYT Control period FY 2018-19 to FY 2022-23 as detailed supra.**

#### **7.17 Interest and Finance Charges**

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

1. The entire capital expenditure of MSPDCL since its inception has been funded by the State Government through grants and loans from Central Government Ministries and Agencies like Ministry of Power (MoP) through schemes of APDRP, RGGVY, DUGJY, IPDS etc. Therefore, the utility does not have significant amount of loan liabilities.
2. However for the new Schemes of DDUGJY, IPDS 10% of the funds provided will be through loans and hence out of the total capital expenditure allocated for these two schemes is considered as new loan amount during FY 18-19 to FY 22-23.
3. Interest rate of 11.45% has been considered for computation of interest cost for long-term loans for MYT period which in line with the applicable current interest rates.

4. For old consumers (consumers existing before restructuring), Interest cannot be Paid on Security deposit since the data regarding the no. of consumers having security deposit is unavailable with MSPDCL. However, for the consumers added after restructuring Interest can be paid on security deposit as per JERC regulations.
5. Details of the loan amounts and interest cost computed for FY 18-19 to FY 22-23 is summarized in Table below:

**Table 7.41: Total Interest on Long-term Loans during FY 2018-19**

(Rs. Crore)

Particulars	FY 2018-19					
	Gross Loan-Opening	Add: Drawals during the year	Less: Repayment of Loan during the year	Closing balance of Loan	Rate of Interest	Interest on Loan
REC 1						
REC 2	54.83	0.00	5.91	48.92	11.45%	5.94
<b>Total Loan</b>	<b>54.83</b>	<b>0.00</b>	<b>5.91</b>	<b>48.92</b>		<b>5.94</b>

**Table 7.42: Total Interest on Long-term Loans during FY 2019-20**

(Rs. Crore)

Particulars	FY 2019-20					
	Gross Loan-Opening	Add: Drawals during the year	Less: Repayment of Loan during the year	Closing balance of Loan	Rate of Interest	Interest on Loan
REC 1						
REC 2	48.92	0.00	7.44	41.48	11.45%	5.17
<b>Total Loan</b>	<b>48.92</b>	<b>0.00</b>	<b>7.44</b>	<b>41.48</b>		<b>5.17</b>

**Table 7.43: Total Interest on Long-term Loans during FY 2020-21**

(Rs. Crore)

Particulars	FY 2020-21					
	Gross Loan-Opening	Add: Drawals during the year	Less: Repayment of Loan during the year	Closing balance of Loan	Rate of Interest	Interest on Loan
REC 1						
REC 2	41.48	0.00	8.91	32.58	11.45%	4.24
<b>Total Loan</b>	<b>41.48</b>	<b>0.00</b>	<b>8.91</b>	<b>32.58</b>		<b>4.24</b>

**Table 7.44: Total Interest on Long-term Loans) during FY 2021-22****(Rs. Crore)**

Particulars	FY 2021-22					
	Gross Loan-Opening	Add: Drawals during the year	Less: Repayment of Loan during the year	Closing balance of Loan	Rate of Interest	Interest on Loan
REC 1						
REC 2	32.58	0.00	10.42	22.16	11.45%	3.13
Total Loan	32.58	0.00	10.42	22.16		3.13

**Table 7.45: Total Interest on Long-term Loans during FY 2022-23****(Rs. Crore)**

Particulars	FY 2022-23					
	Gross Loan-Opening	Add: Drawals during the year	Less: Repayment of Loan during the year	Closing balance of Loan	Rate of Interest	Interest on Loan
REC 1						
REC 2	22.16	0.00	11.74	10.42	11.45%	1.86
Total Loan	22.16	0.00	11.74	10.42		1.86

MSPDCL shall furnish all actual data during the time of true up petition.

#### Commission's Analysis

The Commission approves Interest and Finance charges during the MYT Control period FY 2018-19 to FY 2022-23 as detailed in the table below.

**Table 7.46: Interest and Finance charges approved by the Commission for MYT Control period FY 2018-19 to FY 2022-23****(Rs. Crore)**

Sl. No	Particulars	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
1	Opening loan	54.83	48.92	41.48	32.58	22.16
2	Additions	-	-	-	-	-
3	Repayment	5.91	7.44	8.91	10.42	11.74
4	Closing loan	48.92	41.48	32.58	22.16	10.42
5	Average loan	51.88	45.20	37.03	27.37	16.29
6	Rate of Interest%	11.45	11.45	11.45	11.45	11.45
7	Interest on Loan	5.94	5.17	4.24	3.13	1.86

**The Commission approves Interest and Finance charges during Control period FY 2018-19 to FY 2022-23 as detailed below.**

Year	(Rs. Cr)				
	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
Interest and Finance charges	5.94	5.17	4.24	3.13	1.86

## 7.18 Interest on Working Capital

### Petitioner's submission

- As per the JERC (Terms and Conditions for Determination of Tariff) Regulations 2014, MSPDCL is entitled to claim interest on working capital as per the norms provided. The information regarding the projection of working capital requirement for the current and MYT Second Control Period is as follows:

**Table 7.47: Interest on Working Capital projected by MSPDCL**

S. No.	Particulars (Rs Cr)	(Rs. Crore)				
		FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
		<b>Projected</b>				
<b>A)</b>	Receivables					
<b>A) i)</b>	Annual Revenue for Wheeling and Retail supply Charges	699.88	739.02	791.96	841.85	892.85
<b>A) ii)</b>	Receivables equivalent to 1months average billing	<b>58.32</b>	<b>61.59</b>	<b>66</b>	<b>70.15</b>	<b>74.4</b>
<b>B) i)</b>	Maintenance spare (GFA) at 1% of GFA escalated by 6% from the CoD	1285.1	1562.2	1844.2	2138.7	2346.2
		<b>13.44</b>	<b>16.43</b>	<b>19.43</b>	<b>22.55</b>	<b>24.82</b>
<b>C) i)</b>	O&M Expenses	125	132.15	139.71	147.7	156.15
<b>C) ii)</b>	O&M Expenses one month	<b>10.42</b>	<b>11.01</b>	<b>11.64</b>	<b>12.31</b>	<b>13.01</b>
<b>D)</b>	Total Working capital A) ii) - B) ii) - C)ii)	<b>82.18</b>	<b>89.03</b>	<b>97.07</b>	<b>105.02</b>	<b>112.23</b>
<b>E)</b>	Less : Total Security Deposit					
<b>F)</b>	Net working Capital requirement	82.18	89.03	97.07	105.02	112.23
	Interest Rate	13.85%	13.85%	13.85%	13.85%	13.85%
	<b>Interest on working capital</b>	<b>11.38</b>	<b>12.33</b>	<b>13.44</b>	<b>14.54</b>	<b>15.54</b>

### Commission Analysis

As per regulation 29 (3) of JERC for MYT Regulations 2014 Interest on working capital shall be allowed on normative basis computed on the following.

- Operation and Maintenance expenses for one month, plus
- Maintenance of spares at 1 % of historical cost escalated at 6 % from the date of commercial operation, plus



- (c) Receivables equivalent to one month of expected revenue from charges for use of distribution wires at the prevailing tariffs, minus
- (d) Amount if any held as security deposit under change (b) of sub section (1) of Section 47 of the Act from Distribution system users accept the security deposit held in the form of bank guarantees.

Interest shall be allowed at a rate equal to the State Bank advance Rate (SBAR) as on 1<sup>st</sup> April of the financial year in which the petition is filed and the present rate is 14.05 %.

**Table 7.48: Interest on Working Capital approved by the Commission for FY 2018-19**  
**Interest on Working Capital**

(Rs. Crore)

S. No.	Particulars (Rs Cr)	FY	FY	FY	FY	FY
		2018-19	2019-20	2020-21	2021-22	2022-23
		<b>Projected</b>				
A)	Receivables	275.61	294.7	316.87	340.51	365.14
A) ii)	Receivables equivalent to 1 months average billing	22.97	24.56	26.41	28.38	30.43
B) i)	Maintenance spare (GFA)	832.44	1136.77	1413.6	1695.43	1989.76
B) ii)	1% of GFA escalated by 6% from the CoD	8.82	12.05	14.98	17.97	21.09
C) i)	O&M Expenses	114.99	123.82	130.9	138.4	146.32
C) ii)	O&M Expenses one month	9.58	10.32	10.91	11.53	12.19
D)	Total Working capital A) ii) - B) ii) - C)ii)	41.37	46.93	52.30	57.88	63.71
E)	Less : Total Security Deposit	-	-	-	-	-
F)	Net working Capital requirement	41.37	46.93	52.3	57.88	63.71
	Interest Rate	14.05	14.05	14.05	14.05	14.05
	Interest on working capital	5.81	6.59	7.35	8.13	8.95

**The Commission approves the interest on working capital for the Control period FY 2018-19 to FY 2022-23 as detailed supra.**

#### **7.19 Provision for Bad Debts**

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

MSPDCL has considered provision for Bad and Doubtful Debts as up to 1% of the receivables for FY 2016-17 and FY 2017-18. The MSPDCL has considered provision for

bad debts as 1.00% of receivables as provided in the Regulation 89.8 of the JERC (Multi Year Tariff) Regulations, 2014 issued by the Hon'ble Central Electricity Regulatory Commission.

MSPDCL requests the Hon'ble Commission to approve the provision for bad & doubtful debts as summarized in the Table below:

**Table 7.49: Provision for Bad & Doubtful debt approved by the Commission**

Particular	(Rs. Crore)				
	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
Provision for Bad & Doubtful Debts	3	3	3	3	3

#### Commission's Analysis

The petitioner has misrepresented the Regulation 89.8 of JERC for M&M (MYT) Regulations 2014. As per Regulation 89.8, the Commission may allow bad debts written off as a pass through in the ARR subject to prudence check but not to provide 1% of receivables as provision for bad and doubtful debts. However this being a projection Commission considers allowing the provision as projected by MSPDCL.

**The Commission approves provision for bad debts at Rs.3.00 Crore P.A for MYT Control period FY 2018-19 to FY 2022-23 as projected by MSPDCL.**

## 7.20 Return on Equity

#### Petitioner's submission

As per the JERC (Terms and Conditions for Determination of Tariff) Regulations, MSPDCL is entitled for a Return on Equity (RoE) of 19.38% after grossing up the MAT rate of 20.01% in 15.5%. Based on this the RoE calculations for FY 2017-18 and MYT Second Control Period are given below.

**Table 7.50: Projected by MSPDCL for MYT Second Control Period**

Particular	(Rs. Lakh)				
	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
Average Equity	0.00	0.00	0.00	0.00	0.00
ROE (%) for the Year as per Regulations	15.50%	15.50%	15.50%	15.50%	15.50%
Return on	0.00	0.00	0.00	0.00	0.00

Particular	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
Equity					
MAT Rate applicable for the Year	20.01%	20.01%	20.01%	20.01%	20.01%
<b>Net RoE</b>	<b>1.95</b>	<b>1.95</b>	<b>1.95</b>	<b>1.95</b>	<b>1.95</b>

### Commission's Analysis

The opening equity of Rs.10.05 Crore as per opening balance sheet is considered. Rate of return on equity is considered at 15.5%. MAT rate is considered at 20.01%. The RoE and MAT are worked out as detailed in the Table below:

**Table 7.51: return on equity approved by Commission for MYT Second Control Period (Rs. Crore)**

Particular (Rs Cr)	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
Average Equity	10.05	10.05	10.05	10.05	10.05
ROE (%) for the Year as per Regulations	15.50%	15.50%	15.50%	15.50%	15.50%
Return on Equity	1.56	1.56	1.56	1.56	1.56
MAT Rate applicable for the Year	20.01%	20.01%	20.01%	20.01%	20.01%
<b>Net RoE</b>	<b>1.95</b>	<b>1.95</b>	<b>1.95</b>	<b>1.95</b>	<b>1.95</b>

**The Commission approves ROE including MAT on ROE at 20.01 % at Rs. 1.95 Crore during MYT Control period FY 2018-19 to FY 2022-23**

## 7.21 Non-Tariff Income

### Petitioner's submission

1. Non-tariff income includes rebate on power purchase on account of timely payment through Letter of Credit being given by NEEPCO and NHPC, Manipur tax on Loktak, departmental charges, miscellaneous charges from consumers.
2. MSPDCL would like to submit that the detailed break up of non-tariff income is not available with them since the company is in the process of adopting Companies Act and a new accounting policy for compliance of the same. The actual details of non-tariff income would be available next year while the petition for FY 19-20 is filed. Till such time, we are constrained to project the income based on the actual expenses available. At present, MSPDCL feels that some components of other income might be booked/reported in the head of

revenue from sale of power because of which the non-tariff income is coming less than the expected/estimated figures. From current year, accounting is being done under new heads and the actual information under new heads shall be submitted to the Commission along with the next tariff petition.

3. For projecting the non-tariff income for MYT period, the approved figures by Hon'ble Commission in the tariff order on February 2017 is taken. Details of the year wise non-tariff income is provided in table below:

**Table 7.52: Non-tariff Income projected by MSPDCL for FY 2018-19 to FY 2022-23**

Particular (Rs Cr)	(Rs. Cr)				
	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
<b>Non-Tariff Income</b>	0.39	0.41	0.43	0.45	0.47

#### Commission's Analysis

The MSPDCL is directed to account for revenue from the heads specified in Regulation 77 of JERC from MYT Regulations 2014 under Non-Tariff Income invariably from next tariff petition.

For the present non-tariff income is approved as projected by MSPDCL.

**The Commission approves the non-tariff income of Rs 0.39 Crore, 0.41 Crore, 0.43 Crore, 0.45 Crore and 0.47 Crore during Control period FY 2018-19 to FY 2022-23 as projected by the MSPDCL.**

#### 7.22 Aggregate Revenue Requirement

Based on the above analysis and approvals, the Aggregate Revenue Requirement projected by the MSPDCL and approved by the Commission for FY 2018-19 are furnished in the following tables.

**Table 7.53: Aggregate Revenue Requirement for Control period FY 2018-19 to FY 2022-23 projected by MSPDCL**

S. No.	Particulars	(Rs. Cr)				
		FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
<b>A</b>	<b>Expenditure</b>					
1	Cost of power purchase	435.49	469.8	506.51	538.47	571.14
2	Inter-State Transmission charges	58.21	61.12	64.18	67.39	70.76

S. No.	Particulars	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
3	Intra-state Transmission charges	92.62	98.57	111.58	123.49	135.45
4	O&M Expenses	125	132.15	139.71	147.7	156.15
5	Depreciation	5.91	7.44	8.91	10.42	11.74
6	Advance against depreciation	0	0	0	0	0
7	Interest on Loan	5.94	5.17	4.24	3.13	1.86
8	Interest on Working Capital	11.38	12.33	13.44	14.54	15.54
9	Provision for bad debt	3	3	3	3	3
	<b>Total Cost</b>	<b>737.55</b>	<b>789.58</b>	<b>851.57</b>	<b>908.14</b>	<b>965.64</b>
<b>B</b>	Add: RoE	1.95	1.95	1.95	1.95	1.95
1	Add: Income Tax					
2	<b>B: Total</b>	1.95	1.95	1.95	1.95	1.95
3	<b>Total ARR: A+B</b>	<b>739.5</b>	<b>791.53</b>	<b>853.52</b>	<b>910.09</b>	<b>967.59</b>
<b>C</b>	<b>Less (Non-Tariff Income)</b>					
1	Other Income (Including income from trading)	39.62	52.51	61.56	68.24	74.74
2	Income from other business allocated to Licensed business	0	0	0	0	0
3	<b>Subtotal (C)</b>	39.62	52.51	61.56	68.24	74.74
	<b>Net Aggregate Revenue Requirement (A-B)</b>	<b>699.88</b>	<b>739.02</b>	<b>791.96</b>	<b>841.85</b>	<b>892.85</b>

**Commission's Analysis**

Based on the approved costs Aggregate Revenue Requirement for Control period FY 2018-19 to FY 2022-23 are approved as detailed below.

**Table 7.54: Aggregate Revenue Requirement approved by the Commission for Control period FY 2018-19 to FY 2022-23**

(Rs. Crore)

S. No.	Particulars	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
<b>A</b>	<b>Expenditure</b>					
1	Cost of power purchase	399.03	452.66	490.73	522.64	556.98
2	Inter-State Transmission charges	58.21	61.12	64.18	67.39	70.76
3	Intra-state Transmission charges	81.49	87.87	97.30	106.67	112.43
4	NERLDC Charges	0.71	0.71	0.79	0.83	0.87
5	O&M Expenses	114.99	123.82	130.90	138.40	146.32
6	Depreciation	0.24	0.31	0.38	0.45	0.51
7	Advance against	0	0	0	0	0

S. No.	Particulars	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
	depreciation					
8	Interest on Loan	5.94	5.17	4.24	3.13	1.86
9	Interest on Working Capital	5.81	6.59	7.35	8.13	8.95
10	Provision for bad debt	3	3	3	3	3
	<b>Total Cost</b>	<b>670.32</b>	<b>641.25</b>	<b>798.87</b>	<b>850.64</b>	<b>901.68</b>
<b>B</b>	Add: RoE	1.95	1.95	1.95	1.95	1.95
1	Add: Income Tax					
2	<b>B: Total</b>	1.95	1.95	1.95	1.95	1.95
3	<b>Total ARR: A+B</b>	<b>672.27</b>	<b>743.20</b>	<b>800.82</b>	<b>852.59</b>	<b>903.63</b>
<b>C</b>	<b>Less (Non-Tariff Income)</b>	0.39	0.41	0.43	0.45	0.47
1	Other Income (Including income from trading)					
2	Income from other business allocated to Licensed business	0	0	0	0	0
3	<b>Subtotal (C)</b>					
	<b>Net Aggregate Revenue Requirement (A-B)</b>	<b>671.88</b>	<b>742.79</b>	<b>800.39</b>	<b>852.14</b>	<b>903.16</b>

### 7.23 Expected Revenue from Existing Tariff

#### Petitioner's submission

- Revenue from sale of power for FY 2017-18 to FY 2022-23 is determined based on the energy sales estimated and category wise tariff prevalent in the State of Manipur, based on the average per unit revenue billed during FY 2017-18 (till October). It may be noted that the existing tariff was prevalent in FY 2017-18 from the starting and as such, per unit revenue billed in current year is the most appropriate reference for the existing tariff. The per unit category wise rates in FY2017-18 has been used for projecting revenue from existing tariff.
- Revenue from sale of power at existing tariff is estimated to be Rs 313.30 crore and Rs 324.94 crore including UI/trading receivables for FY 2017-18 and FY 2018-19 respectively.
- During FY 2017-18, MSPDCL will sell around 176.76 MU to other states. Whereas, in FY 2018-19, MSPDCL is expected to sell around 215.31 MU through IEX. Based on actual cost at which MSPDCL has traded in short term till September 2017, it is expected that MSPDCL will sell the surplus power at Rs 1.82/kWh in FY 2017-18 and FY 2018-19.

4. The table below summarizes the revenue from sale of power at existing tariff of FY17-18:

**Table 7.55: Revenue from Sale of Power at Existing Tariff of FY 2017-18**

Particulars	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
Kutir Jyoti	4.81	5.01	5.2	5.4	5.61
Domestic	173.4	177.11	180.66	184.41	188.17
Commercial	32.51	33.32	33.94	34.67	35.37
Public Lighting	2.69	2.69	2.69	2.69	2.69
Public water works	10.73	10.89	11.12	11.31	11.53
Agriculture and irrigation	0.63	0.64	0.65	0.65	0.66
Cottage & Small Industries	6.79	6.92	7.02	7.15	7.26
Bulk	49.78	50.5	51.11	51.78	52.44
Temporary	0.09	0.09	0.09	0.09	0.09
Medium Industries	1.55	1.56	1.57	1.58	1.59
Large Industries	2.73	2.74	2.76	2.78	2.8
<b>Total revenue from own sales</b>	<b>285.71</b>	<b>291.47</b>	<b>296.81</b>	<b>302.51</b>	<b>308.21</b>

**Commission's Analysis**

As already discussed in para 7.11 the surplus power to be sold under UI sales during FY 2018-19 is 345.24 MU. The petitioner projected the rate for U.I sales at Rs. 1.82 / KWH . Since surplus is net firm power the same has to be sold through exchange and realise the revenue at ruling price in the exchange by proper planning at SLDC. Now with the category wise sales approved vide para 7.6 the revenue from existing tariff and the revenue from sale of surplus power of 345.24 MU works put to Rs. 349.53 Cr for FY 2018-19 as detailed in the table below.

**Table 7.56: Revenue from Sale of power for FY 2018-19 with Existing Tariff of FY 2017-18**

Sl. No	Category	Energy Sales(MU)	Average Rate(Rs/kWh)	Revenue(Rs. Crore)
<b>A</b>	<b>LT Supply</b>			
1	Kutir Jyoti	15	2.66	3.69
2	Domestic	337	5.16	168.33
3	Commercial	42	5.81	27.85
4	Public Lighting	5	6.18	3.09
5	Public Water Works	2	6.46	1.29
6	Agriculture	1.2	3.32	0.39
7	Small Industries	19	4.28	8.12
<b>8</b>	<b>Total LT</b>	<b>421.20</b>		<b>212.76</b>

<b>B</b>	<b>HT Supply</b>			
9	Commercial	6	6.72	0.34
10	Public Water Works	17	6.8	11.56
11	Agriculture	0.77	4.13	0.32
12	Medium Industries	4	4.84	1.94
13	Large Industries	5	6.56	3.28
14	Bulk Supply	106	5.33	56.50
<b>15</b>	<b>Total HT</b>	<b>138.77</b>		<b>73.94</b>
<b>16</b>	<b>Grand Total (LT+HT)</b>	<b>559.97</b>		<b>286.70</b>
17	UI Sales	345.24	1.82	<b>62.83</b>
<b>18</b>	<b>Total Sales</b>	<b>95.21</b>		<b>349.53</b>

Detailed calculation of revenue from sale within the State is given in Annexure -III.

The Commission, accordingly, approves the revenue with existing tariff at Rs. 349.53 Crore for FY 2018-19 including revenue from sale of surplus power(UI sales) of Rs 62.83 Crore.

#### 7.24 Revenue Gap for FY 2018-19 with existing tariff

Table 7.57: Revenue Gap approved by the Commission for FY 2018-19

Particulars	Unit	Projected by MSPDCL	Approved by the Commission
Revenue requirement	Rs. Crore	699.88	671.88
Revenue from existing tariff	Rs. Crore	285.71	286.70
Sale of surplus power	Rs. Crore	39.23	62.83
Total revenue from sale of energy	Rs. Crore	324.94	349.53
<b>Revenue gap</b>	<b>Rs. Crore</b>	<b>374.94</b>	<b>322.35</b>
Energy sales	MU	532.44	559.97
Surplus power to be sold	MU	215.31	345.24
<b>Total Sales</b>	<b>MU</b>	<b>747.75</b>	<b>905.21</b>
Average cost	Rs. /kWh	9.36	7.42
Average realisation	Rs/kWh	5.37	5.12

#### 7.25 Revenue with Approved Tariff of FY 2018-19

Table 7.58: Revenue from approved Tariff of FY 2018-19

Sl. No	Category	Energy Sales(MU)	Average Rate(Rs/kWh)	Revenue (Rs. Crore)
<b>A</b>	<b>LT Supply</b>			
1	Kutir Jyoti	15	2.76	4.14
2	Domestic	337	5.13	180.50
3	Commercial	48	7.13	29.96



Sl. No	Category	Energy Sales(MU)	Average Rate(Rs/kWh)	Revenue (Rs. Crore)
4	Public Lighting	5	6.68	3.33
5	Public Water Works	2	6.82	1.36
6	Agriculture	1.2	3.57	0.42
7	Small Industries	19	4.53	8.60
<b>8</b>	<b>Total LT</b>	<b>427.20</b>		<b>224.21</b>
<b>B</b>	<b>HT Supply</b>			
9	Commercial		7.22	4.33
10	Public Water Works	17	7.15	12.16
11	Agriculture	0.77	4.29	0.33
12	Medium Industries	4	5.24	2.09
13	Large Industries	5	7.06	3.53
14	Bulk Supply	106	5.73	60.70
<b>15</b>	<b>Total HT</b>	<b>132.77</b>		<b>83.14</b>
<b>16</b>	<b>Grand Total (LT+HT)</b>	<b>559.97</b>		<b>307.35</b>
17	UI Sales	345.24	1.82	62.83
<b>18</b>	<b>Total Sales</b>	<b>905.21</b>		<b>370.18</b>

*Note: Detailed calculation is given in Annexure - IV*

As seen from Para 7.24 supra there is a revenue gap of 322.35 Crore which is about 48% of Net ARR for FY 2018-19. The existing tariffs are fixed w.e.f 01.04.2017. As such the Commission considers to revise the tariffs by an average increase of 7.23% under telescopic billing as against 15% proposed by MSPDCL without giving tariff shock to consumers to bridge the gap partially. Owing to revision of tariffs the MSPDCL is expected to get additional revenue of Rs.20.65 Crore (i.e Rs.307.35 – Rs.286.70), thereby the gap is reduced to Rs. 301.70 Crore which the MSPDCL shall meet from Government subsidy and by improving internal efficiency.

#### **7.26 Government Subsidy/ Support**

The MSPDCL proposed budgetary support of Rs. 392.99 Crore from Government of Manipur. As seen from the above it is clear that the revenue from sale of power is not sufficient to meet the expenditure of MSPDCL .As a result of this the MSPDCL shall continue to depend upon the subsidy/ support from Government of Manipur. The net revenue gap of Rs. 301.70 Crore arrived in para 7.25 supra shall be met from Government subsidy/support as against Rs. 392.99 Crore proposed by MSPDCL.

Table 7.59: Average Cost of Electricity supply within Manipur

Sl. No	Particulars	Units	Projected by MSPDCL	Approved by the Commission
1	Net overall ARR	Rs. Crore	699.88	671.88
2	Sale of surplus power	Rs. Crore	39.23	62.83
3	Net ARR (1-2)	Rs. Crore	660.65	609.05
4	Govt. subsidy/ support	Rs. Crore	392.99	301.70
5	Net ARR after Govt. subsidy (3-4)	Rs. Crore	267.66	307.35
6	Energy sales within the state	MU	532.44	559.97
7	Average cost of supply before Govt. subsidy/ support (3/6)	Rs/Unit	12.40	10.88
8	Average cost of supply after Govt. subsidy/ support (5/6)	Rs/Unit	5.03	5.49

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## 8. Tariff Principles and Design

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### 8.1 Background

- a. The Commission, in determining the revenue requirement of MSPDCL for the year 2017-18 and the retail tariff, has been guided by the provisions of the Electricity Act, 2003, the National Tariff Policy (NTP), Regulations on Terms and Conditions of Tariff issued by the Central Electricity Regulatory Commission (CERC) and Regulations on Terms and Conditions of Tariff notified by the JERC for M&M. Section 61 of the Act lays down the broad principles, which shall guide determination of retail tariff. As per these principles the tariff should “Progressively reflect cost of supply” and also reduce cross subsidies “within the period to be specified by the Commission”. The Act lays special emphasis on safeguarding consumer interests and also requires that the costs should be recovered in a reasonable manner. The Act mandates that tariff determination should be guided by the factors, which encourage competition, efficiency, economical use of resources, good performance and optimum investment.

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

- b. The NTP mandates that the Multi-Year-Tariff (MYT) framework be adopted for determination of tariff from 1st April 2006. Accordingly, the MSPDCL has filed petition for determination of ARR for to FY 2018-19 with reliable data.
- c. The mandate of the NTP is that tariff should be within plus / minus 20% of the average cost. It is not possible for the Commission at this stage to lay down the road map for reduction of cross subsidy within  $\pm 20\%$  mainly because of consumers’ low paying capacity and relatively high cost of power. The gap in the year 2015-16 was 31.11% and that of 2017-18 is about 28.08 %. However, in this tariff order an element of performance target has been

indicated by setting target for distribution loss reduction and increasing sales volume during FY 2018-19. The improved performance, by reduction of loss level, and increase in sales will result in substantial reduction in average cost of supply. The existing and proposed tariffs of MSPDCL are two part tariff. The Commission has considered for a nominal increase in tariff in view of the low paying capacity in the State.

**d. Clause 8.3 of National Tariff Policy lays down the following principles for tariff design:**

(i) In accordance with the National Electricity Policy, consumers below poverty line who consume below a specified level, say 30 units per Month, may receive a special support through cross subsidy. Tariffs for such designated group of consumers will be at least 50% of the average cost of supply. This provision will be re-examined after five years.

(ii) For achieving the objective that the tariff progressively reflects the cost of supply of electricity, the SERC would notify the roadmap, within six Months with a target that latest by the end of the year 2018-19 that tariffs are within  $\pm 20\%$  of the average cost of supply. The road map would have intermediate milestones, based on the approach of a gradual reduction in cross subsidy.

For example, if the average cost of service is Rs.3 per unit, at the end of year 2015-16, 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.

(iii) While fixing tariff for agricultural use, the imperatives of the need of using ground water resources in a sustainable manner would also need to be kept in mind in addition to the average cost of supply. The tariff for agricultural use may be set at different levels for different parts of the State depending on the condition of the ground water table to prevent excessive depletion of ground water.

- e. Regulation 16 of JERC for M&M (Terms and Conditions for Determination of Tariff) Regulations specifies.
- (i) The cross subsidy for a consumer category means the difference between the average per unit rate based on tariff schedule of the Commission for that Category and the combine average cost of supply per unit expressed in percentage terms as a portion of the combined average cost of supply.
  - (ii) In the first place, the Commission shall determine the tariff, so that it progressively reflects the combined average cost of supply of electricity and also reduce cross-subsidies within a reasonable period. In the second phase, the Commission shall consider moving towards category wise cost of supply as a basis for determination of tariff.
- f. The Commission has considered special treatment to Kutir Jyoti connections and agricultural sector. It has also aimed at raising the per capita consumption of the State from 100 kwh in 2010-11 to 162 kWh in 2014-15 and 300 kWh by the end of 2018-19. The Commission endeavors that the tariffs progressively reflects cost of supply in a shortest period and the Government subsidy is also to be reduced gradually. The tariffs have been rationalized with regard to inflation, paying capacity of consumers and to avoid tariff shock.

## **8.2 Tariffs Proposed by the MSPDCL and Approved by the Commission**

### **a) Existing & Proposed by MSPDCL**

MSPDCL in its tariff petition for FY 2018-19 has proposed for revision of the existing retail tariffs to various categories of consumers to earn additional revenue to meet the expenses partly.

The MSPDCL has proposed tariff revision as indicated in table - 9.1 below. The proposed increase in tariff by the MSPDCL would result in an overall increase of about 30%. (15% F.C + 15 % E.C)

Table 8.1: Existing and Proposed Tariff for FY 2018-19

Sl. No	Existing Tariff			Proposed Tariff		
	Particulars	Fixed charges per month (Rs.KW/ KVA/ month)	Variable charges (Rs/kWh)	Particulars	Fixed charges per month (Rs.KW/ KVA/ month)	Variable charges (Rs/kWh)
	<b>LT SUPPLY</b>			<b>LT SUPPLY</b>		
1	<b>Kutir Jyoti</b>			Kutir Jyoti		
	First - 45 kWh/month	20	1.6	First 45 kWh/Month	20	1.80
2	<b>Domestic</b>			Domestic Light & Power		
	First - 100 kWh/Month	60	3.3	1-100 kWh	65	4.00
	Next 100 kWh/Month	60	4	101-200 kWh	65	4.50
	Above 200 kWh/Month	60	5.1	Above 200 kWh	65	5.60
3	<b>Non-Domestic/Commercial</b>			Commercial		
	First - 100 kWh/Month	80	4.5	1-100 kWh	90	5.20
	Next 100 kWh/Month	80	5.5	101-200 kWh	90	6.30
	Above 200 kWh/Month	80	6.6	Above 20 kWh	90	7.30
4	Public Lighting	65	6	Public Lighting	75	6.70
5	Public Water Works	100	6.35	Public Water Works	115	7.10
6	Irrigation & Agriculture	60	3.25	Agriculture	65	3.60
7	Small Industry	65	3.5	Cottage &	75	4.20
	<b>HT SUPPLY</b>			<b>HT SUPPLY</b>		
1	Commercial	100	6.5	Commercial	110	7.25
2	Public Water Works	100	5.75	Public Water Works	110	6.50
3	Irrigation & Agriculture	100	3.15	Agriculture	105	3.50
4	Medium Industry	100	4.5	Medium	110	5.20
5	Large Industry	100	5.6	Large Industry	110	6.45
6	Bulk Supply	100	5	Bulk Supply	115	5.70

**b) Category Wise Tariffs approved by the Commission**

The Commission approved tariff categories/sub-categories are given below. The un-metered supply includes consumers not provided with energy meters. Unmetered supply will be billed based on assessed consumption arrived as per JERC for M&M (Electricity Supply Code) 2013 at the relevant rates of metered Tariff of the respective categories. For HT Connections billing shall be done on KVAH instead KWH.

**c) Tariff for FY 2018-19 Approved by the Commission**

Having considered the Petition (ARR & Tariff) of MSPDCL for approval of Aggregate Revenue Requirement (ARR) and determination of Retail Tariff for sale of energy and having approved the Aggregate Revenue Requirement (ARR) with a revenue gap of Rs. 322.35 Crore vide para 7.24 supra the Commission considers to revise the tariffs under Telescopic billing/with an average increase by 7.23%, as detailed in table below.

The Commission has not agreed to increase the fixed charges proposed by MSPDCL

**Table 8.2: Category wise Tariffs approved by the Commission for FY 2018-19**

Sl. No	Category & Consumption Slab	Fixed Charges per month (Rs.)	Variable Charges (Rs./kWh)
	<b>LT SUPPLY</b>		
<b>1</b>	<b>Kutir Jyoti</b>		
	All units (Upto 45 kWh/ 3 Months)	20/Connection	1.70
<b>2</b>	<b>Domestic</b>		
	(i) First - 100 kWh/Month	60/kW	3.60
	(ii) Next 100 kWh/Month	60/kW	4.35
	(iii) Above 200 kWh/Month	60/kW	5.60
<b>3</b>	<b>Non-Domestic/Commercial</b>		
	(i) First - 100 kWh/Month	80/kW	5.00
	(ii) Next 100 kWh/Month	80/kW	6.00
	(iii) Above 200 kWh/Month	80/kW	7.10
4	Public Lighting	65/kW	6.50
5	Public Water Works	100/kW	6.70
6	Irrigation & Agriculture	60/kW	3.50
7	Small Industry	65/kW	3.75
	<b>HT SUPPLY</b>		
1	Commercial	100/kVA	7.00
2	Public Water Works	100/kVA	6.10
3	Irrigation & Agriculture	100/kVA	3.30
4	Medium Industry	100/kVA	4.90

Sl. No	Category & Consumption Slab	Fixed Charges per month (Rs.)	Variable Charges (Rs./kWh)
5	Large Industry	100/kVA	6.10
6	Bulk Supply	100/kVA	5.40

Note: The above table depicts fixed and energy charge only. Detailed Charges are given in the tariff schedule Appended.

**d) Miscellaneous Charges and Important Conditions of Supply**

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

As per Electricity Act, 2003, electricity supply shall not be given without meters. Commission is also regularly giving directives in this regard. Yet the MSPDCL releasing new connections without meters which is very serious deviation. In next tariff order no unmetered tariff will be allowed.



## 9. Wheeling Charges for FY 2018-19

### 9.1 Background

MSPDCL has not filed petition for determination of wheeling charges. However under regulation 79 of JERC (M&M) (MYT) Regulations 2014, the Commission has determined the wheeling charges in order to implement open access in the state. The MSPDCL is not maintaining separate accounts for the distribution wire business and retail supply business. So the ARR of the wheeling business is arrived at as per the following matrix.

**Table 9.1 Allocation matrix**

Sl. No.	Particulars	Wire business	Retail Supply business
1	Power purchase cost	0	100
2	Employee cost	60	40
3	R & M expenses	90	10
4	Adm. & General Expenses	50	50
5	Depreciation	90	10
6	Interest & Finance Charges	90	10
7	Interest on working Capital	10	90
8	Provision for bad debts	0	100
9	Income tax	90	10
10	Return on equity	90	10
11	Contribution to contingency reserves	100	0
12	Non-tariff Income	10	90

### 9.2 ARR for wheeling business

ARR for wheeling business arrived in accordance with the above methodology is as detailed in table below.

**Table 9.2: ARR of wheeling business approved by the Commission for FY 2018-19**

Sl. No	Particulars	Total ARR for FY 2018-19	ARR for wire business for FY 2018-19	Retail Supply for FY 2018-19
1	Power purchase cost	539.44	-	539.44
2	Employee cost	-	59.27	39.51
3	R & M expenses	-	6.54	0.73
4	Adm. & General Expenses	-	4.47	4.47
5	Depreciation	-	0.22	0.02
6	Interest & Finance Charges	-	5.35	0.59
7	Interest on working Capital	-	0.58	5.23
8	Provision for bad debts	-	-	3.00
10	Return on equity	-	1.76	0.19

Sl. No	Particulars	Total ARR for FY 2018-19	ARR for wire business for FY 2018-19	Retail Supply for FY 2018-19
11	Contribution to contingency reserves	-	-	-
12	Less: Non-tariff Income	0.39	0.04	0.35
	<b>Total</b>	<b>670.98</b>	<b>78.15</b>	<b>592.83</b>

### 9.3 Wheeling Tariff

The wheeling tariff has been calculated on the basis of the ARR for wheeling business and total energy sold as detailed in table below:

**Table 9.3: Wheeling Tariff approved by the Commission for FY 2018-19**

Sl. No	Particulars	Unit	FY 2018-19
1	ARR for wheeling function	Rs/Crore	78.15
2	Energy available at Distribution periphery	MU	669.82
3	Wheeling tariff	Rs/kWh	1.17

**The Commission approves wheeling charge at Rs. 1.17/kWh for FY 2018-19.**

## 10. Directives

### 10.1 General

While examining the information and data contained in the proposed MYT ARR for Control period FY 2018-19 to FY 2022-23 and Tariff Petition for 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 MSPDCL require substantial improvement within a specified time frame.

Similar situation was noticed in the ARR & Tariff petition for the FY 2017-18. The Commission had observed that while there is ample scope for reducing cost and increasing efficiency in the operation of the department, serious efforts appear to be lacking. It is in the above context that 22 directives were given for compliance in the Tariff Order 2010-11 and five directives in Tariff Order for FY 2012-13 which were fully complied with. The Commission expected that MSPDCL would take prompt action on the directives and monitor their implementation. Unfortunately, action is yet to be taken on most of the important directives, which could make significant difference to operational efficiency and cost. In some cases action has no doubt been initiated, but overall the seriousness with which the directives were issued by the Commission does not appear to have been realized by the MSPDCL.

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

#### **BALANCE DIRECTIVES ISSUED IN FY 2014-15**

##### **Directive 2: Annual Statement of Accounts**

The MSPDCL was directed to prepare separate Annual accounts statements such as balance sheet, profit and loss Account and relevant schedules and statements, every year for regulatory purpose and submit to the Commission duly got them audited.

##### **Compliance Status**

MSPDCL has not submitted their reply.

**Comment of the Commission**

Audited annual accounts for FY 2015-16 & FY 2016-17 are yet to be furnished. The directive is not fully complied with..

**Directive 3: Maintenance of Asset & Depreciation Registers**

The MSPDCL is directed to upto date the asset register and submit to the Commission soon.

**Compliance Status:**

Asset and depreciation registers for FY 2014-15 are ready for submission.

**Comment of the Commission**

The Depreciation registers are yet to be submitted to the Commission.

The Directive is not fully complied with.

**Directive 4: Management Information System (MIS)**

The MSPDCL was directed to take appropriate steps to build up credible & accurate database and management information system (MIS) and regularly update the same for future record and reference. Arrangement may also be made for “On-line Payment” and “Payment through Bank” of the electricity bills.

**Compliance Status**

The MIS system is under progress and the database is being prepared. The online payment portal for pre-paid recharge is already active, where payments can be done through electronic wallets. MSPDCL is also planning to tie up with NPCI’s Bharat Bill Payment System in future for payments.

**Comments of the Commission**

Compliance of implementation of collection of data through online for MIS may be submitted to the Commission.

The Directive is not fully complied with.

**Directive 5: Revenue Arrears**

The MSPDCL was directed to assess year wise Revenue Arrears due from consumers and submit a report by 30<sup>th</sup> September, 2011 to the Commission. The MSPDCL was also further directed to initiate action to collect/ liquidate the arrears.

### **Compliance Status**

A major part of the total power sales is constituted by domestic category consumers and hence, the revenue arrears are expected to reduce through the actions initiated by MSPDCL.

1. Prepaid Consumer
2. Post Paid Consumer

MSPDCL has already collected Rs. 46,43,977/- (Forty Six Lakhs Forty Three Thousand Nine Hundred Seventy Seven only) from 17<sup>th</sup> August 2016 till 20th October, 2017 from the 20% deductions on every recharge on the outstanding arrears. HT consumers including hospitals have been sent disconnection warning notices for clearing their outstanding dues. Other government consumers having outstanding amount have been asked to clear the amount through government funding, for which a request has been made.

### **Comments of the Commission**

Amount of arrears as on 31.03.2017 needs to be furnished. The Directive is not fully complied with.

### **Directive 7: De-commissioning of Generating plants**

The Compliance to this directive shall be reported to the Commission soon on written off the asset value of defunct generating plants which are lying idle for more than 15 years.

### **Compliance Status**

The plants or assets which are lying idle for more than 15 years have been converted into scrap and the scrap value has not been realised. The asset is considered to have fully depreciated.

### **Comment of the Commission**

The Directive is fully complied with

### **Directive 8: Sale of Power outside the State**

The MSPDCL is directed to ensure that only surplus power be sold under UI sales after fully meeting the state's requirement without any stagnation of supply in the

state. This may be ensured strictly.

**Compliance Status**

Due to improvement in the UI mechanism, the Power purchased under UI decreased from 55.70 MU in FY 16 to 27.86 MU in FY 17. Under UI mechanism the company has sold 47 MU of surplus energy available.

**Comment of the Commission**

The Compliance is not appropriate to the directive to be issued..

**Directive 9: Distribution Losses**

To know the actual Distribution losses in the system, MSPDCL was directed to ensure 100% metering of all feeders, DTs, and consumer connections and conduct voltage wise feeder-wise energy audit. To achieve this it was directed to chalk out an action plan for preliminary energy audit and submit the same to the Commission by May 2011.

**Compliance Status**

**The Status of incoming 11 kV feeders as of November 2017 are as follows:**

- Total 11 KV incoming feeder= 102
- No. of 11KV incoming feeder with old meter= 81
- No. of 11KV incoming feeder with no meter= 15
- No. of 11 KV incoming feeder to be replaced=6

**The Status of outgoing 11 KV feeders as of November is as follows:**

- Total 11 KV outgoing feeder=181
- No. of 11KV outgoing feeder with old meter=149
- No. of 11KV outgoing feeder with no meter=29
- No. of 11 KV outgoing feeder to be replaced=3

As it can be seen, feeders metering is expected to be completed by the end of FY2017-18. After the completion of 100% metering, voltage wise energy audit will be conducted and the action plan for the same would be submitted soon.

**Comment of the Commission**

The reply furnished by MSPDCL is not specific about fixation of meters to 11KV feeders. A single line diagram of all 11KV feeders emanating from each 33/11KV Sub Station and Number of Distribution transformers installed in each 11KV feeder needs

to be furnished. To conduct voltage wise energy and it is estimated to fix meters at all outgoing 11KV feeders and to all distribution transformers at 11KV side.

The difference of outgoing 11KV feeders and the meters of all the DTR meters on those 11kV feeders will be the 11KV distribution loss.

The difference between DTR meter and the consumer meters available on that DTR will be LT distribution loss. As such the following information need to be furnished outgoing.

- a. Number of 11 KV feeders and number of meters fixed.
- b. Total distribution transformers and Number of meters fixed..

**Directive 10: Unauthorized Connection/ Theft of power Cases  
&  
Directive 11: Detailed Survey & Investigation**

In the above two directives the Commission had directed to carryout detailed survey & Investigation to –

1. Identify unauthorized connections.
2. Physical verification of the connected load of all connections.
3. Physical verification of the categories under which the consumers are availing supply.
4. Verification & updating of names of the consumers etc. and
5. Regularize 30000 unauthorized consumers annually.

**Compliance Status**

The unauthorized connections and connected load are being taken care of under the pre-paid metering plan. MSPDCL has already achieved 100% pre-paid metering for EC-I. For EC-II and EC-III, 100% per-paid metering will be achieved by the end of the FY 17-18.

**Comment of the Commission**

The compliance furnished is partially covered the points raised in directive . The main task is to physically verify all the consumers connections to know the status of meters condition, category in which supply released and new availed, whether there is any unauthorized load. So compliance on physical verification of consumer connections may be reported.

**Directive 12: Replacement of Defective Meters and Installation of Meters to Un-Metered Connections**

The MSPDCL was directed to provide meters to all unmetered consumers and replace the defective meters within the time frame given in the commission order No. 24012/2/5/09 – JERC dt 7.1.2011 on 100% metering plan and submit quarterly report regularly.

**Compliance status**

The unauthorized connections and connected load are being taken care of under the pre-paid metering plan. MSPDCL has already achieved 100% pre-paid metering for EC-I. For EC-II and EC-III, 100% per-paid metering will be achieved by the end of the FY 17-18.

**Comment of the Commission**

Compliance on 100 % metering may be reported . The directive is not fully complied with.

**BALANCE DIRECTIVES ISSUED IN FY 2015-16**

**Directive 13: Physical and Financial Status of RAPDRP & RGGVY Schemes**

As per above directive MSPDCL has to submit physical and financial progress of work done and the impact of the works on revenue performance and metering with details of work done, amount of revenue increase etc.

**Compliance Status**

**Scheme 1: RAPDRP Physical status**

**Part –A:**

All 13 towns have been declared GO-Live.

Feeder Master Data has been uploaded in NPP Portal. Further, feeder transaction data has been submitted for 47/70 feeders.

**Part-B:**

The physical implementation of RAPDRP Part –B was started in full swing in FY 2014-15. Further, the infrastructures created under the scheme for all 13 towns are summarized below:



Sl. No	Major Task	Achievement
1	AB Cabling(LT)	1309.11 Kms
2	11kV ACSR Overhead Line	485.30Kms
3	11kV UG Cable using XLPE	41.86Kms
4	Installation of New distribution Transformer	355 number
5	R & M of 33/11KV Sub station	8 number
6	Construction of New 33/11kV S/S	New 33/11 kV S/S at Mahadev, Kakching completed and commissioned

**Comments of the Commission:**

The impact on increase in additional revenue etc may be reported.

The Directive is not fully complied with

**Directive 14: Interest on Security Deposit**

MSPDCL was directed to furnish up to-date position of interest on security deposit as per regulation 6.10(5) of JERC (supply code) regulations 2010.

The above rule position may be followed scrupulously and not to commit breach of rule.

**Compliance Status**

MSPDCL has two security deposit accounts with State Bank of Indian Paona Bazaar (i) Security Deposit A/C (Meter) No 33810369620 (ii) Security Deposit A.C (Works) 34944027846. MSPDCL does not have accurate database for security deposit of consumers who were connected before the 31.01.2014 and the database is under progress.

The security deposits of pre-paid consumers who have been converted to post-paid have already been paid.

However, no security deposit has been paid by the new pre-paid consumers and the security deposit is included in their outstanding amount.

**Comment of the Commission**

Consumer wise security deposit held may be finalized and pay interest on Security deposit every year and report.

The directive is not fully complied with.

**Directive 15: Power from Renewable Sources**

The MSPDCL was directed to procure power for renewable sources.

**Compliance Status**

MSPDCL has procured 71.27 MU from Renewable sources in FY 2016-17 and has procured 51.40 MU till October 2017 from Renewable source.

**Comment of the Commission**

The directive is fully complied with.

**Directive 16: Investment Plan and Capping of Capital expenditure**

Annual Investment Plan shall be submitted to the Commission and necessary approval of Commission shall be obtained for all major capital works costing Rs. 5.00 Crore and above before execution of the works.

**Compliance Status**

The Annual Investment plan for FY 18-19 and entire MYT Second control period is attached..

**Comment of the Commission**

Individual works costing Rs.5.00cr and above should be submitted separately to the Commission for approval before execution.

**Directive 17: Maximum Demand Indicator Meters (MDI) to be provided to all high value connections**

**Compliance Status**

MSPDCL has already achieved 100% pre-paid metering for EC-I. For EC-II and EC- III, 100% per-paid metering will be achieved by the end of the FY 17-18.

**Comment of the Commission**

MSPDCL is to check whether the recorded Maximum demand is in conformity with the sanctioned load and in case if exceeded, steps is to be taken to regularize the un authorized load. This directive is not fully complied with.

**Directive 18:** As verified from the Tariff Schedule, it is observed that unmetered categories are prevailing in all categories including HT. Continuance of HT connections without meters is highly irregular. As per Electricity Act, 2003 no service

connection be released without meter. As such, the MSPDCL is directed to provide HT meters to all unmetered HT connections in the first instance and report compliance by 30.09.2016 positively.

In respect of LT categories all unmetered connections be provided with meters by 31.03.2017.

Progress and providing meters to unmetered connections be reported quarterly indicating category wise number of unmetered connections at the beginning of the quarter and installed during the quarter and balance to be installed.

**Compliance Status**

MSPDCL has already achieved 100% pre-paid metering for EC-I. For EC-II and EC- III, 100% per-paid metering will be achieved by the end of the FY 17-18.

**Comments of the Commission**

Category wise connections with defective meters as on 31.03.2017 and meters that became defective during 2017-18 and balance to be replaced as on 31.03.2018 may be submitted.

**DIRECTIVES ISSUED IN FY 2016-17**

**Directive 19: Reduction of billing slabs**

The MSPDCL is directed to reduce the billing slabs of LT Non-domestic/commercial from three to two slabs in the next Tariff Petition for FY 2017-18.

**Compliance Status**

There are only three existing tariff slabs for domestic category. It aptly captures the sales and the consumer details of all the domestic consumers. Further reduction of tariff slabs may not facilitate the utility to envisage the slab wise consumption for future projections. Moreover, most state Discoms in the country has minimum three tariff slabs in domestic category. Therefore, we humbly request the Commission to allow us to continue with three tariff slab of domestic category.

**Commission's Comments**

The directive is to reduce the present three slabs to two slabs in LT commercial category. This should be studied and implement from next ARR for FY 2019-20 invariably.

**Directive 20: In house development of IT enabled system:**

The MSPDCL is directed to take steps for development of in house IT enabled system so that all software issues can be attended/solved departmentally instead of depending on consultants.

**Compliance Status**

MSPDCL would like to inform the Hon'ble Commission that there has been progress in the in-house development of IT enabled system in the last one year. Some in-house developed IT platforms are already in operation to improve administrative processes. A few notable accomplishments are listed below.

- *powernodue.com* : It is a domain which has a database of the all the employees along with their connection status. It incorporates a hassle free fast and efficient process of getting no-dues certificate.
- *Indent*: It is an IT enabled platform which facilitates and streamlines the approval process for despatch from store to field.
- Online prepaid recharge with e-wallets like NPCI Bharat Bill Payment System.

Furthermore, MSPDCL would like to state that it has bought Virtual Private Network and it is being planned to set up a physical server in one year to go digital with all the files available on one electronic platform. All these steps are guided towards making MSPDCL independent with its IT team and reducing dependency on consultants.

**Comments of the Commission**

Progress on achieving IT enabled in house system development may be reported quarterly from 1.6.2018 onwards.

**Directive 21: Uptodation of computerised billing program of power factor and rebate/surcharge**

MSPDCL should up-to-date computerised billing programme to facilitate adoption of power factor rebate/surcharge as indicated in the tariff schedule.

**Compliance Status**

The computerised billing program for power factor rebate/surcharge is under progress. The HT cell of MSPDCL is undertaking the necessary steps towards installation of the program and it is expected to compile in FY 2018-19.

**Comments of the Commission**

Progress on achieving IT enabled in house system development may be reported quarterly from 1.6.2018 onwards.

**Directive 22: Installation of meters to all 11 kV feeders and DT's**

MSPDCL should install meters for all 11 kV's and DT's in all RAPDRP covered towns by 30.06.2016. Sample study should be conducted to know the highest feeder loss and highest DT loss and report to be submitted to the Commission by 30.09.2016.

**Compliance Status****The Status of incoming 11 kV feeders as of November 2017 are as follows:**

- Total 11 KV incoming feeder= 102
- No. of 11KV incoming feeder with old meter= 81
- No. of 11KV incoming feeder with no meter= 15
- No. of 11 KV incoming feeder to be replaced=6

**The Status of outgoing 11 KV feeders as of November is as follows:**

- Total 11 KV outgoing feeder=181
- No. of 11KV outgoing feeder with old meter=149
- No. of 11KV outgoing feeder with no meter=29
- No. of 11 KV outgoing feeder to be replaced=3

As it can be seen, feeders metering is expected to be completed by the end of FY 2017-18. After the completion of 100% metering, voltage wise energy audit will be conducted and the action plan for the same would be submitted soon.

**Comments of the Commission**

Incoming and outgoing 11KV feeders where meters are installed need to be elucidated along with a single line diagram showing at what point the meters are installed. The Directive is not fully complied with. A report is to be submitted by May, 2018.

**DIRECTIVES ISSUED IN FY 2017-18****Directive 23**

As per Regulations 2 (19) of JERC (M&M) (MYT) Regulations, 2014 the Second Control Period shall be five years from 01.04.2018. The MSPDCL is directed to submit the

next ARR for Control Period from FY 2018-19 to FY 2022-23 and Tariff Petition for FY 2018-19 and true up petitions for FY 2015-16 and FY 2016-17 along with audited annual accounts for FY 2015-16 and FY 2016-17 invariably.

**Compliance status**

We like to inform Hon'ble Commission that the provisional balance sheet along with the audited balance sheet of MSPDCL for FY 15-16 and FY 16-17 are still being prepared and will be made available soon. The financial statements of FY 2015-16 and FY 16-17 are also under progress and will be submitted along with the true up petition for FY 2015-16 and FY 16-17 soon.

**Comments of the Commission**

The Directive is not complied with fully.

**Directive 24**

The MSPDCL is directed to submit the required information in the format prescribed in JERC M&M (MYT) Regulations, 2014 from next tariff petition onwards which are mandatory.

**Compliance status**

MSPDCL has submitted all the required information in the format prescribed in JERC M&M (MYT) Regulations,2014.

**Comments of the Commission**

Required formats are not submitted. The Directive is not fully complied with

**Directive 25**

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

**Compliance status**

MSPDCL has been installing MDI meters for such consumers on priority. It is expected that all such consumers will be connected to MDI meters by the end of FY 18-19.

**Comments of the Commission**

Mere fixing MDI meters is of no use unless readings are taken and billed suitably.

The Directive is not fully complied with.

**Directive 26: Accounting of non tariff income**

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

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

The MSPDCL 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 status**

MSPDCL would like to submit that the detailed break up of non-tariff income is not available with them since the company is in the process of adopting Companies Act and a new accounting policy for compliance of the same. The actual details of non-tariff income would be available next year while the petition for FY 19-20 is filed. Till such time, we are constrained to project the income based on the actual expenses available. At present, MSPDCL feels that some because of which the non-

tariff income is coming less than the expected/estimated figures.

**Comments of the Commission**

The Directive is not fully complied with

**DIRECTIVES ISSUED IN FY 2017-18**

**Directive 27**

The MSPDCL is directed to fill up judiciously all Forms relevant to MYT Regulations viz. Appendix C,D and also submit year wise slab wise consumers, slab wise energy consumed and category wise total contracted load while submitting Tariff Petition for control period FY 2018-19 to 2022-23 to avoid additional information queries after submission of petition.

**Compliance status**

MSPDCL has filed up all the forms relevant to MYT Regulations along with year wise, slab wise consumers, slab wise energy consumed. MSPDCL has furnished all the data available as per the Directive. However, MSPDCL is in the process of metering all consumer categories. Till the time this exercise is complete the aggregate connected load data for each consumer category may not be available.

**Comments of the Commission**

The Directive is not fully complied with

**Directive 28**

The MSPDCL is directed to include ARR of MSPCL in the ARR of MSPDCL towards Intra state transmission charges and also incorporate the audited figure/true up figure in the true up of MSPDCL for the same .

**Compliance status**

As per JERC (Multi Year Tariff) Regulations 2014, the ARR and tariff of transmission and distribution are to be determined separately. In tariff order of FY 2014-15, JERC has also issued a directive for filing separate petitions for determination of transmission charges and distribution& retail supply business. Last year, the two restructured companies had filed separate ARRs of distribution and transmission, for the first time and JERC had issued separate orders for transmission and distribution.

**Comments of the Commission**

The Directive is not fully complied with



**NEW DIRECTIVES FOR FY 2018-19**

**DIRECTIVE 29**

MSPDCL should ensure installation and energisation of meters at all 11 kV feeders which is the inter-company boundary and the energy injection point from MSPCL to MSPDCL system for proper energy accounting. There should be monthly joint reading of the meters by MSPCL and MSPDCL.

**DIRECTIVE 30**

1. The two companies viz. MSPCL and MSPDCL should conduct monthly joint meter reading of the 11 kV incoming meter (which is the injection point of energy from MSPCL to MSPDCL).
2. MSPDCL should complete installation and energisation of all 11 kV feeder meters by September, 2018 and calculate the energy injected by MSPCL to MSPDCL on monthly basis.
3. All DT metering should be completed by September, 2018.
4. MSPDCL should conduct case study of feeder-wise energy loss for all 11 kV lines.
5. MSPDCL should come up with LT line loss for individual DT fed LT lines.

**DIRECTIVE 31**

The Commission is of the view to introduce KVAH billing in energy charges to all HT categories and LT categories with contracted load of 20 kW and above with effect from FY 2019-20 onwards. The Licensee is directed to see that all HT connections and such LT Connections are provided with trivector/MDI meters without fail.

**DIRECTIVE 32**

MSPDCL directed to furnish invariably the slab wise consumption from next ARR petition to assess the revenue correctly in respect of Domestic and Commercial / non Domestic categories by proper consumer indexing.

**DIRECTIVE 33**

In respect of Kurti Jyoti, Domestic and Non-Domestic/Commercial under LT Categories, MSPDCL 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 (Projection) along with the Petition for determination of ARR & Tariff for FY 2019-20 positively. The MSPDCL should take necessary action immediately to make available the above requisite data at the time of submission of the Petition mentioned above.

## 11. Fuel and Power Purchase Cost Adjustment

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

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

Accordingly, the amount of Fuel and Power Purchase Cost Adjustment (FPPCA) charges shall be computed as under:

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

Where,

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

=  $(\text{SHR} \times Q_{pg}) (1 + \text{TSL}) \times 1000 / \text{GCV}$ , or actual whichever is less.

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

$R_{c2}$  = Weighted average base rate of coal supplied ex-power station coal yard for the adjustment period in Rs./MT

$Q_o$  = Actual Quantity of oil (in KL) consumed during the adjustment period or normative oil consumption as per Tariff order whichever is less.

- $R_{o1}$  = Weighted average base rate of oil ex-power station (Rs./KL) approved by the Commission for the adjustment period.
- $R_{o2}$  = Weighted average actual rate of oil ex-power station supplied (Rs. / KL) during the adjustment period.
- $Q_{pp}$  = Total power purchased from different sources (kWh) =  $Q_{pp2}+Q_{pp3}$
- $Q_{pp1}$  =  $Q_{pp3} \left[ 1 - \frac{TL}{100} \right]$  in kWh
- TL = Transmission loss (CTU) (in percentage terms).
- $Q_{pp2}$  = Power Purchase from sources with delivery point within the state transmission or distribution system (in kWh)
- $Q_{pp3}$  = Power Purchase from sources on which CTU transmission loss is applicable (in kWh)
- $R_{pp1}$  = Average rate of Power Purchase as approved by the Commission (Rs./kWh)
- $R_{pp2}$  = Average rate of Power Purchase during the adjustment period (Rs./kWh)
- $Q_{pg}$  = Own power generation (kWh)
- $Q_{pg1}$  = Own Power generation (kWh) at generator terminal – approved auxiliary consumption
- L = Percentage T&D loss as approved by the Commission or actual, whichever is lower.
- SHR = Station Heat Rate as approved by the Commission (Kcal / kWh)
- TSL = Percentage Transit and Stacking Loss as approved by the Commission
- GCV = Weighted average gross calorific value of coal as fired basis during the adjustment period (Kcal / Kg)
- $V_z$  = Amount of variable charges on account of change of cost of unknown factors like water charges, taxes or any other

unpredictable and unknown factors not envisaged at the time of Tariff fixation subject to prior approval of the Commission (Rs.)

A = Adjustment, if any, to be made in the current period to account for any excess / shortfall in recovery of fuel of Power Purchase cost in the past adjustment period, subject to the approval of the Commission (Rs.)

PSE = Power sold to exempted categories (presently agriculture and BPL-Kutir Jyoti consumers)

If there are more than one power station owned by the Licensee Qc, Rc1, Rc2, Qo, Ro1, Ro2, Qpg and Qpg1 will be computed separately for each power station and sum of the increase/decrease of cost of all power stations shall be taken into consideration.

In case of the two distribution companies, there is no generation of their own. Therefore, Qc, Qo and Qpg1 will be zero in this case.

The Generating Company can levy FPPCA charges with the prior approval of the Commission.

Terms and conditions for application of the FPPCA formula

- 1) The basic nature of FPPCA is 'adjustment' i.e. passing on the increase or decrease in the fuel costs and power purchase cost, as the case may be, compared to the approved fuel costs and power purchase costs in this Tariff Order.
- 2) The operational parameters/norms fixed by the Commission in the Tariff Regulations/Tariff Order shall be the basis of calculating FPPCA charges.
- 3) The FPPCA will be recovered every month in the form of an incremental energy charge (Rs/kWh) in proportion to the energy consumption and shall not exceed 10% of the approved avg. cost of supply in the Tariff order and balance amount, if any, in the FPPCA over and above this ceiling shall be carried forward to be billed in subsequent month.

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

The incremental cost per kWh due to this FPPCA arrived for a quarter shall be recovered in the energy bill of the month subsequent to the order of the Commission approving FPPCA with full details of rate and unit(s) on which FPPCA charges have been billed. The Generating Company and the Distribution Companies shall provide along with the proposal of FPPCA (as applicable to them) for a quarter, a compliance report of the previous order of the commission in respect of FPPCA.



# TARIFF SCHEDULE

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**Tariff Schedule**


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

**1.1 Rebate for advance payment:** For payment of energy bill in advance, a rebate of 1% shall be allowed on the rate of charge of the applicable tariff. This will be applicable only all consumers provided with prepaid energy meters.

**1.2 Rebate/Surcharge for availing supply at voltage higher/lower than base voltage:**

Those who avail supply at higher voltage than the classified supply voltage for corresponding load as per clause 3.2 of the JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013, shall be allowed rebate and those availing at lower voltage than the specified voltage shall be levied surcharge as detailed below:

- (i) For consumers having contracted load up to 50 kW – If the supply is given at HV/EHV, a rebate of 5 % would be admissible on the rate of energy charge and fixed charge of the applicable tariff.
- (ii) For consumers having contracted load above 50 kW – If supply is given at voltage lower than the base voltage for corresponding load as per clause mentioned above, the consumer shall be required to pay an extra charge of 10 % on the bill amount (Energy charge + Fixed charge) calculated at the applicable tariff.
- (iii) All voltages mentioned above are nominal rated voltages as per clause 3.2 of the JERC for Manipur & Mizoram (Electricity Supply Code) Regulations, 2013.

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

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

**1.4 Surcharge for late payment of bills:** If payment is not received within due date surcharge @ 2% at simple interest on the outstanding principal amount for each 30 days successive period or part thereof will be charged, until the amount is paid in full.



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

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

**1.7 Power Factor Incentive / Surcharge :-**

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

<b>For each one percent increase by which his average monthly power factor is above 95%, up to unity power factor</b>	<b>One percent (1%) of the total amount of the bill under the head 'energy charge'.</b>
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b) If the average monthly power factor of the consumer falls below 90%, he shall pay a surcharge in addition to his normal tariff, at the following rate:

<b>For each one percent by which his average monthly power factor falls below 90% up to 85%</b>	<b>One percent (1%) of the total amount of the bill under the head 'energy charge'.</b>
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c) If average monthly power factor of the consumer falls below 85%, he shall pay a surcharge in addition to his normal tariff at the following rate :

<b>For each one percent by which his average monthly power factor falls below 85%</b>	<b>Two percent (2%) of the total amount of the bill under the head 'energy charge'.</b>
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d) If the average monthly power factor of the consumer falls below 70%, then the utility shall have the right to disconnect supply to consumer's installation after serving a notice of 15 days. Supply may be restored only after steps are taken to improve the power factor to the satisfaction of the Utility. This is, however, without prejudice to the levy of surcharge for low power factor in the event of supply not being disconnected.

e) For this purpose, the "average monthly power factor" is defined as the ratio of total 'Kilo Watt hours' to the total 'Kilo Volt Ampere hours' recorded during the

month. This ratio will be rounded off to two figures after decimal. Figure 5 or above, in the third place after decimal being rounded off to the next higher figure in the second place after decimal.

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

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

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

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

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

- (2) The transformer loss arrived at by the above formula shall be added to the energy consumption, even when the recorded energy\* consumption is nil.
- (3) 1% of the transformer capacity for transformer above 63 KVA will be added to the recorded maximum demand on the Low Tension side to arrive at the equivalent High Tension demand.

*\* Note:- In case of un-metered supply, consumed energy computed as per clause 5(1) of this tariff schedule shall be taken as recorded energy consumption.*

**1.9 Rounding of Contracted Load/billing demand:** For the purpose of calculation of fixed/demand charge in the monthly billing, the contracted load/billing demand shall be taken on actual basis (not to be rounded), except for load less than 500 W. Load

less than 500 W shall be taken as 0.5 kW for calculation of fixed/demand charge in the monthly billing. Fixed/Demand charge in the monthly billing shall be calculated as follows:- Fixed/Demand charge per month = Contracted load (in kW) or Billing demand (in kVA) x Rate of fixed charge per month per kW/kVA (as the case may be).

**Sample calculation for Domestic Purpose (1) 1.24KW (2) 0.36 kW, Fixed charge for Domestic is Rs 60.00 per kW of contracted load.** Sample 1;- Fixed charge = 1.24 x 60 = Rs 74.40 = Rs 74.00. Sample 2 ;- Fixed charge = 0.36 kW (=0.50 kW after rounding) x 60 = Rs 30.00. *Note Fraction of rupees is rounded as per clause 1.10 of this tariff schedule and load below 0.5 kW is rounded to 0.5 kW as per clause 1.9 of this tariff schedule.*

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

**1.11 System of supply:**

**1.11.1 LT Supply:-**

- i) Alternating current, 50 Hz, single phase 230 Volts up to 8kW
- ii) Alternating current, three phase, 400 Volts for loads above 8 kW **upto**50 kW.

Wherever 3-phase connection is required for load less than or equal to 8 kW,

- ii) Alternating current, three phase, 400 Volts for loads above 8 kW **upto**50 kW.

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.

**1.11.2 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.**

**1.12 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.

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

**1.14 Tax or Duty**

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

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

**2. LT Supply:-**

**2.1 LT Category -1:- KutirJyoti/ BPL Connection**

**Applicability:** Applicable to all households who have been given connection under KutirJyoti Scheme or similar connection under any scheme of the State Govt. or Central Govt. for the benefit of poorer section. As per existing norms unless superseded by other new norms of KJS, if the total consumption in the last three months exceed 45 kWh, 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 the norms specified by competent Authority from time to time

**Tariff Rates:**

**A) Fixed Charge** : Rs 20.00 per month per connection.

**B) Energy charge per month :-**

**1) Metered Supply:**

All Unit : @ Rs 1.70 per kWh

**2) Unmetered Supply:**

The energy (kWh) so computed as per clause 5(1) of this tariff schedule shall be charged at the same rate for metered tariff given above to arrive at the cost of energy consumed.

**Note: 1- if the total consumption of any consecutive three months is more than 45 kWh, the consumer shall be re-categorised/converted under normal domestic category permanently from the very 1<sup>st</sup>/2<sup>nd</sup>/3<sup>rd</sup> month of that consecutive three months, if the total unit consumed exceed 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 KutirJyoti /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

**Applicability:** Applicable for supply of energy exclusively for domestic purposes only in domestic premises. The Tariff is applicable to supplies for general domestic purposes such as Light, Fans, Heating devices, Television, VCR/VCP, Radio, Refrigerator, Air-conditioner, lift motors and all others appliances only for bona-fide residential used. This will not be applicable to institutions conducting commercial activities of any nature.

### Tariff Rates:

**A) Fixed Charge** : Rs 60.00 per month per kW of contracted load

**B) Energy charge per month:-**

**1) Metered Supply:**

First 100 kWh	:	@ Rs3.60 per kWh
Next 100 kWh	:	@ Rs 4.35 per kWh
➤ 200 kWh	:	@ Rs 5.60 per kWh

**2) Un-metered Supply:**

The energy (kWh) so computed as clause 5(1) of this tariff schedule shall be charged at the same rate for metered tariff given above to arrive at the cost of energy consumed.

***Note: If any part of the domestic connection is utilized for any use other than dwelling purpose like commercial, industrial, etc., a separate connection should be taken for such loads under appropriate category, failing which the entire consumption shall be treated as the case may be, in the corresponding category with applicable tariff.***

**2.3 LT Category-3:- Non Domestic / Commercial:**

**Applicability:** This tariff is applicable to all lights, all types of fans, heating devices, Television, VCR/VCP, Radio, Refrigerator, Air Conditioner, lift motors, pump and all other appliances for the purpose of private gain including other small power. This tariff includes power loads for non-domestic purposes like Government/semi-government/non-government offices, shops, hospitals, nursing homes, clinics, dispensaries, health centres, restaurants, bars, hotels, clubs, guest houses, circuit houses/rest houses, tourist lodges, picnic spots, resorts, farm/garden houses, clubs, markets, optical houses, public buildings, community halls, stadiums, meeting/conference halls, religious premises like churches, temples, mosques, gurudwaras, religious offices, all types of studios, tea stalls, professional chambers (like Advocates, chartered Accountants, consultants, Doctors, etc.), private trusts, marriage halls, 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, Government/Non-Government Institutions, schools, colleges, libraries, research institutes, boarding/lodging houses, railway stations, fuel/oil stations/pumps, bottling or filling stations /plants, service stations, Railway/Bus stations/terminals, All India radio/T.V. installations, printing presses, commercial trusts, societies, banks, financial institutions, theatres, cinema halls, circus, coaching institutes, common facilities in multi-storeyed commercial offices/ buildings, public museums, crematoriums, graveyards, orphanages/recognized

charitable institutions where rental or fees of any kind are charged, non-recognized charitable institutions, power supply to tele-communication system/towers and others applications not covered under any other categories.

**Tariff Rates:**

**A) Fixed Charge** : Rs 80.00 per month per kW of contracted load.

**B) Energy charge per month:-**

**1) Metered Supply:**

First 100 kWh	:	@ Rs5.00 per kWh
Next 100 kWh	:	@Rs6.00 per kWh
➤ 200 kWh	:	@ RS 7.10 per kWh

**2) Un-metered Supply:**

The energy (kWh) so computed as clause 5(1) of this tariff schedule shall be charged at the same rate for metered tariff given above to arrive at the cost of energy consumed.

**2.4 LT Category-4:- Public Lighting**

**Applicability:** Applicable to Public Street Lighting System in municipality, Town, Committee, Sub-Town/Village, etc. including Signal system and Road & Park lighting in areas of Municipality Town/Committee, Sub - Town/Village, etc.

**Tariff Rates:**

**A) Fixed Charge** : Rs 65.00 per month per kW of contracted load.

**B) Energy charge per month:-**

**1) Metered Supply:**

All units : @ Rs6.50 per kWh

**2) Unmetered Supply:**

The energy (kWh) so computed as clause 5(1) of this tariff schedule shall be charged at the same rate for metered tariff given above to arrive at the cost of energy consumed.

**2.5 LT Category-5:- Public Water Works (PWW)**

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

**Tariff Rates:**

**A) Fixed Charge** : Rs 100.00 per month per kW of contracted load.

**B) Energy charge per month:-**

**1) Metered Supply:**

All units : @ Rs 6.70 per kWh

**2) Un-metered Supply:**

The energy (kWh) so computed as per section 5(1) shall be charged at the same rate for metered tariff given above to arrive at the cost of energy consumed.

**2.6 LT Category-6:- Irrigation& Agricultural**

**Applicability:** This tariff is applicable to irrigation/pumping for Agricultural purpose only.

**Tariff Rates:**

**A) Fixed Charge** : Rs 60.00 per month per kW of contracted load.

**B) Energy charge per month:-**

**1) Metered Supply:**

All units : @ Rs 3.50 per kWh

**2) Un-metered Supply:**

The energy (kWh) so computed as per clause 5(1) of this tariff schedule shall be charged at the same rate for metered tariff given above to arrive at the cost of energy consumed.

**2.7 LT Category-7:- Small Industry**

**Applicability:** Applicable to all Industrial power consumers with demand of power upto 50 kW which are not covered by Category No. 3 (Supply of Non-Domestic/Commercial Purposes), such as steel fabrications, motor body builders, power handloom industry, poultry farming, pisciculture, prawn culture, floriculture in green houses, mushroom production, cold storage units, agriculture based industries, horticulture and any other type of industry where raw material is converted into finished products with the help of electrical motive power, printing press, etc. This will include domestic or commercial within the industrial complex.



**Tariff Rates:**

**A) Fixed Charge** : Rs 65.00 per month per kW of contracted load.

**B) Energy charge per month:-**

**1) Metered Supply:**

All units : @ Rs 3.75 per kWh

**2) Un-metered Supply:**

The energy (kWh) so computed as per clause 5(1) of this tariff schedule shall be charged at the same rate for metered tariff given above to arrive at the cost of energy consumed.

**3. HT Supply:-**The tariffs are applicable for Consumer availing supply at voltage above 400 V irrespective of connected load/contracted demand. It is mandatory to supply with voltage above 400 V, to consumer having a contracted Load of above 50 kW or Contract Demand of above 59 kVA, as per clause 3.2 of JERC for M&M (Electricity Supply Code) Regulations, 2013

**3.1 H.T. Category – 1: Commercial**

**Applicability:** This Tariff is applicable to similar purposes defined in LT Supply Category-3 Supply for Commercial Purposes.

**Tariff Rates:**

**A) Demand Charge** : Rs 100.00 per month per kVA of Billing Demand.

**B) Energy charge per month:-**

**1) Metered Supply:**

All units : @ Rs7.00 per kWh

**2) Un-metered Supply:**

The energy (kWh) so computed as per clause 5(1) of this tariff schedule shall be charged at the same rate for metered tariff given above to arrive at the cost of energy consumed.

**3.2 H.T. Category - 2: Public Water Works (HT- PWW)**

**Applicability:** This tariff is applicable to similar purposes defined in LT Category-5 Supply for Public Water Works (PWW) and sewerage system.

**Tariff Rates:**

**A) Demand Charge** : Rs 100.00 per month per kVA of Billing Demand.

**B) Energy charge per month:-**

**1) Metered Supply:**

All units : @ Rs 6.10 per kWh

**2) Un-metered Supply:**

The energy (kWh) so computed as per clause 5(1) of this tariff schedule shall be charged at the same rate for metered tariff given above to arrive at the cost of energy consumed.

**3.3 H.T. Category - 3: Irrigation & Agriculture**

**Applicability:** This Tariff is applicable to irrigation / pumping for agricultural purposes only.

**Tariff Rates:**

**A) Demand Charge** : Rs 100.00 per month per kVA of Billing Demand.

**B) Energy charge per month:-**

**1) Metered Supply:**

All units : @ Rs 3.30 per kWh

**2) Un-metered Supply:**

The energy (kWh) so computed as per clause 5(1) of this tariff schedule shall be charged at the same rate for metered tariff given above to arrive at the cost of energy consumed.

**3.4 H.T. Category - 4: Medium Industry**

**Applicability:** This Tariff is applicable to similar purpose defined in LT Category-7 for Small industry. with Contract Demand upto 125 kVA or Contracted Load upto 100kW.

**Tariff Rates:**

**A) Demand Charge** : Rs 100.00 per month per kVA of Billing Demand.

**B) Energy charge per month:-**

**1) Metered Supply:**

All units : @ Rs 4.90 per kWh

**2) Un-metered Supply:**

The energy (kWh) so computed as per clause 5(1) of this tariff schedule shall be charged at the same rate for metered tariff given above to arrive at the cost of energy consumed.

**3.5 H.T. Category- 5: Large Industry**

**Applicability:** This Tariff is applicable for supply of power to industrial consumers having license from designated authority of appropriate government and not covered under any other category, at a single point for industrial purposes with Contract Demand above 125 kVA or Contracted Load above 100 kW.

**Tariff Rates:**

**A) Demand Charge** : Rs 100.00 per month per kVA of Billing Demand.

**B) Energy charge per month:-**

**1) Metered Supply:**

All units : @ Rs 6.10 per kWh

**2) Un-metered Supply:**

The energy (kWh) so computed as per clause 5(1) of this tariff schedule shall be charged at the same rate for metered tariff given above to arrive at the cost of energy consumed.

**3.6 H.T. Category - 6: Bulk Supply within the State**

**Applicability:** This tariff is applicable for all installations, including mixed loads similar to LT category 2 & 3 such as private sector installation, educational institution, defense installation, government & public sector offices & complexes and Hospital etc., that arrange their own distribution system of power within the premises with the approval of competent authority. This will not include industrial complexes consisting mixed load of LT category 2 & 3.

**Tariff Rates:**

**A) Demand Charge** : Rs 100.00 per month per kVA of Billing Demand.

**B) Energy charge per month:-**

**1) Metered Supply:**

All units : @ Rs 5.40 per kWh

**2) Un-metered Supply:**

The energy (kWh) so computed as per clause 5(1) of this tariff schedule shall be charged at the same rate for metered tariff given above to arrive at the cost of energy consumed.

**4. Temporary Power 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 arrange 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:

**Tariff Rates:**

**A) Fixed / Demand charge :** 1.5 times the rate of fixed/demand charge of the applicable tariff category for which power supply is given.

**B) Energy charge per month :** 1.5 times the rate of the highest rated slab of the Applicable tariff category for which energy is supplied.

**5 Computation of energy consumed for un-metered supply:**

(1) This shall be applicable to consumer (inclusive of street lightings) without meter from initial connection and have not been covered under any of the metering schemes. The monthly energy consumption shall be computed as below:-

$$\text{Energy Consumption} = L \times H \times F \times D$$

Where L = Contracted load in kW or Billing Demand in kVA, (as per clause 1.9 of this tariff schedule)

H = (a) **For consumer in general:-** Total number of hours in a month during which power is actually supplied to that consumer through that feeder / through that DT concerned, whichever is less, (after taking into account all interruptions of power feeding that) or (730 minus total hours interruptions of power feeding that consumer). where 730 is average number of hours in a month in a non-leap year. (Note:- Interruption shall mean breakdowns of Feeders, Part of feeder, Distribution Transformer, load shedding, all types of shut downs which should be recorded and informed to concerned billing station)

(b) **For street lights:-**Total number of hours in a month during which power is actually supplied to street lights through that feeder / through that DT concerned.(12 Hrs per day in Gregorian calendar month or 365 hrs per month on average basis. However, number of hours where power supply is not made due to interruptions available shall be deducted.

(Note:- Interruption shall mean breakdowns of Feeders, Part of feeder, Distribution Transformer, load shedding , all types of shut downs which occurs between dawn to dusk,. which should be recorded and informed to concerned billing station)

F = Load Factor shall be as stipulated for theft cases in ANNEXURE 11.19 of the Joint Electricity Regulatory Commission for Manipur & Mizoram (Electricity Supply Code) Regulations, 2013. Which is reproduced for convenience sake:-

S. No	Particulars	Load
1.	Domestic (LT/HT)	40%
2.	Non-domestic/Commercial (LT/HT)	50%
3.	Industrial (LT/HT)	75%
4.	Public Water supply(LT/HT)	50%
5.	Bulk supply	50%
6.	Agriculture/Irrigation(LT/HT)	50%

7.	Street light	50%
8.	Direct theft– All categories	100%

D = Demand factor which shall be taken as (1) 100 % in case of street lighting and (2) 45 % in case of other consumption.

- (2) **Short period of unmetered supply:-** For un-meter (meter not available) supply as a result of defective, burnt, lost meter shall be treated as per 6.11 – 6.13 Of the JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013.
- (3) **For Un-authorized consumer/theft (includes by-pass of meter)/pilferage and cases cover by section 135 of the Act.:-** The energy consumed shall be computed as per Annexure 11.1.19 Of the JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013. The energy so computed shall be evaluated as follows:-

**(a) Load less than 10 kW**

- (1) First instance:- Three (3) times of the rate of the applicable tariff (fixed and variable charges) for which the stolen energy was utilized.
- (2) Second and subsequent instance:- Six (6) times of the rate of the applicable tariff (fixed and variable charges) for which the stolen energy was utilized.

**(b) Load exceeding 10 kW**

- (1) First instance:- Three (3) times of the rate of the applicable tariff (fixed and variable charges) for which the stolen energy was utilized.
- (2) Second and subsequent instance:- Six (6) times of the rate of the applicable tariff (fixed and variable charges) for which the stolen energy was utilized.

*Note:- Additional punishment of theft shall be as per Electricity Act 2003 (with latest amendment) and as per the JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013.*

## 6. Miscellaneous Charges

### 6.1 Meter Rent

**6.1.1 Meter Rent for non-prepaid meters: Monthly charges for hiring of the meter, indicator payable shall be as follows:**

a)	AC, Single phase Energy meter, whole current	Rs. 10.00 per month
b)	AC, Three phase Energy meter, whole current	Rs. 20.00 per month
c)	AC, Three phase Energy meter, CT operated	Rs. 50.00 per month
d)	AC, Three phase Energy meter, CT & PT operated	Rs. 500.00 per month

**6.1.2 Meter Rent for Pre-Paid Meters: Monthly charges for hiring of the meter, indicator payable shall be as follows:**

a)	AC, Single phase PP, Energy meter, whole current	Rs. 20.00 per month
b)	AC, Three phase PP, Energy meter, whole current	Rs. 40.00 per month

### 6.2 Other charges for meter:

**(i) Meter shifting charge:**

- (1) Rs 100.00 per shifting if resulted from reconstruction / modification of building and at consumer's request.
- 2) 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.*

- (ii) Replacement of meter:--** Licensee shall have stock of energy meter as per clause 5.51 of the JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013. Replacement of meter shall be carried out as per clause 5.31 to 5.50 of the same code mentioned above. Charges for other materials will be extra.

*However, in case of replacement of post-paid meter by prepaid meter by the utility, no meter replacement charge shall be borne by the consumer and the entire charge shall be borne by the utility.*

**iii) Execution charge for re-installation/installation of meter:-**

- a) For existing consumer shall be Free of cost.
- b) For disconnected consumer being re-connected (if meter is removed) shall be charged @ Rs 75.00.
- c) For new consumer, it shall be included in the cost of service connection as under execution charges.

**iv) Cost of Energy Meters supplied by Licensee :**

As per the Licensee's purchase rate plus testing fee, 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.

**6.3 Charges for testing of Meters 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.50.00per meter per testing.
- (ii) For AC three phase LT energy meter, whole current:Rs.75.00per meter per testing.
- (iii) For AC three phase LT energy meter, CT operated:Rs.100.00per meter per testing.
- (iii) For AC three phase LT energy meter, CT operated:Rs.100.00per meter per testing.
- (iv) For energy meter AC three phase, CT & PT operated :Rs.150.00per meter per testing.

*In case the meter supplied by the Licensee fitted to the consumer premises is found to be defective from initial fitting, testing and replacement of meter shall be carried out as per clause 5.31 to 5.50 of the JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013.*



**6.4 Testing of Consumer's Installation:**

The first test and inspection will be carried out free of cost as per clause 4.47 of the Joint Electricity Regulatory Commission 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. 100.00 per test, payable in advance, shall be levied. In the event of the consumer failing to pay the testing charge in advance with in stipulated time, the Licensee will be at liberty to disconnect the consumer's premise from the supplier's main.

**6.5 Disconnection and Reconnection**

Disconnection: Disconnection of an installation in all cases will be free of charges.

Reconnection:

- (i) For AC single phase LT supply: Rs. 80.00
- (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 Charges for change of category:**

Change of category will be carried out as per clause 4.72 to 4.80, clause 4.85 to 4.86 and 4.90 to 4.93 of the Joint Electricity Regulatory Commission for Manipur and Mizoram (Electricity supply Code) Regulations, 2013.

**6.7 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 the required materials as per the required specifications of the Department.

The execution charge shall be as given below:

1. For Cable and wire:-
  - i) Single phase connection: Rs.400.00 per connection.
  - ii) LT three phaseconnection:Rs.600.00 per connection.

iii) HT three phase connection: Rs.900.00 per 100 meters of the HT line

2. For Cut out & Fuse:-

(i) Rs 15.00 per cut out.

(ii) Rs 5.00 per fuse

**6.8 Re-rating of Installation:**-This charge is for meeting expenses toward spot verification of load and other connected recording works. Fees for re-rating of the consumer's installation at the request of the consumer shall be Rs.100.00 per rerating per connection.

*These charges shall be payable by the consumer in advance. The aforesaid charges do not include the charges payable by the consumer for other works connected due to change of connected load. Rerating shall be carried out as per clause 4.94 to 4.107 of the JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013.*

**6.9 Security Deposit:**

**(a) 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. **However, consumer with prepaid meter shall not be required to pay load security deposit.**

**(b) 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.**

**6.10 Charges for Replacement of tamper proof Meter Box:**

For AC single phase LT or three phases LT without CT or with CT, the charge will be as per Licensee's purchase rate in case the energy meter box is replaced by the Licensee from its store.

**6.11 Service Lines & Service Connection:**

**(i) 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 Joint Electricity Regulatory Commission for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013.

- (ii) **Cost of Service Connection:** As stipulated in clause 4.37 and 4.131 of the Joint Electricity Regulatory Commission for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013. If the consumer desires to arrange service connection materials, the Department (not below rank of Junior Engineer concerned) will check all the materials.

**6.12 Mutation Fee:** Mutation fee i.e. fee for change of name shall be Rs50 per change. This shall be carried out as per clause 4.81 to 4.84 of the Joint Electricity Regulatory Commission for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013.

**6.13 Cost of Application Form:** The application form shall be free of cost vide clause 4.14 of the Joint Electricity Regulatory Commission for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013.

**6.14 Operation & Maintenance (O&M) Charge on dedicated assets :-**

The O & M charge of assets created out of such amount received without any obligation to return the same and no interest costs attached to such subvention, from consumer contribution, Deposit work and any similar nature shall be as follows:-

- (1) The completion costs shall be escalated at the rate of 4 % per annum from the year of completion to arrive the costs of the assets for 2015-16 level.
- (2) The annual O & M charges/expenses shall be 5 % from the 2015-16 level costs.
- (3) The O & M charges/expenses for each subsequent will be determined by escalating the base charges/expenses determined above for 2015-16, at the escalation factor of 5.72 % to arrive at possible O & M charges / expenses for each year.

## ANNEXURES

**ANNEXURE - I**

**MINUTES OF THE 18<sup>TH</sup> MEETING OF THE STATE ADVISORY COMMITTEE OF MANIPUR**

**Venue : Dynasty Hall, Classic Grande, Imphal, Manipur**

**Date & Time : 19<sup>th</sup> February 2018, 11:00 AM**

The Chairman of the Committee, Mr. Ngangom Sarat Singh and Chairperson of the JERC for Manipur & Mizoram chaired the meeting. He started the programme by welcoming new members and all other members of the State Advisory Committee and the invitees.

The list of members and participants attending the meeting is appended.

The Chairman initiated the agenda-wise discussion as below:

**Agenda No.1. Confirmation on the Minutes of the 17<sup>th</sup> Meeting of the SAC, Manipur held on 13<sup>th</sup> February, 2017.**

The Chairman stated that the minutes of the 17<sup>th</sup> Meeting of the SAC was circulated earlier and requested for their comments on the minutes. After obtaining nods from the members, the minutes were declared confirmed.

**Agenda No. 2. Determination of Multi Year ARR for the Second Control Period for FY 2018-19 to FY 2022-23 and Retail Tariff for FY 2018-19 for MSPDCL and Transmission Tariff for FY 2018-19 for MSPCL.**

The Chairman informed the members of the Committee that the main agenda for the meeting was to obtain the views and comments on the above agenda. On his request to MSPDCL to highlight their Petition to enable the members to give their views and suggestions, Mr. L. Priokumar Singh, Managing Director, MSPDCL briefly highlighted the main points of their ARR & Tariff Petition as below:

Based on the principles enumerated by the JERC Multi Year Tariff Regulations, 2014, notified by the Hon'ble Commission on 9<sup>th</sup> January, 2014 as well as the present CERC regulations, the Manipur State Power Distribution Company Limited (MSPDCL) has filed the ARR & Tariff Petition for FY 2018-19 with the Commission on 15<sup>th</sup> January, 2018.

The MYT petition of MSPDCL includes the ARR (Annual Revenue Requirement) and the tariff petition for FY 2018-19. The projections for FY 2018-19 to FY 2022-23 are based on the actual data of FY 2014-15, FY 2015-16 of FY 2016-17 and FY 2017-18 (first half year) and the estimation for FY 2017-18.

The projected ARR for FY 2018-19 works out to Rs. 739.50 crores. Further, the total revenue from sale of power at existing tariff works out to Rs. 324.83 crores. As such, the uncovered gap for FY 2018-19 works out to Rs. 414.67 crores.

The MYT petition includes the tariff proposal for FY 2018-19 and as such the proposal for covering the above mentioned gap for FY 2018-19 is included in the MYT petition. The uncovered gap is proposed to be covered through increase in tariff and subsidy support from State Government. The summary of ARR and proposed tariff schedule are reproduced below for perusal and comments by members of SAC Manipur:

**Table 1: The energy balance for FY 2018-19 to FY 2022-23**

S. No.	Particular	Unit	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
<b>A</b>	<b>Energy Requirement</b>	<b>MU</b>							
1	Energy Sales	MU	511.92	524.34	532.44	543.03	552.65	563.05	573.36
2	Distribution loss	%	30.42%	30.28%	28.00%	26.00%	23.00%	20.00%	17.00%
3	Distribution loss quantum	MU	223.85	227.77	207.10	190.84	165.12	140.80	117.47
4	Energy Requirement at Distribution Periphery	MU	735.77	752.11	739.54	733.87	717.76	703.86	690.83
5	Transmission Network Loss	%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
6	Transmission and Transformation loss quantum	MU	81.75	83.57	82.17	81.54	79.75	78.21	76.76
7	Energy Requirement at State Periphery	MU	817.53	835.68	821.71	815.41	797.52	782.06	767.58
<b>B</b>	<b>Energy Availability</b>								
8	Own Generation (Net)	MU	0.68	0	0	0	0	0	0
9	Power Purchase	MU	1065.53	1040.00	1065.25	1131.36	1163.86	1185.52	1207.19
10	Less: External Losses (3.60%)	%	3.60%	2.65%	2.65%	2.65%	2.65%	2.65%	2.65%
11	Less: External Losses	MU	38.36	27.56	28.23	29.98	30.84	31.42	31.99

S. No.	Particular	Unit	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
12	Net energy available at state periphery (8+9-11)	MU	1027.85	1012.44	1037.02	1101.38	1133.02	1154.11	1175.20
13	Surplus (12-7)	MU	<b>210.32</b>	<b>176.76</b>	<b>215.31</b>	<b>285.96</b>	<b>335.50</b>	<b>372.04</b>	<b>407.61</b>

2. Based on the energy balance shown above, the expected expenditure and revenue are projected along with the revenue gap for MYT Second Control Period FY 2018-19 to FY 2022-23 as shown in Table below:

**Table 2: Aggregate Revenue Requirement for FY 2018-19 to FY 2022-23**

S. No.	Particulars	FY 17-18	FY 18-19	FY 19-20	FY 20-21	FY 21-22	FY 22-23
<b>A</b>	<b>Expenditure</b>						
	Cost of power purchase	374.10	435.49	469.80	506.51	538.47	571.14
	Inter-State Transmission charges	49.35	58.21	61.12	64.18	67.39	70.76
	Intra-state Transmission charges	68.15	92.62	98.57	111.58	123.49	135.45
	Wheeling charges payable to other distribution licensee	0.00	0.00	0.00	0.00	0.00	0.00
	O&M Expenses	97.76	125.00	132.15	139.71	147.70	156.15
	Depreciation	0.21	5.91	7.44	8.91	10.42	11.74
	Advance against depreciation	0.00	0.00	0.00	0.00	0.00	0.00
	Interest on Loan	5.43	5.94	5.17	4.24	3.13	1.86
	Interest on Working Capital	5.22	11.38	12.33	13.44	14.54	15.54
	Provision for bad debt	3.00	3.00	3.00	3.00	3.00	3.00
	<b>Total Cost</b>	<b>603.22</b>	<b>737.55</b>	<b>789.58</b>	<b>851.57</b>	<b>908.14</b>	<b>965.64</b>
<b>B</b>	Add: RoE	1.56	1.95	1.95	1.95	1.95	1.95
	Add: Income Tax	0.39					
	<b>B: Total</b>	1.95	1.95	1.95	1.95	1.95	1.95
	<b>Total ARR: A+B</b>	<b>605.17</b>	<b>739.50</b>	<b>791.53</b>	<b>853.52</b>	<b>910.09</b>	<b>967.59</b>
<b>C</b>	<b>Less (Non-Tariff Income)</b>						
	Other Income (Including income from trading)	32.58	39.62	52.51	61.56	68.24	74.74
	Income from other	0.00	0.00	0.00	0.00	0.00	0.00

S. No.	Particulars	FY 17-18	FY 18-19	FY 19-20	FY 20-21	FY 21-22	FY 22-23
	business allocated to Licensed business						
	<b>Subtotal (C)</b>	32.58	39.62	52.51	61.56	68.24	74.74
	<b>Net Aggregate Revenue Requirement (A-B)</b>	<b>572.59</b>	<b>699.88</b>	<b>739.02</b>	<b>791.96</b>	<b>841.85</b>	<b>892.85</b>

### 3. Revenue Gap and Budgetary Support for FY 2018-19

ARR, Revenue @ Existing Tariff, Revenue Gap (Rs Cr)		FY 2018-19 Projected
<b>Annual Revenue Requirement</b>		<b>739.50</b>
<b>Covered by</b>		
Revenue @ Existing Tariff		285.60
UI/ trading Receivable		39.23
Total Revenue from sale of energy		324.83
<b>Revenue Gap/(Surplus)</b>		<b>414.67</b>
Add: Additional support as per JERC order on Review Petition		14.83
Add: Carrying Cost		0.00
Total claimed for R.P dated 3.11.2017		14.83
<b>Total revenue gap</b>		<b>429.50</b>
<b>Covered by</b>		
Budgetary Support From	Employee expense (A)	108.78
Govt.	MSPCL expense (B)	92.62
	Power Purchase subsidy (C)	191.59
<b>Total Budgetary Support from Govt. (D) = (A+B+C)</b>		<b>392.99</b>
<b>Additional Revenue @ Proposed Tariff</b>		<b>36.51</b>
<b>Total</b>		<b>429.50</b>

MSPDCL has been receiving budgetary support from the Government of Manipur for Plan and Non –Plan Funds. The same support will also be provided during ensuing year. Accordingly, out of the gap of Rs. 429.50 crores, Rs. 392.99 crores is proposed to be covered by budgetary support from Government of Manipur. The net gap is increasing because of increased availability from new sources and increased power purchase cost considering impact of increase of thermal in thermal-hydro mix.

### 4. Average Cost of Supply & Revenue Realization

Average Realization & Cost of Supply	FY 2018-19
(Rs. Per Unit)	
<b>Average Cost of Supply of MSPDCL</b>	<b>9.36</b>
Average realization from sale of power	3.82
Revenue Gap at existing Tariff	5.54



## 5. The existing and proposed tariff structures (Telescopic) are given below.

S. No	Category & Consumption Slab	Fixed Charges per month (Rs.) Existing	Variable Charges (Rs./kwh) Existing	Fixed Charges per month (Rs.) Proposed	Variable Charges (Rs./kwh) Proposed
<b>LT SUPPLY</b>					
<b>1</b>	<b>Kutir Jyoti</b>				
	First - 45 kWh/month	20.00	1.60	20	1.80
<b>2</b>	<b>Domestic</b>	<b>60.00</b>	<b>4.13</b>	<b>65</b>	<b>4.70</b>
	First - 100 kwh/Month	60.00	3.30	65	4.00
	Next 100 kwh/Month	60.00	4.00	65	4.50
	Above 200 kwh/Month	60.00	5.10	65	5.60
<b>3</b>	<b>Non-Domestic/Commercial</b>	<b>80.00</b>	<b>5.53</b>	<b>90</b>	<b>6.27</b>
	First - 100 kwh/Month	80.00	4.50	90	5.20
	Next 100 kwh/Month	80.00	5.50	90	6.30
	Above 200 kwh/Month	80.00	6.60	90	7.30
4	Public Lighting	65.00	6.00	75	6.70
5	Public Water Works	100.00	6.35	115	7.10
6	Irrigation & Agriculture	60.00	3.25	65	3.60
7	Small Industry	65.00	3.50	75	4.20
<b>HT SUPPLY</b>					
1	Commercial	100.00	6.50	110	7.25
2	Public Water Works	100.00	5.75	110	6.50
3	Irrigation & Agriculture	100.00	3.15	105	3.50
4	Medium Industry	100.00	4.50	110	5.20
5	Large Industry	100.00	5.60	110	6.45
6	Bulk Supply	100.00	5.00	115	5.70

Again, the Chairman requested MSPCL to highlight their ARR & Tariff Petition and Mr. N. Sarat Singh, Managing Director, MSPCL briefly presented their Petition and highlighted the projected ARR requirement and Transmission Tariff proposal as below:

## Aggregate Revenue Requirement for FY 2018-19 to FY 2022-23

(Rs. Crore)

Particulars	FY 2017-18 Approved by Commission	FY 2018-19 (Projected)	FY 2019-20 (Projected)	FY 2020-21 (Projected)	FY 2021-22 (Projected)	FY 2022-23 (Projected)
R &M Expense	10.56	15.37	19.70	24.30	27.79	29.23
Employee Expense	62.96	74.37	74.58	81.31	88.71	97.55
A&G Expense	3.78	4.30	4.61	4.94	5.30	5.68
Depreciation	0.89	1.04	1.33	1.64	1.87	1.97
Interest on Loans	0	-	-	-	-	-
Return on Capital Employed	1.56	1.56	1.56	1.56	1.56	1.56
Interest on working capital	3.48	4.28	5.08	6.11	7.04	7.73
Income Tax	0.39	0.40	0.40	0.40	0.40	0.40
Less: Non Tariff Income	11.50	8.68	8.68	8.68	8.68	8.68
Less: Income from other business	0	-	-	-	-	-
Less : Expenses capitalized	3.97					
<b>Net ARR</b>	<b>68.15</b>	<b>92.62</b>	<b>98.57</b>	<b>111.58</b>	<b>123.99</b>	<b>135.45</b>

Sl.No	Particulars	Approved by the Commission for FY 2017-18	Proposed for FY 2018-19
1	Transmission ARR to be recovered	68.15 Cr	92.62 Cr
2	Transmission Tariff as Rs/month	5.68 Cr/month	7.72 Cr/month
3	Transmission capacity	222.38 MW	309.21 MW

After both MSPDCL and MSPCL had presented the highlights of their Tariff Petitions, the Chairman invited the members to express their views and comments on the ARR and Tariff proposals. Mr. S. Rishikumar Singh stated his desire not to hike the tariff higher than tariff in the neighbouring states. Mr. Elangbam Dorendro Singh stated that the tariff in Mizoram was comparatively lower than that of in Manipur in general and in domestic in particular and requested the Commission to look into this matter as both the states have tariffs fixed by the JERC. Mr. L. Pachuau, Chief (Engg.), JERC clarified that the fixed charge in Mizoram was calculated based on connected load as

the contracted load was taken equal to connected load by the P&E Department whereas in Manipur, it was calculated based on contracted load which was less than connected load. This was the reason why the fixed charge was put higher in Manipur. The Chairman supplemented that the difference was only due to the difference in the operating factors being taken into consideration. The Chairman further stated that revision of tariff was necessary every year as per Regulation and this is to avoid burden on the consumers even though an incremental tariff hike may take place. All concerned should make much effort to reduce AT & C losses at all levels which should ultimately result in moderate tariff acceptable to all categories of consumers. The Committee recommended the tariff hike based on thorough examination of the Tariff Petitions of MSPDCL and MSPCL for FY 2018-19.

**Agenda No.3. To ascertain actual intra-state Transmission loss, system metering in all vital points thereof.**

On the request by the Chairman, MD, MSPDCL presented the up-to-date status of 11 kV system metering as tabulated below:

Feeder Type	Non R-APDRP	R-PDRP	Grand Total
<b>INCOMING</b>	<b>103</b>		<b>103</b>
Meter	82		82
No Meter	15		15
Replacement Required	6		6
<b>OUTGOING</b>	<b>116</b>	<b>67</b>	<b>183</b>
Meter	80	67	147
No Meter	33		33
Replacement Required	3		3
<b>SPARE</b>	<b>8</b>		<b>8</b>
Meter	4		4
Replacement Required	4		4
<b>STATION</b>	<b>39</b>		<b>39</b>
Meter	33		33
No Meter	5		5
Replacement Required	1		1
<b>Grand Total</b>	<b>266</b>	<b>67</b>	<b>333</b>

The MD, MSPCL stated that at present the energy injected into the state periphery is being accounted by RLDC. To ascertain actual intra-state transmission loss MSPCL has taken up installation of energy meters at 132 kV and 33 kV voltage levels. Till date, 119 nos. of 33kV meters out of 168 nos. of 33kV meters required and 47 nos. of 132kV meters out of 76 nos. of 132kV meters required have been installed.

The installation of remaining **49 nos.** of 33 kV meters and **29 nos.** of 132kV meters is expected to be completed within March, 2018. Unless the installation of 33kV and 132kV energy meters is completed the actual intra-state transmission loss cannot be ascertained. He further stated that MSPCL proposed to take up issue of remaining requisite installation of meters when meter with new specification was finalized by CEA as there will be some change in its manufacturing technology. On a query raised by Mr. Elangbam Dorendro Singh regarding high investment for construction of 400kV line which is not required for Manipur at present, MD,MSPCL replied that MSPCL had a vision to meet Manipur's increasing power demand in the coming years to avoid high expenditure for replacement and renovation of transmission lines besides providing quality and reliable power supply to all consumers in Manipur. General Manager, SLDC also supplemented regarding new meters yet to be decided by CEA due to which installations are delayed. On a query raised by Mr. S. Rishikumar regarding benefit of boundary meters and the delay issue pointed out by MSPDCL and SLDC, Mr. L. Pachuau, Chief (Engg.), JERC pointed out the need to immediately install boundary meters, whatever type it may be, to ascertain actual losses prevailing in both MSPCL and MSPDCL and necessary replacement in future has to be taken up as and when the compelling need comes only. Energy accounting and energy audit is not possible without boundary meter having accurate readings in both MSPCL and MSPDCL. Figures available with them are fictitious and assumption only. We will never see actual improvement and progress without proper energy accounting and energy audit. The Committee recommended that 11 kV feeder meters at all injecting points of MSPDCL should be installed by MSPCL immediately and meter readings to be inspected jointly by MSPCL and MSPDCL. The Committee further recommended that reliable meter should be installed in all 11kV feeders

which are not installed as yet by MSPDCL immediately as check meters so that energy injected by MSPCL into MSPDCL system can be properly accounted for.

**Agenda No.4. Reduction of loss & bad debt.**

The Chairman requested MD, MSPDCL to highlight the action taken for reduction of loss and bad debt. MD, MSPDCL informed the Meeting that in order to improve the billing and collection efficiency in rural and far flung areas of Manipur, MSPDCL will implement the system of Single Point DT Metering and Billing System by signing an MoU (memorandum of Understanding) with the concerned village chief/chairman. The system will be implemented in those remote areas where prepaid metering is not feasible in near future. Under this system, a DT energy meter will be installed at the village DT(s) and a single energy bill based on the readings of the DT meter will be served to the village chief/chairman for collection and subsequent payment to MSPDCL. A 10% rebate on the collected amount will be given to the village chief/chairman as incentive by the MSPDCL.

- ii) For collection and recovery of outstanding dues the following action plans have been taken up so far :
1. Deduction of 20% of Recharge amount against Outstanding dues for Prepaid Consumers.
  2. Disconnection and lodging of FIR against consumers for energy theft and continued offences.
  3. Disconnection notice are being served to all state govt. departments at the end of every financial year, followed up by intensive drive to collect the amount sanctioned by the govt. to each of them. In particular, disconnection notice were served followed up by necessary actions in March, July & November, 2017. The outstanding dues as on 30<sup>th</sup> Sept, 2017 for all state govt. departments amounts to Rs. **78,18,97,782/-** and the anticipated outstanding dues as on 31<sup>st</sup> March 2018 is Rs. **1,09,20,82,443/-**.
  4. HT new connections are being encouraged for better revenue collection.12 new

HT consumers are under process at present for connection. 9 HT consumers are newly connected in the month of January, 2018

On a query raised by some Members regarding VIP residences without prepaid energy meter, Chief (Engg.) suggested to install pre-paid meter in Government offices and residences and request Planning and Finance Departments to allocate fund for payment of outstanding dues of different departments clearly mentioning in their respective budgetary allocation. Mr. Nobert Khayi raised deficiency in staff strength for maintenance of power supply, revenue billing and collection in Ukhrul District. Consumers were served high energy bills from MSPDCL Offices without activating the pre-paid meters installed in the residences. He felt that people shall be co-operative only after pre-paid meters are activated. The Chairman requested MD, MSPDCL to take note of the points raised by Mr. Nobert. The Committee recommended that the State Cabinet be requested to take concrete decision for recovery of outstanding dues or writing off outstanding debt of different Departments and installation of pre-paid meters in all Government offices and residents.

**Agenda No.5. Category-wise consumers, no. consumers with pre-paid and post-paid meters.**

On the request of Chairman, MD, MSPDCL submitted Category-wise HT consumers and Category-wise LT consumers as on 30.09.2017. He further stated that there are **4,02,895** numbers of total consumers in the state out of which **3,04,812** are pre-paid and **97,003** are post-paid.

The Committee was of the opinion that with activation of about 75.6% of the consumers (i.e. 3,04,312 out of 4,02,895) with pre-paid meter, the commercial operation would be much improved and AT&C loss would come down substantially. The Meeting requested MSPDCL to encourage for more HT consumers to reduce line loss.

**Agenda No.6.**

- (i) Installation and activation of (i) pre-paid meters and (ii) Postpaid meter as on 30/09/2017 Circle-wise / Division-wise / Town-wise and District-wise.
- (ii) Installation of AB cable LT lines and new 11 kV lines / reconductoring under R-APDRP, State Plan, DDUGJY, State Plan etc; area-wise/ Circle-wise /Division-wise and HT and LT works thereof.
- (iii) Status of installation and activation of DT meters Area/ Town-wise and energy Audit Report.
- (iv) Status of feeder metering in RAPDRP towns and energy audit report thereof.

The above information were furnished by the MD,MSPDCL. The Committee observed that energy audit should be done in RAPDRP towns and reports should be submitted to JERC for Manipur and Mizoram by July, 2018.

**Agenda No.7: Action proposed for reduction of theft of power by means of hooking/bypassing. Audit report and measures taken in this regard.**

The MD, MSPDCL stated that Power theft is one of the major issues which not only cause irregular supply of electricity but also affect the commercial health. With a view to preventing the power theft by consumers, the Deputy Manager and Sub division Manager are instructed to conduct regular raids. It should be such that if consumers are found bypassing the meter, thus practicing Power theft, they shall be arrested along with filling of FIR. These sub-divisional level raids are keep mandatory. The detail of FIRs and arrested consumer are published at local newspaper in order to discourage the consumers not to indulge in power theft. Penalties are enforced for stealing Electricity. He further submitted detailed action taken report (April,2017 to December, 2018) as below :

Sl. No.	Particulars	Total
1	No. of cases where inspection was carried out	24,190
2	No. of cases where theft was detected	1,568
3	No. of FIR cases lodge	164
4	No. of cases where penalties were imposed	1,404
5	Estimated quantity of electricity energy considered as	4,09,595

	theft(kwh)	
6	Estimated cost of such energy (Rs)	28,97,430
7	Amount realized (Rs)	37,02,008

**Agenda No.8. Status of ongoing works and their completion time schedule.**

MD, MSPDCL and MD,MSPCL submitted detail reports. The Members thanked the MDs for their presentation and wanted the works to be completed in time.

**Agenda No.9. MSPCL's status of meter installation at all voltage levels and all 11 kV feeders to be metered to segregate energy loss with MSPDCL.**

As per report submitted by MD, MSPCL, MSPCL is planning to install all 132kV, 33kV and 11 kV energy meters to facilitate energy accounting and auditing at 132kV, 33kV and 11 kV level. Till date 273 nos. of 11kV meters out of 382 nos. of 11 kV meters required, 119 nos. of 33kV meters out of 168 nos. of 33kV meters required and 43 nos. of 132kV meters out of 76 nos. of 132kV meters required have been installed.

The remaining **109 nos.** of 11 kV meters, **49 nos.** of 33 kV meters and **29 nos.** of 132kV meters will be installed within a short time and targeted to be completed within March, 2018. The following table shows the present status of energy metering at 11 kV, 33kV and 132kV level.

**Feeder Meter Status**

Sl. No.	Voltage Level	No. of meters to be installed	No. of meters installed	Balance meters to be installed
1	11 KV Energy Meter	382	273	109
2	33 KV Energy Meter	168	119	49
3	132 KV Energy Meter	76	47	29

The segregation of actual transmission and distribution loss is not possible unless the installation of 11 kV, 33kV and 132kV energy meters is completed.



The Committee felt that the information submitted by MD, MSPDCL on system metering by installation of 11 kV feeder meter under Agenda no.3 is different from the Feeder Meter status as given by MSPCL and felt that a reconciliation is required in this matter.

The Chairman requested MD, MSPCL to furnish single line diagram of the sub-stations showing incoming/outgoing feeders of all voltage levels and with meter installation status to sort out the problem. Further MD, MSPDCL was also requested to furnish details of sub-station wise incoming 11 kV feeders from MSPCL into the MSPDCL system showing the 11 kV system meters installed so far as reported. The Chairman requested both MDs to submit the information by May, 2018.

**Agenda No.10. Status of on-going works & Completion time schedule**

The Members noted with thanks the submission of MSPCL and MSPDCL and requested that the works be completed in time.

**Agenda No.11. Requisite data submission to JERC as per MYT Regulations,2014**

The Committee observed that the requisite data were furnished as reported by MD,MSPDCL.

**Agenda No.12. Miscellaneous agenda with the permission of Chair.**

As per request made by the Chairman, Director, MANIREDA gave a Powerpoint presentation on the Status of Renewable Energy Sector and Contribution in RPO by MANIREDA (Copy enclosed). The Members thanked for the presentation and requested MANIREDA to put more efforts for Solar rooftop power generation in cooperation with MSPDCL. This initiative will mitigate to some extent the RPO obligation of MSPDCL.

The Meeting ended at 14:30 hrs with a vote of thanks from the Chair.

Sd/-NGANGOM SARAT SINGH  
CHAIRMAN

**Memo No. H. 11019/26/18-JERC**

**Dated Aizawl, the 27<sup>th</sup> February, 2018**

Copy to:

1. The Secretary to Hon'ble Chief Minister, Govt. of Manipur for kind information to the Hon'ble Chief Minister.

2. The Chief Secretary, Govt. of Manipur for kind information and for taking necessary action on the Minutes of the Meeting.
3. All Members / Invitees of the State Advisory Committee for kind information and for taking necessary action on the Minutes of the Meeting.
4. Guard File.

**ATTENDANCE LIST ON  
THE 18<sup>th</sup> MEETING OF STATE ADVISORY COMMITTEE OF MANIPUR**

**Date & Time : 19<sup>th</sup> February, 2018 (Monday), 11:00 a.m.**  
**Venue : Hotel Classic Grande, Dynasty Hall, Imphal, Manipur**

Sl. No.	Name	Designation
1	Er. Ng. Sarat Singh	Chairperson, JERC (M&M)
2	L. Manglem Singh	Director, MANIREDA, Imphal, Manipur
3	L. Bijoy Singh	Director, Agriculture Department
4	L. Sadananda Singh	General Secretary, Senior Citizens for Society, Manipur
5	Elangbam Dolendra Singh	Advisor, All Manipur Power Consumers' Association
6	Robert Khayi	Social Worker, West Phungreitang, Ukhrul
7	S. Rishikumar Singh	President, All Manipur Entrepreneurs' Association
8	M. Brojen Singh	Kakching Wairi, Thongam Leikai, Manipur
9	S.K. Sunny Lamkang	Social Worker, Daapi Village, Chandel District, B.P.O. Chandel, Manipur
10	Shijaguruayum Sadhana Singh	Member, District Consumer Redressal Forum
11	H. Lalthomawi	Advocate, Tipaimukh Road, Hiangtam lamka
12	R.S. Daikho	Reikhumai Taphou, Manipur
13	K. Chuneithang Chiru	Nungshai Chiru Village, Manipur
14	L. Priokumar	Managing Director, MSPDCL (Special Invitee)
15	Lalcharliana Pachuau	Chief (Engg.), JERC (M&M)
16	H. Thanthianga	Asst. Chief (Engg.), JERC (M&M)
17	Y. Satyanarayana	Consultant, ASCI
18	Richard Zothankima	Asst. Secretary, JERC (M&M)
19	Ng. Birjit Singh	OSD (Plg), MSPCL
20	Ng. Chittaranjan Singh	S.O., MANIREDA
21	Dr. Rangitabali Waikhom	Joint Secy., Power, Govt. of Manipur
22	N. Dwijen Singh	E.D. (G & Civil), MSPCL
23	H. Shantikumar	GM (SLDC), MSPCL
24	L. Dinesh Kumar Singh	GM (EC-I), MSPDCL
25	N. Jasobanta Singh	DBM/SSD, MSPCL
26	M. Budha Chandra Sharma	GM/SS, MSPCL
27	Th. Kaminimohon Singh	GM (Purchase), MSPCL
28	TL. Jibankumar Singh	GM (Project), MSPDCL
29	N. Purnima	Deputy Manager, MSPDCL
30	Ronex Oinam	Asst. Manager, MSPDCL
31	Usham Rochy Singh	Manager, MSPDCL
32	H. Binodon Singh	Manager, MSPDCL
33	Ng. Subhachandra Singh	GM (T)
34	S. Kripacharya Singh	Manager, MSPDCL
35	G. Tapankumar Sharma	Manager, MSPCL
36	Khunkholal Lupho	Manager, MSPCL
37	Nongthanban Arun Singh	Deputy Manager, MSPCL
38	Ranjan Wahengbam	Dy. Manager, MSPCL
39	R.K. Prashantha	JERC (M&M)
40	Chandramani Mangsatabam	i/c DGM (Ent. & PP)

## ANNEXURE - II

**LIST OF PERSONS WHO ATTENDED PUBLIC HEARING ON MULTI YEAR ARR & TARIFF  
PETITION FOR FY 2018-19 IN RESPECT OF MSPDCL, MANIPUR**

Venue : Hotel Classic Grande, Imperial Hall, Imphal, Manipur.

Date & Time: 20<sup>th</sup> February, 2018 (Tuesday) from 10:30 a.m to 12:30 p.m.

Sl. No.	NAME	DESIGNATION / PROFESSION
1	Ng. Sarat Singh	Chairperson, JERC (M&M)
2	L. Priyokumar	M.D. i/c MSPDCL
3	Y. Satyanarayana	Consultant, ASCI
4	Indradeep Das	Consultant, Crisil
5	Th. Aton Singh	E.D. (Comm), MSPDCL
6	Th. Jibankumar Singh	G.M. (Project), MSPDCL
7	L. Dinesh Kr. Singh	G.M. (ED-I), MSPDCL
8	Shinghajt K.H.	Manager (Project), MSPDCL
9	Ronex Oinam	Asst. Manager (Comml), MSPDCL
10	Hijam Romen Singh	Deputy Manager (Comml), MSPDCL
11	George Dishinpou	Deputy Manager (Comml), MSPDCL
12	Usham Rocky Singh	Manager (HT Cell), MSPDCL
13	Tesah J. Khongthang	Manager (LT Cell), MSPDCL
14	N. Purnima	Deputy Manager, MSPDCL
15	Jotin Khumancha Oinam	Deputy Manager
16	L. Poiraiton Meitei	Manager (O&M), MSPDCL
17	Th. Sattajeet Singh	A.M., MSPDCL
18	Y. Dayanta Singh	Manager (Projects), MSPDCL
19	Sh. Santosh Sharma	Manager (Power Supply), MSPDCL
20	Lhunkholal Lupho	Manager (TD-III), MSPDCL
21	Kambam Seityajit	Social & RTI Activist
22	Sanasam Chaoba Singh	President, All Manipur Power Consumers Association
23	Konthoujam Sanatomba	Gen. Secy., All Manipur Power Consumers Association
24	Sougrakpam Ibotombi Singh	Treasurer, All Manipur Power Consumers Association
25	E. Dolandra Singh	Advisor, All Manipur Power Consumers Association
26	Richard Zothankima	Asst. Secy., JERC (M&M)
27	Lalchharliana Pachuau	Chief (Engg.), JERC (M&M)
28	H. Thanthianga	Asst. Chief (Engg.), JERC (M&M)
29	Urikhimbam Inoraraj	ISTV Staff Reporter
30	Ksh. Ibochou Singh	Entrepreneurs Association, Talayelpat
31	R.K. Prasantha	JERC (M&M)

## ANNEXURE - III

## Manipur - Expected Revenue during FY 2018-19 from Existing Tariff effective from 01.04.2017

Sl. No.	Category	Consumers	Contracted Load (in kW)	Annual energy Sales (in MU)	Sales/Consumer/Month (in kWh)	Existing Tariff		Revenue /month				Annual Revenue (in Rs lakh)	Average realisation (Rs/kWh)
						Fixed Charge (Rs/kW)	Energy charge (Rs./kWh)	Total Fixed Charges (in Rs lakh)	Energy charge /Consumer (in Rs)	Total energy charge (in Rs lakh)	Total Revenue (in Rs lakhs)		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	<b>Domestic LT</b>												
1)	<b>KJ</b>												
	<b>All units</b>	<b>66442</b>	<b>10543</b>	<b>15.00</b>	<b>18.81</b>	<b>20/connectn</b>	<b>1.60</b>	<b>13.29</b>	<b>30.10</b>	<b>20.00</b>	<b>33.29</b>	<b>399.48</b>	<b>2.66</b>
2)	<b>Normal Domestic</b>												
i)	First 100 kWh	197447		80.00	33.76		3.30		111.41	219.98			
ii)	Next 100 kWh	75941		100.00	109.73		4.00		368.92	280.16			
iii)	Balance above 200 kWh	30376		157.00	430.71		5.10		1906.62	579.15			
	<b>Sub Total (2)</b>	<b>303764</b>	<b>483646</b>	<b>337.00</b>	<b>92.45</b>	<b>60</b>		<b>290.19</b>	<b>2386.95</b>	<b>1079.29</b>	<b>1369.48</b>	<b>16433.76</b>	<b>4.88</b>
	<b>Total Domestic LT</b>	<b>370206</b>	<b>494189</b>	<b>352.00</b>	<b>79.24</b>			<b>303.48</b>	<b>2417.05</b>	<b>1099.29</b>	<b>1402.77</b>	<b>16833.24</b>	<b>4.78</b>
2	<b>Non-Domestic/Commercial</b>												
a)	<b>LT</b>												
i)	First 100 kWh	9781		6.00	51.12		4.50		230.04	22.50			
ii)	Next 100 kWh	3248		6.00	153.94		5.50		746.67	24.25			
iii)	Balance above 200 kWh	3248		30.00	769.70		6.60		4760.02	154.61			
	<b>Sub Total LT</b>	<b>16277</b>	<b>38561</b>	<b>42.00</b>	<b>215.03</b>	<b>80</b>		<b>30.85</b>	<b>5736.73</b>	<b>201.36</b>	<b>232.21</b>	<b>2786.52</b>	<b>6.63</b>
b)	Commercial HT	37	1112	6.00	13513.51	100	6.50	1.11	87837.82	32.50	<b>33.61</b>	403.32	<b>6.72</b>
	<b>Total Commercial</b>	<b>16314</b>	<b>39673</b>	<b>48.00</b>	<b>245.19</b>			<b>31.96</b>	<b>93574.55</b>	<b>233.86</b>	<b>265.82</b>	<b>3189.84</b>	<b>6.65</b>
3	<b>Public Lighting</b>	<b>441</b>	<b>1150</b>	<b>5.00</b>	<b>944.82</b>	<b>65</b>	<b>6.00</b>	<b>0.75</b>	<b>5668.92</b>	<b>25.00</b>	<b>25.75</b>	<b>309.00</b>	<b>6.18</b>
4	<b>Public Water Works</b>												
a)	PWW LT	15	191	2.00	11111.11	100	6.35	0.19	70555.55	10.58	<b>10.77</b>	129.24	<b>6.46</b>
b)	PWW HT	173	14918	17.00	8188.82	100	5.75	14.92	47085.72	81.46	<b>96.38</b>	1156.56	<b>6.80</b>
	<b>Total PWW</b>	<b>188</b>	<b>15109</b>	<b>19.00</b>	<b>8421.99</b>			<b>15.11</b>	<b>117641.27</b>	<b>92.04</b>	<b>107.15</b>	<b>1285.80</b>	<b>6.77</b>
5	<b>Irrigation &amp; Agri</b>												
a)	Irr. & Agri LT	39	118	1.20	2564.10	60	3.25	0.07	8333.33	3.25	<b>3.32</b>	39.84	<b>3.32</b>

**MSPDCL Tariff Order for FY 2018-19**

b)	Irr. & Agl HT	25	628	0.77	2566.67	100	3.15	0.63	8085.01	2.02	<b>2.65</b>	31.80	<b>4.13</b>
	<b>Total Irr. &amp; Agl LT</b>	<b>64</b>	<b>746</b>	<b>1.97</b>	<b>2565.10</b>			<b>0.70</b>	<b>16418.34</b>	<b>5.27</b>	<b>5.97</b>	<b>71.64</b>	<b>3.64</b>
6	<b>Industrial</b>												
a)	Micro & Small LT	<b>2328</b>	18938	19.00	680.13	65	3.50	12.31	2380.46	55.42	<b>67.73</b>	812.76	<b>4.28</b>
b)	Medium HT	73	1116	4.00	4566.21	100	4.50	1.12	20547.95	15.00	<b>16.12</b>	193.44	<b>4.84</b>
c)	Large HT	28	4013	5.00	14880.95	100	5.60	4.01	83333.32	23.33	<b>27.34</b>	328.08	<b>6.56</b>
	<b>Total Industrial</b>	<b>2429</b>	<b>24067</b>	<b>28.00</b>	<b>960.61</b>			<b>17.44</b>	<b>106261.73</b>	<b>93.75</b>	<b>111.19</b>	<b>1334.28</b>	<b>4.77</b>
7	<b>Bulk Supply HT</b>	<b>726</b>	<b>28867</b>	<b>106.00</b>	<b>12167.13</b>	<b>100</b>	<b>5.00</b>	<b>28.87</b>	<b>60835.65</b>	<b>441.67</b>	<b>470.54</b>	<b>5646.48</b>	<b>5.33</b>
	<b>Grand Total</b>	<b>390368</b>	<b>603801</b>	<b>559.97</b>	<b>119.54</b>			<b>398.31</b>	<b>402817.51</b>	<b>1990.88</b>	<b>2389.19</b>	<b>28670.28</b>	<b>5.12</b>

## ANNEXURE - IV

## Manipur - Expected Revenue during FY 2018-19 from approved Tariff effective from 01.04.2018

Sl. No.	Category	Consumers	Contracted Load (in kW)	Annual energy Sales (in MU)	Sales/Consumer/Month (in kWh)	Approved Tariff		Revenue /month				Annual Revenue (in Rs lakh)	Average realisation (Rs/kWh)
						Fixed Charge (Rs/kW)	Energy charge (Rs./kWh)	Total Fixed Charges (in Rs lakh)	Energy charge /Consumer (in Rs)	Total energy charge (in Rs lakh)	Total Revenue (in Rs lakhs)		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
<b>1</b>	<b>Domestic LT</b>												
1)	<b>KJ</b>												
	<b>All units</b>	<b>66442</b>	<b>10543</b>	<b>15.00</b>	<b>18.81</b>	<b>20/connectn</b>	<b>1.70</b>	<b>13.29</b>	<b>31.98</b>	<b>21.25</b>	<b>34.54</b>	<b>414.48</b>	<b>2.76</b>
<b>2)</b>	<b>Normal Domestic</b>												
i)	First 100 kWh	197447		80.00	33.76		3.60		121.54	239.98			
ii)	Next 100 kWh	75941		100.00	109.73		4.35		402.33	305.53			
iii)	Balance above 200 kWh	30376		157.00	430.71		5.60		2086.98	633.94			
	<b>Sub Total (2)</b>	<b>303764</b>	<b>483646</b>	<b>337.00</b>	<b>92.45</b>	<b>60</b>		<b>290.19</b>	<b>2610.85</b>	<b>1179.45</b>	<b>1469.64</b>	<b>17635.68</b>	<b>5.23</b>
	<b>Total Domestic LT</b>	<b>370206</b>	<b>494189</b>	<b>352.00</b>	<b>79.24</b>			<b>303.48</b>	<b>2642.83</b>	<b>1200.70</b>	<b>1504.18</b>	<b>18050.16</b>	<b>5.13</b>
<b>2</b>	<b>Non-domestic/Commercial</b>												
a)	<b>LT</b>												
i)	First 100 kWh	9781		6.00	51.12		5.00		255.60	25.00			
ii)	Next 100 kWh	3248		6.00	153.94		6.00		823.64	26.75			
iii)	Balance above 200 kWh	3248		30.00	769.70		7.10		5144.87	167.11			
	<b>Sub Total LT</b>	<b>16277</b>	<b>38561</b>	<b>42.00</b>	<b>215.03</b>	<b>80</b>		<b>30.85</b>	<b>6224.11</b>	<b>218.86</b>	<b>249.71</b>	<b>2996.52</b>	<b>7.13</b>
b)	<b>Commercial HT</b>	<b>37</b>	<b>1112</b>	<b>6.00</b>	<b>13513.51</b>	<b>100</b>	<b>7.00</b>	<b>1.11</b>	<b>94594.57</b>	<b>35.00</b>	<b>36.11</b>	<b>433.32</b>	<b>7.22</b>
	<b>Total Commercial</b>	<b>16314</b>	<b>39673</b>	<b>48.00</b>	<b>245.19</b>			<b>31.96</b>	<b>100818.68</b>	<b>253.86</b>	<b>285.82</b>	<b>3429.84</b>	<b>7.15</b>
<b>3</b>	<b>Public Lighting</b>	<b>441</b>	<b>1150</b>	<b>5.00</b>	<b>944.82</b>	<b>65</b>	<b>6.50</b>	<b>0.75</b>	<b>6141.33</b>	<b>27.08</b>	<b>27.83</b>	<b>333.96</b>	<b>6.68</b>
<b>4</b>	<b>Public Water Works</b>												
a)	PWW LT	15	191	2.00	11111.11	100	6.70	0.19	74444.44	11.17	<b>11.36</b>	136.32	<b>6.82</b>
b)	PWW HT	173	14918	17.00	8188.82	100	6.10	14.92	49951.80	86.42	<b>101.34</b>	1216.08	<b>7.15</b>
	<b>Total PWW</b>	<b>188</b>	<b>15109</b>	<b>19.00</b>	<b>8421.99</b>			<b>15.11</b>	<b>124396.24</b>	<b>97.59</b>	<b>112.70</b>	<b>1352.40</b>	<b>7.12</b>

**MSPDCL Tariff Order for FY 2018-19**

<b>5</b>	<b>Irrigation &amp; Agri</b>												
a)	Irr. & Agl LT	39	118	1.20	2564.10	60	3.50	0.07	8974.35	3.50	<b>3.57</b>	42.84	<b>3.57</b>
b)	Irr. & Agl HT	25	628	0.77	2566.67	100	3.30	0.63	8470.01	2.12	<b>2.75</b>	33.00	<b>4.29</b>
	<b>Total Irr. &amp; Agl LT</b>	<b>64</b>	<b>746</b>	<b>1.97</b>	<b>2565.10</b>			<b>0.70</b>	<b>17444.36</b>	<b>5.62</b>	<b>6.32</b>	<b>75.84</b>	<b>3.85</b>
<b>6</b>	<b>Industrial</b>												
a)	Micro & Small LT	<b>2328</b>	18938	19.00	680.13	65	3.75	12.31	2550.49	59.38	<b>71.69</b>	860.28	<b>4.53</b>
b)	Medium HT	<b>73</b>	1116	4.00	4566.21	100	4.90	1.12	22374.43	16.33	<b>17.45</b>	209.40	<b>5.24</b>
c)	Large HT	<b>28</b>	4013	5.00	14880.95	100	6.10	4.01	90773.80	25.42	<b>29.43</b>	353.16	<b>7.06</b>
	<b>Total Industrial</b>	<b>2429</b>	<b>24067</b>	<b>28.00</b>	<b>960.61</b>			<b>17.44</b>	<b>115698.72</b>	<b>101.13</b>	<b>118.57</b>	<b>1422.84</b>	<b>5.08</b>
<b>7</b>	<b>Bulk Supply HT</b>	<b>726</b>	<b>28867</b>	<b>106.00</b>	<b>12167.13</b>	<b>100</b>	<b>5.40</b>	<b>28.87</b>	<b>65702.50</b>	<b>477.00</b>	<b>505.87</b>	<b>6070.44</b>	<b>5.73</b>
	<b>Grand Total</b>	<b>390368</b>	<b>603801</b>	<b>559.97</b>	<b>119.54</b>			<b>398.31</b>	<b>432844.66</b>	<b>2162.98</b>	<b>2561.29</b>	<b>30735.48</b>	<b>5.49</b>







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

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