

# MEGHALAYA STATE ELECTRICITY REGULATORY COMMISSION

1<sup>st</sup> Floor (Front Block Left Wing), New Administrative Building,  
Lower Lachumiere, Shillong – 793 001  
East Khasi Hills District, Meghalaya

## CASE NO. 05

### In the matter of:

Approval of Business Plan for the Control Period from FY 2018-19 to FY 2020-21.

And

Meghalaya Power Distribution Corporation Limited ..... **Petitioner**

**Coram**

**WMS Pariat, IAS (Retd.)**

**Chairman**

**ORDER**

**Date: 01.11.2017**

1. The Meghalaya Power Distribution Corporation Limited (herein after referred to as MePDCL) is a deemed licensee in terms of section 14 of the Electricity Act, 2003 (herein after referred to as Act), engaged in the business of distribution of electricity in the State of Meghalaya.
2. In exercise of powers conferred by clause (Zc), (Zd) and (Ze) of sub-section 2 of section 18, read with sections 61, 62, 64, 65 and 86 of the Act and all other powers enabling on that behalf and after previous publication, the Meghalaya State Electricity Regulatory Commission (here in after referred to as MSERC or Commission) issued MSERC (Multi-Year Tariff) Regulations, 2014 (herein after referred to as MYT Regulations, 2014).
3. The Commission has amended and substituted the sub-Regulation 1.4 of MYT Regulations, 2014 as reproduced below:  
*“1.4. These Regulations shall be applicable for the determination of Tariff in all cases covered under these Regulations effective from 1<sup>st</sup> April, 2015 onwards to 31<sup>st</sup> March, 2018 and also for the next MYT Control Period beginning from 1<sup>st</sup> April, 2018 to 31<sup>st</sup> March, 2021”.*

4. As per provisions of sub-Regulations 1.4 (amended) and Regulations 8 and 78 of MYT Regulations, 2014, MePDCL has filed the Petition for approval of its Business Plan for three years Control Period of FY 2018-19 to FY 2020-21 with details for each year of the Control Period.
5. As per provisions of sub-Regulations 8.1, 8.2 and 8.3, the Business Plan shall comprise of but not limited to detailed category-wise sales and demand projections, power procurement plan, capital investment plan, financing plan and physical targets.
6. In exercise of powers vested in Clause 8.4 under Regulation 8 of MYT Regulations, 2014, this order is passed by the Commission approving the Business Plan for three years control period of FY 2018-19 to FY 2020-21 based on the information submitted by MePDCL.
7. MePDCL shall submit the MYT Petition for Control Period from FY 2018-19 to FY 2020-21 on or before 30<sup>th</sup> November, 2017 in accordance with Regulation 18 of MYT Regulations, 2014.
8. This Order shall be placed on the website of the Commission and a copy shall be sent to MePDCL and MeECL.

**WMS Pariat**  
**Chairman**

# 1. Introduction

---

## 1.1 Meghalaya Power Distribution Corporation Limited (MePDCL)

MePDCL is a distribution licensee within the meaning of section 2(17) of Electricity Act, 2003. MePDCL started functioning as an independent commercial entity from 1<sup>st</sup> April, 2013 after unbundling of the erstwhile Meghalaya State Electricity Board (MeSEB) as per the State Government Notification"; the Meghalaya Power sector Reforms Transfer Scheme 2010". As per Meghalaya Power Sector Transfer Scheme, MePDCL has been vested with the function of distributing power by the State Government of Meghalaya and the Business Scope of the Company falls within the legal framework as specified in the Act and can include:

- To supply electricity on an application of the consumer in accordance with the provisions specified in the Electricity Act 2003
- To develop the required distribution infrastructure within the State of Meghalaya to meet the demand of the consumers
- To operate & maintain the existing distribution infrastructure efficiently & effectively
- Merchant Sale of Power in the event of availability of surplus power after meeting the requirement of own consumers with whom the capacity is contracted presently

## 1.2 Meghalaya State Electricity Regulatory Commission (MSERC)

MSERC is an independent statutory body constituted under the provisions of the Electricity Regulatory Commission Act, 1998 which was superseded by Electricity Act, 2003.

The Commission is vested with the authority of regulating the power sector in the State inter alia, including determination of Tariff of electricity consumers.

## 1.3 MSERC (Multi Year Tariff) Regulations, 2014

In exercise of the powers conferred by clauses (Ze), (Zd) and (Ze) of sub-section (2) of section 18, read with sections 61,62,64,65 and 86 of the electricity Act, 2003 and

all other powers enabling on that behalf and after previous publications, the Commission has issued the Meghalaya State electricity Regulatory Commission (Multi-Year Tariff) Regulations, 2014.

The Commission has amended and substituted the Regulation 1.4 of the above Regulations as reproduced below:

*“1.4. These Regulations shall be applicable for the determination of tariff in all cases covered under these regulations effective from 1<sup>st</sup> April, 2015 and onwards upto 31<sup>st</sup> March, 2018 and also for the 31<sup>st</sup> March, 2018 and also for the next MYT Control Period beginning from 1<sup>st</sup> April, 2018 to 31<sup>st</sup> March, 2021”.*

#### **1.4 Petition for Approval of Business Plan for the Control Period FY 2018-19 to FY 2020-21**

As per the above amended Regulation 1.4 and Regulations 8 & 78 of the MYT Regulations, 2014, MePDCL has to file a Business Plan for the Second Control Period of FY 2018-19 to FY 2020-21. The relevant Regulations are reproduced below:

##### ***“8 Business Plan***

*8.1 The Generating Company, Transmission licensee, and Distribution Licensee for Distribution Business, shall file a Business Plan for the Control Period of three (3) financial years from 1st April 2015 to 31st March 2018, which shall comprise but not be limited to detailed category-wise sales and demand projections, power procurement plan, capital investment plan, financing plan and physical targets, in accordance with guidelines and formats, as may be prescribed by the Commission from time to time:*

*Provided that a mid-term review of the Business Plan/Petition may be sought by the Generating Company, Transmission Licensee and Distribution Licensee through an application filed three (3) months prior to the specified date of filing of Petition for truing up for the second year of the Control Period and tariff determination for the third year of the Control Period.*

*8.2 The capital investment plan shall show separately, on-going projects that will spill over into the Control Period, and new projects (along with justification) that will commence in the Control Period but may be completed within or beyond the Control Period. The Commission shall consider and approve the capital investment plan for*

*which the Generating Company, Transmission Licensee, and Distribution Licensee for the Distribution Business, may be required to provide relevant technical and commercial details.*

*8.3 The Distribution Licensee shall project the power purchase requirement based on the Merit Order Dispatch principles of all Generating Stations considered for power purchase, the Quantum of Renewable Purchase Obligation (RPO) under Meghalaya State Electricity Regulatory Commission (Renewal Energy Purchase Obligation and Compliance) Regulations, 2010 and the target set, if any, for Energy Efficiency (EE) and Demand Side Management (DSM) schemes.*

*8.4 The Generating Company, Transmission Licensee, and Distribution Licensee for the Distribution Business, shall get the Business Plan approved by the Commission.*

**78 Business Plan**

*78.1 The Distribution Licensee shall submit a Business Plan full details as stipulated by the Commission from time to time and in the manner specified in Chapter-2 of these Regulations. The business plan shall comprise among other details like capital investment plan, financing plan and fiscal targets in accordance with the guidelines/formats as may be stipulated by the Commission from time to time.”*

**1.5 Approach of the Order**

The MSERC Multi-Year Tariff Regulations, 2014 provides for approval of Business Plan of MePDCL for the three years Control Period FY 2018-19 to FY 2020-21.

MePDCL has filed the petition before the Commission for approval of Business Plan for MYT Control Period FY 2018-19 to FY 2020-21.

The Commission has examined the petition and observed that certain additional data is required and so directed the Petitioner to submit the additional data which the MePDCL has submitted vide their letter No. MSERC/MeECL/Tariff/2017/132 dated 20/09/2017. The Commission has undertaken approval of Business Plan for the Control Period FY 2018-19 to FY 2020-21 based on the MYT Regulations, 2014.

## **1.6 Contents of the Order**

This Order is in three Chapters as detailed below:

Chapter 1: Introduction

Chapter 2: Summary of Business Plan submitted by the Petitioner for Control Period FY 2018-19 to FY 2020-21

Chapter 3: Approval of Business Plan for Control Period FY 2018-19 to FY 2020-21.

## 2. Summary of Business Plan Petition for Control Period FY 2018-19 to FY 2020-21

### 2.1 Business Plan Petition

MePDCL has submitted the petition on 30.08.2017 seeking approval of Business Plan for the Control Period FY 2018-19 to FY 2020-21. The summary of the Business Plan petition is as detailed under.

### 2.2 Rollout Plan

MePDCL has come out with the following rollout plan for FY 2017-18 and for the Control Period FY 2018-19 to FY 2020-21 for extension of distribution lines and sub-stations on the capital investment plan as shown in the Table below:

**Table 2.1 : Rollout Plan from FY 2017-18 to FY 2020-21**

Plan	Existing length/Capacity	Rollout Plan					Total expected length/ Capacity by FY 2021
		2017-18	2018-19	2019-20	2020-21	Total	
Lines							
Length of 33 KV (Ckt Km)	2541.36	112	463.5	301.4	169.6	1046.5	3587.86
Length of 11 KV (Ckt Km)	13374.03	1257.9	-	-	-	1257.86	14631.89
Length of LT (Ckt Km)	15494.40	1743.99	-	-	-	1743.99	17238.39
Sub-Station							
Capacity 33/11 Sub Stations (MVA)	453.57	25.9	270	80	149.545	525.445	979.016
Capacity of Distribution Sub Station (MVA)	674.71	46.224	-	-	-	46.224	720.934

### 2.3 Category-wise Energy Sales

MePDCL has projected the category-wise energy sales for FY 2016-17 (Actual) and projections for FY 2017-18 and for the Control Period FY 2018-19 to FY 2020-21 as shown in the Table below:

**Table 2.2: Energy Sales**

Categories	FY 2016-17 (MU)	5 Year CAGR (%)	Growth Rate Considered (%)	FY 2017-18 (P) (MU)	FY 2018-19 (P) (MU)	FY 2019-20 (P) (MU)	FY 2020-21 (P) (MU)
Domestic LT	378.33	3.19%	3.19%	391.71	404.19	417.08	430.37
Commercial LT	61.78	2.16%	2.16%	63.22	64.58	65.98	67.41
General Purpose	21.73	7.98%	7.98%	23.61	25.49	27.52	29.72
Industrial LT	5.06	-5.87%	0.00%	5.06	5.06	5.06	5.06
Water Supply LT	10.41	3.55%	3.55%	10.89	11.28	11.68	12.10
KutirJyoti	24.62	20.28%	20.28%	29.61	35.61	42.83	51.52
Public Lighting	0.45	-17.74%	0.00%	0.45	0.45	0.45	0.45
Agriculture	0.10	-24.73%	0.00%	0.10	0.10	0.10	0.10
Crematorium	0.20	1.87%	1.87%	0.20	0.21	0.21	0.21
Commercial HT	25.75	5.25%	5.25%	27.10	28.53	30.02	31.60
Domestic HT	20.47	0.25%	0.25%	20.52	20.57	20.62	20.67
Industrial HT	141.65	-13.32%	0.00%	141.65	141.65	141.65	141.65
Water Supply HT	24.07	-3.75%	0.00%	24.07	24.07	24.07	24.07
Bulk Supply	64.75	-1.63%	0.00%	64.75	64.75	64.75	64.75
Industrial EHT	173.64	-4.93%	0.00%	173.64	173.64	173.64	173.64
Assam (ASEB)	17.75	-1.46%	0.00%	1.00	1.00	1.00	1.00
Short Term Sale	-			-	-	-	-
Swapping	-			-	-	-	-
<b>Total Sale</b>	<b>972.38</b>			<b>977.59</b>	<b>1001.19</b>	<b>1026.68</b>	<b>1054.33</b>

## 2.4 Category-wise number of consumers and connected load

MePDCL has projected the category-wise number of consumers and connected load for FY 2016-17 (Actual) and projections for FY 2016-17 and the Control Period FY 2018-19 to FY 2020-21 as shown in the Table below:

**Table 2.3: Number of consumers and Connected Load**

Consumer Category	FY 2016-17 (A)		FY 2017-18 (P)		FY 2018-19 (P)		FY 2019-20 (P)		FY 2020-21 (P)	
	No. of consumers	Connected load (MVA)	No. of consumers	Connected load (MVA)	No. of consumers	Connected load (MVA)	No. of consumers	Connected load (MVA)	No. of consumers	Connected load (MVA)
<b>LT CATEGORY</b>										
Domestic (DLT)	322430	386.84	345204	403.43	369586	420.74	395690	438.79	423638	457.61
Commercial (CLT)	23868	69.26	24877	73.05	25929	77.05	27025	81.27	28167	85.72
Industrial (ILT)	835	12.33	836	12.34	837	12.35	838	12.37	839	12.38
Agriculture (Ape)	23	0.28	23	0.28	23	0.28	23	0.28	23	0.28
Public Lighting (PL)	57	1.01	57	1.27	57	1.60	57	2.02	57	2.54
Water Supply (WSLT)	369	6.73	369	7.00	369	7.29	369	7.58	369	7.88
General Purpose (GP)	2222	13.28	2284	13.78	2348	14.29	2414	14.83	2481	15.38
KutirJyoti (KJT)	64212	27.38	69236	33.01	74654	39.79	80495	47.97	86793	57.83
Crematorium (CRM)	1	0.14	1	0.14	1	0.14	1	0.14	1	0.14
<b>Sub Total</b>	<b>414017</b>	<b>517.24</b>	<b>442887</b>	<b>544.30</b>	<b>473804</b>	<b>573.53</b>	<b>506912</b>	<b>605.23</b>	<b>542368</b>	<b>639.76</b>

Consumer Category	FY 2016-17 (A)		FY 2017-18 (P)		FY 2018-19 (P)		FY 2019-20 (P)		FY 2020-21 (P)	
	No. of consumers	Connect ed load (MVA)	No. of consumers	Connect ed load (MVA)	No. of consumers	Connect ed load (MVA)	No. of consumers	Connect ed load (MVA)	No. of consumers	Connect ed load (MVA)
<b>HT CATEGORY</b>										
Domestic HT	77	18.37	79	19.02	81	19.71	84	20.41	87	21.15
Water Supply (WSHT)	31	7.79	31	7.80	31	7.80	31	7.80	31	7.81
Bulk Supply (BS)*	164	44.88	165	44.88	166	44.88	167	44.88	168	44.88
Commercial (CHT)	200	23.55	212	25.74	224	28.14	237	30.76	251	33.62
Industrial (IHT)	129	96.13	129	96.13	129	96.13	129	96.13	129	96.13
<b>Sub Total</b>	<b>601</b>	<b>190.72</b>	<b>616</b>	<b>193.57</b>	<b>631</b>	<b>196.65</b>	<b>648</b>	<b>199.98</b>	<b>666</b>	<b>203.58</b>
<b>EHT CATEGORY</b>										
Industrial	6	68.70	6	68.70	6	68.70	6	68.70	6	68.70
<b>Grand Total</b>	<b>414624</b>	<b>776.66</b>	<b>443509</b>	<b>806.57</b>	<b>474441</b>	<b>838.88</b>	<b>507566</b>	<b>873.91</b>	<b>543040</b>	<b>912.04</b>

## 2.5 Loss Trajectory

MePDCL has submitted the Distribution loss trajectory and Aggregate Technical and Commercial Loss (AT&C Loss) trajectory for FY 2016-17 (Actual) and projections for FY 2017-18 and for the Control Period FY 2018-19 to FY 2020-21 as shown in the Tables below:

**Table2.4: Distribution Loss Trajectory**

Particulars	FY 2017 (A)	FY 2018 (P)	FY 2019 (P)	FY 2020 (P)	FY 2021 (P)
<b>T&amp;D Loss</b>	32.65%	22.76	16.56	12.19	12.19

**Table 2.5: AT&C Loss Trajectory**

Particulars	FY 2017 (A)	FY 2018 (P)	FY 2019 (P)	FY 2020 (P)	FY 2021 (P)
<b>AT&amp;C Loss</b>	34.76%	27.50%	21.50%	15.00%	15.00%

## 2.6 Power Procurement

MePDCL has submitted the Power Procurement (in MW) from various long term sources for FY 2016-17 (Actual) and projections for FY 2017-18 and for the Control Period FY 2018-19 to FY 2020-21 as shown in the Table below:

**Table 2.6: Source-wise Power Procurement (MW)**

Sl No	Name of Station	Capacity (MW)	Actual Availability	Projected Availability	Projected Availability	Projected Availability	Projected Availability
			2016-17	2017-18	2018-19	2019-20	2020-21
<b>A</b>	<b>MePGCL</b>						
1	Umiam I	4X9	36	36.00	36.00	36.00	36.00
2	Umiam II	2X10	20	20.00	20.00	20.00	20.00
3	Umiam III	2X30	60	60.00	60.00	60.00	60.00
4	Umiam IV	2X30	60	60.00	60.00	60.00	60.00
5	MLHEP	3X42	126	126.00	126.00	126.00	126.00
6	Umtru	4X2.8	11.2	11.20	11.20	11.20	11.20
7	Sunapani	1X1.5	1.5	1.50	1.50	1.50	1.50
8	New Umtru	2X20	0	40.00	40.00	40.00	40.00
9	Ganol	2X12.5	0	0.00	25.00	25.00	25.00
10	Lakroh	1X1.5	0	0.00	1.50	1.50	1.50
<b>Sub Total MePGCL</b>		<b>381.2</b>	<b>314.7</b>	<b>354.7</b>	<b>381.2</b>	<b>381.2</b>	<b>381.2</b>
<b>B</b>	<b>NEEPCO</b>						
1	KOPILI	200	35.05	35.05	35.05	35.05	35.05
2	KOPILI-Ext	25	3.45	3.45	3.45	3.45	3.45
3	KHANDONG	50	8.51	8.51	8.51	8.51	8.51
4	RANGANADI	405	47.10	47.10	47.10	47.10	47.10
5	DOYANG	75	8.69	8.69	8.69	8.69	8.69
6	AGBPP	291	34.74	34.74	34.74	34.74	34.74
7	AGTPP CC	130	16.57	16.57	16.57	16.57	16.57
8	Pare	110	0.00	9.00	9.00	9.00	9.00
<b>Sub-Total NEEPCO</b>		<b>1286</b>	<b>154</b>	<b>163.12</b>	<b>163.12</b>	<b>163.12</b>	<b>163.12</b>
<b>C</b>	<b>NHPC-Loktak</b>	<b>105</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>D</b>	<b>OTPC-Pallatana</b>	<b>726</b>	<b>78.99</b>	<b>78.99</b>	<b>78.99</b>	<b>78.99</b>	<b>78.99</b>
<b>E</b>	<b>NTPC</b>						
1	BTPS	250	30.26	60.52	90.78	90.78	90.78
2	FSTPS	1600	10.84	10.84	10.84	10.84	10.84
3	KHSTPS-I	840	5.69	5.69	5.69	5.69	5.69
4	KHSTPS-II	1500	20.33	20.33	20.33	20.33	20.33
5	TSTPS-I	1000	6.78	6.78	6.78	6.78	6.78
<b>Sub -Total NTPC</b>		<b>5190</b>	<b>73.91</b>	<b>104.17</b>	<b>134.43</b>	<b>134.43</b>	<b>134.43</b>
<b>TOTAL</b>		<b>7688</b>	<b>622</b>	<b>701</b>	<b>758</b>	<b>758</b>	<b>758</b>

**2.7 Energy Availability**

Based on the above power procurement plan, MePDCL has estimated the energy availability (in MU) for FY 2016-17 (Actual) and projections for FY 2017-18 and for the Control Period FY 2018-19 to FY 2020-21 as shown in the Table below:

**Table 2.7: Source-wise Energy Availability (MU)**

S No	Name of Station	Actual (MU)	Projected Availability (MU)	Projected Availability (MU)	Projected Availability (MU)	Projected Availability (MU)
		2016-17	2017-18	2018-19	2019-20	2020-21
<b>A</b>	<b>MePGCL</b>					
1	Umiam I	95.55	100.46	100.46	100.46	100.46
2	Umiam II	49.89	50.23	50.23	50.23	50.23
3	Umiam III	64.53	65.85	105.12	105.12	105.12
4	Umiam IV	164.94	191.17	191.17	191.17	191.17
5	MLHEP	441.00	410.22	410.22	410.22	410.22
6	Umtru	0.00	0.00	0.00	0.00	0.00
7	Sunapani	8.00	5.85	5.85	5.85	5.85
8	New Umtru	0.00	160.00	219.00	219.00	219.00
9	Ganol	0.00	0.00	76.65	76.65	76.65
10	Lakroh	0.00	0.00	5.85	5.85	5.85
	Sub Total MePGCL	<b>823.922</b>	<b>983.768</b>	<b>1164.5464</b>	<b>1164.5464</b>	<b>1164.5464</b>
<b>B</b>	<b>NEEPCO</b>					
1	KOPILI	75.13	82.23	82.23	82.23	82.23
2	KOPILI-Ext	6.73	8.48	8.48	8.48	8.48
3	KHANDONG	13.77	17.53	17.53	17.53	17.53
4	RANGANADI	14.53	131.25	131.25	131.25	131.25
5	DOYANG	1.90	23.65	23.65	23.65	23.65
6	AGBPP	50.20	187.65	187.65	187.65	187.65
7	AGTPP CC	32.32	119.00	119.00	119.00	119.00
8	Pare	0.00	31.53	31.53	31.53	31.53
	Sub-Total NEEPCO	<b>194.58</b>	<b>601.32</b>	<b>601.32</b>	<b>601.32</b>	<b>601.32</b>
<b>C</b>	<b>NHPC-Loktak</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>D</b>	<b>OTPC-Pallatana</b>	<b>436.79</b>	<b>436.79</b>	<b>436.79</b>	<b>436.79</b>	<b>436.79</b>
<b>E</b>	<b>NTPC*</b>					
1	BTPS	189.67	372.00	558.00	558.00	558.00
2	FSTPS	0.00	48.73	48.73	48.73	48.73
3	KHSTPS-I	0.00	50.45	50.45	50.45	50.45
4	KHSTPS-II	0.00	251.12	251.12	251.12	251.12
5	TSTPS-I	0.00	67.85	67.85	67.85	67.85
	Sub -Total NTPC	<b>189.67</b>	<b>790.14</b>	<b>976.14</b>	<b>976.14</b>	<b>976.14</b>
	<b>TOTAL</b>	<b>1645</b>	<b>2812</b>	<b>3179</b>	<b>3179</b>	<b>3179</b>

## 2.8 Energy Balance

Based on the energy sales projected, the energy availability projected, MePDCL has projected the energy balance for FY 2016-17 (Actual) and projections for FY 2017-18 and for the Control Period FY 2018-19 to FY 2020-21 as shown in the Table below:

**Table 2.8: Energy Balance**

S. No.	Particulars	Calculation	2016-17	2017-18	2018-19	2019-20	2020-21
1	Power purchased from the Eastern Region (ER)	A	189.67	790.14	976.14	976.14	976.14
2	Inter-state transmission loss for ER	B	2.27%	2.12%	2.12%	2.12%	2.12%
3	Net power purchased from the ER	$C=A*(1-B)$	185.36	773.39	955.45	955.45	955.45
4	Power purchased from the North - Eastern Region (NER)	D	631.37	1038.11	1038.11	1038.11	1038.11
5	Inter-state transmission loss for NER	E	2.70%	2.63%	2.63%	2.63%	2.63%
6	Net power available at state bus from external sources on long term	$F=(C+D)*(1-E)$	794.68	1,763.86	1,941.13	1,941.13	1,941.13
7	Power purchased from generating stations within the state	G	823.92	983.77	1164.55	1164.55	1164.55
8	Power purchased from other sources	H	62.02	0.00	0.00	0.00	0.00
	<b>Total Availability at MePDCL Periphery</b>	<b><math>I=F+G+H</math></b>	<b>1680.62</b>	<b>2747.63</b>	<b>3105.67</b>	<b>3105.67</b>	<b>3105.67</b>
9	Power to be sold to consumers within the state (including ASEB)	J	972.38	977.59	1001.19	1026.68	1054.33
10	Transmission & Distribution Losses (%)	K	32.65%	22.76%	16.56%	12.19%	12.19%
11	Net power requirement at state bus for sale of power within the state	$L=J/(1-K)$	1443.78	1265.65	1199.89	1169.20	1200.69
12	Surplus Power (for sale outside state)	$M = I - L$	236.85	1481.98	1905.78	1936.47	1904.98

## 2.9 Capital Investment

MePDCL has submitted that the capital expenditure for the control period FY 2018-19 to FY 2020-21 has been prepared keeping in view various long term needs and areas. The summary of the proposed projects and cost are as shown in the Table below:

**Table 2.9: Summary of Project Costs**

Schemes	Project Cost (Rs. Cr)	Funding Pattern (Rs. Cr)			
		Equity	Loan	Grant	Consumer Contribution
New Schemes					
NER Power System Improvement Project	0.20		0.01	0.19	
Construction/ Upgradation of lines	94.95		26.59	68.36	
Construction/ Upgradation ofSubstations	156.20		43.74	112.46	
System Protection, Control system, metering etc.	8.64		2.42	6.22	
Uday	360.80		101.02	259.77	
Scheme funded by Power System Development Fund	2.97			2.97	
DeendayalUpadhyaya Gram JyotiYojna	41.92			41.92	
Total	665.68		173.77	491.90	
Ongoing Schemes					
NER Power System Improvement Project	178.03		5.79	110.07	
Integrated Power Development Scheme	62.04		6.20	55.84	
DeendayalUpadhyaya Gram JyotiYojna	268.13			268.13	
Indo Bangla Border Flood Lighting	107.92				107.92
Total	553.95		12.00	434.03	107.92

## 2.10 Funding Requirement

MePDCL has proposed the year-wise funding requirement for the projected capital expenditure for FY 2017-18 and for the Control Period FY 2018-19 to FY 2020-21 as shown in the Table below:

**Table 2.10: Funding Requirement**

Sl. No.	Category	Fund Requirement (in RsCrores)				
		FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	Total
1	33KV, 11KV and LT Lines		37.10	61.03	33.92	<b>132.05</b>
2	33/11 & Distribution Sub Station		8.00	133.18	31.70	<b>172.88</b>
3	Rural Electrification					
4	UDAY	111.67	205.82	38.31	5.00	<b>360.80</b>
	<b>Total Fund Requirement (Distribution)</b>	<b>111.67</b>	<b>250.92</b>	<b>232.52</b>	<b>70.61</b>	<b>665.72</b>

## 2.11 Prayer to the Commission

MePDCL has requested the Commission to pass appropriate order on the following:

1. To approve the Business Plan for the Control Period FY 2018-19 to FY 2020-21.
2. To approve principles and methodology proposed by MePDCL.
3. To pass such orders as the Commission may deem fit and proper in view of the facts and circumstances of the case.
4. To condone any inadvertent omissions, errors and short comings and permit the applicant to add/change/modify/alter this filing and make further submissions as required.

### 3. Business Plan for Control Period FY 2018-19 to FY 2020-21

---

#### 3.1 Business Plan for Control Period FY 2018-19 to FY 2020-21

MePDCL submitted that the Business Plan for the Control Period FY 2018-19 to FY 2020-21 is developed for the Control period bearing in mind the growth plan for the control period after considering the strength and weakness of the company and evaluating its business environment. MePDCL has taken a rational and scientific approach while forecasting various components of Business Plan in order to arrive at realistic forecast with minimal expected deviations. There are number of internal and external factors which affect the planning of the company and thus it makes this document a very dynamic document and which calls for regular reviews of the plan with a view to introduce any mid-term corrections. Due to changing business environment and uncertainty over the regulations governing the Distribution business, the Hon'ble Commission may take cognizance of the fact that the business plan is a dynamic document which may need to be updated at various intervals to align the growth path of the company with the external business environment and internal factors affecting the business / operations of the company.

MePDCL submitted that the present infrastructure of the Licensee in terms of lines and substations are as outlined in the table below:

**Table 3.1: Key Achievements from 2006 to 2017**

Details	Units	As on 31.03.17
Number of Electrified villages	No.	6098
Number of consumers	No.	414624
Number of 33/11KV Sub Stations	No.	95
Capacity of 33/11KV Sub Stations	MVA	453.57
Length of 33KV Lines	CKm	2541.36
Number of 11/0.4 KV Sub Stations	No.	9143
Capacity of 11/0.4 KV Sub Stations	MVA	664.85
Number of 11/0.24 KV Sub Stations	No.	714
Capacity of 11/0.24 KV Sub Stations	MVA	9.86
Length of 11KV Lines	CKm	13374.03
Length of LT Lines	CKm	15494.4

MePDCL has also submitted that it is the only distribution licensee in the state of Meghalaya. It is serving more than 4 lakh consumers of the state and providing 20-24 hours supply to all the consumers in spite of hilly terrain and difficult areas in the state. Meghalaya, in fact, is a special category state having hilly terrain of which 65% is covered by forest and the population is very thin in far-flung areas.

District wise targeted Electrification under DDUGJY Phase-I and Phase-II Scheme (Grid Connected) are as provided in the table below:

**Table 3.2: Electrification under DDUGJY Phase-I and Phase-II Scheme**

District	Electrification Target Grid Connected	
	Households	Villages
East Khasi Hills	36,570	187
Jaintia Hills	7,938	63
Ribhoi	6,852	113
West Khasi Hills	15,459	246
South Garo Hills	2,206	71
East Garo Hills	14,104	253
West Garo Hills	16,601	129
Total	<b>99,730</b>	<b>1062</b>

Progress of Rural Infrastructure governed under RGGVY is provided below:

- Revised sanctioned cost of RGGVY scheme of all districts in Meghalaya = 466.91 Crores.
- 1843 nos. out of 1866 nos. un-electrified villages (98.77% completed)
- 2953 nos. out of 3245 nos. electrification of villages (91% completed)
- 1.05 lakhs out of 1.10 lakhs BPL Household connections (95.44% completed)
- RS. 406.37 Crores out of Rs. 466.91 Crores disbursed (87.03% completed)

### 3.2 Consumer Categories

MePDCL serves over 4.16 lakh consumers in its licensed area as on 31.03.2017 and the consumers are broadly categorised as under.

Sl. No.	Category
	<b>LT CATEGORY</b>
1	Domestic (DLT)
2	Commercial (CLT)
3	Industrial (ILT)
4	Agriculture (AP)

Sl. No.	Category
5	Public Lighting (PL)
6	Water Supply (WSLT)
7	General Purpose
8	KutirJyoti
9	Crematorium
	<b>HT CATEGORY</b>
11	Domestic (DHT)
12	Water Supply (WS HT)
13	Bulk Supply
14	Commercial (CHT)
14	Industrial (IHT)
	<b>EHT CATEGORY</b>
15	Industrial

### 3.3 Energy sales for the Control Period FY 2018-19 to FY 2020-21

#### Petitioner's Submission

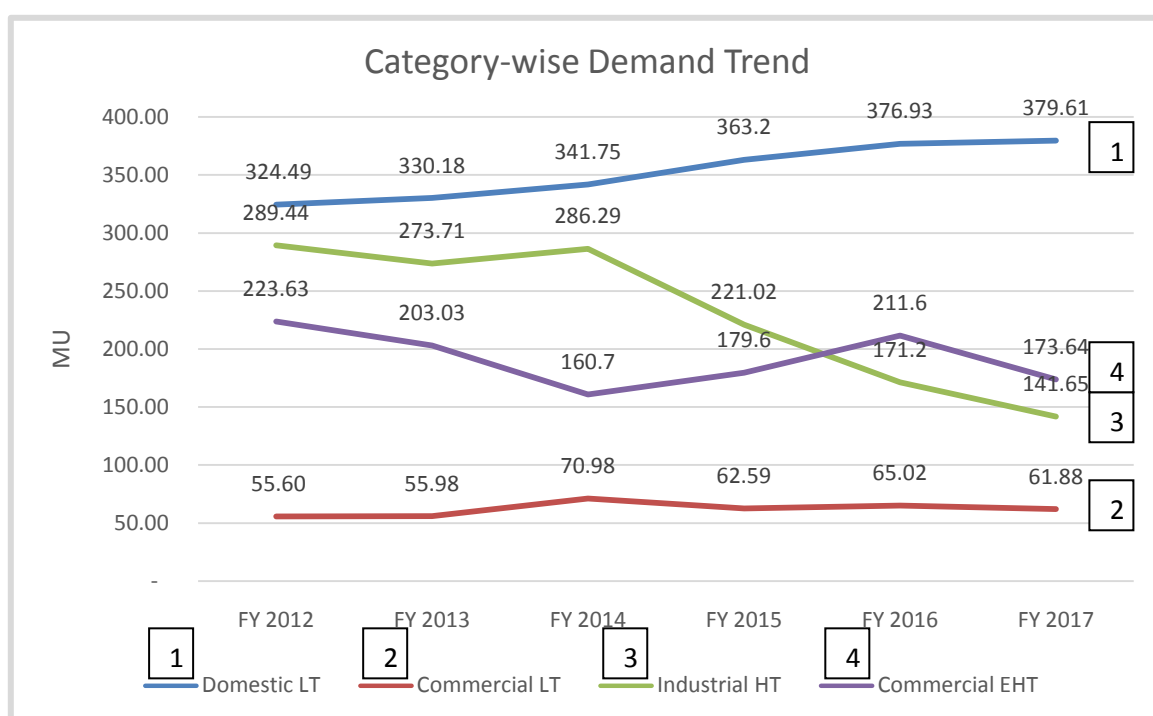
MePDCL submitted that the energy demand within Meghalaya has declined at a CAGR of approx. 2% in the period from FY 2011-12 to FY 2016-17. The table below provides an overview of variation in demand in the state of Meghalaya from FY 2011-12 to FY 2016-17:

**Table 3.3: Demand growth within the state**

Year	State Demand (MU)	YoY Growth
<b>FY 2012</b>	1093.99	
<b>FY 2013</b>	1060.55	-3.06%
<b>FY 2014</b>	1072.53	1.13%
<b>FY 2015</b>	1040.93	-2.95%
<b>FY 2016</b>	1058.32	1.67%
<b>FY 2017</b>	972.38	-8.12%

MePDCL has submitted that It can be seen from the above table that there have been substantial and unexpected fluctuations in the overall demand of the state. The reason for the fluctuations in demand can be found in detailed analysis of category-wise demand growth for major consumer categories from FY 2012 to FY 2017, as highlighted below:

**Figure 1: Category-wise Past Demand Trend**



The above graph shows that demand of Industrial HT consumers has declined substantially from 289.44 MU in FY 2012 to 141.65 MU in FY 2017 with a CAGR of approx. -13%. The Commercial LT demand growth looks stagnated from FY 2012 to FY 2017 and shows a positive growth rate of approx. 2% from FY 2012 to FY 2017. On the other hand, the Domestic LT demand has grown consistently with a CAGR of approx. 3% from FY 2012 to FY 2017. As Industrial HT and EHT consumers contribute to nearly 32% of the consumption in the state, the reduced/ variation in demand from these consumers has led to an overall stagnated demand in the state of Meghalaya.

MePDCL has also submitted that for energy sales projection for the Control Period FY 2018-19 to FY 2020-21, they have analysed the past trend of energy sales for last six years and computed CAGR for the respective categories. The assumptions and steps taken for energy sales projection are as provided below:

<b>Step 1: Growth rate determination for different categories</b>
Growth Rate considered as 5-year CAGR for all the categories
0% Growth Rate considered for categories having –ve CAGR
<b>Step 2: Within the State Energy Sale Projection for the Control Period</b>
FY 18 Sales Projection: (FY 17 Estimated Sale) X (1+Growth rate arrived in step 1)
FY 19 Sales Projection: (FY 18 Projected Sales) X (1+Growth rate arrived in step 1)
FY 20 Sales Projection: (FY 19 Projected Sales) X (1+Growth rate arrived in step 1)
FY 21 Sales Projection: (FY 20 Projected Sales) X (1+Growth rate arrived in step 1)
<b>Step 3: Outside the State Energy Sale Projection for the Control Period</b>
Swapping: As per MePDCL's obligation to meet return swap obligation
Any Surplus power to be sold at short term market such as Power Exchange, Bilateral etc.

Based on the above methodology energy sales of the base year FY 2017-18 and for the Control Period FY 2018-19 to FY 2020-21 are projected as shown in the table below:

**Table 3.4: Energy sales projections for Control Period FY 2018-19 to FY 2020-21**

Categories	FY 2016-17 (MU)	5 Year CAGR (%)	Growth Rate Considered (%)	FY 2017-18 (P) (MU)	FY 2018-19 (P) (MU)	FY 2019-20 (P) (MU)	FY 2020-21 (P) (MU)
Domestic LT	378.33	3.19%	3.19%	391.71	404.19	417.08	430.37
Commercial LT	61.78	2.16%	2.16%	63.22	64.58	65.98	67.41
General Purpose	21.73	7.98%	7.98%	23.61	25.49	27.52	29.72
Industrial LT	5.06	-5.87%	0.00%	5.06	5.06	5.06	5.06
Water Supply LT	10.41	3.55%	3.55%	10.89	11.28	11.68	12.10
KutirJyoti	24.62	20.28%	20.28%	29.61	35.61	42.83	51.52
Public Lighting	0.45	-17.74%	0.00%	0.45	0.45	0.45	0.45
Agriculture	0.10	-24.73%	0.00%	0.10	0.10	0.10	0.10
Crematorium	0.20	1.87%	1.87%	0.20	0.21	0.21	0.21
Commercial HT	25.75	5.25%	5.25%	27.10	28.53	30.02	31.60
Domestic HT	20.47	0.25%	0.25%	20.52	20.57	20.62	20.67
Industrial HT	141.65	-13.32%	0.00%	141.65	141.65	141.65	141.65
Water Supply HT	24.07	-3.75%	0.00%	24.07	24.07	24.07	24.07
Bulk Supply	64.75	-1.63%	0.00%	64.75	64.75	64.75	64.75
Industrial EHT	173.64	-4.93%	0.00%	173.64	173.64	173.64	173.64
Assam (ASEB)	17.75	-1.46%	0.00%	1.00	1.00	1.00	1.00
Short Term Sale	-			-	-	-	-
Swapping	-			-	-	-	-
<b>Total Sale</b>	<b>972.38</b>			<b>977.59</b>	<b>1001.19</b>	<b>1026.68</b>	<b>1054.33</b>

MePDCL has submitted that since ASEB has applied for disconnection the consumption of ASEB is projected to be 1MU.

### Commission's Analysis

Proper estimation of category wise energy sales for the Control Period FY 2018-19 to FY 2020-21 is essential to arrive at the quantum of power to be purchased and the likely revenue by sale of energy,

On a query from the Commission, MePDCL has submitted the actual category wise energy sales from FY 2011-12 to FY 2016-17 as shown in the table below:

**Table 3.5: Energy sales from FY 2011-12 to FY 2016-17 (MU)**

Sl. No.	Category	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
	<b>LT CATEGORY</b>						
1	Domestic (DLT)	324.49	330.18	341.75	363.20	376.93	379.61
2	Commercial (CLT)	55.6	55.98	70.98	62.59	65.02	61.88
3	Industrial (ILT)	6.85	5.97	5.75	5.26	5.38	5.06
4	Agriculture (AP)	0.41	0.33	0.16	0.10	0.09	0.10
5	Public Lighting (PL)	1.1	2.36	1.31	1.27	1.02	0.45
6	Water Supply (WSLT)	8.84	7.97	8.47	8.53	7.26	10.52
7	General Purpose	14.9	13.87	14.80	17.69	22.80	21.86
8	KutirJyoti	9.81	13.44	19.31	21.47	23.06	24.62
9	Crematorium	0.18	0.20	0.21	0.19	0.16	0.20
	<b>HT CATEGORY</b>						
11	Domestic (DHT)	20.22	20.36	21.97	22.53	22.83	20.47
12	Water Supply (WS HT)	29.15	27.70	29.03	32.41	29.93	24.07
13	Bulk Supply *	89.39	85.64	93.14	82.03	94.07	82.50
14	Commercial (CHT)	19.95	19.81	18.67	23.05	26.86	25.75
14	Industrial (IHT)	289.45	273.71	286.29	221.02	171.20	141.65
	<b>EHT CATEGORY</b>						
15	Industrial	223.63	203.03	160.70	179.60	211.60	173.64
16	<b>Total Sale within State</b>	<b>1093.97</b>	<b>1060.55</b>	<b>1072.54</b>	<b>1040.94</b>	<b>1058.21</b>	<b>972.38</b>

\* included supply to Assam

The 1 year to 5 year CAGR of above category wise energy sales, CAGR considered by the licensee and CAGR approved by the Commission for projecting the category wise energy sales for the Control Period FY 2018-19 to FY 2020-21 are shown in the table below:

**Table 3.6: CAGR of Energy sales (%)**

Sl. No.	Category	Y-O-Y Growth	2 Years CAGR FY 17 over FY 15	3 Years CAGR FY 17 over FY 14	4 Years CAGR FY 17 over FY 13	5 Years CAGR FY 17 over FY 12	CAGR Projected by Petitioner	CAGR Approved
	<b>LT CATEGORY</b>							
1	Domestic (DLT)	0.71	2.23	3.56	3.55	3.19	3.19	3.56
2	Commercial (CLT)	(4.83)	(0.57)	(4.47)	2.54	2.16	2.16	2.16
3	Industrial (ILT)	(5.95)	(1.92)	(4.17)	(4.05)	(5.88)	0	0

Sl. No.	Category	Y-O-Y Growth	2 Years CAGR FY 17 over FY 15	3 Years CAGR FY 17 over FY 14	4 Years CAGR FY 17 over FY 13	5 Years CAGR FY 17 over FY 12	CAGR Projected by Petitioner	CAGR Approved
4	Agriculture (AP)	11.11	0.00	(14.50)	(25.81)	(24.59)	0	0
5	Public Lighting (PL)	(55.88)	(40.47)	(29.97)	(33.92)	(16.37)	0	0
6	Water Supply (WSLT)	44.90	11.05	7.49	7.19	3.54	3.95	7.49
7	General Purpose	(4.12)	11.16	13.88	12.05	7.97	7.98	7.97
8	KutirJyoti	6.76	7.08	8.43	16.34	20.21	20.28	8.43
9	Crematorium	25.00	2.60	(1.61)	0.00	2.13	1.87	2.13
	<b>HT CATEGORY</b>							
11	Domestic (DHT)	(10.34)	(4.68)	(2.33)	0.13	0.25	0.25	0.25
12	Water Supply (WS HT)	(19.58)	(13.82)	(6.05)	(3.45)	(3.76)	0	0
13	Bulk Supply	(12.30)	0.29	(3.96)	(0.93)	(1.59)	0	0
14	Commercial (CHT)	(4.13)	5.69	11.31	6.78	5.24	5.25	5.24
14	Industrial (IHT)	(17.26)	(19.94)	(20.91)	(15.18)	(13.32)	0	0
	<b>EHT CATEGORY</b>							

Since the actual energy sales for FY 2016-17 are available, it is considered appropriate to consider FY 2016-17 as base year and estimate the energy sales for current year FY 2017-18 and project the energy sales for Control Period FY 2018-19 to FY 2020-21 with appropriate CAGR as indicated in the above table. The energy sales for FY 2012-13 and FY 2016-17 for public lighting category provided by the petitioner in the above table 5 seems to be wrong. Hence, the Commission has considered the sales for FY 2016-17 for this category at the same level of previous year FY 2015-16 i.e. 1.02 MU. Accordingly, the Commission approves energy sales for the Control Period FY 2018-19 to FY 2020-21 as shown in the table below:

**Table 3.7: Energy sales approved for the Control Period FY 2018-19 to FY 2020-21**

Sl. No.	Category	CAGR Approved	Base year FY 2016-17	Current year FY 2017-18	Control Period		
					FY 2018-19	FY 2019-20	FY 2020-21
	<b>LT CATEGORY</b>						
1	Domestic (DLT)	3.56	379.61	393.12	407.12	421.61	436.62
2	Commercial (CLT)	2.16	61.88	63.22	64.58	65.98	67.40
3	Industrial (ILT)	0.00	5.06	5.06	5.06	5.06	5.06
4	Agriculture (AP)	0.00	0.10	0.10	0.10	0.10	0.10
5	Public Lighting (PL)	0.00	1.02	1.02	1.02	1.02	1.02
6	Water Supply (WSLT)	7.49	10.52	11.31	12.15	13.07	14.04
7	General Purpose	7.97	21.86	23.60	25.48	27.51	29.71
8	KutirJyoti	8.43	24.62	26.70	28.95	31.39	34.03
9	Crematorium	2.13	0.20	0.20	0.21	0.21	0.22
	<b>HT CATEGORY</b>						
11	Domestic (DHT)	0.25	20.47	20.52	20.57	20.62	20.68
12	Water Supply (WS HT)	0.00	24.07	24.07	24.07	24.07	24.07

Sl. No.	Category	CAGR Approved	Base year FY 2016-17	Current year FY 2017-18	Control Period		
					FY 2018-19	FY 2019-20	FY 2020-21
13	Bulk Supply	0.00	82.50	82.50	82.50	82.50	82.50
14	Commercial (CHT)	5.25	25.75	27.10	28.52	30.02	31.60
14	Industrial (IHT)	0.00	141.65	141.65	141.65	141.65	141.65
	<b>EHT CATEGORY</b>						
15	Industrial	0.00	173.64	173.64	173.64	173.64	173.64
	<b>Total</b>		<b>972.95</b>	<b>993.81</b>	<b>1015.63</b>	<b>1038.45</b>	<b>1062.34</b>

### 3.4 Number of Consumers and connected load

#### Petitioner's Submission

MePDCL has submitted that as on 31.03.2017, total number of consumers of MePDCL is 4,14,624. The number of consumers under Domestic category (DLT) constitutes 77.76% of the total consumers with 49.81% of the connected load. Though the number of Industrial consumers (IHT & IEHT) is very low (only 135), these constitute about 21.22% of the total connected load and about 32% of the total sales in FY 17. The number of consumers and connected load is projected based on past trend and 5-year CAGR. Zero percent growth rate for categories with negative trend for no. of consumers and connected load is considered.

The category-wise number of consumers and connected load projected is as indicated in table below for FY 2016-17 (Actual) and projections for FY 2017-18 and for the Control Period FY 2018-19 to FY 2020-21.

**Table 3.8: Number of Consumers and Connected Load projected for Control Period FY 2018-19 to FY 2020-21**

Consumer Category	FY 2016-17		FY 2017-18		FY 2018-19		FY 2019-20		FY 2020-21	
	No. of consumers	Connected load (MVA)	No. of consumers	Connected load (MVA)	No. of consumers	Connected load (MVA)	No. of consumers	Connected load (MVA)	No. of consumers	Connected load (MVA)
<b>LT CATEGORY</b>										
<b>Domestic (DLT)</b>	322430	386.84	345204	403.43	369586	420.74	395690	438.79	423638	457.61
<b>Commercial (CLT)</b>	23868	69.26	24877	73.05	25929	77.05	27025	81.27	28167	85.72
<b>Industrial (ILT)</b>	835	12.33	836	12.34	837	12.35	838	12.37	839	12.38
<b>Agriculture (Ape)</b>	23	0.28	23	0.28	23	0.28	23	0.28	23	0.28
<b>Public Lighting (PL)</b>	57	1.01	57	1.27	57	1.60	57	2.02	57	2.54
<b>Water Supply (WSLT)</b>	369	6.73	369	7.00	369	7.29	369	7.58	369	7.88
<b>General Purpose (GP)</b>	2222	13.28	2284	13.78	2348	14.29	2414	14.83	2481	15.38

Consumer Category	FY 2016-17		FY 2017-18		FY 2018-19		FY 2019-20		FY 2020-21	
	No. of consumers	Connect ed load (MVA)	No. of consumers	Connect ed load (MVA)	No. of consumers	Connect ed load (MVA)	No. of consumers	Connect ed load (MVA)	No. of consumers	Connect ed load (MVA)
KutirJyoti (KJT)	64212	27.38	69236	33.01	74654	39.79	80495	47.97	86793	57.83
Crematorium (CRM)	1	0.14	1	0.14	1	0.14	1	0.14	1	0.14
Sub Total	414017	517.24	442887	544.30	473804	573.53	506912	605.23	542368	639.76
HT CATEGORY										
Domestic HT	77	18.37	79	19.02	81	19.71	84	20.41	87	21.15
Water Supply (WSHT)	31	7.79	31	7.80	31	7.80	31	7.80	31	7.81
Bulk Supply (BS)*	164	44.88	165	44.88	166	44.88	167	44.88	168	44.88
Commercial (CHT)	200	23.55	212	25.74	224	28.14	237	30.76	251	33.62
Industrial (IHT)	129	96.13	129	96.13	129	96.13	129	96.13	129	96.13
Sub Total	601	190.72	616	193.57	631	196.65	648	199.98	666	203.58
EHT CATEGORY										
Industrial	6	68.70	6	68.70	6	68.70	6	68.70	6	68.70

### Commission's Analysis

#### (A) Number of Consumers

On a query from the Commission, MePDCL has submitted the actual category wise number of consumers from FY 2011-12 to FY 2016-17 as shown in the table below:

**Table 3.9: Number of Consumers from FY 2011-12 to FY 2016-17**

Sl. No.	Category	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
	<b>LT CATEGORY</b>						
1	Domestic (DLT)	229211	242241	265157	268904	297602	322430
2	Commercial (CLT)	19405	18534	21614	22060	23742	23868
3	Industrial (ILT)	830	824	799	821	836	835
4	Agriculture (AP)	32	30	23	24	27	23
5	Public Lighting (PL)	60	60	64	59	51	57
6	Water Supply (WSLT)	509	346	371	357	366	369
7	General Purpose	1936	2005	2154	2088	2285	2222
8	KutirJyoti	44058	47135	59578	64825	60816	64212
9	Crematorium	1	1	1	1	1	1
	<b>HT CATEGORY</b>						
11	Domestic (DHT)	66	66	73	70	71	77
12	Water Supply (WS HT)	30	27	28	29	32	31
13	Bulk Supply	158	156	163	156	161	164
14	Commercial (CHT)	151	126	130	168	191	200
14	Industrial (IHT)	144	145	143	140	140	129
	<b>EHT CATEGORY</b>						
15	Industrial	12	10.00	8.00	8.00	6.00	6.00
16	<b>Total Sale within State</b>	<b>296603</b>	<b>311706</b>	<b>350306</b>	<b>359710</b>	<b>386327</b>	<b>414624</b>

The number of consumers provided for water supply category for FY 2011-12 as 509 seems to be wrong. The 1 year to 5 year CAGR of above category wise number of Consumers, CAGR considered by the licensee and CAGR approved by the Commission for projecting the number of consumers are shown in the table below:

**Table 3.10: CAGR of Number of consumers (%)**

Sl. No.	Category	Y-O-Y Growth	2 Years CAGR FY 17 over FY 15	3 Years CAGR FY 17 over FY 14	4 Years CAGR FY 17 over FY 13	5 Years CAGR FY 17 over FY 12	CAGR Projected by Petitioner	CAGR Approved
	<b>LT CATEGORY</b>							
1	Domestic (DLT)	8.34	9.50	6.74	7.41	7.06	7.06	7.06
2	Commercial (CLT)	0.53	4.02	3.36	6.53	4.23	4.23	4.23
3	Industrial (ILT)	(0.12)	0.85	1.48	0.33	0.12	0.12	0.12
4	Agriculture (AP)	(14.81)	(2.11)	0.00	(6.43)	(6.39)	0	0
5	Public Lighting (PL)	11.76	(1.71)	(3.79)	(1.27)	(1.02)	0	0
6	Water Supply (WSLT)	0.82	1.67	(0.18)	1.62	(6.23)	0	0
7	General Purpose	(2.76)	3.16	1.04	2.60	2.79	2.79	2.79
8	KutirJyoti	5.58	(0.47)	2.53	8.04	7.82	7.82	7.82
9	Crematorium	0.00	0.00	0.00	0.00	0.00	0	0
	<b>HT CATEGORY</b>							
11	Domestic (DHT)	8.45	4.88	1.79	3.93	3.13	3.13	3.13
12	Water Supply (WS HT)	(3.13)	3.39	3.45	3.51	0.66	0.66	0.66
13	Bulk Supply	1.86	2.53	0.20	1.26	0.75	0.75	0.75
14	Commercial (CHT)	4.71	9.11	15.44	12.24	5.78	5.78	5.78
14	Industrial (IHT)	(7.86)	(4.01)	(3.38)	(2.88)	(2.18)	0	0
	<b>EHT CATEGORY</b>							
15	Industrial	0.00	(13.40)	(9.14)	(11.99)	(12.94)	0	0

Since the actual number of consumers for FY 2016-17 are available, it is considered appropriate to consider FY 2016-17 as base year and estimate the number of consumers for current year FY 2017-18 and project the number of consumers for Control Period FY 2018-19 to FY 2020-21 with appropriate CAGR. 5 year CAGR as projected by petitioner is accepted by the Commission where there is growth and 0% growth rate considered for category having negative CAGR. Accordingly, the Commission approves number of consumers for the Control Period FY 2018-19 to FY 2020-21 as shown in the table below:

**Table 3.11: Number of consumers approved for the Control Period FY 2018-19 to FY 2020-21**

Sl. No.	Category	CAGR Approved	Base year FY 2016-17	Current year FY 2017-18	Control Period		
					FY 2018-19	FY 2019-20	FY 2020-21
	<b>LT CATEGORY</b>						
1	Domestic (DLT)	7.06	322430	345194	369564	395655	423589
2	Commercial (CLT)	4.23	23868	24878	25930	27027	28170
3	Industrial (ILT)	0.12	835	836	837	838	839
4	Agriculture (AP)	0	23	23	23	23	23
5	Public Lighting (PL)	0	57	57	57	57	57
6	Water Supply (WSLT)	0	369	369	369	369	369
7	General Purpose	2.79	2222	2284	2348	2413	2481
8	KutirJyoti	7.82	64212	69233	74647	80485	86779
9	Crematorium	0	1	1	1	1	1
	<b>HT CATEGORY</b>						
11	Domestic (DHT)	3.13	77	79	82	84	87
12	Water Supply (WS HT)	0.66	31	31	31	32	32
13	Bulk Supply	0.75	164	165	166	168	169
14	Commercial (CHT)	5.78	200	212	224	237	250
14	Industrial (IHT)	0	129	129	129	129	129
	<b>EHT CATEGORY</b>						
15	Industrial	0	6.00	6	6	6	6
			<b>414624</b>	<b>443497</b>	<b>474415</b>	<b>507524</b>	<b>542980</b>

**(B) Connected load**

On a query from the Commission, MePDCL has submitted the actual category wise connected load from FY 2011-12 to FY 2016-17 as shown in the table below:

**Table 3.12: Connected load from FY 2011-12 to FY 2016-17 (MVA)**

Sl. No.	Category	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
	<b>LT CATEGORY</b>						
1	Domestic (DLT)	313.56	315.88	346.90	329.82	322.34	386.84
2	Commercial (CLT)	53.06	54.18	66.93	60.44	60.62	69.26
3	Industrial (ILT)	12.27	12.03	11.21	12.08	12.75	12.33
4	Agriculture (AP)	0.37	0.39	0.26	0.28	0.28	0.28
5	Public Lighting (PL)	0.317	0.32	0.43	0.36	0.39	1.01
6	Water Supply (WSLT)	5.53	5.44	6.49	6.18	6.15	6.73
7	General Purpose	11.06	11.06	13.38	12.27	11.37	13.28
8	KutirJyoti	10.75	11.42	18.26	23.43	24.57	27.38
9	Crematorium	0.135	0.14	0.14	0.14	0.14	0.14
	<b>HT CATEGORY</b>						
11	Domestic (DHT)	15.4	15.33	16.69	16.04	16.98	18.37
12	Water Supply (WS HT)	7.78	9.05	8.07	7.97	6.89	7.79
13	Bulk Supply	45.63	44.84	47.01	44.85	45.47	44.88
14	Commercial (CHT)	15.09	15.02	19.03	22.66	25.50	23.55
14	Industrial (IHT)	151.5	156.57	112.50	95.30	95.81	96.13
	<b>EHT CATEGORY</b>						
15	Industrial	91.24	91.24	73.90	85.14	68.70	68.70
16	<b>Total Sale within State</b>	<b>733.69</b>	<b>742.91</b>	<b>741.20</b>	<b>716.96</b>	<b>697.95</b>	<b>776.67</b>

The 1 year to 5 year CAGR of above category wise connected load, CAGR considered by the licensee and CAGR approved by the Commission for projecting the connected load are shown in the table below:

**Table 3.13: CAGR of connected load (%)**

Sl. No.	Category	Y-O-Y Growth	2 Years CAGR FY 17 over FY 15	3 Years CAGR FY 17 over FY 14	4 Years CAGR FY 17 over FY 13	5 Years CAGR FY 17 over FY 12	CAGR Projected by Petitioner	CAGR Approved
	<b>LT CATEGORY</b>							
1	Domestic (DLT)	20.01	8.30	3.70	5.20	4.29	4.29	4.29
2	Commercial (CLT)	14.25	7.04	1.15	6.33	5.47	5.47	5.47
3	Industrial (ILT)	(3.28)	1.03	3.23	0.62	0.10	0.10	0.10
4	Agriculture (AP)	(1.41)	0.90	2.50	(7.95)	(5.42)	0	0
5	Public Lighting (PL)	162.34	68.44	32.93	33.29	26.08	26.08	0
6	Water Supply (WSLT)	9.36	4.32	1.22	5.46	4.01	4.01	4.01
7	General Purpose	16.84	4.04	(0.25)	4.68	3.73	3.73	3.73
8	KutirJyoti	11.46	8.10	14.46	24.43	20.56	20.56	20.56
9	Crematorium	3.70	1.84	1.22	0.91	0.73	0.73	0.73
	<b>HT CATEGORY</b>							
11	Domestic (DHT)	8.17	7.00	3.25	4.63	3.59	3.59	3.59
12	Water Supply (WS HT)	13.00	(1.10)	(1.17)	(3.68)	0.03	0.03	0.03
13	Bulk Supply	(1.31)	0.03	(1.53)	0.02	(0.33)	0	0
14	Commercial (CHT)	(7.64)	1.94	7.36	11.90	9.31	9.31	9.31
14	Industrial (IHT)	0.34	0.44	(5.11)	(11.48)	(8.70)	0	0
	<b>EHT CATEGORY</b>							
15	Industrial	0.00	(10.17)	(2.40)	(6.85)	(5.52)	0	0

The Connected load for FY 2016-17 for public lighting category provided by the petitioner in the above table 12 seems to be wrong. Since the number of consumers for FY 2015-16 and FY 2016-17 are almost at the same level the connected load for FY 2016-17 is also considered at the same level of FY 2015-16. Since the actual connected load for FY 2016-17 are available, it is considered appropriate to consider FY 2016-17 as base year and estimate the connected load for current year FY 2017-18 and project the same for Control Period FY 2018-19 to FY 2020-21 with appropriate CAGR. 5 year CAGR as projected by petitioner is accepted by the Commission where there is growth and 0% growth rate considered for category having negative CAGR. Accordingly, the Commission approves

connected load for the Control Period FY 2018-19 to FY 2020-21 as shown in the table below:

**Table 3.14: Connected load approved for the Control Period FY 2018-19 to FY 2020-21 (MVA)**

Sl. No.	Category	CAGR Approved	Base year FY 2016-17	Current year FY 2017-18	Control Period		
					FY 2018-19	FY 2019-20	FY 2020-21
	<b>LT CATEGORY</b>						
1	Domestic (DLT)	4.29	386.84	403.44	420.74	438.79	457.62
2	Commercial (CLT)	5.47	69.26	73.05	77.04	81.26	85.70
3	Industrial (ILT)	0.10	12.33	12.34	12.35	12.37	12.38
4	Agriculture (AP)	0	0.28	0.28	0.28	0.28	0.28
5	Public Lighting (PL)	0	0.39	0.39	0.39	0.39	0.39
6	Water Supply (WSLT)	4.01	6.73	7.00	7.28	7.57	7.88
7	General Purpose	3.73	13.28	13.78	14.29	14.82	15.38
8	KutirJyoti	20.56	27.38	33.01	39.80	47.98	57.84
9	Crematorium	0.73	0.14	0.14	0.14	0.14	0.14
	<b>HT CATEGORY</b>						
11	Domestic (DHT)	3.59	18.37	19.03	19.71	20.42	21.15
12	Water Supply (WS HT)	0.03	7.79	7.79	7.79	7.80	7.80
13	Bulk Supply	0	44.88	44.88	44.88	44.88	44.88
14	Commercial (CHT)	9.31	23.55	25.74	28.14	30.76	33.62
14	Industrial (IHT)	0	96.13	96.13	96.13	96.13	96.13
	<b>EHT CATEGORY</b>						
15	Industrial	0	68.70	68.70	68.70	68.70	68.70
			<b>776.05</b>	<b>805.70</b>	<b>837.68</b>	<b>872.29</b>	<b>909.89</b>

Category-wise Number of Consumers, Connected load and Energy sales approved for Control Period FY 2018-19 to FY 2020-21 as discussed in the above paras are depicted in the table below:

**Table 3.15: Number of Consumers, Connected load and Energy sales approved for Control Period FY 2018-19 to FY 2020-21**

Sl. No.	Category	2018-19			2019-20			2020-21		
		No of Consumers	Connected load (MVA)	Sales (MU)	No of Consumers	Connected load (MVA)	Sales (MU)	No of Consumers	Connected load (MVA)	Sales (MU)
	<b>LT CATEGORY</b>									
1	Domestic (DLT)	369564	420.74	407.12	395655	438.79	421.61	423589	457.62	436.62
2	Commercial (CLT)	25930	77.04	64.58	27027	81.26	65.98	28170	85.70	67.40
3	Industrial (ILT)	837	12.35	5.06	838	12.37	5.06	839	12.38	5.06
4	Agriculture (AP)	23	0.28	0.10	23	0.28	0.10	23	0.28	0.10
5	Public Lighting (PL)	57	0.39	1.02	57	0.39	1.02	57	0.39	1.02
6	Water Supply (WSLT)	369	7.28	12.15	369	7.57	13.07	369	7.88	14.04
7	General Purpose	2348	14.29	25.48	2413	14.82	27.51	2481	15.38	29.71
8	KutirJyoti	74647	39.80	28.95	80485	47.98	31.39	86779	57.84	34.03
9	Crematorium	1	0.14	0.21	1	0.14	0.21	1	0.14	0.22
	<b>HT CATEGORY</b>	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
11	Domestic (DHT)	82	19.71	20.57	84	20.42	20.62	87	21.15	20.68

Sl. No.	Category	2018-19			2019-20			2020-21		
		No of Consumers	Connected load (MVA)	Sales (MU)	No of Consumers	Connected load (MVA)	Sales (MU)	No of Consumers	Connected load (MVA)	Sales (MU)
12	Water Supply (WS HT)	31	7.79	24.07	32	7.80	24.07	32	7.80	24.07
13	Bulk Supply	166	44.88	82.50	168	44.88	82.50	169	44.88	82.50
14	Commercial (CHT)	224	28.14	28.52	237	30.76	30.02	250	33.62	31.60
14	Industrial (IHT)	129	96.13	141.65	129	96.13	141.65	129	96.13	141.65
	<b>EHT CATEGORY</b>	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
15	Industrial	6	68.70	173.64	6	68.70	173.64	6	68.70	173.64
16	<b>Total Sale within State</b>	<b>474415</b>	<b>837.68</b>	<b>1015.63</b>	<b>507524</b>	<b>872.29</b>	<b>1038.45</b>	<b>542980</b>	<b>909.89</b>	<b>1062.34</b>

The Commission directs MePDCL to submit the projections of Number of Consumers, Connected load and Energy sales for Control Period FY 2018-19 to FY 2020-21 in the MYT petition to be filed based on the audited figures of FY 2015-16 and FY 2016-17 based on which the Commission shall review the projections while finalising the MYT Tariff order for the Control Period FY 2018-19 to FY 2020-21.

### 3.4 Distribution Loss

#### Petitioner's Submission

MePDCL submitted that the present distribution network is overloaded and has deteriorated over time, which is the main cause for increase in technical losses. Furthermore, the situation has aggravated after the implementation of RGGVY project. This is because apart from the inhospitable terrain and bad roads in most rural areas, there are many electrified villages which do not even have motorable roads. Therefore, maintenance of power supply and billing/collection of revenue at those remote villages is a daunting task. Keeping the present situation in mind and various measures & schemes undertaken to reduce Distribution Loss MePDCL has projected the following distribution losses for Second Control Period:

**Table 3.16: Distribution Loss Trajectory projected for Control Period FY 2018-19 to FY 2020-21**

Particulars	FY 2016-17 (A)	FY 2017-18 (P)	FY 2018-19 (P)	FY 2019-20 (P)	FY 2020-21 (P)
<b>T&amp;D Loss</b>	32.65%	22.76	16.56	12.19	12.19

#### Commission's Analysis

The Commission has approved the distribution loss at 21% for FY 2017-18 as per the tariff order dated 31.03.2017 in line with that approved for FY 2017-18 in the

MYT order dated 31.03.2015. As against 22% distribution loss approved for FY 2016-17, MePDCL could achieve only 32.65%. However, the licensee has projected considerable reduction of distribution loss for the current year FY 2017-18 and also for the Control Period FY 2018-19 to FY 2020-21. As per the MoU for implementation of UDAY scheme the distribution losses have to be reduced to 28.96%, 22.76%, 16.56%, 12.19% for FY 2016-17, FY 2017-18, FY 2018-19, FY 2019-20 respectively. Considering the difficulties expressed by MePDCL and the distribution loss trajectory considered in the MoU of UDAY scheme the Commission approves distribution loss trajectory for the Control Period FY 2018-19 to FY 2020-21 as shown in table below:

**Table 3.17: Distribution loss approved for Control Period FY 2018-19 to FY 2020-21**

Particulars	FY 2018-19	FY 2019-20	FY 2020-21
T&D Loss	16.56	12.19	12.00

### 3.5 Aggregate Technical & Commercial Loss (AT & C Loss) Trajectory

#### Petitioner's Submission

MePDCL has submitted that over and above the improvement in Distribution loss it is estimated that with various measures such as pre-paid metering, CSC, online bill payment etc. there will be improvement in Collection Efficiency as well.

MePDCL has also submitted that in March, 2017 a tri-partite agreement was signed between Ministry of Power (GOI), Government of Meghalaya (GOM) and MePDCL for implementation of UDAY scheme in the State of Meghalaya. Under this scheme MePDCL has to reduce the AT&C Losses to 15% by FY 2019-20. The AT & C loss trajectory for the control period is shown in the table below:

**Table3.18: AT&C Loss Trajectory projected for Control Period FY 2018-19 to FY 2020-21**

Particulars	FY 2016-17 (A)	FY 2017-18 (P)	FY 2018-19 (P)	FY 2019-20 (P)	FY 2020-21 (P)
AT&C Loss	34.76%	27.50%	21.50%	15.00%	15.00%

#### Commission's Analysis

The AT & C loss is a combination of Technical and Commercial Loss. As per MoU UDAY scheme the collection efficiency agreed is 93.86%, 94.08% and 96.80% for FY 2017-18, FY 2018-19 and FY 2019-20 respectively and the AT&C Loss trajectory agreed is 27.50%, 21.50% and 15.00% for FY 2017-18, FY 2018-19 and FY 2019-20

respectively. The Commission considers the collection efficiency for FY 2020-21 at 98% and accordingly computes the AT&C Loss for FY 2020-21 at 13.76%. Under the circumstances explained by the MePDCL. The Commission approves the AT&C Loss trajectory for the Control Period FY 2018-19 to FY 2020-21 as shown in the table below:

**Table3.19: AT&C Loss Trajectory approved for Control Period FY 2018-19 to FY 2020-21**

Particulars	FY 2018-19	FY 2019-20	FY 2020-21
AT&C Loss	21.50%	15.00%	13.76%

### 3.6 Energy requirement

#### Petitioner's Submission

MePDCL has submitted the actual energy requirement for FY 2016-17 and projected energy requirement for FY 2017-18 and for the Control Period FY 2018-19 to FY 2020-21 as shown in the table below:

**Table 3.20: Energy requirement projected for the Control Period FY 2018-19 to FY 2020-21**

Particulars	FY 2016-17 (A)	FY 2017-18 (P)	FY 2018-19 (P)	FY 2019-20 (P)	FY 2020-21 (P)
Power to be sold to consumers within the state	972.38	977.59	1001.19	1026.68	1054.33
Transmission & Distribution Losses (%)	32.65%	22.76%	16.56%	12.19%	12.19%
Net power requirement at state bus for sale of power within the state	1443.78	1265.65	1199.89	1169.20	1200.69

#### Commission's Analysis

The total energy requirement of a distribution company to meet the total demand of its consumers would be the sum of the estimated energy and system losses (both distribution loss and transmission loss) as approved by the Commission. MePDCL has estimated the energy requirement at its distribution periphery only instead of at state transmission periphery.

The Commission has approved the Transmission loss for the Control Period FY 2018-19 to FY 2020-21 to MePTCL at 4.00%

The total energy requirement at the state transmission periphery is as given in the table below:

**Table3.21: Energy requirement approved for Control Period FY 2018-19 to FY 2020-21**

Particulars	Calculation	2018-19	2019-20	2020-21
Power to be sold to consumers within the state	J	1015.63	1038.45	1062.34
Transmission & Distribution Losses (%)	K	16.56%	12.19%	12.00%
Net power requirement at state bus for sale of power within the state	$L=J/(1-K)$	1217.20	1182.62	1207.20
Transmission loss(%)	M	4%	4%	4%
Total Energy requirement at state transmission periphery	$N=L/(1-M)$	1267.92	1231.89	1257.50

### 3.7 Power Procurement

#### Petitioner's Submission

MePDCL has submitted that no power shall be generated from Umtru Power Plant from FY 2017-18 till the end of the second control period i.e FY 2020-21. Umtru power plant has been temporarily shut down for the purpose of Renovation& Modernization (R&M). Post commissioning of New Umtru Power Plant, the head of Umtru Power Plant had increased creating a safety risk on efficient running of the turbine. MePGCL, in this regard shall conduct a technical study to identify the impact of increased head on the turbine and overall plant, and to work out on a possible solution, in the meantime the plant is unconditionally shut down to avoid any unnecessary risk.

Further, MePDCL may need to purchase power from short term sources to meet seasonal/emergency requirements or to bridge the shortfall in actual generation and expected availability.

Based on the above discussion MePDCL has projected the estimated Power Availability from long term various sources is shown in the table below:

**Table3.22:Estimated Power Availability from various Sources (MW)**

Sl No	Name of Station	Capacity (MW)	Actual Availability	Projected Availability	Projected Availability	Projected Availability	Projected Availability
			2016-17	2017-18	2018-19	2019-20	2020-21
<b>A</b>	<b>MePGCL</b>						
1	Umiam I	4X9	36	36.00	36.00	36.00	36.00
2	Umiam II	2X10	20	20.00	20.00	20.00	20.00
3	Umiam III	2X30	60	60.00	60.00	60.00	60.00
4	Umiam IV	2X30	60	60.00	60.00	60.00	60.00
5	MLHEP	3X42	126	126.00	126.00	126.00	126.00
6	Umtru	4X2.8	11.2	11.20	11.20	11.20	11.20
7	Sunapani	1X1.5	1.5	1.50	1.50	1.50	1.50
8	New Umtru	2X20	0	40.00	40.00	40.00	40.00

9	Ganol	2X12.5	0	0.00	25.00	25.00	25.00
10	Lakroh	1X1.5	0	0.00	1.50	1.50	1.50
<b>Sub Total MePGCL</b>		<b>381.2</b>	<b>314.7</b>	<b>354.7</b>	<b>381.2</b>	<b>381.2</b>	<b>381.2</b>
<b>B</b>	<b>NEEPCO</b>						
1	KOPILI	200	35.05	35.05	35.05	35.05	35.05
2	KOPILI-Ext	25	3.45	3.45	3.45	3.45	3.45
3	KHANDONG	50	8.51	8.51	8.51	8.51	8.51
4	RANGANADI	405	47.10	47.10	47.10	47.10	47.10
5	DOYANG	75	8.69	8.69	8.69	8.69	8.69
6	AGBPP	291	34.74	34.74	34.74	34.74	34.74
7	AGTPP CC	130	16.57	16.57	16.57	16.57	16.57
8	Pare	110	0.00	9.00	9.00	9.00	9.00
<b>Sub-Total NEEPCO</b>		<b>1286</b>	<b>154</b>	<b>163.12</b>	<b>163.12</b>	<b>163.12</b>	<b>163.12</b>
<b>C</b>	<b>NHPC-Loktak</b>	<b>105</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>D</b>	<b>OTPC-Pallatana</b>	<b>726</b>	<b>78.99</b>	<b>78.99</b>	<b>78.99</b>	<b>78.99</b>	<b>78.99</b>
<b>E</b>	<b>NTPC</b>						
1	BTPS	250	30.26	60.52	90.78	90.78	90.78
2	FSTPS	1600	10.84	10.84	10.84	10.84	10.84
3	KHSTPS-I	840	5.69	5.69	5.69	5.69	5.69
4	KHSTPS-II	1500	20.33	20.33	20.33	20.33	20.33
5	TSTPS-I	1000	6.78	6.78	6.78	6.78	6.78
<b>Sub -Total NTPC</b>		<b>5190</b>	<b>73.91</b>	<b>104.17</b>	<b>134.43</b>	<b>134.43</b>	<b>134.43</b>
<b>TOTAL</b>		<b>7688</b>	<b>622</b>	<b>701</b>	<b>758</b>	<b>758</b>	<b>758</b>

MePDCL has submitted that the increase in projected availability from Bongaigaon Thermal Power Station (BTPS) is on account of commissioning of 2 more units of the plant in the coming year and the same shall be available for supply to MePDCL in the second control period i.e FY 2018-19 to FY 2020-21.

Further, MePDCL submitted that it is currently having surplus power and the same is being sold in the short term market. But, as the cost of sale of surplus power in the short term market is on a negative trend, MePTCL has proposed to construct a 40 Km transmission line connecting Meghalaya to Bangladesh, thus providing a means for MePDCL to sell surplus power to Bangladesh. MePDCL is also working out on options of selling excess power to nearby states with high power demand.

### Commission's Analysis

On a query from the Commission, MePDCL has also submitted the energy availability (MU) from various sources, actual for FY 2016-17 and projections from FY 2017-18 to FY 2020-21 as shown in the table below:

**Table 3.23: Estimated Energy availability from FY 2016-17 to FY 2020-21 (MU)**

S No	Name of Station	Actual (MU)	Projected Availability (MU)	Projected Availability (MU)	Projected Availability (MU)	Projected Availability (MU)
		2016-17	2017-18	2018-19	2019-20	2020-21
<b>A</b>	<b>MePGCL</b>					
1	Umiam I	95.55	100.46	100.46	100.46	100.46
2	Umiam II	49.89	50.23	50.23	50.23	50.23
3	Umiam III	64.53	65.85	105.12	105.12	105.12
4	Umiam IV	164.94	191.17	191.17	191.17	191.17
5	MLHEP	441.00	410.22	410.22	410.22	410.22
6	Umtru	0.00	0.00	0.00	0.00	0.00
7	Sunapani	8.00	5.85	5.85	5.85	5.85
8	New Umtru	0.00	160.00	219.00	219.00	219.00
9	Ganol	0.00	0.00	76.65	76.65	76.65
10	Lakroh	0.00	0.00	5.85	5.85	5.85
	Sub Total MePGCL	<b>823.922</b>	<b>983.768</b>	<b>1164.5464</b>	<b>1164.5464</b>	<b>1164.5464</b>
<b>B</b>	<b>NEEPCO</b>					
1	KOPILI	75.13	82.23	82.23	82.23	82.23
2	KOPILI-Ext	6.73	8.48	8.48	8.48	8.48
3	KHANDONG	13.77	17.53	17.53	17.53	17.53
4	RANGANADI	14.53	131.25	131.25	131.25	131.25
5	DOYANG	1.90	23.65	23.65	23.65	23.65
6	AGBPP	50.20	187.65	187.65	187.65	187.65
7	AGTPP CC	32.32	119.00	119.00	119.00	119.00
8	Pare	0.00	31.53	31.53	31.53	31.53
	Sub-Total NEEPCO	<b>194.58</b>	<b>601.32</b>	<b>601.32</b>	<b>601.32</b>	<b>601.32</b>
<b>C</b>	<b>NHPC-Loktak</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>D</b>	<b>OTPC-Pallatana</b>	<b>436.79</b>	<b>436.79</b>	<b>436.79</b>	<b>436.79</b>	<b>436.79</b>
<b>E</b>	<b>NTPC*</b>					
1	BTPS	189.67	372.00	558.00	558.00	558.00
2	FSTPS	0.00	48.73	48.73	48.73	48.73
3	KHSTPS-I	0.00	50.45	50.45	50.45	50.45
4	KHSTPS-II	0.00	251.12	251.12	251.12	251.12
5	TSTPS-I	0.00	67.85	67.85	67.85	67.85
	Sub -Total NTPC	<b>189.67</b>	<b>790.14</b>	<b>976.14</b>	<b>976.14</b>	<b>976.14</b>
	<b>TOTAL</b>	<b>1645</b>	<b>2812</b>	<b>3179</b>	<b>3179</b>	<b>3179</b>

From the above tables 22 and 23 it is observed that apart from the state generating sources MePDCL is mainly relying on the allocation from NEEPCO, NHPC, OTPC-Pallatana and NTPC stations.

Since the power procurement has to be planned based on

1. Merit order principles
2. Latest allocation orders
3. Latest orders issued by CERC

4. Inter state transmission loss
5. Plant load Factors etc.,

The Commission considers it appropriate to review and approve the power purchase quantum and cost at the time of finalisation of tariff order for Control Period FY 2018-19 to FY 2020-21. The Commission directs MePDCL to submit the Energy availability from various sources during the Control Period FY 2018-19 to FY 2020-21 with full details such as allocation from various sources, PLF assumed for estimating the energy availability, fixed and variable cost and etc., in MYT petition to be filed for the Control Period FY 2018-19 to FY 2020-21. However, for the purpose of Business plan the Commission approves the power procurement plan for Control Period FY 2018-19 to FY 2020-21 as projected by MePDCL as shown in the table below:

**Table3.24: Power Availability Approved for the Control Period FY 2018-19 to FY 2020-21**

S No	Name of Station	Total Allocation (MW)	Projected Availability (MU)	Total Allocation (MW)	Projected Availability (MU)	Total Allocation (MW)	Projected Availability (MU)
		2018-19		2019-20		2020-21	
<b>A</b>	<b>MePGCL</b>						
1	Umiam I	36.00	100.46	36.00	100.46	36.00	100.46
2	Umiam II	20.00	50.23	20.00	50.23	20.00	50.23
3	Umiam III	60.00	105.12	60.00	105.12	60.00	105.12
4	Umiam IV	60.00	191.17	60.00	191.17	60.00	191.17
5	MLHEP	126.00	410.22	126.00	410.22	126.00	410.22
6	Umtru	11.20	0.00	11.20	0.00	11.20	0.00
7	Sunapani	1.50	5.85	1.50	5.85	1.50	5.85
8	New Umtru	40.00	219.00	40.00	219.00	40.00	219.00
9	Ganol	25.00	76.65	25.00	76.65	25.00	76.65
10	Lakroh	1.50	5.85	1.50	5.85	1.50	5.85
Sub Total MePGCL		<b>381.2</b>	<b>1164.5464</b>	<b>381.2</b>	<b>1164.5464</b>	<b>381.2</b>	<b>1164.5464</b>
<b>B</b>	<b>NEEPCO</b>						
1	KOPILI	35.05	82.23	35.05	82.23	35.05	82.23
2	KOPILI-Ext	3.45	8.48	3.45	8.48	3.45	8.48
3	KHANDONG	8.51	17.53	8.51	17.53	8.51	17.53
4	RANGANADI	47.10	131.25	47.10	131.25	47.10	131.25
5	DOYANG	8.69	23.65	8.69	23.65	8.69	23.65
6	AGBPP	34.74	187.65	34.74	187.65	34.74	187.65
7	AGTPP CC	16.57	119.00	16.57	119.00	16.57	119.00
8	Pare	9.00	31.53	9.00	31.53	9.00	31.53
Sub-Total NEEPCO		<b>163.12</b>	<b>601.32</b>	<b>163.12</b>	<b>601.32</b>	<b>163.12</b>	<b>601.32</b>
<b>C</b>	<b>NHPC-Loktak</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>D</b>	<b>OTPC-Pallatana</b>	<b>78.99</b>	<b>436.79</b>	<b>78.99</b>	<b>436.79</b>	<b>78.99</b>	<b>436.79</b>
<b>E</b>	<b>NTPC*</b>						
1	BTPS	90.78	558.00	90.78	558.00	90.78	558.00

S No	Name of Station	Total Allocation (MW)	Projected Availability (MU)	Total Allocation (MW)	Projected Availability (MU)	Total Allocation (MW)	Projected Availability (MU)
		2018-19		2019-20		2020-21	
2	FSTPS	10.84	48.73	10.84	48.73	10.84	48.73
3	KHSTPS-I	5.69	50.45	5.69	50.45	5.69	50.45
4	KHSTPS-II	20.33	251.12	20.33	251.12	20.33	251.12
5	TSTPS-I	6.78	67.85	6.78	67.85	6.78	67.85
Sub -Total NTPC		<b>134.43</b>	<b>976.14</b>	<b>134.43</b>	<b>976.14</b>	<b>134.43</b>	<b>976.14</b>
<b>TOTAL</b>		<b>758</b>	<b>3179</b>	<b>758</b>	<b>3179</b>	<b>758</b>	<b>3179</b>

### 3.8 Energy balance

#### Petitioner's Submission

MePDCL has projected the actual energy balance for FY 2016-17 and Projected energy balance for FY 2017-18 and for the Control Period FY 2018-19 to FY 2020-21 (in the additional data submitted) as shown in table below:

**Table 3.25: Projected Energy Balance from FY 2016-17 to FY 2020-21 (MU)**

S. No.	Particulars	Calculation	2016-17 (A)	2017-18 (P)	2018-19 (P)	2019-20 (P)	2020-21 (P)
1	Power purchased from the Eastern Region (ER)	A	189.67	790.14	976.14	976.14	976.14
2	Inter-state transmission loss for ER	B	2.27%	2.12%	2.12%	2.12%	2.12%
3	Net power purchased from the ER	$C=A*(1-B)$	185.36	773.39	955.45	955.45	955.45
4	Power purchased from the North - Eastern Region (NER)	D	631.37	1038.11	1038.11	1038.11	1038.11
5	Inter-state transmission loss for NER	E	2.70%	2.63%	2.63%	2.63%	2.63%
6	Net power available at state bus from external sources on long term	$F=(C+D)*(1-E)$	794.68	1,763.86	1,941.13	1,941.13	1,941.13
7	Power purchased from generating stations within the state	G	823.92	983.77	1164.55	1164.55	1164.55
8	Power purchased from other sources	H	62.02	0.00	0.00	0.00	0.00
	<b>Total Availability at MePDCL Periphery</b>	<b>I=F+G+H</b>	<b>1680.62</b>	<b>2747.63</b>	<b>3105.67</b>	<b>3105.67</b>	<b>3105.67</b>
9	Power to be sold to consumers within the state (including ASEB)	J	972.38	977.59	1001.19	1026.68	1054.33
10	Transmission & Distribution Losses (%)	K	32.65%	22.76%	16.56%	12.19%	12.19%
11	Net power requirement at state bus for sale of power within the state	$L=J/(1-K)$	1443.78	1265.65	1199.89	1169.20	1200.69
12	Surplus Power (for sale outside state)	$M = I - L$	236.85	1481.98	1905.78	1936.47	1904.98

#### Commission's Analysis

The Commission has computed the energy balance based on the approved energy sales, distribution and transimission losses and energy availability from various sources.

The energy balance approved by the Commission for the Control Period FY 2018-19 to FY 2020-21 is as shown in the table below:

**Table 3.26: Approved Energy Balance for the Control Period FY 2018-19 to FY 2020-21**

(MU)

S. No.	Particulars	Calculation	2018-19	2019-20	2020-21
1	Power purchased from the Eastern Region (ER)	A	976.14	976.14	976.14
2	Inter-state transmission loss for ER	B	2.12%	2.12%	2.12%
3	Net power purchased from the ER	$C=A*(1-B)$	955.45	955.45	955.45
4	Power purchased from the North -Eastern Region (NER)	D	1038.11	1038.11	1038.11
5	Inter-state transmission loss for NER	E	2.63%	2.63%	2.63%
6	Net power available at state bus from external sources on long term	$F=(C+D)*(1-E)$	1941.13	1941.13	1941.13
7	Power purchased from generating stations within the state	G	1164.55	1164.55	1164.55
8	Power purchased from other sources	H	0.00	0.00	0.00
9	<b>Total Energy available</b>	<b><math>I=F+G+H</math></b>	<b>3105.68</b>	<b>3,105.68</b>	<b>3,105.68</b>
10	Intra State Transmission loss at 4%	$J=I*4\%$	124.23	124.23	124.23
11	<b>Total availability at MePDCL Periphery</b>	<b><math>K=I-J</math></b>	<b>2981.45</b>	<b>2981.45</b>	<b>2981.45</b>
12	Power to be sold to consumers within the state (including ASEB)	L	1015.63	1038.45	1062.34
13	Distribution Losses (%)	M	16.56%	12.19%	12.00%
14	Net power requirement at MePDCL periphery for sale of power within the state	$N=L/(1-M\%)$	1217.20	1182.62	1207.20
15	<b>Surplus Power (for sale outside state)</b>	<b><math>O = K-N</math></b>	<b>1764.25</b>	<b>1798.84</b>	<b>1774.25</b>

### 3.9Capital Investment (CIP)

#### Petitioner's Submission

MePDCL has submitted that the purpose of the Capital Investment Plan (CIP) is to provide a roadmap for planning and implementation of proposed projects & schemes for the control period of FY 2018-19 to FY2020-21 to meet various long term needs as highlighted below:

- Strengthening of Aging Network
- Evacuation of Power from upcoming MePTCL Grid Substations
- Supply of Power to new load centres
- Increasing Distribution Network capacity for increased load

- Increased Quality and Reliability of Power
- Appropriate Loading of Distribution Network
- Increased Control and Protection for Grid Stability
- Loss Reduction
- Outage Reduction

MePDCL has submitted that CIP includes the projects which are under implementation as per the investment plan of the first control period and new investment during MYT control period from FY2017-18 to FY 2020-21. The CIP includes schemes envisaged to be implemented in future, several assumptions have been taken to project the various attributes such as scope of work, funding pattern, funding sources, project cost, commencement/ completion dates and construction period etc. The assumptions have been taken considering historical inputs and anticipated project attributes. Certain project attributes such as construction period, actual project cost, completion dates etc. for ongoing projects also expected to change in future due to uncontrollable externalities. Therefore the project particulars are expected to modify in future and shall be updated during subsequent filings of Mid-Term Review.

MePDCL has submitted that funding of capital expenditure is through financial assistance provided by Government of Meghalaya and Government of India under various schemes as well as external aided funding i.e. World Bank, Asian Development Bank, etc.

The details of various capex schemes are provided hereunder:-

### **Status of Various Government Funding Schemes for CIP**

#### **North East Region Power System Improvement Project (NERPSIP)**

The Government of India (GoI) has formulated a plan for undertaking investments in Transmission & Distribution in North East Region (NER) to facilitate increased availability of power, improvement in service delivery and reduction of system losses. Presently, six NER States (Assam, Manipur, Mizoram, Meghalaya, Tripura and Nagaland) are connected to transmission network at 132 kV network and above. The 33 KV network is the backbone of power distribution system in these states. In order to reduce the gap between the requirement and availability of the

intra-state transmission and distribution system, it was found necessary to provide 132 kV / 220 kV connectivity to all these NER states for proper voltage management and loss reduction. Similarly, the distribution system which mainly relies on 33 kV network would be strengthened substantially.

Implementation of this project will create a reliable state power grid and improve its connectivity to the upcoming load centres, and thus extend the benefits of the grid connected power to all the consumers. The project includes capital investments for strengthening/ augmentation of the intra-state transmission and distribution network as well as capacity building upto 33 kV.

The objective of scheme is to revitalize the power sector to achieve sustainable development in long term in the State and the works covered are broadly highlighted in the following table:

**Table 3.27: NERPSIP Asset addition**

Sl. No	Description/Work	Rating	Unit	Capacity Addition
1	New Substations	33/11 kV	MVA	140
2	Augmentation of Substations	33/11 kV	MVA	30
3	Construction of lines	33 kV	Ckt. Km	239
4	Re-conductoring of lines	33 kV	Ckt. Km	35

The addition of new substations and construction of new lines is required for relieving the existing overloaded lines and substations and also to meet the growing demand in the State.

The Distribution part of the project is summarized/ divided as follows:

- **East Jaintia Hills- MEG DMS-01:**

40 MVA/4 Nos in Mynkre, Rymbai, Latyrke and Byndihati and 33 KV line on Wolf Conductor 57 Km along with LILO and reconductoring works at a total cost of Rs.34.65 Crore.

- **West Garo Hills Hills- MEG DMS-02:**

15 MVA/3 Nos in Chibinang, Raksambre, Rajabala (New) and augmentation of existing Phulbari Substation to 2x5 MVA, Bay extension at Tikrikilla Substation, at a total cost of Rs.32.98 Crore.

- **East Khasi Hills- MEG DMS-03:**

65 MVA/4 Nos at Mawkynrew, Mawryngkneng, New Shillong and Mawpat and augmentation of existing SE Falls Substation to 2x10 MVA and 33 KV line on Wolf Conductor 79 Km along with LILO and re-conductoring works at a total cost of Rs.48.23 Crore.

The NERPSIP scheme is expected to be completed by December 2018.

The proposed project expenditure is around Rs.116.06 Cr, 95% funds shall be received as Grant from Gol and balance 5% as Loan from State Government. The funding pattern for MePDCL is summarised as below:

**Table 3.28: NERPSIP Funding Pattern**

<b>Particulars</b>	<b>State Govt. Loan</b>	<b>Gol Grant</b>
Funding (%)	5%	95%
Amount (Rs. Crore)	5.79	110.06

### **Power System Development Fund (PSDF)**

PSDF is a fund constituted under Central Electricity Regulatory Commission (Power System Development Fund) Regulations, 2014 to be utilized for the following purpose:

- Transmission systems of strategic importance based on operational feedback by Load Dispatch Centers for relieving congestion in inter-State transmission system (ISTS) and intra-State Transmission Systems which are incidental to the ISTS.
- Installation of shunt capacitors, series compensators and other reactive energy generates for improvement voltage profile in the Grid.
- Installation of special protection schemes, pilot and demonstrative projects, standard protection schemes and for setting right the discrepancies identified in the protection schemes and for setting right the discrepancies identified in the protection audits on regional basis.
- Renovation and Modernization (R&M) of transmission and distribution system for relieving congestion
- Removal of congestion from the transmission and distribution lines for free flow of power.
- Any other scheme/ project in furtherance of the above objectives such as technical studies and capacity building.

MePDCL plans to utilize the funding available through PSDF for implementation of the schemes in the next 2 years estimated to be Rs. 2.97 Cr which is available as 100% Grant.

#### **UjwalDiscom Assurance Yojana (UDAY) Scheme**

UDAY Scheme was approved by the Union Cabinet in a meeting held on 5<sup>th</sup> November, 2015. The UDAY scheme was launched on 20<sup>th</sup> November, 2015 with an objective to improve operational and financial efficiency of the state Discom. The UDAY scheme for Discom envisages;

Feeder metering, Feeder separation, Smart metering, DT metering etc. to reduce A&C losses,

Billing & Collection: 100% billing and collection to reduce ACS-ARR Gap / AT&C losses.

The scheme aims to improve the Operational efficiency of DISCOMs, reduce the cost of power, improve the financial health of DISCOMs by taking over the existing debts as on 30<sup>th</sup> September 2015 and includes measures to prevent future slippages.

The current status of UDAY in the State of Meghalaya is provided below.

- The Tripartite Memorandum of Understanding between the Ministry of Power, Govt, of India, the Government of Meghalaya and the Meghalaya Power Distribution Corporation Ltd was signed on the 9<sup>th</sup> March, 2017. The debt of Meghalaya Power Distribution Corporation Ltd as on 30<sup>th</sup> Sept, 2015 were Rs 166.67 Crs. and the State Government has taken over 75% of the debts amounting to Rs 125.0 Crs.
- Steps has been taken by MePDCL to restructure the remaining debts of Rs 41.67 Cr- MePDCL has approached REC Ltd to restructure the debt outstanding with them but it is expressed by REC, its inability to restructure as per UDAY guidelines as per RBI notification on NPA and also there is no base rate for REC. The Corporation has also explored some other options to float Bond for Rs

41.67 Cr. It was made to understand that since the amount is small, floating of Bond is not feasible.

- Appointment of Nodal Officer for UDAY has been completed and State Level Monitoring Committee has been constituted Office Order in this regard
- As per the UDAY MoU signed by MePDCL, the ACS and ARR gap is proposed to be reduced gradually to zero by FY 2019-20 & MePDCL has to reduce the AT&C losses to 15% by FY 2019-20. In this regard action plan for the following has been formulated by MePDCL and submitted to REC:
  - a) Improving Billing Efficiency
  - b) Improving Collection Efficiency
  - c) Reduction in ACS-ARR gap

MePDCL has proposed capex schemes of Rs.360.80 crore for the MYT control period of FY 2018-19 to FY 2020-21.

### **Indo Bangladesh Border Flood Lighting**

The scheme for Indo Bangladesh Border Lighting project has been envisaged by the Government of Meghalaya keeping in view the security requirement for 440 km long border shared between Meghalaya and Bangladesh. The Project is being financed by the Ministry of Home Affairs, Government of India as Deposit Work Scheme. Currently the bid evaluation for turnkey execution of project is in progress as detailed in the table below:

**Table 3.29: Indo Bangla Border Flood Lighting**

Sl. No.	District(s)	Estimated Cost (Rs. Cr)
1	Shillong Sector	31.07
2	Tura Sector	26.05
3	Williamnagar Sector	27.45
4	Jowai Sector	23.35
	<b>Total</b>	<b>107.92</b>

### **Integrated Power Development Scheme (IPDS)**

The component of IT enablement of distribution sector and strengthening of distribution network approved in June, 2013 in the form of RAPDRP for 12<sup>th</sup> and

13<sup>th</sup> Plans got subsumed in DDUGJY and approved scheme outlay of Rs 44.011 Crore including a budgetary support of Rs 22.727 crore carried over to the new scheme of IPDS.

The objectives of the schemes are:

- Strengthening of sub-transmission and distribution network in the urban areas
- Metering of distribution transformers/feeders/consumers in the urban area
- IT enablement of distribution sector and strengthening of distribution network.

The cost of implementation of ongoing works is ~ Rs.62 Crores and 90% cost of project shall be as Grant from Government of India as Grant and 10% through Loan from State Government.

#### **DeendayalUpadhyaya Gram JyotiYojna (DDUGJY)**

Govt. of India has launched DDUGJY for the rural areas with the following components:

- Separation of agriculture and non-agriculture feeders facilitating judicious rostering of supply to agricultural & non-agricultural consumers in the rural areas.
- Strengthening and augmentation of sub-transmission & distribution (ST&D) infrastructure in rural areas, including metering at distribution transformers, feeders and consumers end.
- Rural electrification, for completion of the targets laid down under RGGVY for 12th and 13th Plans by subsuming RGGVY in DDUGJY and carrying forward the approved outlay for RGGVY to DDUGJY.

The project outlay is around Rs. 281.59 Crore which includes village electrification through grid and off grid (solar), system strengthening, metering. The scheme funding is available at 100% Grant (85% from Government of India and 15% from State Government). The Phase-I work for DDUGJY is in progress and Phase-II, system strengthening and metering tendering process is in progress.

#### **Deposit Works**

The work for deposit works consists of providing power supply for new applicants under Domestic Low Tension (DLT), Commercial Low Tension (CLT), general purpose, Industrial purpose etc. which is a priority for MePDCL.

Depending on the load of the premises as substantiated by the test report submitted by the applicant, estimates for providing the service connection like the metering system to be installed, the load security etc. are prepared and forwarded to the applicant for payment. The head of accounts, wherein the party is to make payment for providing power supply to the premises is booked under Deposit.

### **Summary of the capital investment**

The Capital Expenditure from FY 2017-18 to FY 2020-21 is provided as Investment Plan Format as per prescribed format of MSERC vide MYT Regulations, 2014 and summarized in the table below:

**Table 3.30: Summary of Project cost and funding**

Schemes	Project Cost (Rs. Cr)	Funding Pattern (Rs. Cr)			
		Equity	Loan	Grant	Consumer Contribution
New Schemes					
NER Power System Improvement Project	0.20		0.01	0.19	
Construction/ Upgradation of lines	94.95		26.59	68.36	
Construction/ Upgradation of Substations	156.20		43.74	112.46	
System Protection, Control system, metering etc.	8.64		2.42	6.22	
UDAY	360.80		101.02	259.77	
Scheme funded by Power System Development Fund	2.97			2.97	
DeendayalUpadhyaya Gram JyotiYojna	41.92			41.92	
Total	665.68		173.77	491.90	
Ongoing Schemes					
NER Power System Improvement Project	178.03		5.79	110.07	
Integrated Power Development Scheme	62.04		6.20	55.84	
DeendayalUpadhyaya Gram JyotiYojna	268.13			268.13	
Indo Bangla Border Flood Lighting	107.92				107.92
Total	553.95		12.00	434.03	107.92

### **Summary of Funding of Capex year on year**

**Table 3.31: Fund requirement year on year for new schemes**

Sl. No.	Category	Fund Requirement (in RsCrores)				
		FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	Total
1	33 kV, 11 kV and LT Lines	--	37.10	61.03	33.92	<b>132.05</b>
2	33/11 & Distribution Sub Station	--	8.00	133.18	31.70	<b>172.88</b>
3	UDAY	111.67	205.82	38.31	5.00	<b>360.80</b>
	<b>Total</b>	<b>111.67</b>	<b>250.92</b>	<b>232.52</b>	<b>70.61</b>	<b>665.72</b>

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

The Commission has examined the capital investment/expenditure plan submitted by the MePDCL.

MePDCL has proposed capex of Rs.553.95 crores against ongoing schemes and Rs.665.72 crore towards new capex from FY 2017-18 to FY 2020-21 thus totaling to Rs.1219.67 crore.

The Commission approves the capital investment/expenditure plan keeping in view the requirement of strengthening of distribution system network to meet the "24 x 7 Power to All" programme and to meet the year on year demand growth in the State and also the schemes envisaged for system improvement and operational efficiency.

The Commission, based on the information made available in the petition, had computed the funding pattern and year on year on capex and capitalisation as detailed in the Tables below:

**Table 3.32: Approved project/scheme cost and funding of capex**

Sl. No.	Name of the Scheme/Project	Approved Outlay	Source of funding (Rs. crore)			
			Grant	Loan	Consumer contribution	Total
A	<b><u>New Schemes</u></b>					
1	Construction/upgradation of lines	94.95	68.36	26.59		94.95
2	Construction/upgradation of Substations	156.24	112.49	43.75		156.24
3	UDAY	360.80	259.78	101.02		360.80
4	DDUGJY	41.92	41.92			41.92
5	NERPSIP	0.20	0.19	0.01		0.20
6	System protection, control system, metering, etc.	8.64	6.22	2.42		8.64
7	PSDF	2.97	2.97			2.97
	<b>sub-total - A</b>	<b>665.72</b>	<b>491.93</b>	<b>173.79</b>	<b>0.00</b>	<b>665.72</b>
B	<b><u>Ongoing Schemes</u></b>					

Sl. No.	Name of the Scheme/Project	Approved Outlay	Source of funding (Rs. crore)			
			Grant	Loan	Consumer contribution	Total
8	NERPSIP	115.86	110.07	5.79		115.86
9	IPDS	62.04	55.84	6.2		62.04
10	DDUGJY	268.13	268.13			268.13
11	Indo Bangla Border flood lighting	107.92			107.92	107.92
	<b>sub-total - B</b>	<b>553.95</b>	<b>434.04</b>	<b>11.99</b>	<b>107.92</b>	<b>553.95</b>
	<b>Total A+B</b>	<b>1219.67</b>	<b>925.97</b>	<b>185.78</b>	<b>107.92</b>	<b>1219.67</b>

The scheme-wise capex and capitalisation approved for FY 2017-18 and MYT control period from FY 2018-19 to FY 2020-21 in respect of ongoing scheme/projects and new schemes/projects is furnished in the Table below:

**Table 3.33: Scheme-wise/work-wise capital investment plan approved for FY 2017-18 and MYT Control Period FY 2018-19 to FY 2020-21 (Rs.Crore)**

Sl. No.	Name of the Scheme/Project	Approved Outlay	Source of funding				up to FY 2017-18		FY 2018-19		FY 2019-20		FY 2020-21		FY 2021-22		Total	
			Grant	Consumer contribution	Loan	Total	Capex	Capitalisation	Capex	Capitalisation	Capex	Capitalisation	Capex	Capitalisation	Capex	Capitalisation	Capex	Capitalisation
1	2	3	4	5	6	7 = (4+5+6)	8	9	10	11	12	13	14	15	16	17	18 = (8+10+12+14+16)	19 = (9+11+13+15+17)
<b>A</b>	<b><u>Lines</u></b>																	
1	DDUGJY	33.93	33.93	-		33.93	-	-	33.93	33.93	-	-	-	-	-	-	33.93	33.93
2	ADB	94.95	68.37	-	26.58	94.95	-	-			61.03	61.03	33.92	33.92	-	-	94.95	94.95
3	PSDF	2.97	2.97	-		2.97	-	-	2.97	2.97	-	-	-	-	-	-	2.97	2.97
4	NERPSIP	0.20	0.19	-	0.01	0.20	-	-	0.20	0.20	-	-	-	-	-	-	0.20	0.20
	<b>Sub-total - Lines (A)</b>	<b>132.05</b>	<b>105.46</b>	<b>-</b>	<b>26.59</b>	<b>132.05</b>	<b>-</b>	<b>-</b>	<b>37.10</b>	<b>37.10</b>	<b>61.03</b>	<b>61.03</b>	<b>33.92</b>	<b>33.92</b>	<b>-</b>	<b>-</b>	<b>132.05</b>	<b>132.05</b>
<b>B</b>	<b><u>Substations</u></b>																	
5	DDUGJY (2 nos Substations)	8.00	8.00	-		8.00	-	-	8.00	-	-	8.00	-	-	-	-	8.00	8.00
6	ADB (39 nos Substations)	156.24	112.49	-	43.75	156.24	-	-	-	-	128.00		28.24	132.24	-	24.00	156.24	156.24
	<b>Sub-total - Substations (B)</b>	<b>164.24</b>	<b>120.49</b>	<b>-</b>	<b>43.75</b>	<b>164.24</b>	<b>-</b>	<b>-</b>	<b>8.00</b>	<b>0.00</b>	<b>128.00</b>	<b>8.00</b>	<b>28.24</b>	<b>132.24</b>	<b>-</b>	<b>24.00</b>	<b>164.24</b>	<b>164.24</b>
<b>C</b>	<b><u>Other works</u></b>																	
7	Installation of 11kV auto reclosure in place of DO Fuse control protection system in 39 Nos. unmanned 33/11kV SS in 108 nos of 11kV feeders	8.64	6.22	-	2.42	8.64	-	-	-	-	5.18		3.46	8.64	-	-	8.64	8.64
<b>D</b>	<b><u>UDAY schemes</u></b>																	
8	Distribution	4.98	3.59	-	1.39	4.98	1.14	1.14	3.84	3.84	-	-	-	-	-	-	4.98	4.98

Sl. No.	Name of the Scheme/Project	Approved Outlay	Source of funding				up to FY 2017-18		FY 2018-19		FY 2019-20		FY 2020-21		FY 2021-22		Total	
			Grant	Consumer contribution	Loan	Total	Capex	Capitalisation	Capex	Capitalisation	Capex	Capitalisation	Capex	Capitalisation	Capex	Capitalisation	Capex	Capitalisation
	transformer metering																	
9	Consumer indexing and GIS mapping	32.28	23.24	-	9.04	32.28	-	-	16.14	16.14	16.14	16.14	-	-	-	-	32.28	32.28
10	DTR associated feeder upgradation	19.98	14.39	-	5.59	19.98	5.00	5.00	5.00	5.00	5.00	5.00	4.98	4.98	-	-	19.98	19.98
11	Electricity access to unconnected households	59.26	42.67	-	16.59	59.26	23.57	23.57	35.69	35.69	-	-	-	-	-	-	59.26	59.26
12	ERP System implementation	35.00	25.20	-	9.80	35.00	17.50	17.50	17.50	17.50	-	-	-	-	-	-	35.00	35.00
13	Distribution of energy efficient tubelights and fans	27.67	19.92	-	7.75	27.67	13.84	13.84	13.83	13.83	-	-	-	-	-	-	27.67	27.67
14	Consumer awareness programme	1.22	0.88	-	0.34	1.22	0.61	0.61	0.61	0.61	-	-	-	-	-	-	1.22	1.22
15	Installation of smart meters for consumers with consumption above 200 units/month	180.40	129.89	-	50.51	180.40	50.02	50.02	113.21	113.21	17.17	17.17	-	-	-	-	180.40	180.40
	<b>Sub-total - UDAY scheme (D)</b>	<b>360.79</b>	<b>259.78</b>	<b>-</b>	<b>101.01</b>	<b>360.79</b>	<b>111.68</b>	<b>111.68</b>	<b>205.82</b>	<b>205.82</b>	<b>38.31</b>	<b>38.31</b>	<b>4.98</b>	<b>4.98</b>	<b>-</b>	<b>-</b>	<b>360.79</b>	<b>360.79</b>
	<b>Total (A to D)</b>	<b>665.72</b>	<b>491.95</b>	<b>-</b>	<b>173.77</b>	<b>665.72</b>	<b>111.68</b>	<b>111.68</b>	<b>250.92</b>	<b>242.92</b>	<b>232.52</b>	<b>107.34</b>	<b>70.60</b>	<b>179.78</b>	<b>-</b>	<b>24.00</b>	<b>665.72</b>	<b>665.72</b>
	<u>Ongoing schemes</u>																	
16	Lines and Substations	177.90	165.90	-	12.00	177.90			115.86	115.86	62.04	62.04			-	-	177.90	177.90
17	DDUGJY Ph-I	98.80	98.80			98.80	98.80	98.80									98.80	98.80
18	DDUGJY Ph-II	89.89	89.89			89.89	89.89	89.89									89.89	89.89
19	SAGY	1.25	1.25			1.25	1.25	1.25									1.25	1.25
20	System strengthening	54.80	54.80			54.80	54.80	54.80									54.80	54.80
21	Feeder metering etc.	15.16	15.16			15.16	15.16	15.16									15.16	15.16

Sl. No.	Name of the Scheme/Project	Approved Outlay	Source of funding				up to FY 2017-18		FY 2018-19		FY 2019-20		FY 2020-21		FY 2021-22		Total	
			Grant	Consumer contribution	Loan	Total	Capex	Capitalisation	Capex	Capitalisation	Capex	Capitalisation	Capex	Capitalisation	Capex	Capitalisation	Capex	Capitalisation
22	Solar electrification - Households/street lights	8.23	8.23			8.23	8.23	8.23									8.23	8.23
23	Indo Bangla Border lighting	107.92		107.92		107.92	107.92	107.92									107.92	107.92
	<b>sub-total ongoing schemes</b>	<b>553.95</b>	<b>434.03</b>	<b>107.92</b>	<b>12.00</b>	<b>553.95</b>	<b>376.05</b>	<b>376.05</b>	<b>115.86</b>	<b>115.86</b>	<b>62.04</b>	<b>62.04</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>553.95</b>	<b>553.95</b>
	<b>Total capital investment</b>	<b>1219.67</b>	<b>925.98</b>	<b>107.92</b>	<b>185.77</b>	<b>1219.67</b>	<b>487.73</b>	<b>487.73</b>	<b>366.78</b>	<b>358.78</b>	<b>294.56</b>	<b>169.38</b>	<b>70.60</b>	<b>179.78</b>	<b>0.00</b>	<b>24.00</b>	<b>1219.67</b>	<b>1219.67</b>