

## CHAPTER – 5

### ANNUAL REVENUE REQUIREMENT FOR FY20-22

#### 5.0 Annual Revenue Requirement (ARR) for FY20-FY22 -MESCOM's Filing:

MESCOM in its application dated 30<sup>th</sup> November, 2018, has sought approval of the Commission for its ARR for the fifth control period of FY20-22 and the revision of retail supply tariff for FY20. The summary of the proposed ARR for FY20-22 is as follows:

**TABLE – 5.1**  
**Proposed ARR for FY20-22**

		Amount in Rs. Crores		
Sl. No	Particulars	FY20	FY21	FY22
		As Filed 30.11.2018	As Filed 30.11.2018	As Filed 30.11.2018
1	Energy at Generating Bus (With MSEZ) : in MU	5,973.11	6,119.44	6,270.50
2	Transmission Losses in %	3.19%	3.17%	3.15%
3	Energy @ Interface in MU	5,782.57	5,925.46	6,072.98
4	Distribution Losses in %	11.20%	11.10%	11.00%
5	<b>Sales in MU</b>			
	Sales to other than IP & BJ/KJ	3,369.91	3,467.07	3,567.90
	Sales to BJ/KJ	34.21	34.21	34.21
	Sales to IP	1,730.80	1,766.45	1,802.84
	<b>Total Sales</b>	<b>5,134.92</b>	<b>5,267.73</b>	<b>5,404.95</b>
6	<b>Revenue at existing tariff in Rs. Crores.</b>			
	Revenue from tariff and Misc. Charges	2,504.60	2,579.98	2,658.71
	Tariff Subsidy to BJ/KJ	23.47	23.47	23.47
	Tariff Subsidy to IP	919.05	937.98	957.31
	<b>Total Existing Revenue including Miscellaneous Revenue</b>	<b>3,447.12</b>	<b>3,541.43</b>	<b>3,639.49</b>
	<b>Expenditure in Rs. Crores.</b>			
7	Power Purchase Cost	2,215.35	2,284.93	2,356.71
	Transmission charges of KPTCL	224.37	247.99	259.80
	SLDC Charges	2.09	2.09	2.09
	<b>Power Purchase Cost including cost of transmission</b>	<b>2,441.81</b>	<b>2,535.01</b>	<b>2,618.60</b>

Sl. No	Particulars	FY20	FY21	FY22
		As Filed 30.11.2018	As Filed 30.11.2018	As Filed 30.11.2018
8	Employee Cost	434.53	480.29	530.86
	Repairs & Maintenance	48.12	53.19	58.79
	Admin & General Expenses	114.35	126.39	139.70
	<b>Total O&amp;M Expenses</b>	<b>597.00</b>	<b>659.87</b>	<b>729.35</b>
9	Depreciation	137.18	165.86	189.95
<b>10</b>	<b>Interest &amp; Finance charges</b>			
11	Interest on Capital Loans	133.55	165.02	182.33
12	Interest on Working capital loans	72.10	75.17	78.26
13	Interest on belated payment on PP Cost	0.00	0.00	0.00
14	Interest on consumer security deposits	45.29	49.66	54.03
15	Other Interest & Finance charges	1.10	1.10	1.10
16	<b>Less: Interest &amp; other expenses capitalised</b>	<b>-2.92</b>	<b>-2.92</b>	<b>-2.92</b>
	<b>Total Interest &amp; Finance charges</b>	<b>249.12</b>	<b>288.03</b>	<b>312.80</b>
17	Other Debits	0.00	0.00	0.00
18	Net Prior Period Debit/Credit	0.00	0.00	0.00
19	Return on Equity	121.22	139.05	157.84
22	Funds towards Consumer Relations/Consumer Education	0.50	0.50	0.50
23	Other Income (Including income from MSEZ)	-35.30	-35.30	-35.30
	<b>ARR</b>	<b>3,511.53</b>	<b>3,753.02</b>	<b>3,973.74</b>
24	Deficit for FY18 carried forward (APR)	641.98	0.00	0.00
27	<b>Net ARR</b>	<b>4,153.51</b>	<b>3,753.02</b>	<b>3,973.74</b>
28	<b>Revenue Deficit(27-6)</b>	<b>706.39</b>	<b>211.59</b>	<b>334.25</b>

MESCOM has requested the Commission to approve the Annual Revenue Requirement of Rs. 4,153.51 Crores for FY20, including the deficit of FY18 of Rs. 641.98 Crores, Rs. 3,753.02 Crores for FY21 and Rs. 3,973.74 Crores for FY22. Considering the estimated revenue of Rs. 3,447.12 Crores from sale of power to the consumers and miscellaneous revenue at the existing retail supply tariff, MESCOM has projected the revenue gap of Rs. 706.39 Crores for FY20, Rs.211.59 Crores for FY21 and Rs.334.25 Crores for FY22. In order to bridge the revenue

gap of Rs.706.39 Crores for FY20, the MESCOM has proposed average increase in retail supply tariff by 138 paise per unit in respect of all categories of consumers, including BJ/KJ and IP set consumers for FY20.

### **5.1 Annual Performance Review for FY18 & FY19:**

As discussed in the preceding chapter of this Order, the Commission has carried out Annual Performance Review for FY18 based on the audited accounts and other relevant records furnished by MESCOM. Accordingly, a deficit of Rs. 28.22 Crores of FY18, is required to be carried forward to the ARR of FY20.

As regards APR for FY19, it is noted that the audited accounts for FY19 are yet to be finalized, the Commission decides to take up the APR of FY19, while taking up the revision of ARR / Retail Tariff, if any, for FY21.

### **5.2 Annual Revenue Requirement for FY20-22:**

#### **5.2.1 Capital Investments for FY20-22:**

##### **MESCOM Proposal:**

The MESCOM has proposed capex of Rs.1091.44 Crores, Rs. 809.55 Crores and Rs.695.85 Crores for FY20, FY21 and FY22 respectively. Some of the important works proposed for the control period are as follows:

- a) E & I Works;
- b) DTC metering;
- c) Replacement of MNR/DC & Electromechanical meters by Static meters;
- d) Replacement of Faulty distribution transformers;
- e) Energization of IP sets;
- f) Service connection, Rural Electrification under General/SCSP/TSP Plan;
- g) Civil Engineering Works;
- h) 33 KV Sub Station and Line Works;

The details of capex under various heads proposed for FY20 to FY21 are shown in the following Table:

TABLE-5.2

## MESCOM's Proposed Capex for FY20-22

Sl. No	Particulars	Amount in Rs. Crores		
		2019-20	2020-21	2021-22
1	E&I Works (Addl. Transformers, Link-Lines, HT/LT Re-conductoring, HVDS, UG/AB cable	100.00	250.00	250.00
2	DTC metering	52.69	2.70	2.70
3	Replacement of MNR/DC & Electromagnetic meters by Static meters and SMART metering	5.00	20.00	20.00
4	Replacement of faulty Distribution Transformers	5.00	5.00	5.00
5	Service Connection including promoter vanished layout Works	50.00	55.00	60.00
	<b>Sub- Total</b>	<b>212.69</b>	<b>332.70</b>	<b>337.70</b>
6	Rural Electrification (General)			
a	Electrification of Hamlets	2.00	2.00	2.00
b	Energisation of general IP sets Including Ganga Kalyana	45.00	55.00	65.00
c	Electrification of BPL Households	0.25	0.25	0.25
	<b>Sub- Total</b>	<b>47.25</b>	<b>57.25</b>	<b>67.25</b>
7	Tribal Sub-Plan			
a	Electrification of Tribal Colonies	1.50	1.50	1.50
b	Energisation of IP sets	0.80	0.85	0.90
c	Electrification of BPL Households	0.05	0.05	0.05
	<b>Sub- Total</b>	<b>2.35</b>	<b>2.40</b>	<b>2.45</b>
8	Special Component Plan			
a	Electrification of S.C Colonies	1.00	1.00	1.00
b	Energisation of IP sets	1.05	1.10	1.15
c	Electrification of BPL Households	0.10	0.10	0.10
	<b>Sub- Total</b>	<b>2.15</b>	<b>2.20</b>	<b>2.25</b>
9	Tools & Plants & Computers	11.50	6.00	6.50
10	Civil Engineering Works	60.00	60.00	60.00
11	33 KV Station and Line Works ( UG/AB cable )	82.00	100.00	100.00
12	Solar Roof top on Company Buildings	0.00	0.00	0.00
13	Software Acquired/Purchased for internal use - GPS Survey, Validation, Updating & Enumeration of IP Sets etc.,	4.00	4.00	4.00
	<b>Total</b>	<b>421.94</b>	<b>564.55</b>	<b>580.15</b>
	<b>Schemes under progress</b>			
1	Deen Dayal Upadyaya Grama Jyoti Yojana (DDUGJY)	290.00	50.00	0.00
2	IPDS: System improvement & Strengthening works in R-APDRP/statutory towns	121.50	15.00	0.50
3	IPDS: Gas insulated substations	75.00	75.00	30.00
4	IPDS (Integrated Power Development Scheme) Phase II-IT	6.00	0.00	0.00
5	IPDS - RT-DAS	5.00	5.50	0.00
6	Providing Infrastructure to regularized UIP	82.00	9.50	75.00

Sl. No	Particulars	2019-20	2020-21	2021-22
7	Improvement works for Model Electricity Village	25.00	25.00	5.20
8	Improvement works for Model Sub-division	50.00	58.00	5.00
9	Saubhagya	15.00	7.00	0.00
	<b>Total</b>	<b>669.50</b>	<b>245.00</b>	<b>115.70</b>
	<b>Grand Total</b>	<b>1,091.44</b>	<b>809.55</b>	<b>695.85</b>

### Commission's analysis and decision:

In the preliminary observations, MESCOM was directed to provide necessary justification for each of the works in terms of its purpose, requirement, physical progress, cost and timelines of completion along with the no. of works to be taken in each of the year for FY20 to FY-22.

The MESCOM, in response has submitted the following justification for the works proposed under Capex FY20-22:

- a) **System Augmentation & Strengthening:** The System improvement works namely, providing additional transformers, Link-Lines, Re-conductoring of HT/LT/33kV lines are being carried out regularly. Hence a yearly Budget provision of Rs.100.00 Crores is made for FY 20-22. Further, it is proposed to replace transformers of around 15,000 number of 25-year-old DTCs for which additional budget requirement of Rs.150.00 Crores is made for FY21 and FY22. Hence, a total budget provision of Rs. 100.00 Crores, Rs. 250.00 Crores and Rs. 250.00 Crores is made for FY 20-22 respectively. The physical targets are as indicated below:

Sl. No.	Particulars	2019-20	2020-21	2021-22
1	No. of DTC's to be added	1400	1400	1400
2	New 11 KV lines & Link-Lines in <b>RKms</b>	500.00	500.00	500.00
3	HT lines reconductoring in <b>RKms</b>	250.00	250.00	250.00
4	New LT line in <b>Rkms</b>	100.00	100.00	100.00
5	LT line reconductoring in <b>RKms</b>	650.00	650.00	650.00
6	Replacement of 25 year old DTCs (nos)	-	7500	7500

- b) **Service Connection works:** As per Govt. of Karnataka order, works pertaining to electrical infrastructure required for energization of drinking water supply

installations are to be executed by ESCOMS. As large number of drinking water supply applications are being received in MESCOM, capital budget of Rs. 50.00 Crores, Rs. 55.00 Crores and Rs. 60.00 Crores is proposed for FY20-22 respectively under Service connections including water supply works. 631, 1018 and 818 number of drinking water supply installations have been energized during last 3 years respectively and 384 during 2018-19 upto Nov-18.

c) **Energization of IP sets:** Yearly Budget provision of Rs. 45.00 Crores, Rs. 55.00 Crores and Rs. 65.00 Crores is proposed respectively for FY20-22 for energization of new IP sets under general head, including Ganga Kalyana schemes.

d) **Energization of IP sets (Providing Infrastructure to regularized Un-authorized IP sets (UIP):** As per GoK order dated 14.07.2014, 14,117 numbers of regularized UIP sets were pending for providing infrastructure. For speedy execution of providing infrastructure to these balance UIP sets works have been awarded on total turnkey basis (Rate Contract) at a cost of Rs. 330.00 Crores during March-2017. Accordingly, the budget provision of Rs.165.00 Crores, Rs.75.00 Crores, Rs. 82.00 Crores and Rs.9.5 Crores is made for FY18 to FY21 duly considering the anticipated expenditure. Further, a Budget provision of Rs.75.00 Crores is made for FY22 for regularizing and providing infrastructure to the UIP sets existing in the field.

The details of new IP sets serviced, UIP sets regularized and Infrastructure provided to regularized IP sets are as given below:

Sl. No	Year	New IP set serviced	UIP regularized	Infrastructure provided
1	2012-13	7965	8137	7645
2	2013-14	9490	-	1761
3	2014-15	2668	14897	2421
4	2015-16	12447	639	1567
5	2016-17	12243	-	5408
6	2017-18	14602	-	6898
7	2018-19 (Upto Nov-18)	7038	-	968

e) **Station and line works:** It is proposed to establish 4 new 33/11 substations and 2 additional Power transformers in existing 33/11 substations, renovation of 1 sub-

station and 33kV link lines during 2019-20. Hence budget provision of Rs. 82.00 Crores is made. As per the proposed plan for 2020-21, 1 new 33/11 substations and 4 additional Power transformers in existing 33/11 substations are enlisted. Hence, budget provision of Rs. 100.00 Crores is made. However, budget provision of Rs. 100.00 Crores is made for future requirements during FY2021-22.

f) **Other Major allocations:**

**Improvement works for Model Electricity village:** As per the Budget Speech 2017-18 by Hon'ble Chief Minister, 6 numbers of villages in each assembly constituency are to be converted as model electricity villages. It is proposed to execute some of the improvement works in the selected villages for which budget provision of Rs. 50.00 Crores was made for the year 2017-18. Since the works were held up due to court cases during 2017-18 budget provision of Rs. 50.00 Crores is made for the year 2018-19. After the clearance of court case on 14.06.2018, the subject was placed before the board for seeking approval for variation of 31% additional cost quoted by the bidder. As per the directions of board re-tendering is under process.

Since, the works are not taken up till date, Budget provision of Rs. 25.00 Crores, Rs. 25.00 Crores and Rs. 5.20 Crores is made for FY20-22 duly considering the additional amount required for balance works if any.

**Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY):** GOI has launched DDUGJY for Rural areas. REC is the Nodal Agency. Scope of work includes feeder separation, strengthening of sub-transmission and distribution system, metering, rural electrification etc. 'In-Principle' approval for an amount of Rs.395.65 Crores has been communicated from REC/GoK during January-2017 for all 4 districts of MESCOM. Further, feeder segregation and rural electrification works have been awarded on 28.04.2017 and metering component works awarded on 28.9.2017. The works are under progress and the scheduled date of completion is 2 years from the date of award. Hence, the budget provision of Rs. 59.90 Crores was made for FY18 and Rs. 170.00 Crores is made for FY19.

Further, Budget provision of Rs. 290.00 Crores and Rs. 50.00 Crores is made for FY20 and FY21 duly considering the additional requirements.

- g) **Integrated Power Development Scheme(IPDS):** GoI has launched IPDS for Urban/ Semi-urban areas. The PFC is the Nodal agency. Scope of work includes strengthening of sub-transmission and distribution network, metering, provision for solar panels, IT enablement works etc. Sanction for an amount of Rs.157.80 Crores has been communicated from the PFC for 29 numbers of statutory towns for the above works excluding IT enablement works.

Further, strengthening of distribution networks and provision for solar panels on roof top of government buildings works have been awarded on 28.04.2017 and metering component works awarded on 28.9.2017. The works are under progress and the scheduled date of completion is 2 years from the date of award. Hence Budget provision of Rs. 34.17 Crores is made for FY18 and Rs. 65.00 Crores is made for FY19.

Further, Budget provision of Rs. 121.50 Crores, Rs. 15.00 Crores and Rs. 5.00 Crores is made for FY20-22 duly considering the additional requirements.

- h) **IPDS: Gas insulated substations:** Under IPDS it is proposed to establish 6 numbers of Gas insulated substations at a cost of Rs. 118 Crores. Hence a Budget provision of Rs. 75.00 Crores, Rs. 75.00 Crores and Rs. 30.00 Crores is made respectively for FY20-22.
- i) **IPDS (Integrated Power Development Scheme) Part -II:** The scope of work involves ERP and IT applications in IPDS towns i.e. establishing IT infrastructure etc. The DPR amounting Rs. 5.84 Crores has been submitted to Ministry of Power, Govt. of India and approval has been accorded for Rs. 4.75 Crores. On behalf of all ESCOMs, BESCOM has floated the tender on 05.06.2018 for implementation of IT enablement Projects(Phase-II-IT) in MESCOM under IPDS scheme at a cost of Rs.5.84 Crores. (amount of submitted DPR). Hence the budget provision of Rs. 6.00 Crores is made for FY19. Since the tender is under



process by BESCOM the budget provision of Rs. 6.00 Crores is carry forwarded FY20.

j) **IPDS: RT- DAS:** DPR of Rs.10.43 crores for RT-DAS SAIDI/SAIFI measurement system under IPDS is submitted to PFC and approval awaited. Hence a Budget provision of Rs. 5.00 Crores and Rs. 5.50 Crores is made respectively for FY20-21.

k) **Model Sub-division:** Mangaluru & Shivamogga are selected as Smart Cities under flagship programme of Hon'ble Central Government. MESCOM has selected prominent area of Mangaluru & Shivamogga i.e. Attavara Sub-division in Mangalore and City Sub Division-1 in Shivamogga. DPRs amounting Rs. 267.00 Crores have been prepared and approved by Hon'ble KERC to take up the following works.

- Laying of 11kV/LT UG Cable.
- Establishing & Commissioning of RMU.
- Establishing of LT Feeder Pillar Boxes.

The works have been awarded on Total Turnkey (rate contract) basis at a cost of Rs. 212.79 Crores. Accordingly, Budget provision of Rs. 105.00 Crores, Rs. 50.00 Crores, Rs. 58.00 Crores and Rs. 5.00 Crores is made for FY19-22 duly considering the additional amount required for balance works if any.

l) **Saubhagya:** "Pradhan Mantri Sahaj Bijli Har Ghar Yojana- Saubhagya" is a flagship program launched by Govt. of India to achieve universal household electrification in Urban & Rural areas. District wise DPRs have been prepared for electrification of total 5716 nos. of households and the works have been awarded on Total Turnkey basis (inclusive of all turnkey parameters) as per Standard Bidding Documents circulated by REC for IPDS/DDUGJY at a cost of Rs.20.53 Crores. Accordingly, Budget provision of Rs. 15.00 Crores and Rs. 7.00 Crores is made for FY20 and FY21.

The MESCOM's previous years' achievement of capex is shown in the following table:

**TABLE-5.3****Approved and Actual Capex incurred –MESCOM**

Amount in Rs. Crores

Particulars	FY13	FY14	FY15	FY16	FY17	FY18
Capital investment filed	249.85	281.40	262.33	827.33	320.40	595.40
Capital investment approved by the Commission	249.85	281.40	262.33	353.89	288.90	289.40
Actual capital investment incurred as per audited accounts	130.92	193.17	252.07	230.10	288.38	419.39
Percentage of actual capital investment to the approved capital investment	52.40%	68.65%	96.09%	65.02%	99.82%	144.92%

MESCOM has considered 75% as CAPEX achievement and 70% of estimated CAPEX achievement as loan requirement for the control period, FY20 to FY22, as follows.

Amount in Rs. Crores

Year	CAPEX Plan	Estimated CAPEX Achievement (75% of CAPEX Plan)	Estimated Loan Requirement (70% of estimated CAPEX achievement)
FY20	1,091.44	818.58	573.01
FY21	809.55	607.16	425.01
FY22	695.85	521.89	365.32

Considering the actual achievements of MESCOM and keeping in view the targeted capex for the next Control period, the Commission, recognizes the capex of MESCOM at 75% of Capex plan proposed by MESCOM at Rs 818.58 Crores, Rs 607.16 Crores and Rs 521.89 Crores for FY20, FY21 and FY22 respectively, subject to prudence check.

The Commission directs MESCOM to maintain the physical as well as financial progress in respect of the works carried out under the Capex indicating timelines of completion, cost to benefit ratio, etc. These details shall be furnished to the Commission as and when Commission directs.

The Commission also directs MESCOM to take concrete measures to complete and capitalize the works in the prescribed time schedule, so that, its benefits are being passed on to the consumers effectively and capitalize the works proposed as far as possible during each financial year.

The Commission directs the MESCOM to put in effective efforts towards achieving the following objectives of the proposed schemes under capex on due priority:

1. Reducing distribution losses,
2. Reducing the HT:LT Ratio
3. Reduce Transformer failures
4. Segregate the loads in the feeders.
5. Reduce Power theft
6. Bring programs for the awareness among the people on usage and conservation of energy.
7. Improve the sales to metered category and
8. Improve the Power factor of the IP set loads by installing switched capacitors of suitable capacity to the secondary of the transformers.

Further, MESCOM is directed to comply with the directives regarding implementation of HVDS works.

### **5.2.2 Sales Forecast for FY20-22:**

MESCOM, in its filing, has estimated sales for FY20, FY21 and FY22 as 5134.92 MU, 5267.73 MU and 5404.95 MU respectively.

#### **A. Sales- Other than IP Sets:**

##### **I. MESCOM's Approach:**

The Commission has noted that the MESCOM has made the estimates based on mixed CAGR and also considering the actuals of the immediately preceding year. The Commission also observed that MESCOM has adopted the following growth rates for estimation:

**i. Number of installations:**

For all categories except BJ/KJ and LT-4a, generally, 3 year or 5-year CAGR is considered. Wherever, the growth is negative or inconsistent, the existing number of installations is retained at FY18 level and where the CAGR is abnormal, previous year's growth rate is adopted.

**ii. Energy Sales:**

For all the categories except BJ/KJ and LT-4a, generally 3 year CAGR is considered. Wherever, the growth is negative or inconsistent, the sales is retained at FY18 level and where CAGR is abnormal, previous year growth rate is adopted.

iii. Further, the MESCOM has submitted a comparison of the energy sale forecast by MESCOM and EPS projections which are reproduced below:

MUs		
Year	19 <sup>th</sup> EPS	MESCOM's projections.
FY19	5,241	<b>5,006.39</b>
FY20	5,572	<b>5,134.92</b>
FY21	5,916	<b>5,267.73</b>
FY22	6,293	<b>5,404.95</b>

The MESCOM has stated that, while the 19<sup>th</sup> EPS projections are based on unrestricted conditions, it has projected the same under restricted conditions.

**The observations of the Commission on the sales forecast, for the control period the replies furnished by the MESCOM and the Commissions decisions thereon, are discussed in the following paragraphs:**

**i) Energy Sales- Other than IP sets:**

a) The Commission observed that the MESCOM has not indicated any sales to KPCL & wheeled energy for the estimates of FY19 to FY22.

MESCOM has submitted that the energy sold to KPCL has been included under LT-2a category for FY19 to FY22. Further, it is stated that, energy

wheeled through Open Access has been excluded from sales, in accordance with the CEA guidelines for calculation of AT&C losses.

The Commission has noted the replies furnished, and has included the KPCL sales in LT-2a and has excluded wheeled energy, while making sales estimates for the control period.

**b) Category wise sales for the Control Period:**

**i) LT (1) – BJ/KJ category:**

MESCOM has not considered any additions to the number of installations. In FY18, 2210 no. of installations have been added to this category. Hence, MESCOM may consider revising the installations and sales for the control period considering the No. of likely additions to this category.

MESCOM submitted that it has retained the values of number of installations and energy sales of FY18 for all the years of the control period.

**ii) LT4(b) and LT4(c) category:**

While projecting the consumption for the Control period, instead of projecting the same, duly considering the growth rates for the respective years, MESCOM has retained the same figures and therefore, MESCOM was directed to review the same.

MESCOM submitted that there is a decrease in consumption in FY18 as compared to FY17 under the mentioned categories. Hence, MESCOM has retained the quantum of energy sales of FY18 for all the years of the control period.

**iii) LT-2a, LT-5 & HT-3 category:**

a) The Commission observed that the growth rate considered for estimating the number of installations is lower as compared to the CAGR.

MESCOM has stated that it has estimated energy sales to LT-2a and LT-5, sub-category-wise and has reiterated its submissions made in the filing. Regarding estimates of HT-3(a)&(b) category, it is submitted that, the growth is not continuous and hence, MESCOM has retained the number of installations existing as at the end of March, 2018 for all the years of the control period.

b) The Commission observed that:

- i. The sales growth rate considered for LT-2b & LT-3 appears to be lower, considering the CAGR and, the growth rate considered for LT-5 appears to be higher considering the past trends.

MESCOM, reiterating its submissions made in its filing, has stated that it has estimated the sales considering the sub-categories under LT-2b & LT-3 categories.

- ii. When the growth rate for the number of installations for HT-2(a), HT-2(c) and HT-4 has been considered positive, the sales to this category should also have been slightly increased corresponding to the new addition of installations. MESCOM shall explain the reasons for not considering the same.

MESCOM has submitted that in respect of HT-2(a) category, the three year CAGR growth rate of 0.84% appears to be appropriate considering the past trend of decreased consumption due to open access/wheeling transactions.

As regards HT-2(c) category, the growth in energy sales is negative due to increased open access/wheeling consumption under the category and therefore, MESCOM has not considered any growth rate for this category.

As regards, HT-4 category, MESCOM submitted that it has considered a growth rate of 6.31%, three year CAGR, though the growth rate compared to FY17 is only 1.49%.

- iii. For HT2(a) category, the sales estimate based on the analysis of open access impact shall be considered.

MESCOM has submitted break up details of energy procured from MESCOM and that procured under OA for FY15 to FY18 and has also the estimates for FY19 to FY22.

The Commission has noted the above replies furnished and the approach of the Commission in estimating the number of installations and sales is discussed in the subsequent paragraphs.

c) **Sales to MSEZ:**

The Commission observed that the MESCOM has retained sales to MSEZ for the control period at 39.60 MU, whereas MSEZ in their filing have indicated the same as follows:

In Million Units			
FY19	FY20	FY22	FY23
42.64	51.13	56.86	60.36

MESCOM, in its reply, has submitted that in the past years, MSEZ has never achieved the energy sale even nearer to their estimations. Hence, MESCOM has proceeded to retain the sales of FY18 for FY19 and all the years of the control period.

The MSEZ sales is discussed in the MSEZ Order of the Commission.

## II. The Commission's approach for estimating the number of installations and sales for Control Period FY20-22:

### 1) No. of Installations:

While estimating the number of installations (excluding BJ/KJ and IP), the following approach is adopted:

- a. The Commission has validated both the number of installations and sales to various categories considering the actuals as on 30<sup>th</sup> November, 2018 and has estimated the number of installations and sales for the remaining period reasonably. Accordingly, the base year estimation has been revised which has an impact on the estimates on the number of installations and sales for the control period
- b. Wherever the number of installations estimated by the MESCOM for the FY20 is within the range of the estimates based on the CAGR for the period FY13 – FY18 and for the period FY15 - FY18, the estimates of the MESCOM are retained.
- c. Wherever the number of installations estimated by the MESCOM for the FY20 is lower than the estimates based on the CAGRs for the period FY13 – FY18 and for the period FY15- FY18, the estimates based on the lower of the CAGRs for the period FY13–FY18 and for the period FY15-FY18 are considered.
- d. Wherever the number of installations estimated by MESCOM for the FY 20 is higher than the estimates based on the CAGRs for the period FY13–FY18 and for the period FY15 - FY18, the estimates based on the higher of the CAGRs for the period FY13–FY18 and for the period FY15 - FY18 are considered.
- e. For LT-4b, LT-7 and HT-5 categories, the estimates of MESCOM are retained.



- f. The Growth rate considered for FY20 is retained for the estimates for FY21 and FY22 also.

**Based on the above approach, the total number of installations (excluding BJ/KJ consuming < 40units/month and IP installations) estimated by the Commission for the control period is indicated in the table below:**

Number of Installations					
FY20		FY21		FY22	
Filed	Approved	Filed	Approved	Filed	Approved
18,99,112	19,08,810	19,52,203	19,71,424	20,07,083	20,36,253

## 2) Energy Sales:

- (i) For categories other than BJ/KJ and IP sets, generally the sales are being estimated, considering the following approach:
- The base year sale for FY19 as estimated by the MESCOM is validated duly considering the actual sale upto November, 2018 and modified suitably as stated earlier.
  - Wherever the sale estimated by the MESCOM, for the for FY20, is within the range of the estimates based on the CAGR for the period FY13–FY18 and for the period FY15–FY18, the estimates of the MESCOM are considered.
  - Wherever the sales estimated by the MESCOM for the FY 20 is lower than the estimates based on the CAGRs for the period FY13–FY18 and for the period FY15– FY18, the estimates based on the lower of the CAGRs for the period FY13–FY18 and for the period FY15–FY18 are considered.
  - Wherever sale estimated by MESCOM for FY20 is higher than the estimates based on the CAGRs for the period FY13–FY18 and for the period FY15–FY18, the estimates based on the higher CAGRs for the period FY13–FY18 and for the period FY15–FY18 are considered.
  - For LT 4(b), LT-7, and HT-5, the proposal of MESCOM is retained.

- f. The Growth rate considered for FY20 is retained for the estimates for FY21 and FY22 also.

**Based on the above approach, the sales (excluding BJ/KJ consuming  $\leq 40$  units /month and IP sales) estimated by the Commission for the control period is indicated in the table below:**

FY20		FY21		FY22	
Filed	Approved	Filed	Approved	Filed	Approved
3,330.31	3,347.15	3,427.47	3,440.21	3,528.30	3,539.00

**ii) Sales to BJ/KJ:**

The break-up of sales to BJ/KJ installations considered for FY18 is as indicated below:

Particulars	No. of Installations	Consumption in MU	Specific consumption per installation per month (kWh)
Installations consuming less than or equal to 40 units	1,79,635	34.21	15.87
Installations consuming more than 40 units and billed under LT2(a)	11,527	12.60	91.10

The Commission notes that, the specific consumption works out to 15.87 units /installation/month for BJ/KJ installations consuming less than or equal to 40 units per month and 91.10 units /installation/month for BJ/KJ installations consuming more than 40 units per month.

Since, the MESCOM has not proposed any additional installations during the control period, as there is no GoK policy, the number of BJ/KJ installations consuming less than or equal to 40 units per month and more than 40 units per month is retained as proposed by MESCOM and the sales is worked out as per the above specific consumption for the control period as shown in the following Table:

Particulars	Million Units		
	FY 20	FY 21	FY 22
Installations consuming less than or equal to 40 units.	34.21	34.21	34.21
Installations consuming more than 40 units and billed under LT2(a)	12.60	12.60	12.60

### B. Sales projections of IP set for FY20-22:

- a) The Commission, in its Tariff Order dated 11<sup>th</sup> April, 2017, had approved specific consumption of IP sets as 4,447 units / installation / annum for the FY18. MESCOM, in the D-2 Format, has reported the actual consumption by 3,06,053 number of IP set installations as 1,661.64 MU. However, while verifying the calculations it is found that, the actual sales to IP set installations works out to 1,517.47 MU (as detailed in APR section). Based on the actual calculations of sales to IP sets, the Commission has approved the specific consumption as 5,082.10 units / installation / annum, for the FY18 by considering the mid-year installations of 2,98,591 numbers.
- b) The actual sales to IP sets for FY19, till November 2018, as reported by MESCOM, in its tariff filing is 852.27 MU against 3,13,515 number of installations. The actual specific consumption per IP per month works out to 339.80 units / IP / month. Considering the approved specific consumption for FY19, as per Tariff Order 2018 dated 14<sup>th</sup> May 2018, the consumption per IP per month works out to 370.58 units / IP / month. Thus, the actual monthly average consumption is less than the approved average consumption per month.
- c) MESCOM in its current tariff filing, has reported that 14,924 numbers of IP sets are added / serviced during 2017-18 and has considered the similar growth during FY20 to FY22 and has projected the number of installations respectively. The Commission, accepts the submission made by MESCOM, and hence the number of IP installations for FY19 could be

projected as 3,20,977 numbers. Similarly, the projected number of consumers for FY20, FY21 and FY22 are 335901, 350825 and 365749 respectively.

- d) Based on the estimated number of installations and consumption for FY19 and by considering the revised specific consumption for FY18 as reckoned above for FY20 and FY21, the sales for FY20 & FY21 are determined. The energy sales determined with this analogy for FY22, is more than the sales projections made and submitted by MESCOM. Hence, the Commission retains the sales projected made by MESCOM for FY22. The details of sales projections to IP set consumers are as indicated below;

**TABLE-5.4**  
**Approved Energy Sales to IP Sets for FY20-FY22**

Particulars	FY20		FY21		FY22	
	As filed by MESCOM	As approved by Commission	As filed by MESCOM	As approved by Commission	As filed by the MESCOM	As approved by Commission
<b>No. of Installations</b>	3,35,901	3,35,901	3,50,825	3,50,825	3,65,749	3,65,749
<b>Mid-year number of Installations</b>		3,28,439		3,43,363		3,58,287
<b>Specific consumption in units / installation / annum</b>	5,270	5,082.10	5145	5,082.10	5,032	5,032
<b>Sales in MU</b>	<b>1,730.80</b>	<b>1,669.16</b>	<b>1,766.45</b>	<b>1,745.01</b>	<b>1802.84</b>	<b>1802.84</b>

- e) Accordingly, the Commission approves 1,669.16, 1,745.01 and 1802.84 MU as energy sales to IP-sets as against the MESCOM's projections of 1,730.80, 1,766.45 and 1,802.84 MU, respectively for the FY20, FY21 and FY22. The number of installations approved for FY20, FY21 and FY22 are 3,35,901, 3,50,825 and 3,65,749 respectively. This approved IP set consumption for FY20, FY21 and FY22 is with the assumption that the Government of Karnataka would release full subsidy to cover the approved quantum of IP-sales. However, if there is any reduction in the subsidy allocation by the GoK, the quantum of sales to IP sets of 10 HP and below, shall be

**proportionately regulated. The MESCOM shall therefore, regulate the number of hours of power supply to exclusive agricultural feeders accordingly.**

- f) The MESCOM has taken up GPS survey of IP-sets to identify the defunct / dried up installations in the field and to arrive at the correct number of IP-sets by deducting such IP-sets from its account, on the basis of GPS survey results. In this regard, the MESCOM has submitted that it has completed the GPS survey of around 3.53 lakh IP sets as on 1<sup>st</sup> December, 2018. Out of which, it has identified 42,996 (24414 + 18582) number of IP sets as not in use. MESCOM has submitted that the contract for completion of GPS survey is extended up to 18.01.2019 and would submit the report to the Commission after that. The Commission, directs MESCOM to complete the survey at the earliest and submit the details of total number of IP sets existing, defunct / dried up etc.
- g) The MESCOM is directed to complete the GPS survey of IP-sets at the earliest and compliance thereon shall be submitted to the Commission, immediately thereafter. In view of the GPS survey of IP-sets not completed by the MESCOM, the number of installations and sales estimated for FY19 and onwards are subject to change, based on the GPS survey. Accordingly, on completion of the GPS survey, the MESCOM shall arrive at the correct number of IP-sets in the field after deducting from its account the number of defunct / dried up wells based on the GPS survey results. Therefore, on account of this, any variation in sales due to change in the number of installations in the FY19 would be trued up during the Annual Performance Review, for FY19. Thereafter, any variation in the sales due to change in the number of installations would be trued up during the Annual Performance Review for the FY20, FY21 and FY22. It shall be noted that in case MESCOM failed to complete the GPS survey by the end of FY19, the Commission would be constraints to estimate the number of defunct IP sets installations.

- h) Wherever the segregation of 11 kV feeders is not taken up, the MESCOM shall consider the actual meter readings of individual IP-set installations duly ascertaining the correct number of such meters working in the field and report the consumption of IP-sets on the basis of energy meter reading data from IP-set installations every month, to the Commission, as this would be an accurate measure of IP-set consumption compared to assessing the consumption based on the meter readings of sample DTCs feeding predominant IP-set loads.
- i) As per the data submitted by MESCOM, the Commission notes that there are 10,278 number of IP sets connected to the total 904 pilot meters installed to the DTCs predominantly supplying power to the IP set loads. MESCOM, further submitted that the assessment of sales for IP sets for FY18 is computed on the basis of an average of 5,706 IP installations connected to the working pilot meters installed to the DTC's. Which corresponds to around 50 percent of IP sets are connected to the total sample meters which are not working. This means that only 50 percent of the meters are functioning. In this regard, the Commission directs MESCOM to take immediate measures to rectify the defective meters and also increase the pilot meters in its area for accurate assessment.
- j) In the review meeting for ESCOM's and KPTCL held on 16.11.2018, MESCOM had submitted that, it has contemplated to segregate 134 rural feeders into the agricultural feeders in Shivamogga and Chikkamagalur Circles, out of which, work in 16 feeders are completed but not commissioned due to the technical issues. In order to see that the assessment of sales to IP installations is accurate, it shall be on the basis of meter readings of the meters provided to the exclusive agricultural feeders. In view of this, the Commission directs the MESCOM to take up the work of separation of agricultural feeders in the entire area of its operation at the earliest and complete the work along with the submission of action plan.

Based on the above discussions, the category-wise approved number of installations for the control period vis-à-vis the estimates made by the MESCOM is indicated below:

TABLE – 5.5

## Category wise approved number of installations

	Category	No. of Installations					
		Proposed by MESCOM			Approved by the Commission		
		FY20	FY21	FY22	FY20	FY21	FY22
LT-1 (a)	Bhagya Jyoti < =40 units	1,79,636	1,79,636	1,79,636	1,79,636	1,79,636	1,79,636
LT-1 (a)	Bhagya Jyoti>40	11,526	11,526	11,526	11,526	11,526	11,526
LT-2a	Domestic AEH	15,67,232	16,07,482	16,48,932	15,76,951	16,25,051	16,74,618
LT-2b	Pvt. Institutions	3,717	3,852	3,992	3,715	3,845	3,981
LT-3	Commercial - Applicable to areas coming under VPs	2,21,680	2,30,748	2,40,192	2,20,378	2,29,478	2,38,953
LT-4 (a)	IP sets - Less than 10 HP - General	3,35,901	3,50,825	3,65,749	3,35,901	3,50,825	3,65,749
LT-4 (b)	Irrigation Pump sets - More than 10 HP	180	180	180	180	180	180
LT-4 (c)	Private Horticulture Nurseries, Coffee & Tea Plantations	3,963	3,963	3,963	4,600	4,986	5,403
LT-5	Lt Industries	31,702	32,611	33,553	3,2594	34,222	35,933
LT-6	Water Supply	16,968	18,132	19,376	16,732	17894	19,137
LT-6	Street Lights	23,433	24,839	26,329	23,433	25,381	27,491
LT-7	Temporary Power Supply	16,431	16,431	16,431	16,430	16,431	16,431
	<b>LT Total</b>	<b>24,12,369</b>	<b>2,480,225</b>	<b>25,49,859</b>	<b>24,22,076</b>	<b>24,99,455</b>	<b>25,79,038</b>
HT-1	HT Water Supply	128	145	164	118	133	150
HT-2 (a)	HT Industries	943	1007	1075	943	1007	1076
HT-2 (b)	HT Commercial	799	858	921	799	858	921
HT-2(c)		307	323	340	307	323	339
HT-3(a) & (b)	HT Irrigation & LI Societies	28	28	28	29	31	33
HT-4	Res. Apartments - Applicable to Mangalore Municipal Corporation Area	61	64	67	61	64	67
HT-5	Temporary	14	14	14	14	14	14
	<b>HT Total</b>	<b>2,280</b>	<b>2,439</b>	<b>2,609</b>	<b>2,271</b>	<b>2,430</b>	<b>2,600</b>
	<b>*Grand Total</b>	<b>24,14,649</b>	<b>24,82,664</b>	<b>25,52,468</b>	<b>24,24,347</b>	<b>2,501,885</b>	<b>25,81,638</b>
	Categories other than IP sets and BJ/KJ consuming less than or equal to 40 units/month./instlns.	18,99,112	19,52,203	20,07,083	19,08,810	19,71,424	20,36,253
	IP sets and BJ/KJ consuming less than or equal to 40 units/month./instlns.	5,15,537	5,30,461	5,45,385	5,15,537	5,30,461	5,45,385

\*Total excludes SEZ

Accordingly, the category- wise approved sales for the control period vis-à-vis the estimates made by MESCOM is indicated in the following Table:

TABLE – 5.6

## Category wise approved Energy sales

Million Units

	Category	Proposed by MESCOM			Approved by the Commission		
		MESCOM FY20	MESCOM FY21	MESCOM FY22	KERC FY20	KERC FY21	KERC FY22
LT-1 (a)	Bhagya Jyoti < =40 units	34.21	34.21	34.21	34.21	34.21	34.21
LT-1 (a)	Bhagya Jyoti>40	12.60	12.60	12.60	12.60	12.60	12.60
LT-2a	Domestic AEH	1,436.69	1,488.35	1,541.87	1,436.69	1,502.36	1,571.02
LT-2b	Pvt. Institutions	14.41	14.76	15.13	15.18	16.13	17.14
LT-3	Commercial - Applicable to areas coming under VPs	399.05	418.73	439.48	390.69	414.05	438.79
LT-4 (a)	IP sets - Less than 10 HP - General	1,730.80	1,766.45	1,802.84	1,669.16	1,745.01	1,802.84
LT-4 (b)	Irrigation Pump sets - More than 10 HP	0.93	0.93	0.93	0.93	0.93	0.93
LT-4 (c)	Private Horticulture Nurseries, Coffee & Tea Plantations	7.91	7.91	7.91	8.81	9.17	9.53
LT-5	Lt Industries	141.60	144.03	146.51	141.13	143.06	145.01
LT-6	Water Supply	126.17	130.01	133.96	126.06	131.15	136.46
LT-6	Street Lights	72.34	74.60	76.93	72.34	75.18	78.14
LT-7	Temporary Power Supply	20.41	20.41	20.41	20.41	20.41	20.41
	<b>LT Total</b>	<b>3,997.12</b>	<b>4,112.99</b>	<b>4,232.78</b>	<b>3,928.21</b>	<b>4,104.25</b>	<b>4,267.09</b>
HT-1	HT Water Supply	96.43	99.52	102.70	99.38	102.16	105.03
HT-2 (a)	HT Industries	606.33	611.42	616.56	606.33	590.51	575.10
HT-2 (b)	HT Commercial	207.21	214.61	222.27	207.21	214.49	222.02
HT-2(c)	Hospitals and Educational institution	137.07	137.07	137.07	138.74	135.65	132.64
HT-3(a) & (b)	HT Irrigation & LI Societies	23.61	23.61	23.61	43.10	43.33	43.56
HT-4	Res. Apartments - Applicable to Mangalore Municipal Corporation Area	21.59	22.95	24.40	21.59	23.07	24.65
HT-5	Temporary	5.96	5.96	5.96	5.96	5.96	5.96
	<b>HT Total</b>	<b>1,098.20</b>	<b>1,115.14</b>	<b>1,132.57</b>	<b>1,122.31</b>	<b>1,115.18</b>	<b>1,108.96</b>
	<b>*Grand Total</b>	<b>5,095.32</b>	<b>5,228.13</b>	<b>5,365.35</b>	<b>5,050.52</b>	<b>5,219.43</b>	<b>5,376.05</b>
	<b>Categories other than IP sets and BJ/KJ consuming less than or equal to 40 units/month./instlns.</b>	<b>3,330.31</b>	<b>3,427.47</b>	<b>3,528.30</b>	<b>3,347.15</b>	<b>3,440.21</b>	<b>3,539.00</b>
	<b>IP and BJ/KJ instlns.</b>	<b>1,765.01</b>	<b>1,800.66</b>	<b>1,837.05</b>	<b>1,703.37</b>	<b>1,779.22</b>	<b>1,837.05</b>

\* Excludes sales to SEZ

In addition to the above, the energy sold to MSEZ is considered as approved in the MSEZ Order.



### 5.2.3 Distribution Losses for FY20-22:

#### MESCOM's Submission:

As per the audited accounts for FY18, the MESCOM has reported distribution losses of 11.32% as against an approved loss level of 11.05%. The Commission in its Tariff Order dated 14<sup>th</sup> May, 2018 had fixed the target level of losses for FY19 at 10.95%. MESCOM in its filing has proposed to achieve the following loss levels during FY20-22:

#### Projected Distribution Losses-FY20-22 MESCOM's Submission

Particulars	Loss Figures in %		
	FY20	FY21	FY22
Projected Distribution losses	11.20	11.10	11.00

#### Commission's Analysis and Decisions:

The performance of MESCOM in achieving the loss targets set by the Commission in the past five years is as follows:

**TABLE – 5.7**

#### Approved & Actual Distribution Losses-FY13 to FY19

Particulars	Loss Figures in %						
	FY13	FY14	FY15	FY16	FY17	FY18*	FY19
Approved Distribution losses	12.00	11.75	11.50	11.25	11.15	11.05	10.95
Actual distribution losses	11.88	11.93	11.56	11.50	11.40	11.32	-

\*Actual distribution loss reported by MESCOM is 11.32%, whereas the Commission has considered 13.50% for the reasons stated in APR Chapter.

The Commission notes that, the distribution losses for FY18 has been increased by 2.10 percentage point over FY17, with respect to 13.50 percentage point approved by the Commission as per APR for FY18.

The distribution loss projections indicated by the MESCOM shows reduction 0.10% percentage point for each of the year of the control period FY20-22. It is observed that, the Commission has been allowing capital expenditure as incurred by the MESCOM and it has also allowed the capex as proposed for the ensuing control period. Most of the capex like HVDS, E&I work, NJY, DTC metering, RAPDRP should enable MESCOM not only to strengthen its infrastructure but also reduce the distribution losses substantially.

Hence, in view of such substantial investment, the loss reduction proposed for the control period by MESCOM is meager, as compared to the current loss levels. In the light of the above discussion and based on the achievement made by the MESCOM in the reduction of losses during the previous years and the capex incurred so far along with the proposed capex for FY20-22. the Commission decides to fix the following distribution loss targets for FY20-22:

**TABLE – 5.8**  
**Approved Distribution Losses for FY20-22**

Particulars	Percentages		
	FY20	FY21	FY22
Upper limit	11.25	11.15	11.05
<b>Average</b>	<b>11.00</b>	<b>10.90</b>	<b>10.80</b>
Lower limit	10.75	10.65	10.55

The Commission directs MESCOM to come out with an action plan to achieve the above target losses and submit the same to the Commission within two months of the issue of this Order.

#### 5.2.4 Power Purchase for FY20-22:

The ESCOMs in their Tariff applications, have submitted the D-1 statement indicating the requirement of power purchase for the control period. The consolidated statement showing the energy requirement, year-wise is shown hereunder:

**TABLE 5.9**  
**Requirement of Energy as filed by ESCOMs**

Distribution Utilities	Energy (MU)		
	FY20	FY21	FY22
BESCOM	34,091.83	35,491.68	37,009.65
MESCOM	5,973.11	6,119.44	6,270.5
CESC	7,496.12	7,779.6	8,088.33
HESCOM	14,808.77	15,605.02	16,448.87
GESCOM	9,268.17	10,007.75	10,837.47

**MESCOM's submission:**

The MESCOM has submitted its power purchase requirement for the control period FY20 to FY22 based on the projected sales as follows:

**TABLE-5.10**  
**Energy Requirement as filed by MESCOM**

Particulars	As filed by MESCOM		
	FY20	FY21	FY22
Sales (MU)	5,134.92	5,267.73	5,404.95
Distribution losses (%)	11.20	11.10	11.00
Energy at IF point (MU)	5,782.57	5,925.46	6,072.98
Transmission Losses (%)	3.19	3.17	3.15
<b>Energy Required to meet the sales of MESCOM (MU)</b>	<b>5,973.11</b>	<b>6,119.44</b>	<b>6,270.50</b>

**5.2.5 Sources of Power:****MESCOM's submission;**

MESCOM has furnished the sources of available Power to meet the energy requirement of all the ESCOMs, for the control period FY20 to FY22. The details of the sources of Power and the basis for the availability is indicated below:

- (i) From KPCL Hydel stations the power is procured as per power purchase agreement dated: 22.05.2010, based on Tariff norms approved by the State Commission, vide Commission's Order dated: 03.08.2009.
- (ii) Availability of power from the Central Generating (ex-Bus generation) is based on the details furnished by the Stations to CEA for preparation of LGBR in respect of CGS Generating Stations.
- (iii) In respect of major IPPs (UPCL), RE and other sources such as Jurala Power & TB Dam Power the availability is as per the contracted capacity.

The availability of energy and cost for FY20 to FY22 as filed by the MESCOM (Including Mangalore SEZ) are shown in the following table:

TABLE-5.11

## Availability of Energy and the Cost thereon for FY20 to FY22

SOURCES	FINANCIAL YEAR 19-20			FINANCIAL YEAR 20-21			FINANCIAL YEAR 21-22		
	Energy in MU	Cost in Rs Crs.	Average cost Per unit (Rs.)	Energy in MU	Cost in Rs Crs.	Average cost Per unit (Rs.)	Energy in MU	Cost in Rs Crs.	Average cost Per unit (Rs.)
KPCL Hydel Energy	2,096.30	205.62	0.98	2,096.30	208.37	0.99	2,096.30	211.85	1.01
KPCL Thermal Energy	361.64	235.82	6.52	393.47	264.36	1.89	456.52	293.38	6.42
CGS Energy	1,632.50	765.31	4.68	1,733.40	795.43	4.59	1891.48	858.74	4.54
UPCL	157.30	115.25	7.32	157.30	116.41	7.40	179.56	125.40	6.98
Renewable Energy:	1,348.14	536.59	3.98	1,399.35	551.23	3.93	1,399.35	551.23	3.93
Other State Hydel	21.73	12.05	5.54	21.73	12.05	5.54	21.73	12.05	5.54
PGCIL & POSOCO Charges		179.92			183.51			185.26	
KPTCL Transmission & SLDC		226.46			250.08			261.89	
Other Charges	355.50	164.78	4.63	317.89	153.57	4.83	225.56	118.80	5.26
<b>TOTAL</b>	<b>5,973.11</b>	<b>2,441.81</b>	<b>4.09</b>	<b>6,119.44</b>	<b>2,535.01</b>	<b>4.142</b>	<b>6,270.50</b>	<b>2,618.60</b>	<b>4.18</b>

- As per DI format

**Commission's analysis and decisions:**

The energy requirement of the ESCOMs, including MESCOM, is being met by the following sources through long-term power purchase agreement

1. Karnataka Power Corporation Limited (KPCL) Generating stations,
2. Central Generating Stations (CGS),
3. Major Independent Power producers (IPPs) and
4. RE sources.

The contingent requirement to meet the deficit, if any, shall have to be met through purchases by calling for competitive bids and also purchases from the Power Exchange. Hence, to arrive at the available quantum of energy and power for the control period FY20 to FY22, the Commission has considered the availability as furnished by KPCL for KPCL Generating Stations, by SRPC/CERC/CEA for Central Government Stations (CGS). The availability of CGS stations is based on the share of Karnataka, as notified from time to time. In the case of RE sources, the actual generation capacity contracted by the ESCOMs, as indicated in D-1 Format, as per the PPAs executed by them, has

been considered. The availability from the other sources such as Jurala Hydel Station and TB dam Power Stations of Telangana State is based on the share of the state in the installed capacity of the inter-state projects.

The availability as furnished by the KPCL in respect of Yelahanka Combined Cycle Power Plant (YCCPP), having a capacity of 350 MW respectively, has not been considered, as the said generating station is yet to be synchronized with the grid and the CoD is yet to be declared.

The availability of BTPS unit 3 has been considered since it has been synchronized and supplying power to the grid. The quantum of energy is restricted to the requirement of ESCOMs and allowed fuel expenses in FY20. For FY21 and FY22, the availability of energy from this unit has been considered, as furnished by the KPCL, duly limiting the quantum of energy as per the requirement of ESCOMs, to meet the sales targets.

Based on the above availability criteria, the energy allowed for the State to achieve the sales target of the respective years, is given in the following Table.

**TABLE-5.12**

**ABSTRACT OF POWER PURCHASE APPROVED FOR ESCOMs FOR THE CONTROL PERIOD FY20 to FY22**

SOURCES	FINANCIAL YEAR 19-20			FINANCIAL YEAR 20-21			FINANCIAL YEAR 21-22		
	Energy in MU	Cost in Rs. Crs.	Average cost Per unit (Rs.)	Energy in MU	Cost in Rs. Crs.	Average cost Per unit (Rs.)	Energy in MU	Cost in Rs. Crs.	Average cost Per unit (Rs.)
KPCL Hydel Energy	10,439.74	985.81	0.94	11,008.67	1079.85	0.98	10,831.33	1,115.53	1.03
KPCL Thermal Energy	15,099.19	8,645.88	5.73	15,552.17	10,251.96	5.89	17,107.10	11,295.27	6.60
CGS Energy	21,567.71	8,474.65	3.93	22,214.74	9,063.64	4.08	24,439.19	10,086.79	4.13
UPCL	4,352.26	2,681.70	6.16	4648	2,911.12	6.26	4800	3,096.02	6.45
Renewable Energy:	15,445.47	6,385.55	4.13	16,504.81	6,741.06	4.08	17,250.17	6,965.40	4.04
Other State Hydel	108.64	60.30	5.55	111.90	65.22	7.74	117.96	72.53	6.15
Other Sources	3,892.55	1,513.43	3.89	3,931.65	1,531.76	3.89	2,646.59	929.07	3.51
PGCIL & POSOCO Charges		1,823.47			2,050.21			2,184.35	
KPTCL Transmission & SLDC		3,524.65			3,670.96			3,939.78	
<b>TOTAL</b>	<b>70,905.56</b>	<b>34,095.44</b>	<b>4.808</b>	<b>73,971.94</b>	<b>37,365.78</b>	<b>5.0513</b>	<b>77,192.34</b>	<b>39,684.74</b>	<b>5.14</b>

### 5.2.6 Power Purchase Cost & Transmission charges:

#### **MESCOM's Submission:**

MESCOM has submitted the Power Purchase requirement along with the cost including the transmission charges and SLDC charges, in the D-1 Format. The MESCOM has sought approval of the Commission for purchase of power to an extent of 5973.11 MU, 6119.44 MU and 6270.50 MU at a cost of Rs.2441.81, Rs.2535.01 and Rs.2618.60 for the control period years of FY20, FY21 and FY22 respectively.

As regards the cost of power, the MESCOM has submitted that, same is considered as per the norms defined in contracts (PPAs)/ Regulations and based on the tariff indicated by KPCL for its Stations and the tariff determined by the CERC in respect of Central Generating Stations, DVC Stations and UPCL stations.

#### **Commission's analysis and decisions:**

The Commission has arrived at the power purchase cost to be allowed in the ARR for the control period, after considering various aspects such as Sales, transmission and distribution losses, tariff rates claimed by the MESCOM.

The basis for computation of power purchase quantum for the control period FY20 to FY22 is indicated below:

1. the approved sales and the allowable transmission and distribution losses, the requirement of Power for the MESCOM, for the control period FY20 to FY22, is worked out as indicated in the following Table:

**TABLE-5.13****Power Purchase requirement approved for the MESCOM  
for the Control period FY20 to FY22**

Particulars	FY20	FY21	FY22
Sales (MU)	5,050.52	5,219.43	5,376.05
Distribution losses (%)	11.00	10.90	10.80
Energy at IF point (MU)	5,674.74	5,857.95	6,026.96
Transmission Losses (%)	3.162	3.132	3.102
<b>Energy Required to meet the sales of MESCOM (MU) including requirement of MSEZ</b>	<b>5,912.835</b>	<b>6,106.048</b>	<b>6,282.196</b>

2. While approving the cost of power purchase, the Commission has arrived at the quantum of power from various sources in accordance with the principles of merit order schedule and dispatch, based on the ranking of all approved sources of supply according to the merit order of the variable cost.
3. The rates considered by the KPCL are based on the Commission's Order dated 03.08.2009 for hydel stations except for Shivasamudram, Shimsha, Munirabad & MGHE.
4. The variable costs of State thermal stations and UPCL, are considered based on the recent power purchase bills passed by the BESCO and also reckoned based on the recent landed cost of fuel and other variable components. The Commission is yet to approve the tariff and the Power Purchase agreements in respect of the new KPCL thermal stations/ units and hence the rates now allowed are only provisional and subject to determination of tariff and approval the PPAs.
5. The fixed charges and the variable charges for the Central Generating Stations, UPCL Stations and the DVC Stations have been considered based on the Tariff determined by the CERC as per the CERC norms. However, the energy has been considered from these units by limiting the quantum of energy as per the requirement of ESCOMs, to meet the sales target on the basis of merit order dispatch. It is expected that any surplus energy available from tied up sources of energy would be traded

by the ESCOMs through PCKL on commercial principles. Similarly, any requirement over and above the quantum approved in this Tariff Order shall be procured from the tied up/ approved sources only.

6. The variations, if any, in the costs allowed, will be considered during the FAC determination exercise / Annual Performance Review of FY20.
7. Based on the approved requirement of energy and the power allocation given by the Government of Karnataka, the Power Purchase quantum and costs thereon are approved in the ARR of MESCOM for the control period FY20 to FY22, as shown in Annexure- 1(i to iii) and 2(i to iii)
8. The consolidated power purchase cost allowed by the Commission vis-a-vis the power purchase costs, as filed by the MESCOM for the control period FY20 to FY22 is shown the following:

**TABLE-5.14****ABSTRACT OF POWER PURCHASE APPROVED FOR MESCOM FOR THE CONTROL PERIOD FY20 to FY22**

SOURCES	FINANCIAL YEAR 19-20			FINANCIAL YEAR 20-21			FINANCIAL YEAR 21-22		
	Energy in MU	Cost in Rs Cr	Per unit Cost (Rs.)	Energy in MU	Cost in Rs Cr	Per unit Cost (Rs.)	Energy in MU	Cost in Rs Cr	Per unit Cost (Rs.)
KPCL Hydel Energy	1,372.09	128.92	0.94	1,459.66	137	0.94	1,462.23	150.60	1.03
KPCL Thermal Energy	1,142.34	655.33	5.74	1,156.94	762.65	6.59	1,168.75	767.15	6.56
CGS Energy	1,649.93	648.31	3.55	1,652.58	674.25	3.55	1,780.04	734.67	3.55
UPCL	329.08	202.77	6.16	345.77	216.56	6.26	349.61	225.50	6.45
Renewable Energy:	1,099.08	441.55	4.02	1,165.81	464.53	3.98	1,303.71	506.98	3.89
Other State Hydel	8.31	4.61	5.55	13.43	7.83	5.83	9.02	5.55	6.15
Others	312.00	121.72	3.90	311.87	121.67	3.90	208.83	73.34	3.51
PGCIL & POSOCO Charges		143.91			122.21			133.17	
KPTCL Transmission & SLDC		260.41			272.98			293.50	
<b>TOTAL</b>	<b>5,912.835</b>	<b>2,607.52</b>	<b>4.41</b>	<b>6,106.048</b>	<b>2,779.69</b>	<b>4.55</b>	<b>6,282.196</b>	<b>2,890.46</b>	<b>4.60</b>



The MESCOM shall regulate the quantum and cost of power as approved above by the Commission.

However, since the power purchase costs are uncontrollable, as per the MYT Regulations, any excess quantum or cost will be trued up in Annual Performance Review of the respective years.

**In the light of the above discussion, the Commission hereby approves power purchase quantum and costs as follows:**

**TABLE-5.15  
Approved Power Purchase for FY20-22**

Year	Approved Quantum-MU	Approved Cost-Rs. Crores
FY20	5,912.835	2,607.52
FY21	6,106.048	2,779.69
FY22	6,282.196	2,890.46

**The breakup of source-wise availability and the cost thereon, is shown in Annexure-2 of this Order.**

### **5.2.7 Renewable Purchase Obligation (RPO) target for FY20-22:**

#### **a. Non-Solar RPO:**

MESCOM has submitted that it will be able to achieve non-solar RPO of 16.51%, 15.91% and 12.85% for the control period as specified by the Commission vide KERC (Procurement of Energy from Renewable Sources) (Sixth Amendment) Regulations, 2018 for FY20, FY21 and FY22 respectively as against target of 13%.

MESCOM shall take all necessary action to meet the above RPO targets. In case, there is any need to buy RECs to fully meet the RPO, the cost thereon would be factored in the APR of FY20.

#### **b. Solar RPO:**

As regards compliance of solar RPO, MESCOM has submitted that it will be able to achieve solar RPO of 15.96%, 16.66% and 16.05% as against target of 7.25%,

8.50% and 10.50% as specified by the Commission vide KERC (Procurement of Energy from Renewable Sources) (Sixth Amendment) Regulations, 2018 for FY20, FY21 and FY22 respectively.

MESCOM shall take all necessary action to meet the above RPO targets. In case, there is any need to buy RECs to fully meet the RPO, the cost thereon would be factored in the APR of FY20.

### 5.2.8 O & M Expenses for FY20-22:

#### **MESCOM's Proposal:**

The MESCOM in its application has requested the Commission to consider the projected O&M expenses based on the employee cost, R&M Expenses and A&G Expenses made on the assumptions detailed below:

- Actual O&M expenses in the year FY18 as the base;
- Consumer growth index of 3.25% (3 years CAGR)
- Weighted average inflation index of 8.28%.
- Efficiency factor of 1%;

The MESCOM has considered the WPI and CPI figures from 2006 to 2017 as per the CERC Notification in the ratio of 80:20 using the formula adopted by CERC. The MESCOM submitted that the O&M expenses has been projected by applying the normative growth rate of 10.53% by considering the inflation rate over FY18 for FY19 to FY22. The contribution of terminal benefit to P&G Trust has been factored by considering the revised rate of pension contribution at 42.53% and gratuity contribution at 6.08% as the actuarial valuation report and as per the Order issued by the KPTCL / ESCOMs Pension and Gratuity Trust.

Based on the above assumptions and the projected O&M expenses of Rs.540.13 Crores for the base year, FY19, the MESCOM has sought the O & M expenses for FY20-22 as detailed below:

TABLE-5.16

**O&M Expenses for FY20-22-MESCOM's Proposal**

Particulars	Amount in Rs. Crores		
	FY20	FY21	FY22
Employee Costs	434.53	480.29	530.86
R&M Expenses	48.12	53.19	58.79
A&G Expenses	114.35	126.39	139.70
<b>Total O&amp;M Expenses</b>	<b>597.00</b>	<b>659.87</b>	<b>729.35</b>

**Commission's analysis & decision:**

As per the norms specified under the MYT Regulations, the O & M expenses are controllable expenses and the distribution licensee is required to regulate these expenses within the approved values.

The Commission notes that the actual O&M expenses of Rs. 490.09 Crores for FY18 also includes the contribution towards P&G Trust and the amount on account of revision of pay along with the other employee cost, Repair & Maintenance expenses and A&G expenses. Hence, the Commission decides to consider the actual O&M expenses of Rs.490.09 Crores, as per the audited accounts (all inclusive) for FY18 as the base data (being the latest data available as per the audited accounts) to arrive at the O&M expenses for the base year in FY19.

The Commission as per the norms specified under the provisions of MYT Regulations, for computation of O&M expenses, has considered the consumer growth rate (CPI) 3 year CAGR and inflation rate index based on the methodology followed by the CERC.

The Commission has computed the O & M expenses for FY20-22, duly considering the actual O & M expenses of FY18 as per the audited accounts to arrive at the O & M expenses for base year i.e. FY19. The actual O& M expenses of Rs. 490.09 Crores for FY18 is inclusive of contribution to P & G Trust and pay revision arrears. Considering the Wholesale Price Index (WPI) as per the data available from the Ministry of Commerce & Industry, Government of India and

Consumer Price Index (CPI) as per the data available from the Labour Bureau, Government of India and adopting the methodology followed by the CERC, with CPI and WPI in a ratio of 80:20, in line with the methodology followed by the Commission, in its earlier Tariff Orders, the allowable annual escalation rate for FY20 is computed as follows:

**TABLE-5.17**  
**Computation of Inflation Index for FY20**

Year	WPI	CPI	Composite Series	Yt/Y1=Rt	Ln Rt	Year (t-1)	Product [(t-1)* (LnRt)]
2006	70.2	122.9	112.36				
2007	73.6	130.8	119.36	1.06	0.06	1	0.06
2008	80.0	141.7	129.36	1.15	0.14	2	0.28
2009	81.9	157.1	142.06	1.26	0.23	3	0.70
2010	89.7	175.9	158.66	1.41	0.35	4	1.38
2011	98.2	191.5	172.84	1.54	0.43	5	2.15
2012	105.7	209.3	188.58	1.68	0.52	6	3.11
2013	111.1	232.2	207.98	1.85	0.62	7	4.31
2014	114.8	246.9	220.48	1.96	0.67	8	5.39
2015	110.3	261.4	231.20	2.06	0.72	9	6.49
2016	110.3	274.3	241.50	2.15	0.77	10	7.65
2017	114.1	281.2	247.78	2.21	0.79	11	8.70
<b>A= Sum of the product column</b>							<b>40.23</b>
<b>B= 6 Times of A</b>							<b>241.40</b>
<b>C= (n-1)*n*(2n-1) where n= No of years of data=12</b>							<b>3036.00</b>
<b>D=B/C</b>							<b>0.08</b>
<b>g(Exponential factor)= Exponential (D)-1</b>							<b>0.0828</b>
<b>e=Annual Escalation Rate (%)=g*100</b>							<b>8.2760</b>

For the purpose of determining the normative O & M expenses for FY20-22, the Commission has considered the following:

- The actual O & M expenses incurred as per the audited accounts for FY18 inclusive of contribution to the Pension and Gratuity Trust and pay revision arrears to determine the O & M expenses for the base year FY19.
- The three year Compounded Annual Growth Rate (CAGR) of the number of installations considering the actual number of installations as per the audited accounts upto FY18 and as projected by the Commission for FY19-FY22.
- The weighted inflation index (WII) at 8.276% as computed above.
- Efficiency factor at 1% as considered in the earlier two control periods.

The above said parameters are computed duly considering the same methodology as followed in the earlier Tariff Orders of the Commission and the relevant Orders of the Commission on various Review Petitions.

Further, the Commission is of the view that extension of benefits under any revision of pay scales should reflect in improved productivity and efficiency for the betterment of services rendered by the ESCOMs to its consumers, in the State. As per the decisions of the Commission, in similar situations in the earlier Tariff Orders, the distribution licensees are required to justify any increase in pay scale to commensurate the increase in real employee productivity. **Hence, the Commission expects that with the increase in the emoluments, the improved productivity of the employees would be reflected in terms of increased sales, reduction of losses and improved revenue collections.**

Accordingly, the normative O & M expenses for FY20-22 are as follows:

**TABLE-5.18**

**Approved O & M expenses for FY20-22**

Particulars	FY19	FY20	FY21	FY22
No. Of Installations		2424347	2501885	2581638
CGI based on 3 year CAGR in %		2.98%	3.09%	3.20%
Inflation index in %		8.2760%	8.2760%	8.2760%
Base year O&M expenses (Projected as per actuals of Rs. 490.09 Crores for FY18) Rs. Crores	540.22			
O&M Index= O&M (t-1) *(1+WII+CGI-X) in (Rs. Crores)		595.62	657.35	726.20
<b>Allowable Total O&amp;M cost in Rs. Crores</b>		<b>595.62</b>	<b>657.35</b>	<b>726.20</b>

Since, the base year data of O & M expense for FY19 also includes the contribution to the P & G Trust and pay revision arrears amount, the Commission has not considered allowing the above items separately for the control period for FY20-22.

**Thus, the Commission decides to approve O&M expenses of Rs. 595.62 Crores for FY20, Rs. 657.35 Crores for FY21 and Rs. 726.20 Crores for FY22.**

### 5.2.9 Depreciation:

#### MESCOM's Proposal:

The MESCOM, in its filing has claimed amount of Rs.137.18 Crores, Rs.165.86 Crores and Rs.189.95 Crores respectively towards depreciation for the control period for FY20-22, as per the norms specified under the MYT Regulations based on the following assumptions:

The MESCOM, in its application has submitted that, it has considered a CAPEX of Rs.816.65 Crores, Rs.1091.44 Crores, Rs.809.55 Crores and Rs.695.85 Crores for the years FY19, FY20, FY21 & FY22 respectively. MESCOM has proposed that about 75% of the CAPEX will be achieved and out of this amount 70% has been reckoned for categorization of assets during the years FY19 & FY20, FY21 & FY22. MESCOM has submitted that it has considered a weighted average rate of depreciation at 4.45%, arrived at by considering the average of the opening & closing balances of value of gross fixed assets for FY18, as the rate of depreciation for the years FY19 to FY22.

Accordingly, MESCOM has claimed the depreciation for FY20-22 as detailed below:

#### Depreciation-FY20-22- MESCOM's Submission

Particulars	Amount in Rs. Crores		
	FY20	FY21	FY22
Depreciation	137.18	165.86	189.95

#### Commission's analysis and decision:

The Commission in its preliminary observations had directed MESCOM to furnish the revised D-15 Format for FY18 to FY22, by considering the assets created out of consumer contributions/grants and also to furnish the details of depreciation on the assets created out of consumer contributions/grants for FY18 to FY22.

The Commission notes the replies furnished by the MESCOM.

MESCOM in its replies has furnished the details of depreciation on the assets created out of consumer contributions/grant till 31.03.2016 amounting to Rs.515.66 Crores, from FY2016-17 onwards, the Financial Statement has been

prepared as per the provision of Indian Accounting Standard (AS). The depreciation on such assets has been deducted from the gross depreciation. The Government Grants and consumer contribution received after 01.04.2016 has been accounted as deferred income and the depreciation chargeable on these assets is taken to Profit & Loss Account as income under other income item.

In accordance with the provisions of the MYT Regulations and amendments issued thereon, the Commission has determined the depreciation for FY20-22 considering the following:

- a) The actual rate of depreciation of category-wise assets is determined considering the depreciation and gross block of opening and closing balances of fixed assets as per the audited accounts for FY18.
- b) The actual rate of depreciation, so arrived at, is considered to allow the depreciation on gross block of average of opening and closing balance of fixed assets projections, made on the approved capex and categorization of asset thereon approved by the Commission for FY19 to FY22.
- c) The depreciation on account of assets created out of consumer's contribution / grants are considered (deducted) based on the closing balance of such assets as on 31.03.2016 as stated in pre-para at the amount of depreciation of Rs.26.74 Crores, Rs.25.37 Crores, Rs.24.22 Crores as projected by MESCOM has been considered in approval of net depreciation for FY20-22.

Accordingly, the depreciation for FY20-22 are as follows:

**TABLE-5.19**  
**Approved Net Depreciation for FY20-22**

Particulars	Amount in Rs. Crores		
	FY20	FY21	FY22
Buildings	3.05	3.21	3.33
Civil	0.16	0.16	0.17
Other Civil	0.03	0.03	0.03
Plant & M/c			
Line, Cable Network	118.54	138.40	149.57

Particulars	FY20	FY21	FY22
Vehicles	0.34	0.38	0.42
Furniture	0.47	0.49	0.51
Office Equipment	0.36	0.40	0.46
Lease hold assets	0.00	0.00	0.00
<b>Released assets reused</b>	0.05	0.06	0.06
Depreciation	<b>122.99</b>	<b>143.13</b>	<b>154.54</b>

Thus, the Commission decides to approve an amount of Rs.122.99 Crores, Rs. 143.13 Crores and Rs. 154.54 Crores towards net depreciation for FY20, FY21 and FY22 respectively.

#### 5.2.10 Interest on Capital Loans:

##### MESCOM's proposal:

MESCOM in its application has stated that, it has considered 75% as CAPEX plan as estimated expenditure and out of this amount, 70% has been estimated as the capital loan requirement for the control period.

**TABLE – 5.20**

##### Estimated loan requirement-MESCOM's Proposal

Amount in Rs. Crores

Year	Capex Plan	Estimated CAPEX achievement	Estimated Loan Requirement
<b>FY20</b>	1,091.44	818.58	573.01
<b>FY21</b>	809.55	607.16	425.01
<b>FY22</b>	695.85	521.89	365.32

Based on the above assumptions, MESCOM has requested the Commission to approve interest on loans for FY20 to FY22 as follows:

**TABLE – 5.21**

##### Interest on Capital Loans– MESCOM's Proposal

Amount in Rs. Crores

Particulars	FY20	FY21	FY22
Opening Balance of loans	1,027.71	1,400.38	1,600.05
Add: New Loans	573.01	425.01	365.32
Less: Repayments	-200.34	-225.34	-250.34
Closing Balance of loans	1,400.38	1,600.05	1,715.03
Average Loan	1,214.05	1,500.22	1,657.54
Rate of Interest	11.00%	11.00%	11.00%
<b>Interest on Capital Loan</b>	<b>133.55</b>	<b>165.02</b>	<b>182.33</b>



**Commission's analysis and decision:**

The Commission has taken note of the capex requirement and the capital loan proposals of the MESCOM for FY20-22. As discussed earlier, considering the approved capex, and the availability of capital grant and internal resources, the requirement of capital loan works out to Rs.400.00 Crores, Rs.325.00 Crores and Rs.300.00 Crores for FY20, FY21 and FY22 respectively. Further, the Commission has considered the repayment of loan at Rs188.76Crores, Rs.210.80 Crores and Rs.217.57 Crores for FY20, FY21 and FY22 respectively.

As per the audited accounts and as per the APR of FY18, the MESCOM had incurred interest on capital loan at a weighted average rate of interest of 7.79% per annum. This rate of interest is considered for the existing loan balances for which interest has to be factored during FY19. Further, for the years FY20 to FY22, the weighted average rate of interest of the preceding year has been considered on the existing loan balances. Further the Commission has considered the new capital loan duly factoring the availability of capital grants from GOI / GoK and the internal resources on the proposed works as made out by MESCOM for FY20-22. MESCOM in its filing has proposed the estimated capex achievement amount of Rs. 818.58 Crores for FY20, Rs. 607.16 Crores for FY21 and Rs. 521.89 Crores for FY22. As against this, after deducting cost of proposed works covered with capital grants from GOI / GoK, internal resources, consumer contribution towards capital works, the expenditure likely to be met by the MESCOM by raising capital loan is Rs.573.01 Crores, Rs.425.01 Crores and Rs.365.32 Crores respectively for FY20-22. However, as discussed in pre para, the Commission considers new loans of Rs.400.00 Crores, Rs. 325.00 Crores and Rs. 300.00 Crores for FY20, FY21 and FY22 respectively for the approved capex. The Commission has considered new loans, in accordance with the debt equity ratio of 70:30 as in the MYT Regulations.

As per the data furnished by the MESCOM, the interest on the average loans of both existing and on the new loan proposed at a rate of 11% per annum.

The Commission notes that, the interest rates proposed by MESCOM on the existing loans amount is comparatively on a higher side, when the actual weighted average rate of 7.97% for FY18 and 10.53% for FY19. MESCOM needs

to take up financial prudence measures, so as to avail loans at comparatively lower interest rates and thereby reduce the interest burden on the consumers. The Commission further notes that, the present interest rate being charged by the commercial banks and financial institutions is on the basis marginal cost of fund based Lending Rates (MCLR). These rates are comparatively lower than the rates considered earlier. Further in the current economic conditions favorable for investments, there is a downward trend in the MCLR and interest rates. Hence, in such a situation, the Commission is of the view that, The MESCOM can avail capital loan at a competitive interest rates which would be lesser than the interest rate proposed by it.

The Commission notes that, the present SBI MCLR rate for capital loan with tenure of 3 years is 8.50%. Considering the present MCLR, the Commission decides to allow an interest rate of 11% for the control period FY20-22 for new capital loan borrowings. It shall be noted that, the rate of interest now considered by the Commission, on the new capital loans for the control period, is subject to review during APR and revision of ARR of the relevant years of the control period.

Accordingly, the approved interest on capital loan for FY20-22 are as follows:

**TABLE – 5.22**

**Approved Interest on capital loan for FY20-22**

Particulars	Amount in Rs. Crores		
	FY20	FY21	FY22
Opening Balances of Capital Loans	848.11	1059.35	1173.55
Add: New Loans borrowed	400.00	325.00	300.00
Less: Repayments of loan	-188.76	-210.80	-217.57
Total loan at the end of the year	1059.35	1173.55	1255.98
Average Loan	<b>953.73</b>	<b>1116.45</b>	<b>1214.76</b>
Interest paid on long term loans	101.38	119.27	130.25
Weighted average rate of interest allowed on existing loans	10.53%	10.63%	10.68%
Interest Claimed	133.55	165.02	182.33
Interest Rate allowed on new loans in %	11.00	11.00	11.00
<b>Allowable Interest on Capital Loan</b>	<b>101.38</b>	<b>119.27</b>	<b>130.25</b>

**Thus, the Commission decides to approve interest on capital loans of Rs.101.38 Crores, Rs.119.27 Crores and Rs130.25 Crores for FY20, FY21 and FY22 respectively.**

**5.2.11 Interest on Working Capital Loan:****MESCOM's proposal:**

MESCOM has claimed the interest on working capital based on the norms specified in the MYT Regulations as follows:

**TABLE – 5.23**

**Interest on Working Capital Loan for FY20-22  
MESCOM's Submission**

Particulars	Amount in Rs. Crores		
	FY20	FY21	FY22
1/12th of O&M Expenses	49.75	54.99	60.78
Opening GFA	2,737.03	3,429.52	4,028.20
1% on opening GFA	27.37	34.30	40.28
1/6th of Revenue	578.34	594.06	610.40
<b>Total Working Capital</b>	<b>655.46</b>	<b>683.35</b>	<b>711.46</b>
Rate of Interest (%) [*]	11.00%	11.00%	11.00%
<b>Interest on Working Capital</b>	<b>72.10</b>	<b>75.17</b>	<b>78.26</b>

**Commission's analysis and decision:**

As per the norms specified under the MYT Regulations, the Commission has computed the interest on working capital which consists of one month's O & M expenses, 1% of Opening GFA and two month's revenue.

The Commission notes that MESCOM has claimed the working capital interest at 11% per annum.

The present interest rates charged by commercial banks and financial institutions are mainly on the basis of MCLR declared from time to time. Hence, the Commission has considered MCLR, depending upon the tenure of the loan. The Commission notes that, MESCOM needs to initiate financial prudence measures while availing working capital, so that the interest burden on its consumers is reduced. As per the audited accounts for FY18, MESCOM has availed the working capital interest at the rate of 8.20% to 11.00% from Commercial banks.

As discussed earlier, the present SBI MCLR of one year is 8.55%. Therefore, the Commission considering the downward trend in the internal rates and by reckoning the present MCLR with the spread of basis points decides and as per

the provision of the MYT Regulations, decides to consider interest on working capital at 11% per annum for FY20-22.

Accordingly, the approved interest on working capital for FY20-22 are as follows:

**TABLE – 5.24**

**Approved Interest on Working Capital Loan for FY20-22**

Particulars	Amount in Rs. Crores		
	FY20	FY21	FY22
One-twelfth of the amount of O&M Exp.	49.63	54.78	60.52
Opening GFA	2,511.77	2,964.05	3,400.12
Stores, materials and supplies- 1% of Opening balance of GFA	25.12	29.64	34.00
One-sixth of the Revenue	572.76	620.62	639.25
Total Working Capital	647.51	705.04	733.77
Rate of Interest (% p.a.)	11.00%	11.00%	11.00%
<b>Interest on Working Capital</b>	<b>71.23</b>	<b>77.55</b>	<b>80.71</b>

**Thus, the Commission decides to approve interest on working capital loan of Rs.71.23 Crores, Rs.77.55 Crores and Rs. 80.71 Crores for FY20, FY21 and FY22 respectively.**

#### 5.2.12 Interest on Consumer Security Deposit:

##### **MESCOM's proposal:**

MESCOM, in its Petition, has submitted that increase in consumer deposit in FY18 over FY17 has been considered for projecting consumer security for the years FY19 to FY22.

Further, MESCOM has considered bank rate of 6.75% per annum, in accordance with RBI Notification dated 01<sup>st</sup> August, 2018, for estimating interest on consumer deposits for FY20-22.

MESCOM has claimed interest on consumer security deposit as follows:

**TABLE – 5.25****Interest on Consumer Security Deposits for FY20-22- MESCOM's Proposal**

Particulars	Amount in Rs. Crores		
	FY20	FY21	FY22
Opening balance of Consumer Security Deposit	638.57	703.31	768.05
Proposed addition during the year	64.74	64.74	64.74
Closing Balance of the Consumer security deposits	703.31	768.05	832.79
<b>Average of deposit</b>	670.94	735.68	800.42
Rate of Interest per annum.	6.75%	6.75%	6.75%
<b>Interest on Consumer Security Deposit</b>	<b>45.29</b>	<b>49.66</b>	<b>54.03</b>

**Commission's analysis and decision:**

In accordance with the KERC (Interest on Security Deposit) Regulations 2005, the interest rate to be allowed is the Bank Rate prevailing on the 1<sup>st</sup> of April of the financial year for which interest is due. As per Reserve Bank of India Notification dated 7<sup>th</sup> February, 2019, the bank rate is 6.50%. This being the latest available bank rate, the Commission has considered the same, for computation of interest on consumer deposits for FY20-22.

The Commission has considered the consumer security deposits as per the audited accounts of FY18 and half yearly accounts of FY19 and noted the additional amount of deposit collected from the consumers during the previous years. Based on the additional security deposits collected during FY18, the Commission has decided to factor Rs.50 Crores, Rs.55 Crores and Rs.60 Crores as the additional security deposit likely to be collected for the projection of the security deposit for the Control period FY20-22. Thus the allowable interest on consumer deposits for FY20-22 is computed in the following Table:

TABLE – 5.26

**Approved Interest on Consumer Security Deposits for FY20-22**

Particulars	Amount in Rs. Crores		
	FY20	FY21	FY22
Opening balance of consumer deposits	623.83	678.83	738.83
Closing balance of consumer deposits	678.83	738.83	803.85
Average consumer deposits	651.33	708.83	771.33
Rate of Interest allowed	6.50%	6.50%	6.50%
<b>Allowable Interest on Consumer Security Deposit.</b>	<b>42.34</b>	<b>46.07</b>	<b>50.14</b>

Thus, the Commission decides to approve interest on consumer security deposits at Rs.42.34 Crores, Rs.46.07 Crores and Rs.50.14 Crores for FY20, FY21 and FY22, respectively.

**5.2.13 Other Interest and Finance Charges:**

MESCOM in its filing has claimed the other interest and finance charges for the control period is as under;

**Cost of raising finance- MESCOM submission**

Particulars	(Amount in Rs. Crores)		
	FY20	FY21	FY22
<b>Cost of raising finance</b>	1.10	1.10	1.10

The Commission as per the audited accounts notes the actual other interest and finance charges incurred by MESCOM during the previous years in raising the loans. Considering this, the Commission decides to allow an amount of Rs.1.10 Crores as proposed by MESCOM towards interest and finance charges for each of the years, during the control period FY20-22.

**5.2.14 Interest and other expenses capitalised:**

MESCOM has claimed an amount of Rs.2.92 Crores towards capitalization of interest and other expenses for each year of the control period. Considering, the capital expenditure incurred and capitalized in the previous years, the

Commission decides to allow capitalization of interest and other expenses of Rs. 6.00 Crores for FY20, Rs. 7.00 Crores for FY21 and Rs. 8.00 Crores for FY22.

### 5.2.15 Interest and finance charges:

The abstract of approved interest and finance charges for FY20-22 are as follows:

**TABLE – 5.27**

#### Approved Interest and finance charges for FY20-22

Particulars	Amount in Rs. Crores		
	FY20	FY21	FY22
Interest on Capital Loan	101.38	119.27	130.25
Interest on Working Capital Loan	71.23	77.55	80.71
Interest on Consumers Security Deposit	42.34	46.07	50.14
Other Interest & Finance Charges	1.10	1.10	1.10
Less: Interest & other expenses capitalized	-6.00	-7.00	-8.00
<b>Total Interest &amp; Finance Charges</b>	<b>210.04</b>	<b>237.00</b>	<b>254.20</b>

### 5.2.16 Return on Equity:

#### MESCOM's proposal:

MESCOM, in its application, has claimed the RoE at 15.50% based on the opening balances of share capital, share deposit, reserves and surplus, and recapitalized security deposit grossed up with MAT at 21.342% for the control period FY20-22, as indicated in the following Table:

**TABLE – 5.28**

#### Return on Equity – MESCOM's Proposal

Particulars	Amount in Rs. Crores		
	FY20	FY21	FY22
Opening balance of Paid up Share capital	358.07	358.07	358.07
Share deposit	14.00	14.00	14.00
Reserves and surplus	269.06	359.54	454.89

Particulars	FY20	FY21	FY22
Less: Recapitalized Security Deposit	-26.00	-26.00	-26.00
<b>Total</b>	<b>615.13</b>	<b>705.61</b>	<b>800.96</b>
RoE grossed up with MAT	19.706%	19.706%	19.706%
<b>Return on Equity</b>	<b>121.22</b>	<b>139.05</b>	<b>157.84</b>

#### Commission's analysis and decision:

The Commission notes that status of debt equity ratio with reference to this projected gross fixed assets for each year of the control period FY20-22.

The Commission has considered the actual amount of share capital, share deposits and the accumulated surplus / deficit under reserves & surplus as per the audited accounts for FY18 and the additional equity report received from the Gok during FY19 for arriving at the allowable equity base for the control period FY20-22.

The Commission, in accordance with the provisions of the MYT Regulations, has considered 15.5% of Return on Equity duly grossed up with the applicable Minimum Alternate Tax (MAT) of 21.5488%. This works out to 19.7575 % per annum. Further, as per the decision of the Commission in the Review Petition No.6/2013 and Review Petition 5/2014, and the amended provisions of the MYT Regulations, the Return on Equity is to be computed based on the opening balances of share capital, share deposits and the accumulated balances of surplus / deficit under reserves and surplus account. Further an amount of Rs.26.00 Crores of recapitalized consumer deposit as net worth is also considered as per the Orders of the Hon'ble ATE in Appeal No.46/2014. The Commission by considering the actual profit / loss earned by MESCOM during the previous years as per the audited account, in order to avoid front-loading of the allowable RoE in the retail supply tariff, has not carried forward the allowable RoE of each year from FY19 to FY22 as the additional equity infused during the year for computation of RoE for the subsequent year.

Further, in compliance with the Orders of the Hon'ble ATE in Appeal No.46/2014, wherein it is directed to indicate the opening and closing balances of gross fixed assets along with break-up of equity and loan component in the



Tariff Order henceforth, the details of GFA, debt and equity (net worth) for FY20-22 are as follows:

**TABLE – 5.29****Status of Debt Equity Ratio for FY20-22**

Amount in Rs. Crores								
Year	Particulars	GFA	Debt	Equity (Net worth)	Normative Debt @ 70% of GFA	Normative Equity @ 30% of GFA	%age of actual debt on GFA	%age of actual equity on GFA
FY20	Opening Balance	3,026.94	848.11	618.49	2,118.86	908.08	28.02	20.43
	Closing Balance	3,479.22	1,059.35	618.49	2,435.45	1,043.77	30.45	17.78
FY21	Opening Balance	3,479.22	1,059.35	618.49	2,435.45	1,043.77	30.45	17.78
	Closing Balance	3,915.29	1,173.55	618.49	2,740.70	1,174.59	29.97	15.80
FY22	Opening Balance	3,915.29	1,173.55	618.49	2,740.70	1,174.59	29.97	15.80
	Closing Balance	4,344.28	1,255.98	618.49	3,041.00	1,303.28	28.91	14.24

From the above table, it is evident that the debt equity amount lies within the normative debt equity ratio of 70:30 on the opening and the closing balances of projected GFA for each year of the control period. Further, the Commission will review the same during the Annual Performance Review for each year based on the actual data as per the audited accounts.

Accordingly, the allowable Return on Equity for FY20-22 as follows:

**TABLE – 5.30****Approved Return on Equity for FY20-22**

Amount in Rs. Crores			
Particulars	FY20	FY21	FY22
OB: Paid Up Share Capital	358.07	358.07	358.07
OB: Share Deposit	154.99	154.99	154.99
OB; Reserves & Surplus	131.43	131.43	131.43
Less: Recapitalized Security Deposit	-26.00	-26.00	-26.00
Opening Balance of Equity for the year	618.49	618.49	618.49
<b>RoE Grossed up with MAT @ 21.5488 (At 19.7575%)</b>	<b>122.20</b>	<b>122.20</b>	<b>122.20</b>

Thus, the Commission decides to approve Return on Equity grossed up with MAT at 21.5488% at Rs.122.20 for each year of the control period for FY20-22. The RoE and the MAT now allowed is subject to truing up as per the actual equity and tax paid by the MESCOM for the relevant year, as per the audited accounts for FY20-22.

#### 5.2.17 Other Income:

##### MESCOM's proposal:

MESCOM in its filing as per the D-3 Format has claimed other income for the control period as detailed below:

**TABLE – 5.31**  
**Other Income - MESCOM's Proposal**

Particulars	Amount in Rs. Crores		
	FY20	FY21	FY22
Interest on Bank Deposits & Investment	0.65	0.65	0.65
Rental from Staff quarters	1.21	1.21	1.21
Profit on sale of stores	1.82	1.82	1.82
Value of materials found excess during physical verification	0.06	0.06	0.06
Rebate for collection of Electricity duty	0.57	0.57	0.57
Incentives received	26.54	26.54	26.54
Miscellaneous recoveries	4.45	4.45	4.45
<b>Total</b>	<b>35.30</b>	<b>35.30</b>	<b>35.30</b>

##### Commission's analysis and decision:

The Commission notes that the other income received by the MESCOM mainly includes income from miscellaneous recoveries, interest on bank deposits, rent from staff quarters and sale of scrap, profit on sale of stores rebate on collection of electricity duty besides incentives for timely payment of power purchase bills etc.

Based on the other income earned by the MESCOM in the previous year, along with the amount of revenue earned on sale of energy to MSEZ the Commission decides to consider Rs.83.85 Crores, Rs.92.11 Crores and Rs.100.04 Crores respectively as the other income for the FY20, FY21 and FY22.

**Thus the, Commission decides to approve other income of Rs. 83.85 Crores for FY20, Rs. 92.11 Crores for FY21 and Rs. 100.04 Crores for FY22.**

### 5.2.18 Fund towards Consumer Relations / Consumer Education:

The Commission has been allowing an amount of Rs.0.50 Crore per year towards consumer relations / consumer education. This amount is earmarked to conduct consumer awareness and grievance redressal meetings periodically and institutionalize a mechanism for addressing common problems of the consumers. The Commission has already issued guidelines for consumer education and grievance redressal activities.

The Commission decides to continue providing an amount of Rs.0.50 Crore for each year of the control period FY20-22 towards meeting the expenditure on consumer relations / consumer education.

**The Commission directs MESCOM to furnish a detailed plan of action for utilization of this amount and also maintain a separate account of these funds and furnish the same at the time of APR.**

### 5.3 Abstract of ARR for FY20-22:

In the light of the above analysis and decisions of the Commission, the following is the approved ARR for the control period FY20-22:

**TABLE – 5.32**  
**Approved ARR for FY20-22**

Sl. No	Particulars	Amount in Rs. Crores		
		FY20	FY21	FY22
		As approved	As approved	As approved
1	Energy at Gen Bus (With MSEZ) in MU	5,912.84	6,106.05	6,282.20
2	Transmission Losses in %	3.162%	3.132%	3.102%
3	Energy at Interface in MU	5,674.74	5,857.95	6,026.96
4	Distribution Losses in %	11.00%	10.90%	10.80%
	<b>Sales in MU</b>			
5	Sales to other than IP & BJ/KJ	3,347.15	3,440.21	3,539.00
6	Sales to BJ/KJ	34.21	34.21	34.21
7	Sales to IP	1,669.16	1,745.01	1,802.84
	<b>Total Sales</b>	<b>5,050.52</b>	<b>5,219.43</b>	<b>5,376.05</b>
	<b>Revenue at existing tariff in Rs. Crores.</b>			
8	Revenue from tariff and Misc. Charges	2,526.78		

Sl. No	Particulars	FY20	FY21	FY22
		As approved	As approved	As approved
9	Tariff Subsidy to BJ/KJ	23.47		
10	Tariff Subsidy to IP	886.32		
	<b>Total Existing Revenue</b>	<b>3,436.57</b>	<b>3,723.74</b>	<b>3,835.48</b>
	<b>Expenditure in Rs. Crores.</b>			
11	Power Purchase Cost	2347.11	2506.71	2596.96
12	Transmission charges of KPTCL	259.00	271.06	291.32
13	SLDC Charges	1.41	1.92	2.18
	<b>Power Purchase Cost including cost of transmission</b>	<b>2,607.52</b>	<b>2,779.69</b>	<b>2,890.46</b>
14	Employee Cost			
15	Repairs & Maintenance			
16	Admin & General Expenses			
	<b>Total O&amp;M Expenses</b>	<b>595.62</b>	<b>657.35</b>	<b>726.20</b>
17	Depreciation	122.99	143.13	154.54
	<b>Interest &amp; Finance charges</b>			
18	Interest on Capital Loans	101.38	119.27	130.25
19	Interest on Working capital loans	71.23	77.55	80.71
20	Interest on belated payment on PP Cost	0.00	0.00	0.00
14	Interest on consumer security deposits	42.34	46.07	50.14
15	Other Interest & Finance charges	1.10	1.10	1.10
16	Less: interest & other expenses capitalised	-6.00	-7.00	-8.00
	<b>Total Interest &amp; Finance charges</b>	<b>210.04</b>	<b>237.00</b>	<b>254.20</b>
17	Other Debits	0.00	0.00	0.00
18	Net Prior Period Debit/Credit	0.00	0.00	0.00
19	Return on Equity	122.20	122.20	122.20
20	Funds towards Consumer Relations/Consumer Education	0.50	0.50	0.50
21	Other Income (Including income from MSEZ)	-83.85	-92.11	-100.04
	<b>ARR</b>	<b>3,575.02</b>	<b>3,847.76</b>	<b>4,048.06</b>
22	Add :Deficit for FY18 carried forward (As per APR)	28.22	0.00	0.00
23	<b>Net ARR</b>	<b>3,603.24</b>	<b>3,847.76</b>	<b>4,048.06</b>

#### 5.4 Segregation of ARR into ARR for Distribution Business and ARR for Retail Supply Business:

MESCOM in its application has not proposed any new ratio for segregation of consolidated ARR into ARR for Distribution Business and ARR for Retail Supply Business.

#### Commission's Analysis and Decisions:

Since no new proposal has been furnished by MESCOM, the Commission decides to continue with the existing ratio of segregation of ARR as detailed below:

**TABLE – 5.33**  
**Approved Segregation of ARR – FY20**

Particulars	Distribution Business	Retail Supply Business
O&M	39%	61%
Depreciation	84%	16%
Interest on Loans	100%	0%
Interest on Consumer Deposits	0%	100%
RoE	78%	22%
GFA	84%	16%
Non-Tariff Income	7%	93%

Accordingly, the following is the approved ARR for Distribution Business and Retail supply business:

**TABLE – 5.34**

#### APPROVED REVISED ARR FOR DISTRIBUTION BUSINESS – FY20

Sl. No	Particulars	Amount in Rs. Crores	
			FY20
1	R&M Expenses		
2	Employee Expenses		
3	A&G Expenses		232.29
4	Depreciation		103.31
	<b>Interest &amp; Finance Charges</b>		
5	Interest on Capital Loans		101.38
6	Interest on Working capital loans		9.90
7	Interest on consumer security deposits		0.00

Sl. No	Particulars	FY20
8	Other Interest & Finance charges	1.10
9	<b>Less:</b> interest & other expenses capitalised	-6.00
	<b>Total</b>	<b>441.98</b>
10	RoE	95.31
11	<b>Less:</b> Other Income	-5.87
12	Provision for taxes	0.00
	<b>NET ARR</b>	<b>531.42</b>

**TABLE – 5.35**  
**APPROVED ARR FOR RETAIL SUPPLY BUSINESS – FY20**

Amount in Rs. Crores

APPROVED ARR FOR RETAIL SUPPLY BUSINESS- FY 20- MESCOM		
Sl. No	Particulars	FY20
1	Power Purchase	2347.11
2	Transmission Charges & SLDC Charges	260.41
3	O&M Expenses	363.33
4	Depreciation	19.68
	<b>Interest &amp; Finance Charges</b>	
5	Interest on Working capital loans	61.33
6	Interest on consumer security deposits	42.34
7	Other Interest & Finance charges	0.00
8	Less interest & other expenses capitalised	0.00
	<b>Total</b>	<b>3094.19</b>
9	ROE	26.88
10	Less: Other Income	-77.98
11	Provision for taxes	0.00
12	Fund towards Consumer Relations / Consumer Education	0.50
	<b>NET ARR</b>	<b>3043.59</b>

### 5.5 Gap in Revenue for FY20:

As discussed above, the Commission decides to approve the Annual Revenue Requirement (ARR) of MESCOM for its operations in FY20 at Rs.3603.24Crores as against MESCOM's application proposing an ARR of Rs.4153.51 Crores. The approved ARR includes an amount of Rs. 28.22 Crores which is determined as the deficit as per APR for FY18 as discussed in Chapter-4. Based on the existing retail supply tariff, the total realization of revenue will be Rs.3436.57Crores which is Rs.166.67 Crores less than the projected revenue requirement for FY20.

The Commission also decides to approve the Annual Revenue Requirement (ARR) of MESCOM for its operation at Rs.3847.76 Crores and Rs.4048.06 Crores as against the MESCOMs application proposing an ARR of Rs.3753.02 Crores and Rs.3973.74 Crores for FY21 and FY22, respectively.

The net ARR, the gap in revenue for FY20 and the average cost of supply is indicated in the following table:

**TABLE – 5.36**

**Revenue gap for FY20**

<b>Particulars</b>	<b>FY20</b>
Net ARR including carry forward deficit of FY18 (in Rs. Crores)	3603.24
Approved sales (in MU)	5050.52
Average cost of supply for FY20 (in Rs./unit)	7.13
Revenue at existing tariff (in Rs. Crores)	3436.57
<b>Gap in revenue for FY20 (in Rs. Crores)</b>	<b>166.67</b>

The determination of revised retail supply tariff on the basis of the above approved ARR is detailed in the Chapter-6 of this Order.