

CHAPTER – 5

ANNUAL REVENUE REQUIREMENT FOR FY20-22

5.0 Annual Revenue Requirement (ARR) for FY20-22 - HESCOM's Filing:

HESCOM, in its application dated 30th November, 2018, has sought approval of the Commission for the 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
1	Energy @ Gen Bus (With HRECS & AEQUS) MU	14412.55	15170.23	15969.44
2	Transmission Losses in %	3.19%	3.17%	3.15%
3	Energy @ Interface in MU	13952.79	14689.33	15466.41
4	Distribution Losses in %	14.80%	14.70%	14.60%
5	Sales in MU			
	Sales to other than IP & BJ/KJ	4972.97	5280.26	5620.88
	Sales to BJ/KJ	295.34	357.82	433.53
	Sales to IP	6619.47	6892.58	7153.92
	Total Sales	11887.78	12530.66	13208.33
6	Revenue at existing tariff in Rs Crs			
	Revenue from tariff and Misc. Charges	3695.78	4796.33	5094.86
	Tariff Subsidy to BJ/KJ	200.83	303.07	367.20
	Tariff Subsidy to IP	4130.55	5452.03	5658.75
	Total Existing Revenue	8027.16	10551.43	11120.81
	Expenditure in Rs Crs			
7	Power Purchase Cost	6833.42	7253.60	7606.83
	Transmission charges of KPTCL	842.48	837.64	967.81
	SLDC Charges	6.41	7.05	7.76
	Power Purchase Cost including cost of transmission	7682.31	8098.29	8582.40

Sl. No	Particulars	FY20	FY21	FY22
8	Employee Cost	684.78	747.98	817.02
	Repairs & Maintenance	81.47	88.99	97.20
	Admin & General Expenses	127.90	139.71	152.60
	Total O&M Expenses	894.15	976.68	1066.82
9	Depreciation	296.79	434.02	539.23
10	Interest & Finance charges			
11	Interest on Capital Loans	272.22	246.93	225.60
12	Interest on Working capital loans	0.00	0.00	0.00
13	Interest on belated payment on PP Cost	0.00	0.00	0.00
14	Interest on consumer security deposits	52.74	57.85	63.46
15	Other Interest & Finance charges	0.00	0.00	0.00
16	Less: interest & other expenses capitalised	0.00	0.00	0.00
	Total Interest & Finance charges	324.96	304.78	289.06
17	Other Debits	27.56	28.66	29.81
18	Extraordinary item (Adjustment of excess subsidy amount as per KERC Order)	102.90	0.00	0.00
19	Return on Equity	0.00	0.00	0.00
22	Funds towards Consumer Relations/Consumer Education	0.50	0.50	0.50
23	Other Income	-299.23	-321.91	-350.69
	ARR	9029.94	9521.02	10157.13
24	Previous year's deficit of FY18 carried forward to next year	977.31	977.31	977.31
	Net ARR	10007.25	10498.33	11134.44

The HESCOM has requested the Commission to approve the Annual Revenue Requirement of Rs. 10,007.25 Crores for FY20 including the deficit of FY18 of Rs.977.31 Crores, Rs. 10,498.33 Crores for FY21 and Rs. 11,134.44 Crores for FY22 by including the deficit of Rs. 977.31 Crores for both the years. Considering the estimated revenue of Rs. 8,027.16 Crores from sale of power to the consumers and miscellaneous revenue at the existing retail supply tariff. HESCOM has

projected the revenue gap of Rs. 1,980.09 Crores for FY20. In order to bridge the revenue gap of Rs. 1,980.09 Crores for FY20, the HESCOM has proposed the average increase in retail supply tariff by 167 paise per unit in respect of all category 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 the Annual Performance Review for FY18 based on the audited accounts and other relevant records furnished by HESCOM. Accordingly, a deficit of Rs. 762.45 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, hence 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:

HESCOM Proposal:

The HESCOM has proposed capex of Rs.1877.75 Crores, Rs.1567.00 Crores and 1,329.64 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) Govt. of Karnataka sponsored schemes like SCSP, TSP, etc.
- c) Govt. of India sponsored schemes like DDUGVY, IPDS, etc.
- d) Replacement of Faulty distribution transformers;
- e) Metering Programme;
- f) Energization of IP sets;
- g) Model Villages
- h) Civil Engineering Works;

The details of capex under various heads proposed for FY20 to FY22 are shown in the following Table:

TABLE-5,2
HESCOM's Capex Proposal for FY20 to FY22

Amount in Rs. Crores

Sl. No.	Scheme	2019-20	2020-21	2021-22
	Gangakalyan Scheme total	70.00	72.00	75
	GOK Sponsored Works			
1	Special Development Plan for backward talukas under Nanjundappa scheme (SDP)	15.00	15.75	16.5
2	Rural Electrification under SCSP (Not covered under RGGVY)	5.00	5.00	5.00
3	Rural Electrification under TSP (Not covered under RGGVY)	3.00	3.00	3.00
4	Energisation of IP sets as per GOK	120.00	120.00	130.00
5	Creating infrastructure to UAIP Sets	20.00	-	-
6	Niranthara Jyoti Yojana.	0.00	0.00	0.00
		15.00	0.00	0.00
	Sub - total	178.00	143.75	154.54
	GOI Sponsored Works			
7	RGGVY			
8	DDUGVY	206.36	100.00	0.00
9	R- APDRP.	15.00	15.00	15.00
10	R-APDRP exclusively for Modem and meters	0.90	0.90	0.90
11	IPDS IT initiative Phase II	9.00	9.00	9.00
12	IPDS	89.64	50.00	
13	Soubhagya Yojane	6.00	40.00	40.00
	Sub - total	326.90	214.90	64.90
	Expansion of network and system improvement works.			
a	Additional DTCs	55.00	57.75	60.64
b	Enhancement of Distribution Transformers	10.00	10.50	11.03
c	Shifting of existing transformer to load centre	5.00	5.00	5.00
d	LT line conversion of 1Ph 2 wire or 1Ph 3 wire to 3ph 5 wire	7.00	7.00	7.00
e	Providing new link lines for bifurcation of load	15.00	15.75	16.54
f	Providing SMC box to distribution transformer	0.50	0.00	0.00
14	Construction of new 33 KV stations	35.00	40.00	45.00
	Construction of new 33 KV lines.	30.00	35.00	35.00
15	Augmentation of 33 KV stations.	30.00	40.00	40.00

Sl. No.	Scheme	2019-20	2020-21	2021-22
16	Construction of 11 KV lines for 33 KV / 110 KV sub-stations.	30.00	40.00	50.00
17	Replacement of 33 KV lines Rabbit conductor by Coyote conductor.	20.00	25.00	25.00
18	11 KV Re-conductoring.	30.00	40.00	40.00
19	LT Re-conductoring.	40.00	45.00	45.00
20	HVDS	10.00	10.00	10.00
21	NEF (REC) for replacing 11 KV OH feeders by UG Cables in Hubli and Belgaum cities.	230.00	--	--
22	Replacing 11 KV OH feeders by UG Cables in Dharwad and Vijayapura cities.	125.00	125.00	50.00
23	Refurbishing works on HT/LT/DTC in O & M Divisions	155	190.00	140
	Sub-total	827.50	686.00	580.20
	Reduction of T & D and ATC loss			
24	Providing meters to un-metered IP sets.	5.00	5.00	5.00
25	Providing meters to un-metered BJ/KJ installations.	2.00	2.00	2.00
26	Replacement of faulty / MNR energy meters by static meters.	5.00	7.00	7.00
27	Replacement of more than 10 year old electromechanical energy meters by static meters.	25.00	25.00	25.00
28	Fixing of boxes to Single Phase Meters	10.00	10.00	10.00
29	DTC's metering (Other than APDRP)	20.00	20.00	20.00
	Sub - total	67.00	69.00	69.00
	General (In House)			
30	Rural Electrification (General)(Not covered under RGGVY)	3.50	4.00	4.00
31	Electrification of BPL Households (General) (Not covered under RGGVY)	8.00	6.00	6.00
32	Water works	30.00	30.00	30.00
33	Other E & I Works (DP & GOS)	5.00	5.00	5.00
34	Energisation of IP sets under general.			
35	Service connections other than IP/BJ/KJ/Water works.	20.00	25.00	30.00
36	Improvement Works at 5 Nos of Villages in each MLA Constituency & 5 Nos of Villages in each MP Constituency under MADARI VIDUYAT GRAM .	35.00	--	--
37	Providing prepaid meters to temporary installations	1.00	0.00	0.00

Sl. No.	Scheme	2019-20	2020-21	2021-22
38	Providing numerical relays to provide power supply to farm houses	1.00	0.00	0.00
39	Providing 16KVA Transformers for A/P/S to farm houses in Chikkodi Division	1.50	0.00	0.00
40	The work of Supply of Hardware, Supervisory Manpower (for Technical Support) and Development of Software (End to End Solution including Google Map Subscription for 2 Years, if applicable) to Support Enumeration of IP Sets in HESCOM Jurisdiction (except Bailhongal O & M Division) through GIS Application and Maintenance for 2 Years	3.35	1.35	-
41	Replacement of old and failed equipment and other works of existing 33 KV stations and lines.	15.00	15.00	15.00
42	T&P materials.	5.00	5.00	5.00
	Sub - total	128.35	91.35	95.00
	New initiatives works			
43	IT initiatives, automation and call centre	2.00	2.00	3.00
44	Providing solar roof tops to HESCOM and other Government office buildings	5.00	5.00	5.00
45	Establishing ALDC & SCADA.	5.00	5.00	5.00
46	Special pilot project for Strategic Business Centre at Gadag Division	2.00	2.00	2.00
47	Smart Metering	90.00	105.00	100.00
48	Smart Grid Initiative	10.00	15.00	15.00
49	DSM Projects	1.00	1.00	1.00
	Sub - total	115.00	135.00	131.00
	Immediate Execution (Planned/Unplanned)			
50	Replacement of failed distribution transformers.	10.00	10.00	10.00
51	Replacement of Power Transformers.	5.00	5.00	5.00
52	Preventive measures to reduce the accidents. (Providing intermediate poles, Restringing of sagging lines, providing guy & studs, providing guarding, DTC earthing)	45.00	45.00	50.00
53	Replacement of broken poles / Disaster Management Works	15.00	15.00	15.00
	Sub - total	75.00	75.00	80.00
54	Civil Engineering works like Construction of new office buildings/ Substation civil works, Modernisation/Repairs to existing buildings,	40.00	30.00	30.00

Sl. No.	Scheme	2019-20	2020-21	2021-22
	regular maintenance to immovable properties			
55	Corporate Office Reserve for Emergency	50.00	50.00	50.00
		90.00	80.00	80.00
	Total	1877.75	1567.00	1329.64

The details of scheme wise capital expenditure proposed by HESCOM, for the fifth control period is as under:

- a. The capital investment plan is prepared in accordance with the “Capital expenditure Guidelines for ESCOMs” in which the capital investment planning process, prioritization and post commissioning analysis are adopted.
- b. The Network strengthening and expansion requirement: Projects such as IPDS, DDUGJY, RGGVY, replacement of OH lines by UG cables, providing additional transformers are envisaged for which a huge amount of capex is proposed. These projects, based on the completion period, are split accordingly, from over 1 year to 3 years.
- c. The works which are taken up by HESCOM departmentally are targeted to complete within a financial year. But the projects which have to be tendered or are financed by financial institutions or GOK have a time period of 1 to 3 years from the date of commencement. There is also some delay in commencement due to finalization and tendering process.
- d. Improvement of power supply reliability: Works such as reconductoring of 33/11/LT lines, Construction of 33 KV stations, providing new feeders/Link lines/express lines from the newly commissioned substations, Augmentation of stations, NJY Phase I, II & III, Construction of 11 KV link lines, for load bifurcation etc. are included in the capex. HESCOM has stressed to prioritize these works, which result in improved power supply reliability.
- e. Loss reduction trajectory: For reduction of AT&C losses, several initiatives like providing meters to unmetered BJ/KJ & IP set installations, DTCs metering,

replacement of faulty and MNR meters and replacing age old electromechanical meters by new static meters etc. have been envisaged. These programmes will increase metered consumption thereby reducing unaccounted energy. This will automatically improve the efficiency parameters of the Company

As per the directives of the Hon'ble commission HESCOM has taken up the work of implementation of Financial Management Framework for assessing the performance of the Sub-division/Division in HESCOM.

- f. **Prevention of Electrical Accidents** : As per the directives of the Hon'ble commission HESCOM has identified several hazardous installations and has included PMREA works in Capex plan like Replacement of deteriorated/Rusted Iron & Ladder Poles by PSC/RCC Poles, Replacement of Old aged 4 ACSR Conductor by Rabbit ACSR Conductor , Restringing of loose Span LT Lines at Various Locations Providing Intermediate Poles in between Lengthy Span of 11 KV & LT Lines , Straightening of Slanted DTC Structure.
- g. Prioritization of Capital Works be undertaken so as to strike a balance between achieving the desired objective of Transmission and Distribution Loss Reduction as well as discharging social responsibility works.
- h. **HVDS:** The commission in its order dated: 14.05.2018 directed not to submit any proposals on HVDS until further directives. However, provision of Rs. 10 Crores has been made in Order to take up any directed work by the Commission.
- i. **Unauthorized IP works:** As per directives of GoK, all the unauthorized IP sets have to be regularized. As at the end of July-2018, Total No of IP Sets Enumerated are 7,94,605 Nos. and IP Sets Enumerated as Authorized are 6,39,284 Nos. and IP Sets Enumerated as Unauthorized are 95,746 Nos.

The work involves extension of HT Line, providing distribution transformer center and extension of LT line. The implementation of work has been taken

up on full turnkey basis by issuing work awards to firms to execute the works. The work of providing infrastructure to all the identified UNIP sets will take about two years for completion. Necessary provision has been made in the budget.

- j. **Niranthara Jyothi Project:** This Scheme envisages segregation of agricultural loads from existing rural feeders, by drawing separate 11 kV feeders and to provide 24 hours' power supply to the rural areas. This will reduce migration of rural population to town and cities, improve the rural economy, reduce power supply interruptions, improve the voltage etc. The above measures would help in increasing the sale of electricity to the metered category of rural, domestic, commercial and industrial consumers.

The following activities in brief would be carried out under NJY scheme:

- a) Segregation of feeders in such a way that that all IP installations reside on an exclusive feeder and other loads are shifted to the segregated feeder
- b) Ensure supply to IP sets as per the GoK guidelines
- c) Ensure continuous supply of power to Non-IP feeders
- d) After segregation of IP set loads by an exclusive IP feeder, the exact consumption of IP sets on that feeder could be arrived.

Feeder separation under NJY works is under progress in HESCOM. Out of 536 Nos. of 11kV feeders identified for the NJY scheme, 513 Nos. of 11KV feeders are commissioned and 23 Nos. of balance feeders work is under progress as at the end of August-2018. All efforts are being made to complete the balance works by December-2018.

- k. **Repair/ replacement of failed DTC:** In view of overloading/ breakdown/aging etc., of existing Distribution Transformers, they have to be repaired/ replaced. At present there are about 2,06,243 DTCs (31.08.2018) existing in the system. As, many transformers fail due to over load, unauthorized load of I.P. Set, running of IP Sets using Capacitors during Single Phase supply etc., the budget provision towards repair of failed transformers

has been made. The number of DTCs that have failed during 2017-18 is 22,679 Nos. For early rectification of faulty DTCs HESCOM has set up 2 Nos of Mega repair center and 45 Nos of Local repair centers.

Commission's analysis and decision:

The Commission has examined the HESCOM's capex proposals for the control period FY20-FY22. The revision of the capex for FY19 is not being considered at this stage and the same would be reviewed during the Annual Performance of FY19. In the preliminary observations, besides other things, HESCOM was directed to provide the physical progress, cost and timelines for completion of works, along with the number of works proposed to be taken in each of the year for FY20 to FY-22. The HESCOM has not submitted the same.

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

Amount in Rs. Crores

Approved and Actual Capex incurred – HESCOM						
Particulars	FY13	FY14	FY15	FY16	FY17	FY18
Capital investment filed	1189.22	1178.00	797.50	1818.86	901.05	748.55
Capital investment approved by the Commission	1189.22	1178.00	797.50	500.00	806.05	743.55
Actual capital investment incurred as per audited accounts *	251.27	343.05	358.09	704.21	707.63	1102.19
Percentage of actual capital investment to the approved capital investment	21.13%	29.12%	44.90%	140.84%	87.79%	148.23%
*without considering capital investment disallowed under prudence check						

It is seen from the above Table that HESCOM has not achieved the target of capex for most of the years except in FY16 and FY18.

The Commission, based on the previous year's achievements and the breakup of capex furnished by the HESCOM, approves the capex of HESCOM at Rs 1200 Crores, Rs 1025 Crores and Rs 825 Crores for FY20, FY21 and FY22 respectively, subject to prudence check and also subject to the following directions:

- i. HESCOM shall prioritize the works and incur expenditure within the approved capex. It shall not incur the capex over and above the approved capex and shall not approach the Commission for approval of additional capex in the middle of the financial year.
- ii. While prioritizing the works, HESCOM shall take up such work which ensure system improvement to enable quality and reliable power to the consumers besides ensuring reduction of distribution losses in order to reduce the burden of losses to the consumers.
- iii. HESCOM is directed to maintain the physical progress as well as financial progress in respect of the works carried out under Capex, indicating timelines of completion, cost to benefit ratio, etc. These details shall be furnished to the Commission as and when Commission directs.
- iv. The Commission directs the HESCOM to put sincere efforts towards achieving the following objectives while incurring the capex:
 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, HESCOM is directed to comply with the directives regarding implementation of HVDS works.

5.2.2 Sales for the Control Period FY20 to FY22:

I. Sales-Other than IP sets:

a) Category-wise estimation of number of installations and sales by HESCOM for the control period FY20-22:

HESCOM, in its filing has estimated sales for FY20, FY21 and FY22 as 11887.79 MU, 12530.66 MU and 13208.33 MU, respectively.

HESCOM's Approach:

The HESCOM, in its tariff application, has submitted that, the energy sales for the control period depends on the population, policies of the Government, implementation of various schemes, hours of supply to consumers etc. Further, the HESCOM has submitted that the forecast has been prepared considering the five year CAGR for the period FY14 to FY18, except in the case of BJ/KJ, HT-3(a)(ii) and HT-4, for which the CAGR is negative. For BJ/KJ, and HT-4 categories 1% growth is considered and for HT-3(a)(ii), HESCOM has proposed addition of one-installation per year.

Also, the Commission has noted that for energy sales estimate, CAGR for the period FY14 to FY18 is considered, except in the case of HT-3b, which has negative growth. For this category, absolute percentage is adopted by HESCOM, considering positive growth in first, half of FY19.

Under LT4(a) category, the projections made by HESCOM are on the higher side due to regularization of unauthorized IP sets and HESCOM has requested the Commission to retain the same on account of on-going works under NJY providing infrastructure to unauthorized IP sets and enumeration.

The preliminary observations on sales forecast for the control period, the replies furnished by HESCOM and the observations of the Commission are discussed in the following paragraphs:

b) Category-wise Energy sales for the Control Period FY20-FY22:

- a) The observations of the Commission on sales forecast for FY20 are as follows:

1. LT (1) – BJ/KJ Category:

HESCOM has considered additions in installations in this category, hence, the Commission enquired about any upcoming GoK schemes under BJ/KJ category.

HESCOM submitted that no new scheme for BJ/KJ has been proposed by GOK. It has considered CAGR of 1% in anticipation of new schemes. HESCOM requested the Commission to disallow 1% of growth for the projected years.

2. In case of LT-3(a)(iii), though the additions in installation is considered, negative growth is considered for sales.

HESCOM in its replies has stated that it has anticipated that Lift irrigation projects may arise in future. Hence, addition of one installation per year has been predicted in HESCOM area.

The Commission notes that HESCOM's has not responded to the observations satisfactorily.

- b) Growth rate considered for the number of installations for HT-1 and HT-2b is lower than the previous year's growth rate and the CAGR for the period 2014-15 to 2017-18.

HESCOM has submitted that it has projected the growth rates considering five years CAGR under HT-2 (b) category, the nature of installations and trend.

- c) Growth rate considered for energy sales for LT- 2(a), LT-3, LT-6 SL, HT-2a, HT-2b and HT2c categories is higher, considering the CAGR.

HESCOM has submitted that growth rates of LT- 2(a), LT-3, LT-6 SL, HT-2a, HT-2b and HT-2c categories have been projected considering five-years CAGR of those categories considering the nature of installations and the trend in consumption.

- d) For HT2(a) category, open access impact should be considered while computing the sales estimate. The Commission opined that, HESCOM should have computed the growth rates considering the total energy sold to this category including OA/wheeling and should have estimated the sales considering the ratio of energy sold by HESCOM in FY18 to the total sales of FY18, including the OA/wheeled energy.

HESCOM has submitted that due to inconsistency in the Open Access and wheeling consumption data, HESCOM is unable to arrive at an exact growth in the consumption under HT-2 (a), based on ratio basis as directed by the Commission.

- e) HESCOM has indicated the energy sold to HRECS for FY18 as 332.61 MU. Though the HRECS in their filing have indicated the same as 332.71 MU, they have stated that the above also includes energy requirement of AEQUS of 18.43 MU. The Commission enquired whether, HESCOM has considered energy sales to HRECS while arriving at overall power requirement for HESCOM for FY19 to FY22

HESCOM, in accordance with the direction of the Commission submitted the revised formats duly incorporating the energy sales to HRECS.

The Commission has noted the replies furnished above and the approach of the Commission is discussed in the following paragraphs;

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 30th 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 HESCOM for the FY 20 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 HESCOM are retained.
- c. Wherever the number of installations estimated by the HESCOM 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.
- d. Wherever the number of installations estimated by HESCOM 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-7 and HT-5 categories, the estimates of HESCOM are retained.
- f. The Growth rate considered for FY20 is retained for the estimates for FY 21 and FY 22 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:

Approved Number of installations

FY20		FY21		FY22	
As Filed	Approved	As Filed	Approved	As Filed	Approved
3513005	3506117	3683699	3692401	3869493	3893640

2) Energy Sales:

- (i) For categories other than BJ/KJ and IP sets, generally the sales are being estimated, considering the following approach:
- a) The base year sale for FY19 as estimated by the HESCOM is validated duly considering the actual sale upto November, 2018 and modified suitably as stated earlier.
 - b) Wherever the sale estimated by the HESCOM, for the for FY 20, 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 HESCOM are considered.
 - c) Wherever the sales estimated by the HESCOM 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.
 - d) Wherever sale estimated by HESCOM for 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 CAGRs for the period FY13 – FY18 and for the period FY15 - FY18 are considered.
 - e) LT-4b sales is based on specific consumption of FY18.
 - f) LT-4c sales is based on specific consumption of FY19, as per BESCOM.

- g) For LT-7 and HT-5, the proposal of HESCOM is retained.
- h) The Growth rate considered for FY20 is retained for the estimates for FY 21 and FY 22 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:

Million Units					
FY20		FY21		FY22	
As Filed	As Approved	As Filed	As Approved	As Filed	As Approved
4972.98	4913.58	5280.26	5199.85	5620.88	5512.07

(ii) Sales to BJ/KJ:

The break-up of sales to BJ/KJ installations as filed by HESCOM for FY-18, 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	720063	201.20	23.28
Installations consuming more than 40 units and billed under LT2(a)	39871	44.28	92.55

Considering the above specific consumption and considering the number of installations as proposed by HESCOM, the sales approved for the control period for BJ/KJ is as indicated in the following Table:

Million Units			
Particulars	FY20	FY21	FY22
Installations consuming less than or equal to 40 units	212.35	212.35	212.35
Installations consuming more than 40 units and billed under LT2(a)	44.93	59.52	77.41

The number of installations consuming less than or equal to 40 units is restricted to the total number of BJ/KJ installations as on 30.11.2018, as there is no specific GoK policy.

II. I.P set sales projections for ARR of FY20, FY21 and FY22:

- a) The Commission, in its Tariff Order dated 11th April, 2017, had approved specific consumption of IP sets as 8,244 units / installation / annum for the FY18. However, based on the revised data of sales to IP sets as reported by the HESCOM, in its Tariff application, the Commission had approved the specific consumption as 8,905.36 units / installation / annum, for the FY18 by considering the mid-year installations of 6,79,829 numbers.
- b) It is noted that, the HESCOM has already segregated a substantial number of feeders under NJY as exclusive agricultural feeders and rural feeders, which means that power supply to IP-sets is being regulated during the FY18. However, it is noted that the consumption has increased by 79.74 MU, entailing that numbers of hours of power supply to IP sets might have increased, exceeding the scheduled hours of power supply fixed by the Government.
- c) The actual sales to IP sets for FY19, till September 2018, as reported by HESCOM in its tariff filing is 3227.46 MU and the number of installations are 7,14,835. The actual consumption per IP per month works out to 752.50 units / IP / month. As per the approved specific consumption for FY19, the consumption per IP per month works out to 687 units / IP / month. The actual monthly average consumption is more than the approved average consumption per month.
- d) As it can be seen from FY16 onwards, that the increase in actual number of consumers every years is varying between 25,000 to 30,000. Whereas, it is noted that the HESCOM has estimated the number of IP-set installations as 8,40,074 for the FY20 based on the 5 year CAGR of 5.19%. As a revised projection for FY19, with this CAGR, the number of installations added for two-years would be 1,43,427 and per year it works out to 71,714, which is very huge compared to the previous years.

- e) Whereas, it is observed that 18,188 number of installations are added from 1st April 2018 to September 2018 i.e., in a span of six months. Considering, approximately, the same number of installations that may be serviced in the next six months, the number of IP installations for FY19 can be projected as 7,33,023 numbers.
- f) Considering, approximately the same number of installations are added during FY20 to FY22, the projected number of consumers for FY20, FY21 and FY22 are 7,69,399, 8,05,775 and 8,42,151 respectively.
- g) HESCOM, in its tariff application has submitted that, it has projected the sales for October 2018 to March 2019 and for FY20 to FY22 by considering the 5 year, sales growth of 5.10%.
- h) The Commission decides to consider the average consumption per month for FY19 for the period April 2018 to September 2018 i.e. 752.50 units / IP / month, which works out to 9,029.94 units / IP / Annum for FY19 and the specific consumption for FY18 is i.e., 8905.36 units / IP / Annum which is considered for projection of sales to IP sets for FY20 to FY22. Based on the estimated number of installations for FY19 and FY20 to FY22 as indicated above, the mid-year number of installations are determined.
- i) The sales determined with this analogy for FY20 to FY22 is more than the sales projections made and submitted by HESCOM. HESCOM has segregated substantial number of exclusive agricultural feeders during FY19 and has provided energy meters to such feeders which give realistic consumption by IP sets. While assessing the consumption by IP sets with the readings of the energy meters provided to these feeders it is seen that the consumption has reduced as compared to previous years approved consumption. Hence, commission decides to retain the sales projected by HESCOM for FY20 to FY22. The details of sales to IP set consumers are as follows:

Particulars	FY20		FY21		FY22	
	As filed by the HESCOM	As approved by the Commission	As filed by the HESCOM	As approved by the Commission	As filed by the HESCOM	As approved by the Commission
No. of Installations	8,40,074	7,69,399	8,83,685	8,05,775	9,29,559	8,42,151
Mid-year number of Installations		7,51,211	-	7,87,587		8,23,963
Specific consumption in units/installation/annum		8,811.73	-	8,751.52		8,682.33
Sales in MU	6,619.47	6,619.47	6,892.58	6,892.58	7,153.92	7,153.92

- j) **Accordingly, the Commission approves 6,619.47, 6,892.58 and 7,153.92 MU as energy sales to IP-sets respectively for the FY20, FY21 and FY22. The number of installations approved for FY20, FY21 and FY22 are 7,69,399, 8,05,775 and 8,42,151 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 HESCOM shall therefore, regulate the number of hours of power supply to exclusive agricultural feeders accordingly.**
- k) It is noted that the HESCOM has already segregated agriculture feeders from rural loads under NJY phase 1 & 2. Therefore, energy consumed by the IP-sets could be more accurately measured at the 11 KV feeder level at the sub-stations after allowing for distribution system losses in 11 KV lines, distribution transformers and LT lines calculated considering the actual line diagrams.
- l) Hence, the Commission reiterates its directive that the HESCOM shall report the total IP-set consumption only on the basis of specific consumption arrived at from the consumption data from energy meters at the sub-stations in respect of exclusive agriculture feeders segregated under NJY, to the Commission, every month regularly, by working out the actual distribution losses in each of the feeders and applying the specific losses, as per the format prescribed in the previous tariff orders of the Commission.
- m) The HESCOM was directed to take up GPS survey of IP-sets to identify the defunct / dried up installations in the field and arrive at correct number of

IP-sets by deducting such IP-sets from its account, on the basis of GPS survey results. In this regard, the HESCOM has stated that during FY18 it had identified 18,045 number of defunct IP sets during the exercise of GPS survey and also informed that these numbers are not considered for assessment of IP sets. It has further submitted that the GPS survey results after its completion, will also be considered to arrive at net number of installations in FY18 onwards. In this regard, the Commission directs the HESCOM to complete the GPS survey of IP-sets and compliance thereon shall be submitted to the Commission. In view of GPS survey of IP-sets not completed fully, the number of installations estimated for FY18 as well as for FY19 are subject to further change based on the GPS survey results. Hence, on completion of the GPS survey, the HESCOM shall arrive at the correct number of IP-sets in the field duly deducting from its account, the number of dried up / defunct wells based on the GPS survey results. Thereafter, any variation in sales due to change in the number of installations would be trued up during the Annual Performance Review for the FY19 onwards. It shall be noted that in case HESCOM failed to complete the GPS Survey by the end of FY19, the Commission would be constrained to estimate the number of defunct IP set installations.

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

TABLE – 5.3
Category wise Approved number of installations

Tariff Category	Description	Proposed by HESCOM			Approved by the Commission		
		FY20	FY21	FY22	FY20	FY21	FY22
LT-1 (a)	Bhagya Jyoti < =40 units	763030	785466	808561	759982	759982	759982
LT-1 (a)	Bhagya Jyoti>40	37409	28112	21126	40457	53596	69705
LT-2a	Domestic	2764246	2885485	3012243	2764246	2878925	2998362
LT-2b	Pvt. Institutions	7859	8548	9301	7848	8521	9251

Tariff Category	Description	Proposed by HESCOM			Approved by the Commission		
		FY20	FY21	FY22	FY20	FY21	FY22
LT-3	Commercial - Applicable to areas coming under VPs	394885	416542	439433	389658	410731	432943
LT-4 (a)	IP sets - Less than 10 HP	840074	883685	929559	769399	805775	842151
LT-4 (b)	Irrigation Pump sets - More than 10 HP	881	894	907	881	896	911
LT-4 (c)	Private Horticulture Nurseries, Coffee & Tea Plantations	511	615	741	462	570	704
LT-5	Lt Industries	126773	133932	141496	124668	132149	140080
LT-6	Water Supply	52400	58104	64428	50192	55799	62032
LT-6	Street Lights	24969	26116	27316	24688	25944	27265
LT-7	Temporary Power Supply	99295	121190	147912	99295	121190	147911
	LT Total	5112332	5348689	5603023	5031776	5254078	5491297
HT-1	HT Water Supply	399	447	501	403	453	508
HT-2 (a)	HT Industries	1902	2083	2281	1902	2083	2281
HT-2 (b)	HT Commercial	649	688	729	649	687	727
HT-2(c)		402	467	542	361	402	449
HT-3(a) & (b)	HT Irrigation & LI Societies	336	383	439	319	364	416
HT-4	Res. Apartments	33	33	33	32	31	31
HT-5	Temporary	56	60	65	56	60	65
	HT Total	3777	4161	4590	3722	4080	4476
	**Grand Total	5116109	5352850	5607613	5035498	5258158	5495773
	*Categories other than IP sets and BJ/KJ consuming less than or equal to 40 units/month./instn.	3513005	3683699	3869493	3506117	3692401	3893640
	IP sets and BJ/KJ consuming less than or equal to 40 units/month./instn.	1603104	1669151	1738120	1529381	1565757	1602133

* Includes BJ/KJ consuming more than 40 units/installation/month

** Excludes HRECS

The category wise approved energy sales for the control period vis-à-vis the estimates made by HESCOM are indicated below:

TABLE – 5.4
Category wise Approved Energy sales

Tariff Category	Category	Proposed by HESCOM			Approved by the Commission		
		FY20	FY21	FY22	FY20	FY21	FY22
LT-1 (a)	Bhagya Jyoti < =40 units	295.34	357.82	433.53	212.35	212.35	212.35
LT-1 (a)	Bhagya Jyoti>40	36.85	33.62	30.67	44.93	59.52	77.41
LT-2a	Domestic	1561.81	1642.75	1727.99	1549.40	1616.67	1686.87
LT-2b	Pvt. Institutions	23.55	26.59	30.04	23.35	28.31	34.33
LT-3	Commercial - Applicable to areas coming under VPs	514.28	551.37	591.18	497.77	529.91	564.12
LT-4 (a)	IP sets - Less than 10 HP	6619.47	6892.58	7153.92	6619.47	6892.58	7153.92
LT-4 (b)	Irrigation Pump sets - More than 10 HP	16.96	16.73	16.51	17.94	18.24	18.54
LT-4 (c)	Private Horticulture Nurseries, Coffee & Tea Plantations	1.07	1.22	1.39	1.02	1.26	1.55
LT-5	Lt Industries	330.68	335.93	341.26	330.68	335.93	341.27
LT-6	Water Supply	335.23	368.66	405.43	333.52	369.84	410.12
LT-6	Street Lights	166.60	175.95	185.81	151.62	157.75	164.13
LT-7	Temporary Power Supply	33.08	35.79	38.73	33.08	35.79	38.73
	LT Total	9934.92	10439.01	10956.46	9815.13	10258.16	10703.35
HT-1	HT Water Supply	263.20	279.13	296.03	263.20	279.14	296.05
HT-2 (a)	HT Industries	1069.42	1102.94	1137.52	1065.71	1095.30	1125.72
HT-2 (b)	HT Commercial	130.34	134.82	139.47	129.64	133.39	137.25
HT-2(c)		111.83	146.99	195.18	94.15	109.31	126.92
HT-3(a) & (b)	HT Irrigation & LI Societies	338.38	386.26	440.24	338.38	388.97	447.13
HT-4	Res. Apartments	14.88	15.03	15.18	14.37	14.03	13.69
HT-5	Temporary	24.82	26.48	28.25	24.82	26.48	28.25
	HT Total	1952.87	2091.65	2251.87	1930.27	2046.63	2175.00
	**Grand Total	11887.79	12530.66	13208.33	11745.40	12304.79	12878.35
	*Categories other than IP sets and BJ/KJ consuming less than or equal to 40 nits/month./instn.	4972.98	5280.26	5620.88	4913.58	5199.85	5512.07
	IP sets and BJ/KJ consuming less than or equal to 40 units/month./instns.	6914.81	7250.40	7587.45	6831.82	7104.93	7366.27

* Includes BJ/KJ consuming more than 40 units/installation/month

** Excludes HRECS

5.2.3 Distribution Losses for FY20-22:

HESCOM's Submission:

As per the audited accounts for FY18, the HESCOM has reported distribution loss of 14.76% as against an approved loss level of 15.50%. The Commission in its Tariff Order dated 14th May, 2018 had fixed the target level of loss for FY19 at 14.90%. HESCOM in its filing has proposed to achieve the following loss levels during FY20-22:

TABLE – 5.5

Projected Distribution Loss-FY20-22 – HESCOM's Submission

Particulars	Figure in Percentage		
	FY20	FY21	FY22
Projected Distribution loss	14.80	14.70	14.60

Commission's Analysis and Decisions:

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

TABLE – 5.6

Approved & Actual Distribution Loss-FY13 to FY19

Particulars	Figure in Percentage						
	FY13	FY14	FY15	FY16	FY17	FY18	FY19
Approved Distribution loss	18.00	19.00	19.00	17.50	16.00	15.50	14.90
Actual distribution loss	19.88	18.05	16.74	16.89	16.02	14.76	-

The Commission notes that, in the preceding years - FY17 & 18, the distribution loss has decreased by 2.13 percentage point. Overall in the past five years (with base year as FY14), HESCOM has been able to achieve distribution loss reduction of 3.29% percentage point.

The distribution loss projections indicated by the HESCOM shows an increase in loss levels from the existing reported loss of 14.76% in FY18 to 14.80% in FY20 and thereafter a reduction of 0.10 percentage point proposed for each of the year FY21 and FY22. The Commission notes that HESCOM has projected losses with meagre reduction of 0.10% in each of the year for FY21 and FY-22, even with substantial amount of proposed Capex of Rs.1298.16 Crores for FY19 and

Rs.1877.75 Crores, Rs.1567.00 Crores and Rs. 1329.64 Crores for FY20-22 respectively. This is very insignificant, considering the huge capex it has planned for the next control period.

HESCOM has submitted that even though the capital investment for FY18 and FY19 is on a higher side, the proposed distribution loss reduction level is set at 14.90 %, 14.80%, 14.70% and 14.60% respectively for FY19, FY20, FY-21 and FY-22. The impact of system improvement works carried out during last 3 years, has significantly impacted on the distribution loss level. The feeder separation work carried out by HESCOM have significantly contributed in reduction of distribution loss and to have better load management regime. HESCOM has added that load growth may significantly increase due to increased development activity, even though potential EI works will be carried out during FY18 and FY19. HESCOM submitted that to concur the distribution loss level at the said level will be the major achievement as the prospective distribution loss may not be significantly decreased as decrease in distribution losses 15% onwards will certainly have less scope as majority of the network is predominantly feeding to the rural areas. Hence, HESCOM has requested the Commission to retain the loss level as indicated in the petition for the control period.

It is observed that, the Commission has been allowing capital expenditure as incurred by the HESCOM subject to prudence check and it has also allowed reasonable capex for the ensuing control period.

The bulk of the capex like HVDS, E&I work, NJY, DTC metering, RAPDRP should enable HESCOM not only to strengthen its infrastructure but also enable reduction of distribution losses.

Considering the present loss levels and the capital investments made in the past, besides the likely investments in the ensuing control period, the Commission decides to fix the following distribution loss targets for FY20-22:

TABLE – 5.7
Approved Distribution Losses for FY20-22

Particulars	Figures in % Losses		
	FY20	FY21	FY22
Upper limit	14.65	14.45	14.25
Average	14.40	14.20	14.00
Lower limit	14.15	13.95	13.75

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 in the following Table:

TABLE 5.8

Requirement of Energy as filed by ESCOMs

Distribution Utilities	Energy (MU)	Energy (MU)	Energy (MU)
	FY20	FY21	FY22
BESCOM	34091.83	35491.68	37009.65
MESCOM	5973.11	6119.44	6270.50
CESC	7496.12	7779.60	8088.33
HESCOM*	14808.77	15605.02	16448.87
GESCOM	9268.17	10007.75	10837.47

*including HRECS energy & AEQUS

HESCOM's submission:

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

TABLE-5.9

**Energy Requirement as filed by HESCOM
(excluding HRECS energy & AEQUS)**

Particulars	As filed by HESCOM		
	FY 20	FY21	FY22
Sales (MU)	11887.78	12530.00	13208.31
Distribution losses (%)	14.80	14.70	14.60
Energy at IF point (MU)	13952.79	14689.33	15466.41

Particulars	As filed by HESCOM		
	FY 20	FY21	FY22
Transmission Losses (%)	3.19	3.17	3.15
Energy Required to meet the sales of HESCOM (MU)	14412.55	15170.23	15969.44

5.2.5 Sources of Power:

HESCOM in its filing has furnished the sources of power available 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 as follows:

- (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 Stations (ex-Bus generation) is based on the details furnished by the Stations to the 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 HESCOM (Including Hukeri and AEQUS) is shown in the following table:

TABLE-5.10

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.	Per unit Cost in Rs.	Energy in MU	Cost in Rs Crs.	Per unit Cost in Rs.	Energy in MU	Cost in Rs Crs.	Per unit Cost in Rs.
KPCL Hydel Energy	2770.55	271.25	0.97	2770.55	274.96	0.99	2770.55	279.57	1.00
KPCL Thermal Energy	3532.14	2183.81	6.18	3770.08	2406.67	6.38	4241.08	2629.39	6.19
CGS Energy	3933.81	1844.19	4.44	4176.97	1916.76	4.58	4557.91	2069.25	4.53
UPCL	462.90	339.17	7.32	462.90	342.57	7.40	528.40	369.04	6.98
Renewable Energy:	4435.18	1899.41	4.28	4684.01	1974.69	4.21	4684.01	1974.69	4.21
Other State Hydel	28.25	15.67	5.54	28.24	15.67	5.54	28.24	15.67	5.54

SOURCES	FINANCIAL YEAR 19-20			FINANCIAL YEAR 20-21			FINANCIAL YEAR 21-22		
	Energy in MU	Cost in Rs Crs.	Per unit Cost in Rs.	Energy in MU	Cost in Rs Crs.	Per unit Cost in Rs.	Energy in MU	Cost in Rs Crs.	Per unit Cost in Rs.
PGCIL & POSOCO Charges	-	433.55	-	-	442.22	-	-	446.55	-
KPTCL Transmission & SLDC	--	848.89	-	-	844.69	-	-	965.57	-
Other sources	250.05	125.13	5.00	250.08	130.06	5.21	-	-	-
	-604.11	-278.77	4.61	-537.81	-250	4.64	-361.32	-167.32	4.63
TOTAL	14808.77	7682.31	5.19	15605.02	8098.29	5.19	16448.87	8582.40	5.22

*(As per D1 format)

Commission's analysis and decisions:

The energy requirement of the ESCOMs, including HESCOM, 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 any deficit can be met through short term purchases calling for 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 and 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 fuel expenses allowed for 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 shown in the following Table:

TABLE-5.11
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 Cr	Per unit Cost in Rs	Energy in MU	Cost in Rs Cr	Per unit Cost in Rs	Energy in MU	Cost in Rs Cr	Per unit Cost in Rs.
KPCL Hydel Energy	10439.74	985.81	0.94	11008.67	1079.85	0.98	10831.33	1115.53	1.03
KPCL Thermal Energy	15099.19	8645.88	5.73	15552.17	10251.96	5.89	17107.10	11295.27	6.60
CGS Energy	21567.71	8474.65	3.93	22214.74	9063.64	4.08	24439.19	10086.79	4.13
UPCL	4352.26	2681.70	6.16	4648	2911.12	6.26	4800	3096.02	6.45
Renewable Energy:	15445.47	6385.55	4.13	16504.81	6741.06	4.08	17250.17	6965.40	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	3892.55	1513.43	3.89	3931.65	1531.76	3.89	2646.59	929.07	3.51
PGCIL & POSOCO Charges		1823.47			2050.21			2184.35	
KPTCL Transmission & SLDC		3524.65			3670.96			3939.78	
TOTAL	70905.56	34095.44	4.8085	73971.94	37365.78	5.0513	77192.34	39684.74	5.1410

5.2.6 Power Purchase Cost & Transmission charges:

HESCOM's Submission

HESCOM has submitted the Power Purchase requirement along with the cost including the transmission charges and SLDC charges, in the D-1 Format. The HESCOM has sought approval of the Commission for purchase of power to an extent of 14808.77 MU, 15605.02 MU and 16448.87 MU at a cost of

Rs.7682.31Crores, Rs.8098.29 Crores, and Rs. 8582.40 Crores, for the control period years of FY20, FY21 and FY22 respectively.

As regards the cost of power, the HESCOM has submitted that, the 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 HESCOM.

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

1. Considering the approved sales and the allowable transmission and distribution losses, the requirement of Power for the HESCOM, for the control period FY20 to FY22, as follows:

Power Purchase requirement approved for the HESCOM for the Control period FY20 to FY22

Particulars	FY 20	FY21	FY22
Sales (MU)	11745.40	12304.79	12878.35
Distribution losses (%)	14.40	14.20	14.00
Energy at IF point (MU)	13721.26	14341.25	14974.83
Transmission Losses (%)	3.162	3.132	3.102
Energy Required to meet the sales of HESCOM (MU) including Hukkeri and AQUES	14554.561	15215.978	15886.610

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 HESCOM for the control period FY20 to FY22, as shown in Annexure- 1(i to iii) and 2 (i to iii).

The consolidated power purchase cost allowed by the Commission for the control period FY20 to FY22 is shown in the following Table:

TABLE-5.12

**ABSTRACT OF POWER PURCHASE APPROVED FOR HESCOM
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 in Rs.	Energy in MU	Cost in Rs Cr	Per unit Cost in Rs.	Energy in MU	Cost in Rs Cr	Per unit Cost in Rs.
KPCL Hydel Energy	3963.60	350.22	0.88	2993.24	301.14	1.01	2985.67	315.21	1.06
KPCL Thermal Energy	2020.28	1136.90	5.62	2088.41	1269.22	6.08	2302.70	1447.18	6.28
CGS Energy	3836.90	1507.64	3.93	4360.07	1778.91	4.08	4793.14	1978.27	4.13
UPCL	217.61	134.09	6.16	912.26	571.36	6.26	960.0	619.20	6.45
Renewable Energy:	3733.40	1541.78	4.12	4075.05	1651.60	4.05	4317.67	1727.21	4.00
Other State Hydel	19.33	10.73	5.55	32.14	18.73	5.83	22.70	13.96	6.15
Other Sources	753.44	294.09	3.90	754.8	294.49	3.90	504.73	177.21	3.51
PGCIL & POSOCO Charges		392.07			743.97			748.94	
KPTCL Transmission & SLDC		699.28			704.33			756	
TOTAL	14544.561	6066.79	4.17	15215.978	7333.74	4.82	15886.61	7783.18	4.90

The HESCOM 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 HESCOM's power purchase quantum and costs as shown in the following Table:

TABLE-5.13**Approved Power Purchase for FY20-22**

Year	Approved Quantum-MU	Approved Cost-Rs. Crores
FY20	14544.561	6066.79
FY21	15215.978	7333.74
FY22	15886.610	7783.18

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:

The Commission directed HESCOM to furnish the estimates for complying with solar and non-solar RPO for the period 2018-19 to 2021-22.

HESCOM has submitted that it will be able to achieve non-solar RPO of 17.52%, 16.85%, and 16.20% as against target of 11% specified by the Commission vide its (Procurement of Energy from Renewable Sources) (Sixth Amendment) Regulations, 2015 for FY20, FY21 and FY22, respectively.

HESCOM 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

HESCOM has submitted that it will be able to achieve solar RPO of 11.41%, 10.97% and 10.55% as against target of 7.25%, 8.50% and 10.50% specified by the Commission vide its (Procurement of Energy from Renewable Sources) (Sixth Amendment) Regulations, 2015 for FY20, FY21 and FY22, respectively.

HESCOM 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:**HESCOM's Proposal:**

HESCOM, in its application, has submitted that it has considered following assumptions for computing the O&M expenses for the control period:

- a) Actual O&M expenses for FY17 inclusive of contribution to pension and gratuity trust of Rs. 686.09 Crores;
- b) Five Year CAGR of number of installations considering the actual number of installations as per audited statements from FY14 to FY18 at 3.99%;
- c) Weighted inflation index at 7.24%; by considering the CPI and WPI in the ratio of 80:20.
- d) Efficiency factor at 2%;

Based on the above indices, HESCOM has sought the O & M expenses for FY20-22 as detailed below:

TABLE – 5.14
O&M Expenses for FY20-22-HESCOM's Proposal

Particulars	Amount in Rs. Crores			
	FY19	FY20	FY21	FY22
No. of installations		4980349	5179009	5385594
Weighted Inflation Index		7.24%	7.24%	7.24%
CGI based on 3 year CAGR		3.99%	3.99%	3.99%
Actual O&M expenses for FY18 for Rs.749.42 Crores	818.59			
O & M expenses		894.15	976.68	1066.82

Based on the above projected total normative O & M Expenses, HESCOM has claimed the segregated O & M Expenses as shown in the following Table:

TABLE – 5.15
O & M Expenses- HESCOM's Submission

Particulars	Amount in Rs. Crores		
	FY20	FY21	FY22
Employee Cost	684.78	747.98	817.02
Repairs & Maintenance	81.47	88.99	97.20
Admin & General Expenses	127.90	139.71	152.60
Total O&M Expenses	894.15	976.68	1066.82

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 incur these expenses within the approved values.

The Commission, in its preliminary observations, had directed HESCOM to furnish the computation sheets along with the relevant Actuarial Valuation Report to substantiate its claim of Rs.143.42 Crores, Rs.156.66 Crores and Rs.171.12 Crores towards terminal benefits under employee cost for the fifth Control period FY20-22.

HESCOM, in its replies, has submitted the detailed breakup of contribution of terminal benefit to P & G Trust along with the Actuarial Valuation Report for FY20-22.

The Commission has noted the actual O&M expenses of Rs.857.48 Crores as per the audited accounts of HESCOM for FY18. This amount 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.857.48 Crores as per the audited accounts (all inclusive) for FY18 as the base year 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) based on 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 (being the latest data available as per the audited accounts) to arrive at the O & M expenses for base year i.e. FY19. The actual O& M expenses for FY18 were Rs.857.48 Crores. 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 CERC with CPI and WPI in a ratio of 80:20 in line with the methodology followed by the Commission in its Tariff Order issued earlier, the allowable annual escalation inflation rate for FY 20-22 is computed as follows:

TABLE – 5.16
Computation of Inflation Index for FY20-22

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
A= Sum of the product column							40.23
B= 6 Times of A							241.40
C= (n-1)*n*(2n-1) where n= No of years of data=12							3036.00
D=B/C							0.08
g(Exponential factor)= Exponential (D)-1							0.0828
e=Annual Escalation Rate (%)=g*100							8.2760

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 pay revision arrears and contribution to the Pension and Gratuity Trust to arrive at 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 FY19-20 of 4.51%, 4.52% and 4.42% for FY20-22 respectively.

- c) The weighted inflation index (WII) at 8.276% as computed above.
d) Efficiency factor at 2% as considered in the earlier two control periods.

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

Further, the Commission is of the view that any benefit of revision of pay scales extended to the employees 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 commensurate with 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 – 5.17
Approved O & M expenses for FY20-22

Particulars	Amount in Rs. Crores			
	FY19	FY20	FY21	FY22
No. of Installations		5035498	5258158	5495773
CGI based on 3 Year CAGR in %		4.51%	4.52%	4.42%
Base year O&M expenses (projected as per actuals of FY18)	948.69			
Inflation index in %		8.2760%	8.2760%	8.2760%
O&M Index= O&M (t-1)*(1+WII+CGI-X)		1051.04	1164.46	1288.99
Allowable Total O&M Cost		1051.04	1164.46	1288.99

Since, the base year data includes the O & M expenses inclusive of contribution to the P & G Trust and pay revision arrears amount, the Commission has not considered allowing contribution to the P & G Trust and pay revision arrears separately.

Thus, the Commission decides to approve the O&M expenses of Rs.1051.04 Crores for FY20, Rs.1164.46 Crores for FY21 and Rs.1288.99 Crores for FY22.

5.2.9 Depreciation:

HESCOM's Proposal:

The HESCOM in its filing has claimed amount of Rs. 296.79 Crores, Rs. 434.02 Crores and Rs.539.23 Crores respectively the depreciation for the control period for FY20-22, as per the norms specified under the MYT Regulations based on the following assumptions:

- 1) Depreciation has been computed as per the CERC Regulations with effect from 1st April, 2009.
- 2) Projected growth in the fixed assets is worked out on the basis of creation of assets out of the capex proposed for the control period.
- 3) Individual group wise assets are calculated on pro-rata basis on the figures of FY18.
- 4) 70% of the proposed capex is considered as the assets created during the control period.
- 5) Retirement of assets during the control period also considered.

HESCOM, in its Petition at page no 156 and 157, has claimed the depreciation for FY20-22 as detailed below:

TABLE – 5.18
Depreciation-FY20-22- HESCOM's Submission

Particulars	Amount in Rs. Crores		
	FY20	FY21	FY22
Land and rights	-		
Buildings	4.40	6.04	3.80
Hydraulics Works	0.17	0.23	0.15
Other Civil Works	0.17	0.23	0.15
Plant & Machinery	76.69	105.27	66.18
Lines Cable Networks	315.88	433.61	272.59
Vehicles	1.07	1.47	0.92
Furniture & Fixtures	0.65	0.89	0.56
Office Equipment	0.49	0.68	0.43
Total	399.51	548.42	344.76
Less: Depreciation on assets created out of consumer contribution / grants	102.72	114.39	73.67
Net Depreciation	296.79	434.02	271.09

Whereas, HESCOM in Format A1, has claimed depreciation of Rs. 296.79 Crores, Rs. 434.02 Crores, Rs. 539.23 Crores for FY20, FY21 and FY22, respectively.

Commission's analysis and decision:

The Commission notes that, HESCOM in its filing as made out in table 5.18 above, has claimed the gross depreciation on the fixed assets for Rs.399.51 Crores, Rs.548.42 and Rs.344.76 Crores for FY20-22, After considering Rs.102.72 Crores and Rs.114.39 Crores of depreciation on the assets created out of consumer contribution / grants the HESCOM has claimed the net depreciation of Rs.296.79 Crores, Rs.434.02 Crores for FY20 and FY21 and claimed the reduced amount of Rs.271.09 Crores for FY22, after deducting Rs. 73.67 Crores towards depreciation on assets created out of consumers' contribution/grant. The Commission also notes that, HESCOM as per D-6 format and A1 format has claimed an amount of Rs.539.23 Crores as net depreciation for FY22.

The Commission, as made out in the pre-para of this chapter, has considered the amount of capex and the categorization of assets thereon in computation of the net depreciation for FY20-22.

In accordance with the provisions of the MYT Regulations and amendments 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) This actual rate of depreciation of FY18 is considered on the of average of opening and closing balance of gross block of fixed assets projections made on the approved capex and the categorization of assets thereon by the Commission for FY19 to FY22.
- c) The depreciation on account of assets created out of consumers' contribution / grants are considered (deducted) based on the closing balance of such assets duly considering the addition of assets as

considered and projected by the Commission for FY 20-22, at the weighted average rate of depreciation as per actuals in FY18.

Accordingly, the computation of depreciation for FY20-22, is shown as follows:

TABLE – 5.19
Approved Depreciation for FY20-22

Particulars	Amount in Rs. Crores		
	FY20	FY21	FY22
Buildings	4.10	4.50	4.69
Civil Works	0.22	0.28	0.36
Other Civil Works	0.14	0.16	0.18
Plant & Machinery	70.57	81.05	89.87
Line, Cable Network	226.24	259.87	294.18
Vehicles	0.23	0.28	0.32
Furniture	0.43	0.47	0.51
Office Equipment	0.45	0.55	0.64
Sub Total	302.38	347.14	390.76
Less: Depreciation as the assets created on Consumer contribution/grants	-107.46	-122.02	-135.86
Depreciation on the Net GFA	194.92	225.12	254.90

Thus, the Commission decides to approve an amount of Rs.194.92 Crores, Rs.225.12 Crores and Rs. 254.90. Crores after considering the depreciation on assets created out of consumer contribution / grants towards the net depreciation for FY20, FY21 and FY22 respectively.

5.2.10 Interest on Capital Loans:

HESCOM's proposal:

HESCOM, in its filing, has proposed to raise a capital loan of Rs.1643.28 Crores, Rs. 652.00 Crores and Rs.562.30 Crores for carrying out the proposed capex of Rs.1877.75 Crores, Rs.1567.00 Crores and Rs.1329.44 Crores for FY20-22 respectively.

The interest on capital loan has been calculated on the average loan basis considering the SBI PLR interest rate of 11.85%. HESCOM in its D-9 Format has

claimed the interest on individual loan basis by clubbing the both short-term and the long-term loans for FY20-22.

HESCOM, in its replies to the observations of the Commission, has furnished sources of fund to meet the capex envisaged for FY20-22 by way of capital grant from Gol / GoK, internal resources, consumer contribution and by borrowing capital loans from Banks / financial institutions for FY20-22.

HESCOM has requested the Commission to approve interest on capital loans for FY20-22 as per D-9 Format as follows:

TABLE – 5.20

Interest on Capital Loans for FY20-22– HESCOM's Proposal

Particulars	Amount in Rs. Crores		
	FY20	FY21	FY22
Opening balance	2402.42	2191.97	1975.54
Add: New loans	597.78	252.00	262.30
Less: Repayment	-808.23	-468.43	-405.73
Closing balance loans	2191.97	1975.54	1832.11
Average loans	2297.20	2083.76	1903.85
Rate of interest in %	11.85%	11.85%	11.85%
Interest on capital Loans	272.22	246.93	225.60

Commission's analysis and decision:

The Commission has noted the capex and capital loans proposed by HESCOM for FY20-22, as discussed in the preceding paragraphs of this Chapter.

The Commission had directed HESCOM to furnish the Bank / Financial Institution-wise details of opening balance, receipt, repayment, term of loan, rate of interest, purpose of loan, interest amount and the closing balance of loans for long term and short term loans separately for the projections made for FY20 to FY22. The Commission has taken note of the replies submitted by the HESCOM.

As per the audited accounts and as per the APR of FY18, the HESCOM had incurred interest on capital loan at a weighted average rate of interest of

11.20% 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 and FY22, the weighted average rate of interest of the preceding years, on the existing loan balances, has been considered. The Commission has considered the requirement the new capital loan by reckoning the availability of capital grants for the works proposed under various schemes from GOI / GoK, the internal resources and consumer contributions, as estimated by the HESCOM, in the proposed capex for FY20-22.

The Commission takes note of the various capital works proposed under capex and the source of fund for FY20-22. The Commission further notes that various works proposed by HESCOM are covered under grants from GoI / GoK under various schemes and also notes the availability of internal resources and the works to be executed through consumers' contribution, during the control period for FY20-22.

The Commission notes that the HESCOMs has proposed capex amount of Rs. 1877.75 Crores for FY20, Rs. 1567.00 Crores for FY21 and Rs. 1329.64 Crores for FY22. As against this, after deducting cost of the works covered under capital grants from GOI / GoK, and the availability of internal resources and the consumer's contributions towards capital works, the expenditure likely to be met by the HESCOM by raising capital loan is proposed at Rs.597.78 Crores, Rs.252.00 Crores and Rs.262.30 Crores respectively for FY20, FY21 and FY-22 respectively, which appears to be inadequate, to meet the proposed capex by HESCOM.

The Commission further notes the achievement of the Capital works by HESCOM in the earlier years and also in FY18 and FY19. Except in FY18, in all the previous years, HESCOM has not achieved much progress against its own targeted capex. Thus, the Commission after considering all the above aspects and to avoid front loading of the interest on loan component in the retail supply tariff, has decides to reckon Rs.1200 Crores, Rs.1025 Crores and Rs.825 Crores as capex for FY20-22. However, as discussed in pre-para, the Commission

considers new loans of Rs.630 Crores, Rs.560 Crores and Rs.490 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 MYT Regulations.

As per the data furnished by the HESCOM, the interest on the average of both existing loan balance and on the new loans is proposed at a rate of 11.85% per annum, for availing new loans, on the basis of SBI Prime Lending Rate, which is not in vogue now. The Commission notes that, the interest rates proposed by HESCOM on the existing loan amount, is relatively on a higher side when the actual weighted average interest rate is 11.20% for FY18 and 11.18% for FY19. HESCOM needs to initiate financial prudence measures, so as to avail loans at comparatively lower interest rates and 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 are on the basis marginal cost of fund based Lending Rates (MCLR). These rates are comparatively lower than the bank rates considered earlier. Further in the current favorable economic conditions for investment, it is observed that there is a downward trend in the MCLR and interest rates. Hence, in such a situation, the Commission is of the view that, the HESCOMs can avail capital loan at competitive rates, which would be lesser than the interest rate proposed by the HESCOM.

The Commission notes that, the present SBI MCLR rate for capital loan with tenure of 3 years is 8.50% and considering the present MCLR, the Commission decides to consider 250 basis points on the current MCLR and allow interest rate of 11% for the control period FY 20-22, on the 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 interests on capital loans for FY20-22 are as follows:

TABLE – 5.21
Approved Interest on Capital Loans for FY20-22

Particulars	Amount in Rs. Crores		
	FY20	FY21	FY22
Secured Loans & Unsecured loans	2379.58	2739.62	2997.66
Add: New Loans Borrowed	630.00	560.00	490.00
Less: Repayments of loan	269.96	301.96	325.26
Total loan at the end of the year	2739.62	2997.66	3162.40
Average Loan	2559.60	2868.64	3080.03
Interest to be paid on long term loans as per schedule 26	285.50	319.54	342.74
Weighted average rate of interest considered for existing loan in %	11.18%	11.15%	11.14%
Interest rate Allowed on new loans in %	11.00%	11.00%	11.00%
Allowable Interest on Capital Loan	285.50	319.54	342.74

Thus, the Commission decides to approve interest on capital loans of Rs.285.50 Crores, Rs.319.54 Crores and Rs. 342.74 Crores for FY20, FY21 and FY22 respectively.

5.2.11 Interest on Working Capital:

HESCOM's proposal:

HESCOM, in its filing at page no 158, has claimed interest on working capital based on the norms prescribed in the MYT Regulations as follows:

TABLE – 5.22
Interest on Working Capital for FY20-22
HESCOM's Submission

Particulars	Amount in Rs. Crores		
	FY20	FY21	FY22
One -twelfth of the amount of O & M Expenses	74.51	81.39	88.90
Opening GFA	7275.04	10082.05	12357.29
Stores, materials and supplies - 1% of opening balance of GFA	72.75	100.82	123.57
One-Sixth of the Revenue	1337.86	1409.80	1485.84
Total Working Capital	1485.12	1592.01	1698.31
Rate of Interest	11.00%	11.00%	11.00%
Interest on Working Capital	163.36	175.12	186.81

Whereas, HESCOM in Format A-1, has not claimed any amount towards interest on working capital.

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 months' O & M expenses, 1% of Opening Balance of GFA and two months' revenue.

The Commission notes that HESCOM has claimed the working capital interest at 11 % per annum on the basis of Bank Prime Lending Rates which is at present not available for the new loans.

The present interest rates by commercial banks and financial institutions are charged mainly on the basis of MCLR declared from time to time. Hence, the Commission would consider MCLR, depending upon the tenure of the loan. The Commission notes that, HESCOM needs to initiate financial prudence measures in availing working capital, so that the interest burden on its consumers is reduced.

As per the replies to the observation of the Commission and as per the audited accounts for FY18, HESCOM has availed the working capital interest at the rate of 11.00% to 12.00% from PFC and Commercial banks. As discussed earlier, the present SBI MCLR for loan with tenure of One year is 8.55%. Therefore, the Commission by taking the downward trend in the internal rates as per the provisions of the MYT Regulations, and by reckoning the present MCLR with a reasonable spread on basis points, decides to consider interest on working capital at 11% per annum for FY20-22.

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

TABLE – 5.23
Approved Interest on Working Capital loans for FY20-22

Particulars	Amount in Rs. Crores		
	FY 20	FY 21	FY 22
One-twelfth of the amount of O&M Exp.	87.59	97.04	107.42
Opening GFA	6003.30	6943.30	7917.43
Stores, materials and supplies - 1% of Opening balance of GFA	60.03	69.43	79.17
One-sixth of the Revenue	1320.37	1450.93	1518.56
Total Working Capital	1467.99	1617.40	1705.15
Rate of Interest (% p.a.)	11.00%	11.00%	11.00%
Interest on Working Capital	161.48	177.91	187.57

Thus, the Commission decides to approve interest on working capital loans of Rs161.48 Crores, Rs177.91 Crores and Rs 187.57 Crores for FY20, FY21 and FY22 respectively.

5.2.12 Interest on Consumer Security Deposit:

HESCOM's proposal:

HESCOM in its filing has submitted that the three years CAGR (from FY15 to FY18) has been considered in projecting the amount of consumer deposits and accordingly, has computed the interest on consumer security deposit, at the Bank rate of 6.25% per annum for the control period FY20-22.

The abstract of interest on consumer security deposit for FY20-22 are as follows:

TABLE – 5.24

Interest on Consumer Security Deposits for FY20-22- HESCOM's Submission

Particulars	Amount in Rs. Crores		
	FY20	FY21	FY22
Projected Consumer security deposits	843.83	925.63	1015.37
Rate of interest at bank rate	6.25%	6.25%	6.25%
Proposed interest on consumer security deposits	52.74	57.85	63.46

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 1st of April of the financial year for which the interest is due. As per Reserve Bank of India Notification dated 7th 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 each for FY20 and FY21 and Rs.60 Crores for FY22 as the additional security deposit likely to be collected for projected the interest on consumer security deposit during the Control period FY20-22. Thus the allowable interest on consumer deposits for FY20-22 are as follows:

TABLE – 5.25
Approved Interest on Consumer Security Deposits for FY20-22

Particulars	Amount in Rs. Crores		
	FY20	FY21	FY22
Opening balance of consumer security deposits	751.28	801.28	851.28
Closing Balance of Consumer Security deposit	801.28	851.28	911.28
Average balance of consumer security deposit.	776.28	826.28	881.28
Allowable interest rate	6.50%	6.50%	6.50%
Allowable Interest on Consumer Security Deposit	50.46	53.71	57.28

Thus, the Commission decides to approve interest on consumer security deposits at Rs.50.46 Crores, Rs. 53.71. Crores and Rs. 57.28 Crores for FY20, FY21 and FY22 respectively.

5.2.13 Other Interest and Finance Charges:

HESCOM in its filing has not claimed other interest & Finance Charges for the control period. Thus, the Commission decides not to consider the other interest and finance charges for FY20 to FY22.

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

TABLE – 5.26
Approved Interest and finance charges for FY20-22

Particulars	Amount in Rs. Crores		
	FY20	FY21	FY22
Interest on Loan Capital	285.50	319.54	342.74
Interest on Working Capital	161.48	177.91	187.57
Interest on Consumer Security Deposit	50.46	53.71	57.28
Approved Interest & Finance Charges	497.43	551.16	587.59

5.2.14 Other Debits:

HESCOM has claimed an amount of Rs. 27.56 Crores, Rs. 28.66 Crores and Rs. 29.81 Crores towards other debits for FY20 to FY22 respectively towards asset decommissioning cost, losses relating to fixed assets, bad and doubtful debts written off / provided for, material Cost variance and miscellaneous losses and write off for FY20, FY21 & FY22 respectively.

The Commission, as per the provisions of MYT Regulations as amended from time to time, is not allowing the other debit amount as claimed by the HESCOM while approving the ARR, as the same cannot be estimated beforehand. The Commission, therefore has not allowed the same in the ARR for the control period. However, such expenses would be considered as per actual based on the audited accounts for the relevant years at the time of APR.

5.2.15 Return on Equity:

HESCOM's proposal:

HESCOM has not claimed the Return on Equity in view of the estimated negative net-worth, for the control period FY20-22.

Commission's analysis and decision:

The Commission notes the status of debt-equity ratio with reference to the 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 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 shall 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.34.00 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.

Further, in compliance of the Orders of the Hon'ble ATE in Appeal No.46/2014, wherein it was 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 indicated as follows:

TABLE – 5.27
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	4103.30	2379.58	-1157.35	2872.31	1230.99	58.00	0.00
	Closing Balance	4764.96	2739.62	-1157.35	3335.47	1429.49	54.50	0.00
FY21	Opening Balance	4764.96	2739.62	-1157.35	3335.47	1429.49	54.50	0.00
	Closing Balance	5464.43	2992.66	-1157.35	3825.10	1639.33	54.77	0.00
FY22	Opening Balance	5464.43	2992.66	-1157.35	3825.10	1639.33	54.77	0.00
	Closing Balance	6114.43	3162.40	-1157.35	4280.10	1834.33	51.72	0.00

From the above table it is evident that the debt equity lies within the normative debt equity ratio of 70:30 on the opening and 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 Return on Equity that could be allowed for FY20-22, is worked out as follows:

TABLE – 5.28
Approved Return on Equity for FY20-22

Particulars	Amount in Rs. Crores		
	FY20	FY21	FY22
Paid Up Share Capital	1211.07	1211.07	1211.07
Share Deposit	311.34	311.34	311.34
Accumulated deficit	-2645.76	-2645.76	-2645.76
Less: Recapitalized Security Deposit	-34.00	-34.00	-34.00
Equity Reserves & Surplus at the beginning of the year	-1157.35	-1157.35	-1157.35
Allowable Normative RoE grossed with MAT	0.00	0.00	0.00

The net-worth of HESCOM is negative for all the three years of the control period FY20-22, in view of the previous year's losses. Hence, the Commission decides not to factor any amount towards return on equity, for the control period.

5.2.16 Other Income:

HESCOM's proposal:

HESCOM, in its filing under format A1, has claimed other income for the control period as detailed below:

TABLE – 5.29
Other Income for FY20-22 – HESCOM's Proposal

Particulars	Amount in Rs. Crores		
	FY20	FY21	FY22
Other Income	299.23	321.91	350.69

HESCOM while computing the other income, has considered income from sale of power to HRECS of Rs. 160.60 Crores, Rs.171.83 Crores and Rs. 188.24 Crores for FY20, FY21 and FY22, respectively under Other Income.

Commission's analysis and decision:

The Commission notes that HESCOM in projecting the other income for FY20-22 has considered Rs.239.38 Crores, Rs.258.93 Crores and Rs.281.38 Crores in page 161 of the tariff application. Whereas, under Format D-3 it has considered Rs.299.23 Crores, Rs.321.91 Crores Rs.350.69 Crores respectively for FY20-22. The other income projected by the HESCOM 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 and income from sale of power to Hukeri RECS. The actual 'other income' earned by HESCOM as per the audited accounts was Rs.44.47 Crores for FY17 and Rs.63.91 Crores for FY18.

Based on the other income earned by the HESCOM in the previous years, and the income on sale of power to Hukeri RECS at the approved power purchase cost of HESCOM, the **Commission decides to approve other income of Rs. 263.33 Crores for FY20, Rs. 274.42 Crores for FY21 and Rs. 290.72 Crores for FY22.**

5.2.17 Fund towards Consumer Relations / Consumer Education:

HESCOM in its filing has claimed an amount of Rs.0.50 Crores towards consumer relation / education for each year of the control period FY20-22.

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 to 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 had directed HESCOM to furnish the details for having incurred the expenditure towards Consumers' relation and education during FY18. HESCOM, in its replies has furnished details stating that it has incurred

expenditure towards caller tunes, calendar, Joint collaboration with Deshpande Education Trust to educate on DSM etc.

The Commission takes note of the replies furnished by the HESCOM and 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 HESCOM 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 – 5.30
Approved ARR for FY20-22

Sl. No	Particulars	Amount in Rs. Crores		
		FY20	FY21	FY22
		Appd. ARR	Appd. ARR	Appd. ARR
1	Energy @ Gen Bus (With HRECS & AEQUS) in MU	14544.56	15215.98	15886.61
2	Transmission Losses in %	3.162%	3.132%	3.102%
3	Energy @ Interface in MU	13721.26	14341.25	14974.83
4	Distribution Losses in %	14.40%	14.20%	14.00%
5	Sales in MU			
	Sales to other than IP & BJ/KJ	4913.58	5199.86	5512.08
	Sales to BJ/KJ	212.35	212.35	212.35
	Sales to IP	6619.47	6892.58	7153.92
	Total Sales	11745.40	12304.79	12878.35
6	Revenue at existing tariff in Rs. Crores.			
	Revenue from tariff and Misc. Charges	3647.25		
	Tariff Subsidy to BJ/KJ	144.40		
	Tariff Subsidy to IP	4130.55		
	Total Existing Revenue	7922.20	0.00	0.00
	Expenditure in Rs. Crores.			
7	Power Purchase Cost	5367.51	6629.41	7027.18

Sl. No	Particulars	FY20	FY21	FY22
		Appd. ARR	Appd. ARR	Appd. ARR
	Transmission charges of KPTCL	696.02	699.38	750.38
	SLDC Charges	3.26	4.95	5.62
	Total Power Purchase Cost including cost of transmission & SLDC Charges	6066.79	7333.74	7783.18
8	Employee Cost			
	Repairs & Maintenance			
	Admin & General Expenses			
	Total O&M Expenses	1051.04	1164.46	1288.99
9	Depreciation	194.92	225.12	254.90
10	Interest & Finance charges			
11	Interest on Capital Loans	285.50	319.54	342.74
12	Interest on Working capital loans	161.48	177.91	187.57
13	Interest on belated payment on PP Cost	0.00	0.00	0.00
14	Interest on consumer security deposits	50.46	53.71	57.28
15	Other Interest & Finance charges	0.00	0.00	0.00
16	Less interest & other expenses capitalised	0.00	0.00	0.00
	Total Interest & Finance charges	497.43	551.16	587.59
17	Other Debits	0.00	0.00	0.00
18	Extraordinary item (Adjustment of excess subsidy amount as per KERC Order)	0.00	0.00	0.00
19	Return on Equity	0.00	0.00	0.00
22	Funds towards Consumer Relations/Consumer Education	0.50	0.50	0.50
23	Other Income	-263.33	-274.42	-290.72
	ARR	7547.35	9000.57	9624.43
24	Deficit for FY18 carried forward (APR)	762.45	0.00	0.00
	Net ARR	8309.80	9000.57	9624.43

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

HESCOM 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 HESCOM, the Commission decides to continue with the existing ratio of segregation of ARR as detailed below:

TABLE – 5.31**Approved Segregation of ARR – FY20**

Particulars	Distribution Business	Retail Supply Business
O&M	63%	37%
Depreciation	84%	16%
Interest on Loans	100%	0%
Interest on Consumer Deposits	0%	100%
RoE	82%	18%
GFA	84%	16%
Non-Tariff Income	0%	100%

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

TABLE – 5.32**APPROVED REVISED ARR FOR DISTRIBUTION BUSINESS – FY20**

Amount in Rs. Crores		
Sl. No	Particulars	FY20
1	R&M Expenses	
2	Employee Expenses	
3	A&G Expenses	662.15
4	Depreciation	163.73
5	Interest & Finance Charges	
6	Interest on Capital Loans	285.50
7	Interest on Working capital loans	38.80
8	Interest on consumer security deposits	0.00
9	Other Interest & Finance charges	0.00
10	Less: interest & other expenses capitalised	0.00
	Total	1150.18
11	ROE	0.00
12	Less: Other Income	0.00
	NET ARR	1150.18

TABLE – 5.33
APPROVED ARR FOR RETAIL SUPPLY BUSINESS – FY20
Amount in Rs. Crores

Sl. No	Particulars	FY20
1	Power Purchase	5367.51
2	Transmission Charges & SLDC Charges	699.28
3	R&M Expenses	
4	Employee Expenses	
5	A&G Expenses	388.88
6	Depreciation	31.19
7	Interest on Capital Loans	0.00
8	Interest on Working capital loans	122.68
9	Interest on consumer security deposits	50.46
10	Other Interest & Finance charges	0.00
11	Less interest & other expenses capitalised	0.00
	Total	6659.99
12	ROE	0.00
13	Other Income	-263.33
14	Fund towards Consumer Relations / Consumer Education	0.50
	NET ARR	6397.16

5.5 Gap in Revenue for FY20:

As discussed above, the Commission decides to approve the Annual Revenue Requirement (ARR) of HESCOM, for its operations in FY20, at Rs. 8309.80 Crores as against HESCOM's proposal of Rs.10007.25 Crores. The approved ARR includes an amount of Rs. 762.45 Crores which is determined as the deficit as per APR of FY18, as discussed in Chapter-4.

Based on the existing retail supply tariff, the total revenue towards sale of power, for FY20 will be Rs.7922.20 Crores, which will fall short of the approved ARR by Rs. 387.60 Crores, which needs to be recovered through revision of retail supply tariff.

The Commission also decides to approve the Annual Revenue Requirement (ARR) of HESCOM of Rs.9000.57 Crores and Rs.9624.43 Crores for FY21 and FY22 respectively, as against the HESCOM's proposal for approval of ARR of Rs.10498.33 Crores and Rs.11134.44 Crores for FY21 and FY22 respectively.

The net ARR and the gap in revenue for FY20 are shown in the following table:

TABLE – 5.38
Revenue gap for FY20

Particulars	Amount in Rs. Crores	
	FY20	
Net ARR including carry forward deficit of FY18 (Rs. Crores)	8309.80	
Approved sales (MU)	11745.40	
Average cost of supply for FY20 (Rs./unit)	7.075	
Revenue at existing tariff (Rs. Crores)	7922.20	
Gap in revenue for FY20 (Rs. Crores)	387.60	

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