

**KERALA STATE ELECTRICITY REGULATORY COMMISSION
THIRUVANANTHAPURAM**

Present : **Shri. Preman Dinaraj, Chairman**
: **Adv. A.J. Wilson, Member (Law)**

In the matter of : **Approval of the Capital Investment Plan of SBU - T, KSEB Ltd. for the MYT Control Period 2018-19 to 2021-22, filed along with the (ARR & ERC and Tariff) Petition OA.No.15/2018, as Part II.**

Petitioner : The Chairman and Managing Director,
Kerala State Electricity Board Limited (KSEB Ltd),
Vydyuthi Bhavanam, Pattom, Thiruvananthapuram – 695 004

Date of Public hearing: 17.11.2020 (Video Conference) & 22.12.2020 (at Kalamassery)

Participants : List attached as Appendix

Order dated 28.05.2021 in OA. No. 15/2018

1. The Petitioner, Kerala State Electricity Board Limited (KSEB Ltd); the Distribution, Generation and Transmission Licensee of the State, filed the Petition for approval of the 'Aggregate Revenue Requirements (ARR) & Expected Revenue from Consumers (ERC) and the Tariff revision proposal' for the Multi Year Tariff (MYT) Control Period (2018 - 2022) as Part – I, on 30.11.2018. Along with the Petition, KSEB Ltd also filed the 'Capital Investment Plan for the Control Period' as Part – II, in compliance of the provisions in the KSERC (Terms and conditions for determination of Tariff) Regulations, 2018, for approval. The Commission registered the Petition as OA. No. 15/ 2018. After complying the due regulatory procedures, the Commission issued Orders on Part – I of the Petition, vide Order dated 08.07.2019.
2. The Part II - Capital Investment Plan of KSEB Ltd contains details of the capital investment proposed during the MYT Control period (2018 – 2022) for SBU – **Generation**, SBU –**Transmission** and SBU – **Distribution**. This order is for approving the Investment Proposal for SBU – Transmission, which contains the plan proposals for both Transmission and SLDC. The summary of the Capital Investment Plan

outlay of the Strategic Business Unit (SBU-T) - Transmission & State Load Despatch Centre (SLDC) for the Control Period, as provided in *Table 1 of Part I* (ARR & ERC and Tariff) of the Petition, is indicated in the Table below:

Year of the control period	2018-19	2019-20	2020-21	2021-22	Total for the control period
Plan amount in Rs.Crores	1758.40	2777.53	996.43	531.95	6064.31

Against the above Plan outlay, vide Para 4.4 of the Order dated 8.07.2019, the Commission has provisionally approved an amount of Rs. 3122.10 Crores, as the total Asset addition for the Control Period for SBU -T(Transmission & SLDC); subject to revision, based on the scrutiny and final approval orders on Part –II of the Petition.

3. The Capital Investment Plan for Transmission and SLDC, filed as Part II of the petition, is categorized under the following groups:-

- A.** Ongoing projects and New projects costing < Rs. 10 Crores per project;
- B.** Normal Capital works costing > Rs. 10 Crores per project;
- C.** Transgrid 2.0 works (major Transmission projects executed under EPC); and
- D.** the SLDC related works.

In addition, KSEB Ltd requested to approve the Compensation Package for the 'Edamon – Kochi 400 kV Transmission Line – Right of Way', as Plan expenditure.

4. The proposed Project Cost outlay for (SBU-T) - Transmission & SLDC, as per Part II of the petition; under each category/ group, financial year wise, is shown in the table below:

(Rs. Crores)						
Sl. No	Details of work / Year	2018-19	2019-20	2020-21	2021-22	Total
1	A. Ongoing & New projects < 10 Crores #	804.12	568.73	196.28	254.26	1823.39
2	B. Normal projects > 10 Crores	263.67	656.33	193.02	13.05	1126.07
3	C. Transgrid 2.0 works*	668.61	1381.45	595.13	52.19	2697.38
4	Edamon- Kochi line ROW compensation	10.00	118.02	0.00	0.00	128.02
5	Total for works of Transmission (1+2+3+4)	1746.40	2724.53	984.43	319.50	5774.86

6	D. SLDC works [^]	26.72	60.14	12.00	212.45	311.31
7	Total for SBU-T (5+6)	1773.12	2784.67	996.43	531.95	6086.17
8	Grant/PSDF/ Deposit	(196.60 # + 137.29*) 333.89	(41.60 # + 199.12 * + 29.77 [^]) 270.49	53.18*	100.00[^]	757.56
9	Net capital cost (7- 8)	1439.23	2514.18	943.25	431.95	5328.61

The year wise outlay for the projects under categories A to D is detailed in Para 5 to 9 below.

5. The category (A) works (Ongoing projects & New projects costing < Rs.10 Crores) are proposed, clubbing the individual works under each Transmission Circle, and the abstract of the Circle wise investment planned year wise, is indicated in the Table below:

(Rs. Crores)							
Sl. No	Transmission Circle/ Division Area	No. of works	2018-19	2019-20	2020-21	2021-22	Total
1	Thrissur	21	60.27	32.29	11.20	0.00	103.76
2	Pallom	15	23.59	54.82	0.00	0.00	78.41
3	Thodupuzha	13	13.84	22.90	11.60	88.70	137.04
4	Kannur	44	31.06	28.03	0.00	0.00	59.09
5	Kalamassery	68	185.26	13.57	0.00	0.00	198.83
6	Kozhikode	52	188.91	282.51	172.33	157.46	801.21
7	Trivandrum	9	103.23	46.77	0.00	0.00	150
8	Kottarakara	3	37.20	0.00	0.00	0.00	37.20
9	Alapuzha	15	66.39	30.90	0.00	0.00	97.29
10	Palakkad	137	44.42	56.94	1.15	8.10	110.61
11	Pathanamthitta	2	23.54	0.00	0.00	0.00	23.54
12	Malappuram	11	26.42	0.00	0.00	0.00	26.42
13	Total	390	804.12	568.73	196.28	254.26	1823.39
	IPDS/ DDUGJY/PSDF grant/ deposit work		196.60	41.60	0.00	0.00	238.20
	Net expenditure		607.52	627.13	196.28	254.26	1585.19

6. In the Category (B) – Normal Capital works costing > Rs. 10 Crores, the Petition envisaged to execute 40 projects during the four year control period. Accordingly, based on the details provided in Table 3 of Chapter 2 (Part II) of the Petition, the year wise GFA addition proposed is as below:

Project	No. of projects	2018-19	2019-20	2020-21	2021-22	Total cost (Rs. Crores)
Cost of Normal projects > 10 Crores	40	0.00	662.59	421.83	41.66	1126.07

The details of the projects with year wise outlay, as provided in Table 5 of Chapter 2 of Part II are as below:

(Rs. Crores)						
Sl. No	Project	2018-19	2019-20	2020-21	2021-22	Total amount
1	Linking 110 kV feeder Kanhangad– Cheruvathoor to Ambalathara 220 kV s/s	30.00	6.06			36.06
2	Palakkad Medical College s/s & line upgradation to 110 kV	4.00	19.10	0.00		23.10
3*	Vennakkara 110 kV substation	5.00	39.60			44.60
4	Palakkad– Malampuzha 110 kV line	4.38	10.00			14.38
5	Pattambi 110 kV substation	5.00	20.50			25.50
6*	Mannuthy 110 kV line & substation AIS	6.30	20.00			26.30
7	Ettumanoor s/s upgradation to 110 kV	8.00	12.80			20.80
8	Kuravilangad s/s & line upgradation to 110 kV	6.65	15.00			21.65
9	Koothattukulam s/s upgradation to 110 kV	6.00	9.01			15.01
10	Kothamangalam - Koothattukulam line upgradation to 110 kV	4.67	10.00			14.67
11	Pala - Ettumanoor line upgradation to 110 kV	3.00	12.55			15.55
12	Edamon- Anchal- Ayoor line & Anchal s/s upgradation to 110 kV	29.86	12.80			42.66
13	Karunagappally s/s and line upgradation to 110 kV	12.74	5.46			18.20
14	Chithara 110 kV substation	3.68	8.59			12.27
15*	Kollam –Kottiyam 110 kV cable interlinking	12.65	50.58			63.23
16	Kowdiar 110 kV GIS		34.93			34.93
17	Palode substation 110 kV upgradation		18.45			18.45
18	Ambalavayal 66 kV s/s and feeder (110 kV parameter)	5.00	8.49			13.49
19*	Chemberi 110 kV substation & line	14.00	13.77			27.77

20	Kunnamangalam – Thamarassery line upgradation to 110 kV	8.06	10.00			18.06
21	Kuthumunda substation upgradation to 110 kV GIS	3.98	30.00			33.98
22	Mankada substation upgradation to 110 kV	4.65	10.00			14.65
23	Mankavu substation upgradation to 110 kV	5.56	8.00			13.56
24*	Mylatty –Vidyanagar line upgradation to 220/ 110 kV MC-MV line	20.00	9.43			29.43
25	Pulikkal 110 kV substation	1.68	13.00			14.68
26*	Seethangoli 110 kV substation & cable	4.59	7.00			11.59
27*	Thambalamanna 110 kV substation	18.02	20.00			38.02
28*	Kottai 220 kV sub -station, Palakkad	0.50	30.50	35.00		66.00
29	Pudukkad – Kattoor line upgradation to 110 kV MC	1.00	7.00	5.91		13.91
30	Olloor –Viyyur line upgradation to 110 kV	0.72	7.00	9.00		16.72
31*	Pallom-Ettumanoor Line and Gandhinagar & Kottayam s/s upgradation to 110 kV	9.00	35.00	25.54		69.54
32	Vazhoor 110 kV substation	1.00	7.00	5.91		13.91
33	Kuttanad substation upgradation to 110 kV		7.58	7.58		15.16
34	Punnapra- Alapupuzha line upgradation to 110 kV MC		8.77	8.77		17.54
35*	Panthalacode 110 kV switching/ sub station		12.58	12.58		25.16
36	TVT No. I & II feeder lines upgradation to 110 kV	18.00	30.00	12.03		60.03
37	R & M of Malappuram 110 kV substation to GIS	2.02	30.00	30.00		62.02
38	110 kV LILO line to Parappanangadi s/s	1.96	10.00	3.00		14.96
39	Vengannoor 110 kV GIS	2.00	19.48	24.91		46.39
40	Kayamkulam-Karunagappally 110 kV DC line		15.30	13.30	13.05	41.65
	Sub total	263.67	656.33	193.02	13.05	1126.07

*Projects assigned to Consultant for prudence check/ appraisal

7. The category (C) – Transgrid 2.0 works consist of 12 Nos. major Transmission development projects and the summary of the year wise outlay for each project indicated in Table 6 of Chapter 2 (Part II) is as below:

Sl. No	Project	Amount in Rs. Crores				Total Rs. Crores
		2018-19	2019-20	2020-21	2021-22	
1	Aluva	127.87	54.80	0.00	0.00	182.67
2	Kaloor	129.93	53.97	0.00	0.00	179.90
3	Kothamangalam	119.66	219.37	59.83	0.00	398.85
4	Kottayam	0.00	379.17	162.50	0.00	541.67
5	Chalakydy	7.14	35.71	28.57	0.00	71.42
6	Kunnamkulam	13.03	65.15	52.12	0.00	130.30
7	Manjeri	5.11	25.55	20.44	0.00	51.10
8	Thalasseri	15.70	78.52	62.81	0.00	157.03
9	Kunnamangalam	9.19	45.95	36.76	0.00	91.90
10	Eranad*	195.00	295.00	62.00	0.00	552.00
11	NRHLS*	23.88	23.88	31.81	0.00	79.57
12	Kolathunadu	26.10	104.38	78.29	52.19	260.96
	Total	668.61	1381.45	595.13	52.19	2697.38
	*PSDF grant	*(120.57+ 16.72) 137.29	*(182.40+ 16.72) 199.12	*(22.27+ 30.91) 53.18	0.00	389.59
	Net expenditure	531.32	1182.33	541.95	52.19	2307.79

8. The details of the capital works proposed for SLDC under category (D) & (A) are, as provided in the table below:

(Rs.Crores)						
Sl. No.	Details of work	2018-19	2019-20	2020-21	2021-22	Total
1	SAMAST*	0.00	53.00	0.00	0.00	53.00
2	Communication & SCADA system*	0.00	0.00	0.00	212.45	212.45
3	Miscellaneous works	12.00	0.00	12.00	0.00	24.00
4	Ongoing projects (A)*	14.72	7.14	0.00	0.00	21.86
	Total	26.72	60.14	12.00	212.45	311.31
	*PSDF grant	0.00	*(25+4.77) 29.77	0.00	*100.00	129.77
	Net expenditure	26.72	30.37	12.00	112.45	181.54

9. In addition to the above projects, KSEB Ltd has requested to include the expenditure of Rs. 128.02 Crores for '**Edamon – Kochi Transmission Line (Right of Way) Compensation Package**' as Plan expenditure. The details of this is as follows:-

- a) The construction of the 400 kV Edamon – Kochi Transmission line executed by PGCIL was held up for more than 10 years, due to the dispute on the compensation to be paid to the land owners of the 'Right of Way - Corridor'. The Power import capability of Kerala was severely affected due to non - commissioning of this portion of the Interstate Transmission line. After several

negotiation meetings with the land holders, Government of Kerala vide G.O. dated 30.7.2015 ordered a 'Special Compensation Package' for the land owners of the corridor. The package was subsequently modified vide G.O dated 31.08.2016. As per the G.O, Government of Kerala and KSEB Ltd have to bear the compensation cost for; 15% of the Tower Footing Area, 60% of the line corridor (right of way) and the houses under the line, in the ratio 50:50.

- b) The total compensation for this line corridor is around Rs. 473.59 Crores and the total share of GoK & KSEB Ltd is Rs. 256.04 Crores. Thus the amount to be borne by KSEB Ltd is **Rs. 128.02 Crores** and KSEB Ltd has requested to account this expense under the Capital Investment Plan.

10. As per the petition and the DPRs attached, the technical benefits anticipated from the above proposed schemes are:

- Addition of 845.91 Circuit - kms of Transmission lines to the existing capacity of 12340 Circuit – kms (31.03.2018);
- Addition of 4272.5 MVA of Transmission capacity to the existing capacity of 19995 MVA (31.03.2018);
- Peak loss reduction of 773 MU in Energy & 171MW in Demand;
- Additional Sale of 3798 MU Energy.

11. The Commission, vide Para 4.4 of the Order dated 08.07.2019 in OA No. 15/ 2018, has provisionally approved the GFA addition for SBU-T & SLDC for the four year Control Period (2018- 2022), as follows:-

(Rs. Crores)

Sl. No	Details of works/ Year	2018-19	2019-20	2020-21	2021-22	Total cost
1	A. Ongoing & New projects <10 Crores	499.60	312.80	20.00	0.00	832.40
2	B. Normal projects > 10 Crores	0.00	353.74	150.92	141.80	646.46
3	C. Transgrid 2.0 works	0.00	362.57	1244.84	260.96	1868.37
4	Total for works of Transmission (1+2+3)	499.60	1029.11	1415.76	402.76	3347.23
5	D. SLDC works	12.00	53.00	12.00	212.45	289.45
6	Total for SBU-T (4+5)	511.60	1082.11	1427.76	615.21	3636.68
7	PSDF grant	0.00	25.00	389.58	100.00	514.58
8	Net GFA (6-7) addition	511.60	1057.11	1038.18	515.21	3122.10

12. Mean while KSEB Ltd filed a separate Petition (OP. No. 58/ 2018) for approval of the expenditure of Rs. 128.02 Crores for '**Edamon – Kochi Transmission Line (Right of Way) Compensation Package**', mentioned in Para 9 above. The Commission, vide order dated 09.08.2019 in OP. No. 58/ 2018, provisionally approved this expenditure, allowing to treat this as 'intangible assets' and to amortize the amount along with the interest, over a period of 12 years from the date of payment. Vide the order dated 08.07.2019 in OA No. 15/ 2018, the Commission had clarified that this expenditure will not be accounted for GFA addition.
13. Vide Para 5.62 of the Order dated 08.07.2019 in OA No. 15/ 2018, the Commission has approved the Transmission losses and Charges during the Control Period, as indicated in the table below:

	Particulars	2018-19	2019-20	2020-21	2021-22
1	Energy input in MU	24,846	26,243	27,248	28,295
2	Transmission loss %	4.05	3.95	3.85	3.75
3	Energy loss in MU	1006.27	1036.62	1049.03	1061.07
4	Substation Aux. Consumption in MU	15.58	16.36	17.18	18.04
5	Energy handled in MU	23824	25190	26181	27226
6	Cost of intra state Transmission (ARR) In Rs. Crores	874.60	983.69	1162.47	1283.53
7	Intra State Transmission Charges [7 = 6/5] in (Rs/ kWh)	0.37	0.39	0.44	0.47

Evaluation of the Investment plan by the Technical Consultant (pwc):

14. In order to get the Capital Investment Plan proposals appropriately assessed vis -a- vis the estimates, cost benefit analysis, impact on tariff etc., the Commission after due process, entrusted this task to M/s pwc, the Engineering & Management Consultants. The Consultant evaluated, 25% of the projects under the Category (B) - Normal Capital works costing > Rs. 10 Crores and all the projects under the Category (C) - Transgrid 2.0 works, of the Capital Investment Plan filed by KSEB Ltd; in terms of the Technical, Financial and Economic aspects; to assess the prudence of the projects. The Consultant held interactions with the Officials of KSEB Ltd and SLDC, reviewed the related data and documents, and prepared the evaluation report on the Investment Plan and submitted to the Commission on 31st March 2020. KSEB Ltd Investment Plans and the Report of the Consultant were published in the website of the Commission, for stakeholder information and comments.

15. As per the report of the Consultant (pwc):

1) the schemes were appraised based on the parameters:

- Compliance to Capital Investment Schemes;
- 'Compliance of CEA Transmission Planning Criteria;
- Need for Investment;
- Technical benefits of the Project; and
- Project Estimates and Implementation plan.

Projects which scored more than 60% in the evaluation were considered as 'prudent project'.

2) Among the twelve projects under the Transgrid 2.0 scheme, ten projects (except Aluva & Kunnamangalam) were found to be prudent. The GFA of the Non-prudent and Non – deductible investment proposal under the Transgrid 2.0 scheme is 11% of the proposed GFA.

3) Of the ten projects assessed by the Consultants out of the forty schemes under the 'New Projects with > Rs.10 Crores cost' (Category- B), 8 projects were assessed to be prudent, even though some did not comply with the CEA Planning Criteria, Need for investment, N-1 reliability criteria etc. 2 projects have not been pursued by KSEB Ltd.

4) The Report has observed that the % share of each cost component to the total cost of the schemes is not uniform, due to the variables such as:

- Type of scheme;
- Capacity of the scheme;
- Voltage ratings;
- Location/ Terrain conditions;
- Land/ RoW requirements;
- Line, Tower, Material type/ specifications/ technical requirements etc.

5) The Report envisages an increase in the project cost of; 14.7% in the Transgrid projects and 8.7% in other new projects from the estimated project cost.

6) The impact of 3798 MU of additional sale of energy, 773 MU of peak loss reduction in the energy and the proposed investment in the ARR, is assessed to be resulting in an increase of '**3 to 6 Paise per kWh**' in the intra state transmission charges, during the control period.

Hearing on the petition:

16. Due to the 'COVID-19' pandemic situation further proceedings on the petition/ report, for stake holder consultation was delayed. Public hearing on the Capital Investment Plan for the Transmission & SLDC portion was held on 17.11.2020, through Video Conference Mode due to the pandemic situation, and KSEB Ltd presented the Project investment details and status on date. Based on the request of the stake holders, another hearing in person was conducted on 22.12.2020 at the Conference Hall of PWD Complex, Pathadipalam, Kalamassery. HT/ EHT Industrial Consumers Association and 13 other stake holders expressed their views on the proposed investment plan in this hearing. The list of persons/ stake holders present during the public hearing is provided in the *Appendix* attached.
17. The revised proposal was presented by KSEB Ltd on 17.11.2020 during the hearing and the major comments/ suggestions arisen on the proposal based on the above interactions are as follows: -

Revised proposals submitted by KSEB Ltd. during the hearing:

- 1) KSEB Ltd presented the revised plan outlay for the projects under each category, with the details of progress achieved so far, as follows:-
- a) Category (A) projects (ongoing & new projects costing <Rs. 10 Crores);

Year	2019-20		2020 -21		2021-22		Total
Estimate	(ARR)	Revised	(ARR)	Revised	(ARR)	Revised	Revised
Rs. Crores	568.73	724.09	196.28	201.44	254.26	77.47	1003.00

The project outlay was revised based on the status/ progress of the works till October 2020.

- b) Category (B) projects– (Capital works costing > Rs.10 Crores each):

KSEB Ltd informed that one project (Kottai S/S) is dropped and a new project (Reliable Communication & DA system) has been included. Three projects is not expected to be completed during the control period and a major portion of the works in two projects are transferred to the Transgrid works. Accordingly, the revised outlay for category (B) projects furnished by KSEB Ltd is:

(Rs. Crores)

Sl. No	Project	ARR amount	Total revised amount	2019-20	2020-21	2021-22	Remarks
1	Linking 110 kV feeder Kanhangad– Cheruvathoor to Ambalathara 220 kV ss	36.06	37.96	30.45	7.51		
2	Palakkad Medical College s/s & line upgradation to 110 kV	23.10	0.00	0.00	0.00		Next control period
3	Vennakkara 110 kV substation	44.60	44.60	22.30	22.30		
4	Palakkad– Malampuzha 110 kV line	14.38	14.38	4.38	10.00		
5	Pattambi 110 kV substation	25.50	25.50	10.30	10.20	5.00	
6	Mannuthy 110 kV line & substation AIS	26.30	11.60	2.90	8.70		AIS
7	Ettumanoor s/s upgradation to 110 kV	20.80	6.67	2.00	4.67		Part of Works shifted to Trans grid
8	Kuravilangad s/s & line upgradation to 110 kV	21.65	21.65	0.00	14.00	7.65	
9	Koothattukulam s/s upgradation to 110 kV	15.01	13.27	1.50	8.37	3.40	
10	Kothamangalam - Koothattukulam line upgradation to 110 kV	14.67	16.15	11.00	5.15		
11	Pala - Ettumanoor line upgradation to 110 kV	15.55	15.75	10.75	5.00		
12	Edamon- Anchal- Ayoor line & Anchal s/s upgradation to 110 kV	42.66	28.85	20.57	8.28		
13	Karunagappally s/s and line upgradation to 110 kV	18.20	16.50	10.51	5.99		
14	Chithara 110 kV substation	12.27	12.27	0.00	3.68	8.59	
15	Kollam –Kottiyam 110 kV cable interlinking	63.23	63.23	0.00	12.65	50.58	
16	Kowdiar 110 kV GIS	34.93	34.93	0.00	0.00	34.93	
17	Palode substation 110 kV upgradation	18.45	19.75	0.00	9.00	10.75	
18	Ambalavayal 66 kV s/s and feeder (110 kV parameter)	13.49	15.24	10.66	4.58	0.00	
19	Chemberi 110 kV substation & line	27.77	29.97	29.24	0.73	0.00	COD 30.05.2020
20	Kunnamangalam – Thamarassery line upgradation to 110 kV	18.06	38.15	10.35	10.90	10.90	COD 2022-23
21	Kuthumunda substation upgradation to 110 kV GIS	33.98	15.75	0.00	0.00	10.00	AIS/ COD 2022-23

22	Mankada substation upgradation to 110 kV	14.65	15.75	5.58	10.17	0.00	
23	Mankavu substation upgradation to 110 kV	13.56	14.44	12.64	1.98	0.00	
24	Mylatty –Vidyanagar line upgradation to 220/ 110 kV MC-MV line	29.43	31.96	7.99	23.97	0.00	
25	Pulikkal 110 kV substation	14.68	16.64	0.00	1.68	14.96	Land issue
26	Seethangoli 110 kV substation & cable	11.59	13.41	0.00	3.34	10.07	Land issue
27	Thambalamanna 110 kV substation	39.02	39.90	21.88	18.02		
28	Kottai 220 kV sub -station, Palakkad	66.00	0.00				Dropped
29	Pudukkad – Kattoor line upgradation to 110 kV MC	13.91	13.91	8.00	5.91		
30	Oloor –Viyyur line upgradation to 110 kV	16.72	16.72	1.00	6.72	9.00	Thrissur Corp s/s upgrade
31	Pallom –Ettumanoor Line and Gandhinagar & Kottayam substation upgradation to 110 kV	69.54	61.40	0.00	30.00	31.40	
32	Vazhoor 110 kV substation	14.40	12.30	0.00	5.30	7.00	
33	Kuttanad substation upgradation to 110 kV	15.16	14.20	0.00	10.00	4.20	
34	Punnpra- Alapupuzha line upgradation to 110 kV MC	17.54	21.00	0.00	0.00	7.25	Next control period
35	Panthalacode 110 kV switching/ sub station	25.16	25.16	4.00	12.00	9.16	
36	TVT No. I & II feeder lines upgradation to 110 kV	60.03	60.03	12.00	30.00	13.79	
37	R & M of Malappuram 110 kV substation to GIS	62.02	38.50	0.00	2.00	16.00	AIS/ Next control period
38	110 kV LILO line to Parappanangadi s/s	14.96	17.16	0.63	14.57	1.96	
39	Vengalur 110 kV GIS	46.39	0.00	0.00	0.00	0.00	Shifted to Transgrid
40	Kayamkulam – Karunagappally 110 kV DC line	41.65	46.50	0.00	28.79	17.71	
41	Reliable Communication & DA system*		176.00	21.00	87.00	68.00	scheme shifted from SLDC
	Sub total		1077.69	310.25	408.26	302.69	
	*PSDF Fund for (41)		73.77	22.13	44.26	7.38	

c) Category (C) – Transgrid 2.0 works:

In addition to the 12 projects initially planned, 3 more projects are also included in the category in the Midterm review petition submitted by KSEB Ltd, and all the 15 projects are proposed to be completed within the control period. Accordingly the revised outlay proposed is as below:

Sl. No.	Project	Original cost Rs. Crores	Revised Allocation in Rs. Crores				Revised estimate Rs Crores
			2018-19	2019-20	2020-21	2021-22	
1	Aluva	182.67	76.54	54.80	0.00	0.00	131.34
2	Kaloor	179.90	84.84	53.97	0.00	0.00	138.81
3	Kothamangalam	398.85	119.66	184.98	59.83	0.00	364.47
4	Kottayam	541.67	0.00	279.17	162.50	100.00	541.67
5	Chalakydy	71.42	7.14	35.71	36.73	0.00	79.58
6	Kunnamkulam	130.30	13.03	65.15	56.23	0.00	134.41
7	Manjeri	51.10	5.11	25.55	8.21	0.00	38.87
8	Thalasseri	157.03	15.70	78.52	76.25	0.00	170.47
9	Kunnamangalam	91.90	9.19	45.95	22.11	0.00	77.25
10	Eranad *	552.00	195.00	295.00	105.77	0.00	595.77
11	NRHLS *	79.57	23.88	23.88	21.54	0.00	69.30
12	Kolathunadu	260.96	26.10	94.38	68.29	51.00	239.77
	Total	2697.38	576.19	1237.06	617.46	151.00	2581.71
	PSDF grant*	389.59	137.29	199.12	53.18	0.00	389.59
	Net expenditure	2307.79	438.90	1037.94	564.28	151.00	2192.12

The three new projects added to the Transgrid 2.0 works to be completed within the control period, submitted for approval are:

Sl. No	Project	Estimate	2018-19	2019-20	2020-21	2021-22	Estimate in Rs. Crores
13	Sabari Package	248.00	0.00	0.00	122.00	126.00	248.00
14	Vengallur GIS & TLSP Phase II	204.18	0.00	0.00	136.12	68.06	204.18
15	Vizhinjum	71.00	0.00	0.50	27.50	43.00	71.00
	Subtotal for the 3 projects	523.18	0.00	0.50	285.62	237.06	523.18
	Total for the 15 projects	3220.56	576.19	1237.56	903.08	388.06	3104.89

d) Category (D) – SLDC works:

‘Communication and SCADA system’ initially included under the SLDC works has been transferred to Category (B) scheme as ‘Reliable Communication and DA system’ (Sl.No.41). Hence only two schemes are included under Category (D) as below:

Sl. No.	Details of work	2018-19	2019-20	2020-21	2021-22	Total
1	SAMAST^	0.00	0.00	0.00	^53.00	53.00
2	Ongoing projects (A)^	1.03	18.01	10.00	10.00	39.04
	Total	1.03	18.01	10.00	63.00	92.04
	PSDF grant^	0.00	4.77		25.00	29.77
	Net expenditure	1.03	13.24	10.00	38.00	62.27

e) In view of the order dated 18.09.2019 of the Commission in OA No. 58/2018 petition for the compensation for ‘Edamon- Kochi line’, KSEB Ltd has withdrawn this claim in the revised proposal.

Comments of the Stake holders:

2) The HT & EHT Consumers Association has presented their comments on the Proposal, in the hearing held on 22.12.2020 as follows: -

- a) The KSEB Ltd proposals have been drawn up expecting a projected peak demand of 4900 MW in 2021. However, the actual peak attained is only 3787 MW and hence the proposed investment will have to be reviewed.
- b) The investment in the Aluva & Kunnankulam projects, which are found to be non- deductible by the Consultants, will be an unnecessary burden to the consumers.
- c) Many of the projects under the New capital works (>10 Crores) do not satisfy the minimum requirements under several parameters for prudence of investment. Hence prudent check shall be done for all the projects.
- d) Commission shall direct KSEB Ltd to adhere to the Tariff Regulations, 2014 – Annexure IV, for investment proposal.

3) The gist of the comments from other stake holders are:

- a) The projects of KSEB Ltd are getting delayed indefinitely and is resulting in huge cost overruns.
- b) The burden on account of this huge investment shall not be passed on to the consumers as tariff increase.

- c) Availability of cheap solar power should be considered and this large scale investment should be reviewed.
- d) The intra state Transmission charges and losses should be got reduced after this investment.
- e) Projects with payback period of less than 5 to 7 years should only be considered for investment.

Reply of KSEB Ltd. to the stake holders' comments:

18. KSEB Ltd has clarified the various comments raised during the public hearing as follows:-

- 1) The State Power system has recorded a peak of 4316 MW in April 2019 itself and the long-term growth is around 3%. But due to the 'Covid 19 pandemic', the consumption/ load have not increased as projected. But once the economy is back on track the load will increase.
- 2) This investment will ensure smooth transmission of quality power in Kerala, from the ISTS injection points and the Generating stations in the State, for the next 10 to 15 years.
- 3) Aluva and Kunnamkulam station power transformer capacity is designed considering the load transfer to the adjoining 110 kV stations, load growth in the area and in line with the CEA planning criteria.
- 4) The evacuation system from Kakkayam power station under the NRHLS scheme is capable of transmitting more than the generation capacity in the area.
- 5) The Transgrid schemes are executed through EPC contracts, using existing corridors and are getting completed as planned.
- 6) The estimates have been revised, based on the revisions in the original proposals and there is not much variation in the total cost.

Analysis of the proposals and observations of the Commission:

19. The Investment proposals for 'Transmission & SLDC' under Part II of the Petition was analyzed, based on the report of the Consultant (pwc), the comments of the stake holders, the latest progress status of the projects, provisional approval given for the Capital Investment in the ARR order dated 08.07.2019 and the provisions in

the KSERC (Terms and Conditions for Determination of Tariff) Regulations, 2018 for the control period (2018 -2022) and the Commission observe as follows:

- 1) A reliable Intra state Transmission system; maintaining the voltage level, reduced transmission losses, conforming to the reliability and redundancy criteria stipulated by CEA, using the advanced Communication and Data Acquisition/ Transfer system with Nodal point visibility, capable of smooth and uninterrupted flow of Electrical energy in tandem with the Power demand, ISTS power flow and the developments in the intra state generation, is the need of the hour. The present transmission system in the State is stated to be not capable of meeting many of the above requirements including the peak demand. Transmission systems are to be planned and developed considering the long term requirements for the next 15 to 20 years in mind and the proposals under the Transgrid 2.0 works under Category (C) are intended for this. This proposal envisages development of 400 & 220 kV lines and substations along the State, enabling uninterrupted power flow to the various 110 kV and below substations, from the interstate/ Grid substations and the intra state generating stations, and as per KSEB Ltd analysis is required to be implemented without delay.

Midterm developments are intended for the development of the transmission lines and substation from the Grid stations to cater the specific area loads and operational reliability, and has to be planned and executed under a 5 year time frame. The Category (B) projects are intended for this and is to be implemented based on; the load growth and the load flow studies.

The Category (A) projects are intended to address the short term requirements and to keep the operational preparedness and flexibility of the system to meet the day to day needs of the consumer.

The SLDC works are intended to maintain a well developed Communication and SCADA system capable of on time concurrent intervention and transfer of data to the National Transmission system, intra state system and to the specific Consumers. It need to be developed in line with the requirements of the National Grid and hence is to be implemented in a time bound manner.

The present proposals need to be evaluated taking into consideration the above criteria:

2) **Ongoing & New Projects costing < Rs. 10 Crores each (Category A):**

KSEB Ltd has grouped these projects under each Transmission Circle and the details of the work are indicated in 'Annexure - 1 of Part – II, Capital Investment Plan' submitted along with the ARR Petition. These schemes are intended for; the capital maintenance of the substation & equipments, improvements in the infrastructure for compliance to the CEA regulations and safety standards etc. and are carried out through the in house facilities and through small contracts. Since these are routine small works, costing comparatively small amounts, these projects were not scrutinized by the external technical consultant. On review of the proposals and the latest progress report furnished, the year wise allocation during the control period for the Capital investment under this head is assessed as detailed in the Table below:

(Rs. Crores)

Sl. No.	Transmission Circle Area	No. of works	2018-19	2019-20	2020-21	2021-22	Total
1	Thrissur	21	45.55	32.26	20.56	3.20	101.57
2	Poovanthuruthu	12	44.33	9.81	10.85	2.00	66.99
3	Thodupuzha	15	18.00	5.83	10.50	5.00	39.33
4	Kannur	44	39.64	32.30	1.73	4.40	78.07
5	Kalamassery	66	75.05	45.44	9.37	10.40	140.26
6	Kozhikode	22	69.49	52.90	42.60	6.20	171.19
7	Thiruvananthapuram	6	121.89	21.70	0.00	0.00	143.59
8	Kottarakara	3	10.29	33.05	12.66	0.00	56.00
9	Alapuzha	11	27.66	11.23	30.45	9.34	78.68
10	Palakkad	127	11.47	30.33	1.27	0.00	43.07
11	Malappuram	36	34.69	56.55	51.67	14.34	157.25
12	Pathanamthitta (division)	3	4.30	18.38	0.00	9.95	32.63
13	Total		502.36	349.78	191.66	64.83	1108.63
14	PSDF/ GRANT/ Deposit works		196.60	41.60	0.00	0.00	238.20
15	Net KSEB fund		305.76	308.18	191.66	64.83	870.43

Based on the above, approval for a net amount of Rs. 870.43 Crores for the 'ongoing and new schemes' under category (A), may be accorded to KSEB Ltd.

3) **Normal Capital works costing > Rs. 10 Crores (Category B):**

- a) These projects are mainly intended for the construction of new substations & new lines, upgradation of existing stations and lines etc., to address the load growth in specific areas, to improve the safety & reliability standards and to comply with the requirements under the CEA Transmission planning criteria.

b) The Appraisal of pwc for 'New Capital Works Program' is as follows;

'New Capital works consists of 40 projects, out of which 10 projects have been appraised under this study. Among the 10 projects, 2 projects namely Mannuthy and Kottai have not been pursued by the KSEB during appraisal, on account of lack of grant and land-related issues. Hence, the results of these two projects are not considered in the assessment.

Out of the appraised 8 projects under the New Capital Works program, all the projects have scored the minimum scoring requirement of 60 grade out of 100, which may be considered as prudent by the Commission'.

c) This Category initially consisted of 40 projects across the State, mostly to be implemented through the routine Capital investment program of KSEB Ltd. Out of these, 10 projects were subjected to scrutiny by the Consultant. Out of the 10 projects, Kottai 220 kV Substation was abandoned by KSEB Ltd. The plan of 'Mannuthy line & AIS' was revised subsequently. The other 8 projects are found to be prudent by pwc.

d) One more project 'Reliable Communication & DA system' was included in this Category in the Midterm review petition, which was initially included in the SLDC works.

e) The proposal for 'Vengallur' substation was transferred to the Transgrid scheme. A portion of the 'Ettumannoor substation upgradation' was transferred to the 'Kottayam scheme' of Transgrid works. Another three schemes planned earlier was postponed to the next control period.

f) Based on the status of the projects, approval for Investment to the 36 projects planned to be completed during the control period has been sought as indicated in the Table below:

(Rs in Crores)

Sl. No	Project	Total revised amount	2018-19	2019-20	2020-21	2021-22
1	Linking 110 kV feeder Kanhangad– Cheruvathoor to Ambalathara 220 kV ss	37.96	2.00	30.45	5.51	
2*	Palakkad Medical College s/s & line upgradation to 110 kV (DPR revised)	0.00	0.00	0.00	0.00	
3	Vennakkara 110 kV substation	44.60		22.30	22.30	
4	Palakkad– Malampuzha 110 kV line	14.38		4.38	10.00	
5	Pattambi 110 kV substation	25.50	5.00	10.30	10.20	
6	Mannuthy 110 kV line & substation AIS	11.60		2.90	8.70	

7\$	Ettumannoor s/s upgradation to 110 kV	6.67	0.67	2.00	4.00	
8	Kuravilangad s/s & line upgradation to 110 kV	21.65		0.00	14.00	7.65
9	Koothattukulam s/s upgradation to 110 kV	13.27	3.40	1.50	8.37	
10	Kothamangalam - Koothattukulam line upgradation to 110 kV	20.30	4.15	11.00	5.15	
11	Pala - Ettumannoor line upgradation to 110 kV	15.75		10.75	5.00	
12	Edamon- Anchal- Ayoor line & Anchal s/s upgradation to 110 kV	28.85	8.28	20.57		
13	Karunagappally s/s and line upgradation to 110 kV	16.50	1.92	10.51	4.07	
14	Chithara 110 kV substation	12.27		0.00	3.68	8.59
15	Kollam –Kottiyam 110 kV cable interlinking	63.23		0.00	12.65	50.58
16	Kowdiar 110 kV GIS	34.93		0.00	0.00	34.93
17	Palode substation 110 kV upgradation	19.75		0.00	9.00	10.75
18	Ambalavayal 66 kV s/s and feeder (110 kV parameter)	15.24	4.58	10.66	0.00	0.00
19	Chemberi 110 kV substation & line	29.97	0.73	29.24	0.00	0.00
20	Kunnamangalam – Thamarassery line upgradation to 110 kV	38.15		10.35	13.90	13.90
21	Kuthumunda substation upgradation to 110 kV GIS	35.88	3.98	31.90	0.00	0.00
22	Mankada substation upgradation to 110 kV	15.75		5.58	10.17	0.00
23	Mankavu substation upgradation to 110 kV	14.44	1.80	12.64	0.00	0.00
24	Mylatty –Vidyanagar line upgradation to 220/ 110 kV MC-MV line	31.96		7.99	23.97	0.00
25	Pulikkal 110 kV substation	16.64		0.00	1.68	14.96
26	Seethangoli 110 kV substation & cable	13.41		0.00	3.34	10.07
27	Thambalamanna 110 kV substation	39.90	18.02	21.88	0.00	
28*	Kottai 220 kV sub -station, Palakkad (abandoned)	0.00				
29	Pudukkad – Kattoor line upgradation to 110 kV MC	13.91		8.00	5.91	
30	Olloor –Viyyur line upgradation to 110 kV	16.72		7.72	9.00	

31	Pallom –Ettumanoor Line and Gandhinagar & Kottayam substation upgradation to 110 kV	61.40		0.00	30.00	31.40
32	Vazhoor 110 kV substation	12.30		0.00	5.30	7.00
33	Kuttanad substation upgradation to 110 kV	14.20		0.00	10.00	4.20
34*	Punnapra- Alapupuzha line upgradation to 110 kV MC	0.00		0.00	0.00	0.00
35	Panthalacode 110 kV switching/ sub station	25.16		4.00	12.00	9.16
36	TVT No. I & II feeder lines upgradation to 110 kV	55.79		12.00	30.00	13.79
37*	R & M of Malappuram 110 kV substation to GIS	0.00		0.00	0.00	0.00
38	110 kV LILO line to Parappanangadi s/s	17.16	1.96	0.63	14.57	0.00
39\$	Vengalur 110 kV GIS	0.00		0.00	0.00	0.00
40	Kayamkulam – Karunagappally 110 kV DC line	46.50		0.00	28.79	17.71
41	Reliable Communication & DA system^	176.00	0.00	21.00	87.00	68.00
	Sub total	1077.69	56.49	310.25	408.26	302.69
	PSDF grant	73.77	0.00	22.13	44.26	7.38
	Net KSEB fund	1003.92	56.49	288.12	364.00	295.31

*Projects (3 Nos) postponed to the next control period & 1 abandoned.

\$ Project merged with Transgrid project (Thressivaperur/ Kottayam schemes).

^ (41) included under SLDC works.

g) Accordingly, based on the appraisal report of pwc and the latest progress/ status report of the projects, approval for the 36 projects under the category (B) schemes is to be given as indicated in the Table above, for a net amount of Rs. 1003.92 Crores.

4) Trans Grid 2.0 works (Category C):

a) The maximum demand of the State in year 2017 was approximately 4000 MW and as submitted by KSEB Ltd had reached 4316 MW in April 2019. It was expected to reach 4500 MW in year 2022. As per KSEB Ltd.'s projections, the average annual peak demand growth in the State during the period (2014 – 2019) was 3%. KSEB Ltd. submitted that based on their load flow study, the existing Intra state Transmission system will not be capable of reliably handling this load. Further the existing infrastructure does not comply with the Transmission Planning Criteria as stipulated by CEA. The Transgrid 2.0 Projects

are mainly envisaged to address this gap existing in the Intrastate Transmission infrastructure of the State.

- b) KSEB Ltd. further clarified that these projects are proposed to be implemented through external MEP contractors/ agencies as Turnkey projects. There were 12 projects in the scheme initially and 3 more projects are included in the midterm review petition.
- c) As per the report of the Consultants (pwc), the 'Outcome of Appraisal or TRANSGRID 2.0 Program' was as follows:

'The detailed assessment of 12 projects under TRANSGRID 2.0 program has been carried out by applying the evaluation framework and it is found that 2 projects namely Aluva and Kunnamangalam are non deducible due to lack of baseline information'. The appraisal results of remaining 10 projects are 'prudent'.

'In the case of Aluva, the details on the growing demand for power in the Aluva region (base line) are not discussed in the investment proposal. During approval of the project, the Hon'ble Commission may duly consider the growing demand in the Aluva region and the utilization of the proposed capacity (with envisaged additional demand) to avoid sub optimal operation of the asset'.

'In the case of Kunnamkulam, the improvement in performance envisaged from the project scenario is not discussed in the investment proposal. During the approval of the project, the Hon'ble Commission may duly consider the performance improvement envisaged under the proposed project and the utilization of the proposed capacity (with envisaged additional demand) to avoid sub optimal operation of the asset'.

The Hon'ble Commission may consider Aluva project as prudent, if an envisaged demand in the Aluva region supports the need for new substation and the proposed capacity is sufficient to cater the additional demand.

The Hon'ble Commission may consider Kunnamkulam project as prudent, if the performance improvement due to the proposed project, and the utilization of the proposed capacity through envisaged additional demand, are justified with relevant quantification by the SBU-T.

- d) KSEB Ltd substantiated the requirement of the above two projects through load flow study results, projected load growth in the area and the requirement of flexibility and redundancy in operation. Further KSEB Ltd clarified during the public hearing that; Aluva and Kunnamkulam station Power transformer capacity is designed considering the load transfer to the adjoining 110 kV stations, load growth in the area and in line with the CEA planning criteria.
- e) On reviewing the **Aluva project**, based on the report of pwc and the proposal and clarifications given by KSEB Ltd; it is seen that the effect of the power transfer through the proposed Munnar- Kothamangalam- Aluva Multi circuit/ voltage lines have not been properly evaluated in the DPR. Considering the

proposed Hydel, Solar and Wind Generation in the Idukki region and the geographical advantage of the proposed 220 kV Aluva substation, the scheme will enhance the reliability of the system/ grid and reduce the loss considerably. This station will also function as back up to Chalakudy and Kalamassery 220 kV substations. Considering the load transfer to the adjoining 110 kV substations and the load growth in the Aluva region, the capacity of 2 x 200 MVA transformers proposed in the substation is acceptable. Based on these additional benefits, and the observations/ recommendations of pwc, the proposed Aluva scheme can be considered as investible and can be considered for implementation. However, KSEB Ltd has to provide the complete details of cost and benefits derived from the project at the time of Truing up.

- f) The investment proposal for the '**Kunnamkulam project**' envisages upgradation of the existing 110 kV substation to 220 kV with 2 x 100 MVA transformers, to comply with the 'N-1 reliability criteria'. The load considered is not inclusive of the additional loads from the adjoining 110 kV substations. Also the transformers in the 220 kV voltage level need to be standardized and the minimum size in the present scenario is 100 MVA. No new 220 kV substation can be commissioned without fulfilling the (N-1) criteria and hence proposal for 2 x100 MVA transformers is in order. Moreover this 220 kV line and substation will function as an alternate circuit to the Malappuram area, for evacuation of power from the HVDC substation at Madakkathara. However, KSEB Ltd need to substantiate the benefits derived from the project with data regarding the improvement in the voltage profile, loading of the substation, improvement in the reliability etc. with the investment made, at the time of truing up for Asset addition. Based on these projected benefits, and the observations/ recommendations of pwc, the proposed scheme is considered as investible and can be considered for implementation.
- g) All the other ten projects in category (C) are seen to be investible as per the report of pwc and can be approved.
- h) Out of the subsequently added three projects, Sabari/ Pathanamthitta scheme envisage to provide (N -1) connectivity to Pathanamthitta at 220 kV and to enhance the unhindered power transfer from the Generating stations in Kakkad belt. Scheme includes construction of two Nos 220 kV GIS substations and construction of connecting lines using MCMV narrow base towers. Considering the growth perception of the district, reliable connectivity for power evacuation from the generating stations in the region and the associated loss reduction of 4

MW, the proposal is considered investible and can be considered for implementation.

- i) Thrissivaperur scheme envisages to construct 220 kV & 110 kV GIS substations at Vengallur, Malappuram district to relieve the overloaded Tirur substation and to construct 42 kms of MCMV line from Kunnamkulam to Vengallur to relieve the overloading of 110 kV feeder from Areekode to Keezhissery. It helps to improve the reliability of supply to Malappuram district and includes the Vengalur scheme (Rs.46.39 Crores) proposed under the Category B works. The scheme will help to effectively evacuate power from the Madakkathara ISTS substation and increase the reliability of the coastal transmission system in Thrissur – Malappuram districts. Considering the advantages envisaged, the project is considered as investible and can be considered for implementation.
- j) The Vizhinjam package envisage construction of a 220 kV GIS substation, to improve the voltage profile and (N-1) reliability of southern part of Thiruvananthapuram district and to cater the load growth expected due to commissioning of the Vizhinjam sea port. It seems that having connectivity with Tamil Nadu Grid at 220 kV, by upgrading the existing system and connected to the proposed GIS may improve the reliability of the area more. However, the present proposal can be approved, subject to KSEB Ltd providing the cost benefit and other details achieved by the project at the time of true up.
- k) Based on the above observations and the progress of these projects so far, the proposals under the Transgrid 2.0 works submitted for approval for the Control Period, can be approved for investment as detailed in the Table below:

Sl. No.	Project	Amount in Rs.Crores				Total (Rs. Crores)
		2018-19	2019-20	2020-21	2021-22	
1	Aluva	0.00	128.34	3.00	0.00	131.34
2	Kaloor	0.00	138.81	0.00	0.00	138.81
3	Kothamangalam	0.00	309.80	54.67	0.00	364.47
4	Kottayam	0.00	162.50	379.17	0.00	541.67
5	Chalakyudy	0.00	45.53	34.05	0.00	79.58
6	Kunnamkulam	0.00	78.43	55.98	0.00	134.41
7	Manjeri	0.00	38.87	0.00	0.00	38.87
8	Thalasseri	0.00	110.53	59.94	0.00	170.47
9	Kunnamangalam	0.00	46.00	31.25	0.00	77.25
10	Eranad	142.37	453.40	0.00	0.00	595.77
11	NRHLS	20.85	33.95	14.50	0.00	69.30
12	Kolathunadu	0.00	141.83	85.10	60.42	287.35

13	Sabari/Pathanamthitta	0.00	0.00	122.00	126.00	248.00
14	Vengallur GIS & TLSP Phase II	0.00	0.00	136.12	68.06	204.18
15	Vizhinjam 220 kV GIS	0.00	0.00	27.00	44.00	71.00
	Total	163.22	1687.99	1002.78	298.48	3152.47
	PSDF/ Grant	139.24	261.54	0.00	0.00	400.78
	Net KSEB Ltd fund	23.98	1426.45	1002.78	298.48	2751.69

5) **SLDC related Capital works (Category D):**

The Capital works related to SLDC, proposed in the Petition include implementation of SAMAST project, SCADA & Communication development project, Ongoing small works and the miscellaneous works. On reviewing the proposal and the latest progress status of implementation, the year wise allocation for the Control Period under this head shall be as follows:

(Rs. Crores)

Sl. No.	Project/ year	2018-19	2019-20	2020-21	2021-22	Total
1	SAMAST	0.00	0.00	0.00	53.00	53.00
2	SLDC Ongoing works	1.03	18.01	10.00	10.00	39.04
3	Total	1.03	18.01	10.00	63.00	92.04
4	PSDF Grant	0.00	4.77	0.00	25.00	29.77
5	Net SLDC fund	1.03	13.24	10.00	38.0	62.27

The quantum of PSDF grant indicated is tentative only and the exact details need to be furnished at the time of truing up. However, the Commission hereby directs that the complete amounts available under PSDF shall be appropriately followed up by KSEB Ltd for its receipt.

6) **Edamon – Kochi Compensation Package:**

The Commission, vide the order dated 09.08.2019 in OP No 58/ 2018, had provisionally approved this expenditure. The Commission had specifically directed that these aspects have to be treated as 'intangible assets' and have to be amortized along with the interest, over a period of 12 years from the date of payment. However, this expenditure will not be accounted for GFA addition and

therefore shall not be eligible for benefits flowing from it, as decided in the Order dated 08.07.2019 in OA No. 15/ 2018.

20. Based on the above observations and assessment, approval of the 'Capital investment plan for Transmission' of KSEB Ltd for SBU –T (Transmission & SLDC) for the control period (2018- 2022) may be accorded; under the different heads, year wise, as indicated in the Table below:

Table

(Rs. in Crores)

Sl. No.	Schemes	2018-19	2019-20	2020-21	2021-22	Total
1	A. Ongoing & New Projects < Rs. 10 Cr.	502.36	349.78	191.66	64.83	1108.63
2	B. New Capital works > Rs. 10 Cr.	56.49	310.25	408.26	302.69	1077.69
3	C. Transgrid 2.0 works	163.22	1687.99	1002.78	298.48	3152.47
4	Total Plan outlay for Transmission	722.07	2348.02	1602.70	666.00	5338.79
5	PSDF/ Grant/ Deposits	335.84	325.27	44.26	7.38	712.75
6	Net KSEB Ltd Fund	386.23	2022.75	1558.44	658.62	4626.04
7	D. SLDC works	1.03	18.01	10.00	63.00	92.04
8	PSDF/ Grants	0.00	4.77	0.00	25.00	29.77
9	Net SLDC Fund	1.03	13.24	10.00	38.00	62.27
10	Grand total SBU-T & SLDC	723.10	2366.03	1612.70	729.00	5430.83
11	Grand total PSDF/ Grants/ Deposits	335.84	330.04	44.26	32.38	742.52
13	Grand total- Net SBU-T & SLDC Funds	387.26	2035.99	1568.44	696.62	4688.31

21. It is further observed that the proposals provided under Part II of the Petition, does not have enough details for evaluation and for consideration of investibility of each project. Hence it is directed that, in future, the Capital investment plans shall be specific and be in the framework enabling the Commission to evaluate the project for its investibility and should include the following details:-

- 1) Detailed Project Report (DPR) with Primary and Secondary Objectives, estimate, justification for the investment etc; based on the studies, field issues, directives, statutory requirements etc. with supporting documents.
- 2) Planning Details with:
 - i) Category and time period;
 - ii) Compliance to CEA Planning Criteria;
 - iii) Identification of the Project with alternatives considered;
 - iv) Need and Timing of the Investment;
 - v) Technical and Financial Justification;
 - vi) Prudence of the estimate and investment;
 - vii) Implementation plan with Risk and Mitigation measures.
- 3) Impact of the scheme on the capacity, loss, sale, tariff etc.
- 4) Framework for evaluation of the project during the implementation, with the details of: Procurement, Time & Cost Overrun, Variations, Quality, Project Management and Monitoring.
- 5) Framework for evaluation of the project at post- execution stage, with details of Performance Monitoring and Validation.

Decision and Orders of the Commission:

22. After due consideration of the petition, revised submissions, the views expressed during the public hearing and the observations made above, the Commission hereby gives approval for the **'Capital Investment Plan for SBU –T (Transmission & SLDC)' of KSEB Ltd for the Control Period (2018- 2022), for a net amount of Rs. 4688.31 Crores**, as provided in the **Table in Para 20** above. Accordingly, the provisionally approved amount for Asset addition/ Capital Investment for SBU –T (Transmission & SLDC), vide Para 4.4 of the Order dated 08.07.2018 in Petition OA. No. 15/ 2018 (Part – I), shall be deemed to be revised as approved above.

Further, this approval for the investment proposal is subject to the following conditions:-

- 1) The licensee shall take up the work only through competitive bidding process for procurement of materials and execution, so as to ensure least cost execution of the proposal.

- 2) The licensee shall ensure that there is sufficient response for the tenders floated, the bids received are competitive and, in its absence, shall resort to retender.
 - 3) The licensee shall provide the complete source of funding, its interest and repayment terms, etc for the proposal including the complete details of PSDF/ Grants/ deposit works available, its terms and conditions, whether SBU-T was able to adhere to these terms and conditions, deviations if any, its approval/ acceptance by PSDF/ other sources etc., during the truing up of accounts for the respective year.
 - 4) Part capitalization of any of the projects included in the above approval shall not be considered except in cases wherein as per the original DPR, stagewise commissioning and capitalization was proposed and approved.
 - 5) The details of the COD of each project shall be provided along with the truing up petition.
 - 6) During this control period, the licensee shall furnish capital investment proposals in line with the provisions contained in KSERC (Terms and Conditions for Determination of Tariff) Regulations 2018, incorporating all the details indicated in *Para 21* of this Order.
 - 7) KSEB Ltd. shall submit a detailed cost benefit analysis for each of the projects approved in this Order, an analysis with complete details indicating the extent of achievement of the project objectives and deficiencies/ shortcomings in achieving these objectives with full justification for the shortfalls.
 - 8) An analysis of the time and cost overruns, if any, its details, justification with complete details for such time and cost overruns.
 - 9) The Commission also directs KSEB Ltd. that all project capitalization under this approval shall be done in a timely manner and COD declared without any delays.
23. The Commission hereby clarifies that while they have approved the Capital Investment Plan for SBU-T for Rs.4688.31 crore as provided in Table in para 20 , they further direct that KSEB Ltd. shall file the petition for Truing up of the ARR & ERC for each year of the Control Period, with the details of the expenditure and performance of each scheme included in the above Investment approval, as stipulated in *Regulation 15* of KSERC (Terms and Conditions for Determination of

Tariff) Regulations, 2018 and the final orders on the Capital Asset Addition will be issued by the Commission subject to prudence, propriety, economic and cost benefit analysis.

24. The portion of the Petition for approval of the Capital Investment Plan for SBU-T (Transmission & SLDC), included in Part II of the original petition OA No 15/ 2018 is disposed off, as ordered above.

Sd/-
Adv. A. J. Wilson
Member (Law)

Sd/-
Preman Dinaraj
Chairman

Approved for Issue

Sd/-
Secretary

APPENDIX

List of Persons/ stakeholders attended the public hearing held on 22.12.2020

1. Premkumar P.K - Deputy Chief Engineer, KSEB Ltd
2. K.G.P Nampoothiri - Executive Engineer, TRAC, KSEB Ltd
3. Shine Raj - Assistant Engineer, KSEB Ltd
4. Manu Sevan V - Assistant Executive Engineer, TRAC, KSEB Ltd
5. J.Sunil Joy - Chief Engineer, Transmission (North) Kozhikode
6. Girish Kumar V.S - Finance Officer, TRAC, KSEB Ltd
7. Satheesh A.R - HT&EHT Association
8. Prabhakaran KV - HT&EHT Association
9. Prini Peter - Carborundum Universal Limited
10. Rajesh Kuruvilla - Carborundum Universal Limited
11. Saji Mathew - MRF Tyers
12. Ratheesh Kumar A - HT&EHT Association
13. Rajagopal - GTN Textiles, Aluve
14. Rajeev MR - GTN Textiles, Aluve
15. Nandkumar P Nair - CII Kerala
16. K.C Shayam - Appollo Tyres
17. Aneesh R - Appollo Tyres
18. Radhakrishnan V - Chief Engineer, Trans Grid, KSEB Ltd
19. Babukuttan Nair T - DAO, KSEB Ltd
20. Arun C Aby - PTC India Limited
21. Rajan K R - KSEB Ltd, Kalamassery
22. V Suresh - Trans Grid, Shoranur KSEB Ltd
23. K Madhu - Trans Grid, Shoranur KSEB Ltd
24. K Krishnakumar - GTN Textiles, Aluve
25. Jiju R - Patspin India Limited
26. Dejo Kappen - Consumer, Pala
27. P Selvendran - Ambalamugal, HOCL
28. K N Gopinathan Nair - CITU General Secretary
29. Hareesh - HOCL
30. Krishnajith M.U - Idam Infrastructure
31. K.Suresh - CITU, Patspin India Limited, Palakkad
32. Anandan.M - BMS, Patspin India Limited, Palakkad

33. C.Moorthy	-	INTUC, Patspin India Limited, Palakkad
34. Nair Nandakumar	-	Carborundum Universal Limited
35. Aswani.R	-	Carborundum Universal Limited
36. P.K.Rajan	-	KSEB Ltd, Kalamassery
37. Saju Thomas	-	BPCL – Kochin Refineries
38. Viswanathan K	-	BPCL – Kochin Refineries
39. Aneesh P R	-	GTN Textiles, Aluve
40. Sarath R	-	FACT
41. Nithin C.S	-	FACT
42. Shaji K.A	-	Trans Grid, Kalamassery
43. Sijo Poulouse	-	GTN Textiles, Aluve
44. P.V.Rajeev	-	GTN Textiles, Aluve
45. Tony K Paul	-	GTN Textiles, Aluve
46. Satheesh Kumar K.P	-	Carborundum Universal Limited
47. Job Sebastian	-	Hindalco Industries
48. Jayant Ganguly	-	Hindalco Industries
49. V.J.Jaison	-	Hindalco Industries
50. V.M.Aboobaker	-	GTN Textiles, Aluve
51. Jomis Issac	-	T.C.C Ltd
52. Srinivasan M.B	-	T.C.C Ltd
53. Hansar	-	T.C.C Ltd
54. Sanjeev	-	T.C.C Ltd
55. Narayanan Nair	-	T.C.C Ltd
56. Ajith R	-	T.C.C Ltd