

**BEFORE THE HONOURABLE KERALA STATE ELECTRICITY REGULATORY  
COMMISSION**

at its office at C.V. Raman Pillai Road, Vellayambalam. Thiruvananthapuram.

**FILING NO OP No. 11 /2021**

**CASE No.**

**IN THE MATTER OF:** Application for approval of the Capital Investment Plan of KSEBL for the control period from FY 2022-23 to FY 2026-27 under Regulation 10, 54,67 and 71 of KSERC (Terms and Conditions for determination of Tariff) Regulations,2021.

And

**IN THE MATTER OF:** Additional Submission on Capital Investment plan under SBU G of KSEBL

**PETITIONER:** Kerala State Electricity Board Ltd., Vidyuthi Bhavanam, Pattom, Thiruvananthapuram-695 004.

**THE PETITIONER HUMBLY SUBMITS THE FOLLOWING ADDITIONAL SUBMISSION  
ON CAPITAL INVESTMENT PLAN UNDER SBU G OF KSEBL:**

KSEBL had filed a Multi-Year Tariff (MYT) petition for its three SBUs, comprising ARR & ERC, Capital Investment Plan (CIP) and tariff revision proposals, for the 5- year control period from 2022-23 to 2026-27 by strictly adhering to the MYT Regulations 2021 notified by the Hon'ble KSERC on 16th November, 2021. As a part of multiyear tariff petition, KSEBL had filed a capital investment plan for 5-year period under all SBUs and SLDC. The Hon'ble commission vide its order dated 25.06.2022 approved the ARR& ERC for the FY 2022-23 to 2026-27. The Hon'ble commission had ordered that, separate hearing will be conducted for approval of the Capital Investment Plan. In the capital investment plan under SBU G, KSEBL has proposed to take up, the implementation of 14 new hydro projects during 2022-27. Out of 14 projects, two of them are storage-based projects and one is an extension project.

The remaining 11 projects are run-of-the-river projects. The details of the projects are mentioned below;

<b>Sl. No</b>	<b>New Hydrel Projects</b>	<b>MW</b>	<b>MU</b>
<b>1</b>	<b>Upper Sengulam</b>	<b>24</b>	<b>53.22</b>
<b>2</b>	<b>Peechad</b>	<b>3</b>	<b>7.74</b>
<b>3</b>	<b>Western Kallar</b>	<b>5</b>	<b>17.4</b>
<b>4</b>	<b>Ladrum</b>	<b>3.5</b>	<b>12.13</b>
<b>5</b>	<b>Maramala SHEP</b>	<b>7</b>	<b>23.02</b>
<b>6</b>	<b>Pasukkadavu SHEP</b>	<b>4</b>	<b>10.34</b>
<b>7</b>	<b>Valanthode SHEP</b>	<b>7.5</b>	<b>17.36</b>
<b>8</b>	<b>Marippuzha SHEP</b>	<b>6</b>	<b>14.84</b>
<b>9</b>	<b>Chembukadavu III SHEP</b>	<b>7.5</b>	<b>16.65</b>
<b>10</b>	<b>Chathankottunada SHEP - Stage I</b>	<b>5</b>	<b>12.06</b>
<b>11</b>	<b>Olikkal SHEP</b>	<b>5</b>	<b>10.26</b>
<b>12</b>	<b>Poovaramthodu SHEP</b>	<b>3</b>	<b>5.88</b>
<b>13</b>	<b>Mankulam HE Project</b>	<b>40</b>	<b>102.85</b>
<b>14</b>	<b>Idukki (golden Jubilee) Extension Scheme</b>	<b>800</b>	<b>1301</b>

Now KSEBL has decided to submit the details of 4 new hydel projects namely Poringalkuthu Micro Hydroelectric Project, Kakkayam Pumping Station, Poringalkuthu SHEP Stage – II and Keerithode SHEP, before the KSERC for including under “New Hydrel Projects” in the Capital Investment Proposal, as these projects are planned to be commensurate and commissioned during this control period.

The details of the proposed new projects are attached as Annexure I.

A brief description of the projects are as below:

### **1. Poringalkuthu Micro Hydroelectric Project**

The newly proposed Poringalkuthu Micro Hydro Electric Scheme (36 kW envisages diversion of 4.20 m<sup>3</sup>/sec water from the tailrace channel of PLBE scheme (1x16 MW) for the power generation by installing one unit of screw turbine on the left bank of tailrace channel of PLBE Scheme. The Scheme is situated in Athirappilly Grama Panchayat, Chalakudy Taluk, Thrissur District of Kerala State. The project is proposed in the land under possession of KSEBL for the PLBE project. The existing roads can be used as the access to the scheme. There are no environmental issues associated with the scheme.

The components of the scheme include a small diversion channel from the existing tail race on the left bank for leading water to the screw turbine, Power house/Generator room to house generator, Archimedes screw turbine, gear box, greasing pump, Panel boards, RCC bed for erecting the screw turbine, canopy over the screws and channel to lead the discharge from the screw to the downstream. A diversion weir is already constructed at about 68 m d/s of the tail race weir of PLBE scheme for diverting discharge required to the existing Screw turbine (11 kW). The water required for the proposed scheme also can be diverted from the pool already formed by the above diversion weir.

## **2. Kakkayam Pumping Scheme**

The proposed Kakkayam Pumping Scheme aims at utilizing the inflow from Sankaranpuzha, a tributary of Kuttiyadi river which joins the main river just downstream of Kakkayam Dam. The Scheme is situated in Chakkittapara village, koorachundu Panchayat, Koyilandy Taluk in Kozhikode District. This scheme proposers pumping of monsoon rains from the discharge of Sankaranpuzha in to the existing Kakkayam reservoir to augment power generation in Kuttiyadi Power House. The scheme requires land owned by KSEBL (3.4 Ha) and the portion of the river course (3.36 Ha) which is under the jurisdiction of Government of Kerala. No forest land is required for the Scheme.

The Scheme involves construction of a weir across the Kuttiyadi river at the downstream of kakkayam dam, upstream and downstream aprons, upstream and downstream wing walls, leading channel to pump house, construction of pump house, supply and erection of pumps, suction and delivery pipe etc.

## **3. Poringalkuthu SHEP Stage – II**

The proposed Poringalkuthu SHEP Stage-II (1 x 24 MW) envisages utilization of the spill water from the existing Poringalkuthu reservoir with integrated operation of other Power Stations drawing water from the same reservoir viz., Poringalkuthu Left Bank Scheme (4x9MW), Poringalkuthu Left Bank Extension Scheme (1x16MW) and Poringalkuthu SHEP Stage-I (1 x 24 MW). The scheme is located in Athirappally Panchayat, Mukundapuram Taluk of Thrissur district. The proposed scheme is an extension of Poringalkuthu SHEP Stage-I. Construction of Civil works up to bifurcation point of Penstock is common for Stage I & II schemes. Hence Poringalkuthu SHEP Stage-II requires only construction of about 140 m of Penstock, Valve House, Power House & Tail Race Channel. Transmission network also is shared with Poringalkuthu SHEP Stage-I. The cost of infrastructural facilities is the barest minimum. The land demarcated for the scheme is in possession of KSEBL taken on lease from Forest

department. Other infrastructure requirements such as roads, buildings etc. are also available.

#### 4. Keerithode SHEP

The proposed Keerithode Small Hydro Project is planned as a run off the river project with a provision for marginal pondage to generate power by installing a power plant of 12 MW capacity, which operate generally during monsoon. The project proposes to utilize the water resources from a catchment area of 116.9 sq. km of Periyar River downstream of Idukki Dam, by constructing a barrage across the river at Keerithode located about 12 km downstream of Idukki Dam and diverting the flow to a power station proposed to be located on the left bank of the river about 2 km downstream, along the river course of the barrage. The average net head is 80m. Land requirement of project is 7Ha of private land and 5 Ha of revenue land. No forest land is required for the scheme.

#### Abstract of the proposal

<b>New Hydel Projects (Additional Project Proposals)</b>						
<b>No</b>	<b>Name of Scheme</b>	<b>Tentative date of Commencement</b>	<b>Tentative date of Completion</b>	<b>Project Cost (Rs Cr)</b>	<b>Capacity</b>	
					<b>MW</b>	<b>MU</b>
<b>1</b>	<b>Poringalkuthu Micro HEP</b>	<b>31.10.2023</b>	<b>31.03.2024</b>	<b>1.44</b>	<b>0.036</b>	<b>0.25</b>
<b>2</b>	<b>Kakkayam Pumping Scheme</b>	<b>31.12.2023</b>	<b>30.11.2025</b>	<b>25.72</b>	<b>0</b>	<b>29.49</b>
<b>3</b>	<b>Poringalkuthu SHEP Stage II</b>	<b>31.12.2023</b>	<b>30.11.2025</b>	<b>80.7</b>	<b>24</b>	<b>53.85</b>
<b>4</b>	<b>Keerithode SHEP</b>	<b>01.02.2024</b>	<b>31.01.2027</b>	<b>141.92</b>	<b>12</b>	<b>27.65</b>

#### **Prayer before the Hon'ble Commission**

KSEBL humbly request before the Hon'ble Commission to

1. Kindly consider the additional submission for capital Invest plan under SBU G for the control period 2022-23 to 2026-27 and to approve the same by invoking the power conferred to the Hon'ble Commission under Section 181 of Electricity Act

2003 to be read with Kerala State Electricity Regulatory Commission (Terms and Conditions for Determination of Tariff),2021.

2. To pass any order as the Hon'ble Commission may deem fit and appropriate under the circumstances of the case and in the interest of justice.

Yours faithfully,

**Chief Engineer  
Commercial & Tariff**

## Annexure I: Details of additional Capital Investment Proposals

Poringalkuthu Micro Hydro Electric Scheme				
1	Installed Capacity (MW)	0.036 MW		
2	Annual Generation ( MU)	0.25 Million Units		
3	Project Cost including IDC as per DPR (Rs. Cr)	RS. 1.44		
	a) Civil (Rs. Cr )	1.34		
	b &c) Electrical& Mechanical (Rs. Cr )			
	d) Subtotal (Rs. Cr)			
4	Levelised tariff as per DPR (Rs. /kWh)	5.53		
5	Project cost as per contract (Civil cost & Electrical cost together)	<b>Yet to be tendered</b>		
	a) Civil (Rs. Cr )			
	b &c) Electrical & Mechanical (Rs. Cr )			
	d) Subtotal (Rs. Cr)			
6	Expected cost of completion (incl IDC and Estab cost)			
7	Date of Commencement	31.10.2023		
8	Date of agreement			
9	Details of Tender			
10	Name of contractor			
11	Original Target date of completion	31.03.2024		
12	Revised Target date of completion			
13	Source of funds			
	a) Debt (Rs. Cr)			
	b) Interest rate ( Rs.Cr)			
	c) Own fund (Rs. Cr)			
	d) Grants / subsidies etc.			
14	Loan availed up to the beginning of the year (Rs. Cr)			
15	Loan proposed to be availed during the year (Rs. Cr)			
16	Year wise Physical and Financial target proposed/achieved			
	Particulars of Work	Physical Target	Financial (Rs. Cr)	
		Achievement	Target	Achvmt
	2023-24	100%	1.44 Cr.	
	Total			
	Details of the Project Management Team			
	a) Total in house employees			
	b) Monthly salary and other benefits			
	c) other establishment cost- monthly			

Kakkayam Pumping Scheme				
1	Installed Capacity (MW)	0		
2	Annual Generation ( MU)	29.49 Mu		
3	Total Project Cost excluding IDC	25.72 Crores		
	Total Project Cost including IDC and MNRE subsidy as per DPR (Rs. Cr)			
	a) Civil (Rs. Cr )	14.87 Crore		
	b&c) Electrical& Mechanical (Rs. Cr )	10.49 Crore		
	d) Subtotal (Rs. Cr)	25.36 Crore		
4	Levelised tariff as per DPR (Rs. /kWh)	Rs. 5.53/Unit		
5	Project cost as per contract (Civil cost & Electrical cost together)Yet to be tendered			
	a) Civil (Rs. Cr )			
	b&c) Electrical & Mechanical (Rs. Cr )			
	d) Subtotal (Rs. Cr)			
6	Expected cost of completion (incl IDC andEtab cost)			
7	Date of Commencement	01.02.2024		
8	Date of agreement			
9	Details of Tender			
10	Name of contractor			
11	Original Target date of completion	01.02.2025		
12	Revised Target date of completion			
13	Source of funds			
	a) Debt (Rs. Cr)			
	b) Interest rate ( Rs.Cr)			
	c) Own fund (Rs. Cr)			
	d) Grants / subsidies etc.			
14	Loan availed up to the beginning of the year (Rs. Cr)			
15	Loan proposed to be availed during the year (Rs. Cr)			
16	Year wise Physical and Financial target proposed/achieved			
	Particulars of Work	Physical Target	Financial (Rs. Cr)	
		Achievement	Target	Achvmt
	2023-24	5%	1.3 Cr	
	2024-25	95%	24.42 Cr	
Total				
17	Details of the Project Management Team			
	a) Total in house employees			
	b) Monthly salary and other benefits			
	c)Other establishment cost - monthly			

Poringalkuthu SHP Stage II				
1	Installed Capacity (MW)	24 MW		
2	Annual Generation ( MU)	53.85 Mu		
3	Total Project Cost excluding IDC	80.7		
	Total Project Cost including IDC and MNRE subsidy as per DPR (Rs. Cr)			
	a) Civil (Rs. Cr )	24.85 Crore		
	b&c) Electrical& Mechanical (Rs. Cr )	55.28 Crore		
	d) Subtotal (Rs. Cr)	80.14 Crore		
4	Levelised tariff as per DPR (Rs. /kWh)	Rs. 1.73/Unit		
5	Project cost as per contract (Civil cost & Electrical cost together)Yet to be tendered			
	a) Civil (Rs. Cr )			
	b&c) Electrical & Mechanical (Rs. Cr )			
	d) Subtotal (Rs. Cr)			
6	Expected cost of completion (incl IDC andEtab cost)			
7	Date of Commencement	31.12.2023		
8	Date of agreement			
9	Details of Tender			
10	Name of contractor			
11	Original Target date of completion	30.11.2025		
12	Revised Target date of completion			
13	Source of funds			
	a) Debt (Rs. Cr)			
	b) Interest rate ( Rs.Cr)			
	c) Own fund (Rs. Cr)			
	d) Grants / subsidies etc.			
14	Loan availed up to the beginning of the year (Rs. Cr)			
15	Loan proposed to be availed during the year (Rs. Cr)			
16	Year wise Physical and Financial target proposed/achieved			
	Particulars of Work	Physical Target	Financial (Rs. Cr)	
		Achievement	Target	Achvmt
	2023-24	5%	2.7 Cr	
	2024-25	60%	32.3 Cr	
	2025-26	35%	18.9Cr	
Total				
17	Details of the Project Management Team			
	a) Total in house employees			
	b) Monthly salary and other benefits			
	c)Other establishment cost - monthly			



Keerithode SHEP				
1	Installed Capacity (MW)	12 MW		
2	Annual Generation ( MU)	27.65 MU		
3	Total Project Cost excluding IDC	141.92 Cr		
	Total Project Cost including IDC and MNRE subsidy as per DPR (Rs. Cr)			
	a) Civil (Rs. Cr )	75.92 Crore		
	b&c) Electrical& Mechanical (Rs. Cr )	66 Crore		
	d) Subtotal (Rs. Cr)	141.92 Crore		
4	Levelised tariff as per DPR (Rs. /kWh)	Rs. 4.56/Unit		
5	Project cost as per contract (Civil cost & Electrical cost together)Yet to be tendered			
	a) Civil (Rs. Cr )			
	b&c) Electrical & Mechanical (Rs. Cr )			
	d) Subtotal (Rs. Cr)			
6	Expected cost of completion (incl IDC andEstab cost)			
7	Date of Commencement	01.02.2024		
8	Date of agreement			
9	Details of Tender			
10	Name of contractor			
11	Original Target date of completion	31.01.2027		
12	Revised Target date of completion			
13	Source of funds			
	a) Debt (Rs. Cr)			
	b) Interest rate ( Rs.Cr)			
	c) Own fund (Rs. Cr)			
	d) Grants / subsidies etc.			
14	Loan availed up to the beginning of the year (Rs. Cr)			
15	Loan proposed to be availed during the year (Rs. Cr)			
16	Year wise Physical and Financial target proposed/achieved			
	Particulars of Work	Physical Target	Financial (Rs. Cr)	
		Achievement	Target	Achvmt
	2023-24-Land acquisition and preliminary.	10%	14.2 Cr	
	2024-25-Civil Works	25%	35.5 Cr	
	2025-26- Civil &E-M	40%	56.8 Cr	
	2026-27- Civil &E-M	25%	35.4 Cr	
Total				
17	Details of the Project Management Team			
	a) Total in house employees			
	b) Monthly salary and other benefits			
	c)Other establishment cost - monthly			