

**KERALA STATE ELECTRICITY REGULATORY COMMISSION  
THIRUVANANTHAPURAM**

No. 230/Con.Engg/ 2023/ KSERC

Dated 29<sup>th</sup> January, 2024

**NOTICE**

In exercise of the powers conferred under subsection (1) of Section 181 and clause (e) of sub section (1) of Section 86 of the Electricity Act, 2003, Kerala State Electricity Regulatory Commission hereby publishes the following draft Regulations namely; the '**Kerala State Electricity Regulatory Commission (Renewable Energy and Net Metering) (Second Amendment) Regulations, 2024**', for information of the stakeholders and the persons likely to be affected thereby. Any objections or suggestions thereon may be forwarded to the Secretary, Kerala State Electricity Regulatory Commission, KPFC Bhavanam, C.V.Raman Pillai Road, Vellayambalam, Thiruvananthapuram-10 within one month from the date of publication of this notice. Objections and suggestions received on or before the said date shall be considered by the Commission before finalization of this draft regulation. A public hearing on the same will be conducted and its date and venue shall be intimated separately.

Sd/-

**Secretary**

(DRAFT)

**KERALA STATE ELECTRICITY REGULATORY COMMISSION  
(RENEWABLE ENERGY AND NET METERING)  
(SECOND AMENDMENT) REGULATIONS, 2024**

**1. Short title and commencement.-**

(1) These Regulations may be called the "Kerala State Electricity Regulatory Commission (Renewable Energy and Net Metering) (Second Amendment) Regulations, 2024".

(2) It shall come into force from 01.04.2024.

**2. Amendment in the Existing Regulations.-** In the Kerala State Electricity Regulatory Commission (Renewable Energy and Net Metering) Regulations, 2020, the following Amendments are proposed:-

**(1)** In sub regulation (1) of Regulation 2,—

(i) After clause (w), the following clauses shall be inserted, namely:-

**(wa) ‘Energy Storage Systems’ or ‘ESS’** means the technology that store energy generated from various sources and can be drawn upon at a later time to perform useful operation when needed, contributing to a more reliable and efficient power supply;

**(wb) ‘Energy Storage Obligation’ or ‘ESO’** means the obligation of the entity to store the energy from RE sources, which shall be calculated in terms as a percentage of total consumption of electricity and shall be treated as fulfilled only when at least 85% of the total energy stored in ESS is procured from renewable energy sources, on annual basis;

(ii) After clause (am), the following clause shall be inserted, namely:-

**(ama) “Net-Billing or Net feed-in”** means a single bidirectional energy meter used for net-billing or net feed-in at the point of supply wherein the energy imported from the Grid and energy exported from Grid Interactive rooftop Solar photovoltaic system of a Prosumer are valued at two different tariffs, where-

(i) the monetary value of the imported energy is based on the applicable retail tariff;

(ii) the monetary value of the exported solar energy is based on feed-in tariff determined by the Commission;

(iii) the monetary value of the exported energy is deducted from the monetary value of the imported energy to arrive at the net amount to be billed (or credited / carried-over);

(iii) After clause (aw), the following clause shall be inserted, namely:-

**(awa) ‘Other RPO’** means the obligation of the entity to purchase electricity generated from RE power projects other than Wind Power Projects accounted for WPO and Large Hydro Power Projects (including PSPs) accounted for HPO;

(iv) After clause (bc), the following clause shall be inserted, namely:-

**(bca) ‘Pumped Storage Projects’ or ‘PSP’** means a hydro power project which generates power through water stored as potential energy, pumped from a lower elevation reservoir to a higher elevation reservoir, either during lean seasons when storage/ inflow into the upstream reservoir is inadequate or on a round the year basis in cases where catchment area is small, by having a reservoir at the downstream with adequate capacity to store water for pumping;

(v) In clause (bg), the words “other than the conventional power plant” shall be omitted.

(vi) In clause (bi), the words “commissioned after 08.03.2019” shall be omitted.

(vii) After clause (bu), the following clause shall be inserted, namely:-

**(bv) ‘Wind Power Obligations’ or ‘WPO’** means the obligation of the entity to purchase electricity generated from Wind Power Projects (WPPs) commissioned after 31<sup>st</sup> March, 2022;

**(2)** In Regulation 3, Table 1(a) shall be inserted after Table 1, as follows;

**Table 1(a)**

Financial Year	Quantum of generation and/or purchase from Renewable Energy Sources and the quantum of energy to be stored in ESS, as a (%) of the total consumption (in terms of energy in kWh)				
	HPO	WPO	Other RPO	Total RPO	ESO
2024-25	2.2	1.7	36.1	<b>40</b>	<b>0</b>

2025-26	2.4	1.75	38.85	<b>43</b>	<b>0.25</b>
2026-27	2.8	1.8	41.4	<b>46</b>	<b>0.50</b>
2027-28	3.5	1.9	42.6	<b>48</b>	<b>0.75</b>
2028-29	3.9	2	43.1	<b>49</b>	<b>1.00</b>
2029-30	4.2	2.2	43.6	<b>50</b>	<b>2.00</b>

**(3)** Sub regulation (i) of Regulation (4) shall be replaced with the following sub regulation, namely:-

**(i)** Every distribution licensee shall meet the renewable energy obligation at the percentage specified in Table 1 and Table 1(a) above:

Provided that the energy, if any, generated by the distribution licensee from the renewable sources of energy and supplied to its consumers shall be accounted towards its renewable purchase obligation:

Provided further that the hydro power generated or purchased in excess of the Hydro Power purchase obligation may be accounted towards meeting any deficit in achieving the WPO or Other RPO for that year:

Provided also that Hydro Power Projects other than those commissioned after 8<sup>th</sup> March, 2019 will be considered as part of RPO under the category of 'Other RPO':

Provided also that any shortfall in the achievement of Wind RPO in a particular year can be met with, either from the excess energy consumed beyond the HPO or from the Other RPO or partly from both;

**(4)** In Regulation 5,-

(i) The words "Table 1 above" shall be replaced with the words "*Table 1 and Table 1(a) above*".

(ii) The second proviso shall be replaced with the following proviso, namely:-

Provided further that the solar energy, if any, generated and consumed by the captive consumer in excess of their Other RPO may be accounted towards its HPO or WPO:

**(5)** In sub regulation (1) of Regulation 6,-

(i) The words “Table 1 above” shall be replaced with the words “*Table 1 and Table 1(a) above*”.

(ii) The second proviso shall be replaced with the following proviso, namely:-

Provided further that the solar energy, if any, generated and consumed by the open access consumer in excess of their Other RPO may be accounted towards its HPO or WPO:

**(6)** In Regulation 8, the sub regulations (2) and (3) shall be omitted and the sub regulations (4) and (5) shall be renumbered as sub regulations (2) and (3).

**(7)** In sub regulation (1) of Regulation 10, the following proviso shall be inserted as second proviso, namely:-

Provided further that;

(i) the Renewable Purchase Obligation specified in Table-1, upto the financial year 2021-22 will be governed by the Kerala State Electricity Regulatory Commission (Renewable Energy and Net Metering) Regulations, 2020, as it stood prior to these amendments;

(ii) for the financial years 2022-23 and 2023-24, Renewable Purchase Obligation will be governed by the Kerala State Electricity Regulatory Commission (Renewable Energy and Net Metering) (First Amendment) Regulations, 2022, as it stood prior to these amendments; and

(iii) the Renewable Purchase Obligations for the financial years from 2024-25 to 2029-30 will be governed by these Regulations, as amended under Kerala State Electricity Regulatory Commission (Renewable Energy and Net Metering) (Second Amendment) Regulations, 2024.

**(8)** In clause (a) of sub regulation (2) of Regulation 13, the following explanation shall be inserted, namely:-

Explanation:

The AC output of the solar inverter in kW shall be taken as 90% of the total kWp capacity of the solar panels.

i.e., for a consumer with 100 kVA contract demand, the kWp capacity of the solar panels permissible is:  $100 \text{ (kVA)} \times 0.9 \text{ (pf)} / 0.90 = 100 \text{ kWp}$ .

- (9) In sub regulation (2) of Regulation 14, the words “shall not exceed 75%” shall be replaced with the words “*shall not exceed 90%*”.
- (10) In sub regulation (1) of Regulation 33, the words “for five (5) years” shall be replaced with the words “*upto the financial year 2024-25*”.

Sd/-  
**Secretary**

## Explanatory Note on the proposed draft (Amendment) Regulations

1. Section 86(1) (e) of the Electricity Act, 2003 authorizes the State Electricity Regulatory Commission to promote co-generation and generation of electricity from Renewable Source of Energy by providing suitable measures for connectivity with the grid and sales of electricity to any person and specify for the purchase of electricity from such sources a percentage of the total consumption of electricity within the area of the distribution licensee. Accordingly, the Commission has notified the KSERC (Renewable Energy and Net Metering) Regulations, 2020 on 07<sup>th</sup> February, 2020. Further, it was amended on 15<sup>th</sup> July, 2022.
2. Ministry of New and Renewable Energy, Government of India, vide Letter No D.O No.238/6/2020 -EFM dated 15<sup>th</sup> December 2022 intimated that our country has set an ambitious target of 500GW of non- fossil fuel-based energy capacity by 2030. For achieving the target laid down for Renewable Energy (RE) sector, it is necessary for the obligated entities to comply with the RPO trajectory set by the Central Government. For achieving the ambitious target of 500GW of non-fossil fuel-based energy, Ministry of Power (MoP) vide Order dated 22<sup>nd</sup> July, 2022 has issued the RPO trajectory for the FY 2022-23 to FY 2029-30. In the said order, MoP has introduced Wind RPO and also specified that the Wind RPO shall be met only by energy produced from wind Power Projects commissioned after 31<sup>st</sup> March, 2022. The Solar RPO has been merged with Other RPO in the aforesaid order of MoP.
3. Further, Energy Storage Obligation (ESO) has been specified by MoP in the Order dated 22<sup>nd</sup> July, 2022. It is mentioned that the Energy Storage Obligation shall be calculated in energy terms as a percentage of total consumption of electricity and shall be treated as fulfilled only when at least 85% of the total energy stored in the Energy Storage System (ESS) on an annual basis, is procured from renewable energy sources. Currently, the implementation of Energy Storage Systems (ESS) in the country is in the pilot stage. But it is seen that Solar Energy Corporation of India Ltd. (SECI) has finalized tenders for 1200 MW of RE hybrid projects with assured quantum for peak assistance through ESS at a reasonable rate of around Rs.5 per unit. More such tenders are in the pipeline. Hence the licensee can fulfill the ESS requirement through these tenders. Considering these, it is suggested to introduce ESS obligation in the State from FY 2025-26.
4. The Commission has directed KSEB Ltd to submit an action plan outlining the measures to achieve the RPO targets specified by MoP. In accordance with the guidelines set forth by MoP and taking into account the projected quantum of generation and/or purchase from RE Sources by the licensee, the Commission is required to issue a notification for the RPO trajectory for the period from FY

2024-25 to 2029-30. Considering the projections submitted by KSEB Ltd, it has been observed that the availability of wind energy in Kerala is comparatively lower than the national level, making it challenging to establish specific trajectories for individual categories of renewable energy. But the WPO can be achieved by purchasing electricity from wind RE sources in other parts of the country. It is proposed that with the exception of hydroelectric power (HPO) and wind power (WPO), all other forms of renewable energy including solar may be categorized under other renewable energy obligations.

5. Pursuant to the directive issued by the Ministry of Power (MoP) on 21<sup>st</sup> June, 2021, an extension has been granted for the waiver of Inter-State Transmission System (ISTS) charges applicable to the transmission of electricity generated from solar and wind sources. This applies to projects that are scheduled to be commissioned on or before 30<sup>th</sup> June, 2025. Furthermore, the waiver of total ISTS charges shall also be extended to Hydro Pumped Storage Plant (PSP) and Battery Energy Storage System (BESS) projects that are planned for commissioning on or before 30<sup>th</sup> June, 2025. However, this waiver is subject to the condition that a minimum of 70% of the annual electricity requirement for pumping water in the Hydro PSP, or a minimum of 70% of the annual electricity requirement for charging the BESS, is sourced from electricity generated by solar and/or wind power plants. It is important to note that this waiver exclusively applies to the transmission charges, and specifically excludes any cost associated with transmission losses.
6. The power ministry vide notification dated 29<sup>th</sup> December, 2022 has notified the procedure for implementation of uniform renewable energy tariff. This is expected to boost renewable energy capacity addition as, a uniform pooled tariff will create a single rate for distribution companies (DISCOMs), removing the barrier for delay in signing power purchase agreements. The Ministry of Power, through an Order dated 17<sup>th</sup> March, 2023, designated Grid-India as the Implementing Agency for the implementation of the uniform renewable energy tariff for central pool, as per the provisions of the Electricity (Amendment) Rules 2022. These rules establish a framework for different categories of central pools, each catering to specific renewable energy sources, including Solar Power, Wind Power, Hydro Power, Solar-Wind Hybrid, Round the Clock Power (Solar Wind Hybrid + Storage), Peaking Power (Solar Wind Hybrid + Storage), Firm and Dispatchable RE Power, and any other new pool specified by the Central Government. The duration of each central pool will be five years, and all capacity for which Power Supply Agreements (PSAs) are signed within this period will become part of the central pool. After the end of five years, no new capacity will be added, but the existing capacity will remain part of the pool until the expiration of their respective agreements. The Uniform Renewable Energy Tariff (URET) for central pools will apply only to end procurers for their contracted capacity, with no impact on the tariff discovered through competitive



bidding and payable to renewable energy generators by the Intermediary Procurer. URET will lead to the ease of procurement of RE. MoP vide Order dated 25<sup>th</sup> October, 2023 has notified the procedure for implementation of URET.

7. As per the State Climate Change Action Plan 2.0, the objective is to achieve 100% reliance on RE sources by the year 2040, and to attain net zero emissions by the year 2050. To achieve the target fixed by the Government of Kerala (GoK), a higher RPO trajectory than that specified by MoP is to be followed in the State. Further the licensees need to enter into RE purchase agreements without any delay, in order to reap the benefit of exemption in the interstate transmission charges for procuring RE power from projects commissioned before 30<sup>th</sup> June, 2025. In light of these considerations, it is suggested to implement an accelerated RPO trajectory for the initial period spanning from 2024 to 2026, and the State shall aim to achieve 50% of the energy from RE sources by 2030.
8. In order to accomplish these goals, the total RPO proposed in the draft is higher than that provided by MoP. But necessary changes have been made in WPO and HPO trajectory considering the situation prevailing in the State. The proposed RPO (%) trajectory for the period from FY 2024-25 to 2029-30 is indicated in the draft regulations. A table showing the RPO trajectory provided by MoP and the proposed RPO trajectory in the draft, along with the quantum of RE to be procured by the obligated entities, based on the energy sales projected is shown in the table below:

Table: RPO trajectory Comparison

FY	Energy sales projected for the financial years	Total RPO Target as per MoP Order dated 22 <sup>nd</sup> July, 2022 (in %)		Total RPO target proposed as per this draft (Amendment) Regulations	
	(in MU)	(in %)	(in MU)	(in %)	(in MU)
2024-25	26897	29.91	8044.89	<b>40</b>	<b>10758.80</b>
2025-26	28180	33.01	9302.22	<b>43</b>	<b>12117.40</b>
2026-27	29588	35.95	9900.14	<b>46</b>	<b>13610.48</b>
2027-28	30920	38.81	12000.1	<b>48</b>	<b>14841.60</b>
2028-29	32311	41.36	13363.8	<b>49</b>	<b>15832.39</b>
2029-30	33765	43.33	14630.4	<b>50</b>	<b>16882.50</b>

9. Government of India, Ministry of Power (MoP), has notified the Electricity (Rights of Consumers) Rules, 2020. The Rules seek to ensure that new electricity connections, refunds and other services are given in time-bound manner and that willful disregard to consumer rights results in levying of penalties on service providers and payment of compensation to consumers. Further, the consumer rules were amended in 28<sup>th</sup> June, 2021, which is regarding renewable energy related matters. The definition for 'net billing or net feed-in' from the Rights of Consumers, Rules has been incorporated in this proposed draft regulation.
10. Further, many stakeholders have raised the issue that the licensee is not considering diversity factor for the conversion of connected load to contract demand. Further, it is also seen that the licensee is taking sanctioned connected load or contract demand of the consumer instead of considering the AC output of the solar inverter in kW, for the purpose of RE connectivity. Accordingly an explanation note has been proposed in this draft specifying that the AC output of the solar inverter in kW shall be taken as 90% of the total kWp capacity of the solar panels.
11. A reference has been received from the Government of Kerala, based on a request raised by ANERT to revise the limitation set by the Commission for the loading of distribution transformer from 75% to 100%, for the purpose of RE connectivity. The Commission in the draft Kerala State Electricity Regulatory Commission (Renewable Energy & Net Metering) Regulations, 2020 has proposed that the cumulative capacity of distributed energy systems allowed to be interconnected with the distribution network shall not exceed 100% of the feeder and/or distribution transformer capacity. Further considering the submissions of the stakeholders during the hearing, the Commission has decided to limit the cumulative capacity of distributed energy systems that can be connected to the distribution feeder and/or transformer, as 75% of the feeder and/or distribution transformer capacity. It was also decided that the Commission may review this after completing two years from the date of notification of the KSERC (Renewable Energy and Net Metering) Regulations, 2020.
12. MoP, vide Order dated 22<sup>nd</sup> July, 2022 has notified a higher RPO target and the State Government Climate Change Action Plan 2.0 targets 100% Renewable Energy by 2040 and Net zero by 2050. These may lead to increase in the penetration of RE into the grid. Further many SERCs have already notified permitting connectivity of RE generation upto 100% capacity of the distribution transformer. Considering these, it is necessary to increase the capacity of the RE plant that can be connected to a distribution transformer for feasibility of RE connectivity from 75%. In order to facilitate the widespread

adoption of solar panels within the State, the capacity of RE plant that can be connected to distribution transformer is proposed in the draft as 90% of the capacity of the respective distribution transformer/ feeder.

13. Further the Control Period or Review Period for determination of tariff for the electricity generated from renewable Energy Sources under Chapter –IV of the KSERC (Renewable Energy and Net Metering) Regulations, 2020, is valid upto the financial year 2023-24 only. These draft regulations propose to extend the Control Period or Review Period by another year upto the financial year 2024-25.

14. This draft regulation is prepared for incorporating the above objectives.