

KERALA STATE ELECTRICITY REGULATORY COMMISSION
THIRUVANANTHAPURAM

Present: **Shri. Preman Dinaraj, Chairman**
Shri. S. Venugopal, Member
Shri. K. Vikraman Nair, Member

OP No 5/18

In the matter of : Removal of difficulties in establishing Wind Energy Generation and Solar Energy Generation plants in different parts of Kerala by SME sector for own use and third party sale.

Petitioner : Sri. N.V. Muhammed Ashraf
President, KSSIA, Ernakulam
The Kerala State Small Industries Association.

Respondent : Kerala State Electricity Board Limited

OP No 6/18

In the matter of : Removal of difficulties and simplification of procedure for getting connectivity with grid for Renewable Energy Generators, Prosumers and developers.

Petitioner : Sri. Jose Kallookaran C
Secretary, KREEPA
Renewable Energy Center, Aluva.

Respondent : Kerala State Electricity Board Limited

Common Order dated 03.10.2018

1. Kerala State Small Industries Associations (hereinafter referred to as KSSIA or the petitioner), Ernakulam has filed a petition before the Commission on 04.01.2018, in the matter of 'removal of difficulties in establishing Wind Energy Generation and Solar Energy Generation in different part of Kerala by SME sector for own use and third party sale'. Subsequently, on 09.03.2018, the Kerala Renewable Energy Entrepreneurs & Promoters Association (herein after referred to as KREEPA or the petitioner) has also filed a petition, in the matter of 'removal of difficulties and simplification of procedure for getting connectivity with grid for Renewable Energy Generators, Prosumers and developers'. The main issues raised by the KSSIA and KREEPA are summarized below.

(1) The limit of the solar plant capacity that can be connected to the distribution system, under KSERC (Grid Interactive Solar Energy

Systems) Regulations, 2014 (here in after referred as Solar Regulations, 2014) may be increased from 1MW to 3 MW.

- (2) Relaxation may be granted for connectivity of the solar plants of the consumers having dedicated feeders/ having own transformers.
 - (3) Direction may be given to the distribution licensee to purchase of energy from solar and wind generators at preferential tariff.
 - (4) Permit wind and solar IPP for third party sale without attracting wheeling charge and cross subsidy surcharge.
 - (5) Permit wind and solar CPPs to wheel wind energy without attracting wheeling charge.
2. The Commission admitted the petition filed by KSSIA as OP No 5/18 and KREEPA as OP No. 6/18 and heard the petitions together on 17.5.2018. The list of persons participated in the hearing are attached as Annexure 1. During the hearing Sri. Shaji Sebastian representing KSSIA, submitted that;
- (i) The solar capacity that can be connected under Solar Regulations, 2014 may be specified in terms of kW or MW instead of kWp or MWp.
 - (ii) Since the maximum capacity that can be connected to 11 kV level is 3MW, the solar capacity that can be connected under Solar Regulations, 2014 may be enhanced to 3 MW.
 - (iii) The net metering may be done at consumer's premises itself for villas instead of common metering point.
 - (iv) Evacuation facility for wind and solar generation, beyond pooling station may be constructed by KSEB Ltd.
 - (v) Installation of solar systems with battery back-up helps in reduction of peak demand
3. Shri. Sivaramakrishnan, Joint Secretary, KREEPA submitted that even though many investors are keen to invest in RE sector, the open access charges such as wheeling charge, transmission charge and cross subsidy surcharge are the main constraint. He added that KSEB Ltd, is not permitting connectivity to solar system with battery backup.
4. Sri. Bipin Sankar P, Dy. Chief Engineer, on behalf of KSEB Ltd submitted that,
- (i) Some of the issues raised require amendment to the Regulations notified by the Commission. Such an amendment to the Regulations required to follow, due procedure followed for notifying Regulations, such as prepublication, public hearing, etc and hence cannot be made

through petitions filed by individuals. Therefore, the petitions filed by KSSIA and KREEPA are not maintainable.

- (ii) The Tariff policy 2016 notified by the Central Government mandate the procurement of power from renewable sources through competitive bidding route.
 - (iii) As per the decision taken by the State Government on 01.07.2017, the purchase of power from RE sources established in the State till that date shall be at the project specific tariff fixed by Kerala State Electricity Regulatory Commission. Thereafter the procurement shall be through competitive bidding route.
 - (iv) Waiver of transmission charges, wheeling charges and losses was in vogue when the price of solar power was very high compared to the conventional power. But the situation has now changed and the rate of solar power is now much less than the conventional power. Moreover the waiver of transmission charges, wheeling charges and transmission losses will be at the cost of ordinary consumers, while benefitting the generators.
 - (v) The main purpose of levying cross subsidy surcharge is to maintain the level of cross subsidy borne by the subsidizing consumers for providing subsidy to the subsidized consumers. Thus, exempting cross subsidy surcharge for consumers availing power through open access from solar/wind generators will burden the ordinary subsidized consumers of this State.
 - (vi) As per the Solar Regulations, 2014, the upper capacity limit is fixed for connectivity is at 1 MWp. However there is no capacity limit as per the RE Regulations, 2015.
5. Shri. A.Balaji, Assistant Vice President, United Breweries Ltd. submitted that his company is committed to promote green energy and taking steps to purchase power from INOX wind power and requested the Commission to exempt open access charges for transmitting wind energy from the generation point to the consumer premises.
6. Shri. K.K Ibrahim, Managing Director of M/s Ramakkalmed Power (P) Ltd, submitted that, they are setting up 2 MW (8 x 0.25 MW) wind plant at Ramakkalmedu at Idukki District. M/s ANERT has granted technical approval for the scheme on 08.01.2016. According to the policies of the State Government, KSEB Ltd has to undertake infrastructure developments, however no developments were taken sofar. KSEB Ltd have approved Rs 26,50,000/- towards providing the required evacuation system for the 2 MW wind plant infrastructure development charges.

KSEB Ltd vide the order dated 24.11.2017 had constituted a joint inspection team for setting up new pooling substations at Ramakkalmedu, however

further activities are yet to be taken. The developer vide the letter dated 03.03.2018, informed the Chief Engineer (Distribution Central) of KSEB Ltd that, the developer desires to hand over the land required for setting up a pooling station at Ramakkalmedu for evacuating power from the wind projects, and also their desire to construct the pooling station and other necessary infrastructure by themselves under the supervision of KSEB Ltd. However, KSEB Ltd is yet to take a decision on this issue. KSEB Ltd is yet to grant connectivity for the plant. He requested that, the Commission may impose penalty on the officers of KSEB Ltd, who are not adhering to the time limit specified for granting connectivity. He further requested for fixing a time frame of development of infrastructural activities at Ramakkalmedu for developing wind power plants.

7. Ramakkalmedu Green Energy Pvt Ltd vide their written comments dated 15.5.2018 submitted that, the State Government vide the order dated 07.04.2015 had granted in principle approval to hand over the vacant land available with the State Government for developing solar and wind projects under 'make in India project' of GoI. However, no further action is taken by the State Government in this regard. Hence they requested before the Commission to advise the State Government for early disposal of such applications fixing a time frame of 90days.
8. M/s Aluva Plastics Consortium (P) Ltd vide the letter dated 15.05.2018, informed that, they had submitted an application for technical approval before ANERT for setting up 3 nos WEG having capacity 600 kW each, in their own land at Karunapuram village at Idukki and remitted the required fee. As requested by the technical committee, they had submitted the revised application with additional fee on 10.06.2014 to ANERT. However, technical approval has not yet been granted by ANERT.
9. Shri. V. Varunkumar, Director, Siva Wind turbine India (P) Ltd submitted that the infrastructure facilities at Ramakkalmedu are not sufficient to tap the wind potential there. He further added that, proper incentive scheme should be there for those who install wind plants at Ramakkalmedu. M/s Siva Wind Turbine India Pvt Ltd, vide the letter dated 14.5.2018, has requested before the Commission that, -
 - (i) Issue direction to KSEB Ltd to comply with the time lines specified for granting connectivity;
 - (ii) Direct the licensee to buy wind power at preferential tariff or to permit IPPs and CPPs to wheel power without attracting wheeling charges;
 - (iii) HT&EHT consumers, who are wheeling wind energy may be exempted from open access charges, wheeling charges and T&D losses;

- (iv) Permit banking without capacity restriction to carry forward the unutilized wind power generated, upto 31st March every year.
- (v) Validity of PPA may be fixed as 25 years.

10. Shri. Yadhukrishnan, Assistant Project Manager, Ahalia Alternate Energy Pvt Ltd submitted that, they are in the process of erecting 1 MW AC grid connected solar for their sister concern M/s Kerala Health Care Pvt Ltd with net metering. Though they have a dedicated feeder from Walayar substation, the capacity of the SPV is restricted in proportion to the average loading during day time. As a consumer having dedicated feeder from 110 kV s/s, the upper limit should be restricted only as per substation and feeder capacity. Hence they maybe permitted to connect solar panel upto 1 MW AC (1.2 MWp DC) to the dedicated feeder at their premises.
11. M/s Bharath Charitable Hospital Society submitted that, they had established 1 MW AC (1.1 MWp DC) grid connected ground mounted SPV system at West Eleri, at Kasargod, for the intended use of the energy generated at M/s Bharath Charitable Hospital Society, Thirunakkara, Kottayam. Though they had applied for connectivity, the same is yet to be granted. As per the Kerala Solar Policy, 2013, it is the responsibility of KSEB Ltd to create necessary evacuation facility beyond pooling station for capacities less than or equal to 10 MW. KSEB Ltd is not allowing connectivity without open access charges, wheeling charges and T&D loss. Hence the Commission may frame suitable regulations so that the consumer can wheel the electricity without attracting wheeling charges and T&D losses.
12. M/s NASS Energy Solutions Pvt Ltd in their letter dated 16.5.2018 submitted that, solar plants ability to generate energy depends, to a great extent, on the climatic conditions of the region. A solar power plant of the same capacity as the average load of the feeder, shall always generate energy much less than the energy consumed at the average load. As an alternative, the Commission may consider the maximum contract demand and distribution transformer capacity as the major factors to provide feasibility in order to achieve maximum solar green energy generation.
13. Based on the deliberations of the subject matter during the hearing, the Commission issued the following directions to the petitioners KSSIA, KREEPA, and the respondent KSEB Ltd and other stakeholders,-
- (i) KSEB Ltd shall submit a detailed report on the solar connectivity and related issues raised by the stakeholders during the hearing, and also an action plan for giving connectivity within definite time frame within one month from the date of this order.

- (ii) KSEB Ltd shall also submit a report on the connectivity related issues on the 1 MW solar plants installed by M/s Bharath Charitable Hospital Society at West Eleri at Kasargod.
 - (iii) KSEB Ltd shall ensure that the directions issued from the Corporate office is implemented by all the field offices.
 - (iv) Time upto 4th June 2018 is granted to KSSIA, KREEPA, KSEB Ltd and other stakeholders to submit additional details on the subject petition.
 - (v) The Commission is in the process of revising the Renewable energy regulations duly incorporating the recent developments in RE sector in the country. Hence, those who interested may submit their suggestions in advance so that the same can be incorporated while finalizing the draft.
14. In compliance of the direction of the Commission as above, KSSIA, vide their letter dated 25.5.2018 has submitted the following:
- (i) The objections raised by KSEB Ltd against the exemption of open access charges, wheeling charges, cross subsidy surcharges for the electricity generated from solar power is against the Kerala Solar Power Policy 2013.
 - (ii) KSEB Ltd could not achieve the RPO targets approved by the Commission. Hence the Commission may direct the KSEB Ltd to either buy the renewable energy at preferential tariff or permit the IPPs to sell the electricity to third party without attracting wheeling charges and cross subsidy surcharges.
 - (iii) The upper limit of solar energy systems under grid interactive distributed solar energy systems may be fixed as 1 MW instead of 1 MWp. In the case of consumers availing supply at 11kV or above, the upper limit of the solar capacity that can be connected to the grid may be enhanced from 1MWp to 3MW.
 - (iv) Presently, KSEB Ltd demands huge amounts for evacuation facility from solar developers which is against the Solar Power Policy 2013.
15. M/s KREEPA vide the letter dated 28.5.2018 submitted that, the Solar Policy, 2013 notified by the State Government emphasizes the following:
- (a) KSEBL shall create necessary evacuation facility beyond the pooling station for the projects with capacity less than or equal to 10MW.
 - (b) There shall be no open access charges for solar projects for wheeling the power within the state.

- (c) Wheeling charges and T&D losses will not be applicable for the Captive Solar generators within the state.
- (d) The energy generated from the plants under the policy shall be fully exempted from the 'electricity duty'.
- (e) Conditional Banking facility shall be available to captive generators after considering system constraints.

16. Dr. Vinod Viswanathan, President, M/s Bharath Charitable Hospital Society vide the letter dated 26.6.2018, submitted that,-

- (i) M/s Bharath Hospital, Kottayam has a contract demand of 320 kVA and is having an average monthly consumption of 141235 kWh.
- (ii) An application was submitted on 28.07.2017, for grid connectivity for 1 MW AC (1.1 MWp DC) at Kasargode and to use the energy at the hospital at Kottayam.
- (iii) After due procedure of making application and various correspondences, Deputy Chief Engineer, Transmission Circle, Kannur has demanded Rs 27 Lakhs for developing evacuation facilities for the project, which is not affordable to the hospital
- (iv) Kerala solar energy policy, 2013 provides that '*KSEB shall create necessary evacuation facility beyond the pooling station for the projects with capacity less than or equal to 10MW. For higher capacity plants, KSEB shall construct the evacuation facility on deposit work basis.*'
- (v) Commission may give separate direction to KSEB Ltd to carry out the necessary work in the substation for evacuation of 1 MW power.

17. In compliance to the directions issued by the Commission vide the daily order dated 28.05.2018, KSEB Ltd vide the letter dated 06.07.2018 submitted the following,-

(1) Solar capacity that can be connected under solar regulations, 2014 may be specified in terms of KW or MW instead of KWp or MWp .

As per the KSERC (Grid Interactive Distributed Solar Energy Systems) Regulations, 2014, the capacity of the solar energy system that can be installed at the premises of any eligible consumer shall not be less than one kilo Watt peak (kWp) and shall not exceed one Mega Watt peak (MWp). The change in regulation sought by the petitioner is to extend the benefits of 2014 Regulations to more installations. The concept of MWp/KWp is being followed by most of the State Electricity Regulatory Commissions like Rajasthan, Maharashtra, Uttar Pradesh, Delhi, Haryana, Telengana etc. If Commission decides to link the maximum capacity of individual installations with the connected load/contracted

demand of the Consumer, then the MW (AC) of solar plants can be considered for upper ceiling.

(2) Maximum capacity that can be connected to 11KV level under Solar Regulations, 2014 may be enhanced to 3MW.

At present, the following two Regulations notified by the Commission are in force for facilitating the electricity generation from RE sources,-

- (i) KSERC (Grid Interactive Distributed Solar Energy Systems) Regulations, 2014 applicable for solar having capacity not less than one kilo Watt peak (kWp) and not exceeding one Mega Watt peak (MWp), (herein after referred as Solar Regulations, 2014).
- (ii) KSERC (Renewable Energy) Regulations, 2015 applicable for all RE capacity, (herein after referred as RE Regulations, 2015).

The KSERC (Grid Interactive Distributed Solar Energy Systems) Regulations, 2014 is for promoting solar installation having capacity upto 1 MW at the premises of the consumers. The Regulations also allows facilities such as unrestricted banking, net metering, consumption at multiple points etc.

The RE Regulations, 2015 provides the distribution licensee to connect any capacity of solar installations to the grid subject to the provisions of Supply Code issued by the Commission. Thus, at present there is no restriction in connecting plants upto 3MW at 11KV level, subject to technical limitations at specific locations if any. However, additional facilities envisaged in 2014 Regulations cannot be allowed for solar installations above 1MW capacity. In view of the grid parity achieved by solar installations, providing such facilities to high end consumers at the cost of other ordinary consumers is against the interest of the power industry.

(3) Net metering may be done at consumer's premises itself for villas instead of common metering point

In villas, if the solar plant installation is for an individual consumer, then net metering can be done at individual metering point. However, plant installed for the entire consumers of the villas, the netmetering can be done only at common metering point.

(4) Evacuation facility for wind and solar generation, beyond pooling station may be constructed by KSEBL

The connectivity of wind and solar generators to the State grid is governed by the provisions of KSERC (Connectivity and Intrastate Open Access) Regulations, 2013. As per the said Regulation, the cost of construction/installation of dedicated line or the augmentation of the

transmission or distribution system and associated facilities shall be borne by the generator.

If KSEBL constructs evacuation facility for wind/solar generators without recovering the expenses from the beneficiaries, the expenses will have to be recovered through tariff and the ordinary consumers of the State will have to bear the cost of such evacuation facilities.

(5) Installation of solar systems with battery backup helps in reduction of peak demand

KSEBL has given connectivity to battery back-up solar inverters in compliance with the directions of the Commission. Commission may consider introduction of specific provisions in the new Regulations, considering safety, transparency and uniformity.

(6) Levy of open access charges (Wheeling Charges, Transmission Charge and Cross Subsidy Surcharge) for RE:

Central Government has revised the policy on exemption of transmission charges and losses allowed earlier for solar/wind power. Vide the order of MoP No.23/12/2016-R&R dtd.30-9-2016, 14-6-2017 and 13-2-2018, MoP has restricted the waiver of inter-state transmission charges and losses for solar and wind only for the projects entering into Power Purchase Agreements for sale of electricity to all entities including Distribution Companies for compliance of their renewable purchase obligation. Further, as per the order such waiver was available only to those solar and wind projects that are awarded through competitive bidding process.

Waiver of transmission charges and losses for solar and wind will burden the ordinary consumers of the State who are not beneficiaries of these projects. The main purpose of levying Cross subsidy surcharge is to compensate the licensee from the revenue loss of cross subsidizing consumers as and when they avail open access. Moreover, at present the tariff of the electricity generated from solar/wind power has come below that of conventional power. Hence the measures taken for promoting renewable energy at a time when their cost was high need not be extended now.

(7) Evacuation facility at Ramakkalmedu by Sri.K.K.Ibrahim, Managing Director, M/s.Ramakkalmedu Power (P) Ltd.

M/s.Ramakkalmedu Power Pvt.Ltd. remitted the fee for connectivity on 6-8-2016 for connecting 8 x 250KW WEG of M/s. Ramakkalmedu Power Pvt.Ltd. in Parathode.

After analyzing various options, the option of constructing the new pooling station at Parathodu village was considered. The developer also offered to purchase 2.7 cents of land in Parathodu village and to

construct the pooling station under KSEB's supervision. The proposal is for construction of the new pooling station near the existing Pushpakandam s/s and to interconnect using UG cable. The estimate for the work is Rs.49,00,000/- and developer has expressed his willingness to undertake the execution of work under the supervision of KSEBL. Presently, the connectivity of only one wind energy generator is pending at Ramakkalmedu area and there are no other pending connections.

(8) Purchase of solar/wind power at preferential tariff

KSERC / CERC has not fixed generic tariff/preferential tariff for solar or wind technologies for the FY 2017-18 onwards.

Further, Tariff Policy recommends that (clause 6.4(2)), States shall endeavor to procure power from renewable energy sources through competitive bidding to keep the tariff low. As per the decision of Government of Kerala in the meeting convened by Chief Minister on 1-7-2017, purchase of power from projects setup in the State till that date shall be made by KSEBL at the project specific tariff fixed by Kerala State Electricity Regulatory Commission and there after, all purchase shall be through competitive bidding.

(9) Banking without capacity restriction

As per the existing RE Regulations banking is allowed mandatorily for Renewables below 1MW capacity. However for capacity above 1MW, it is left to the discretion of the licensee, since, unrestricted banking involves cost for DISCOMs and this may ultimately burden the ordinary consumers of the State.

Banking was being allowed to captive RE generators to promote Renewable Energy. However, with RE achieving grid parity, granting banking facility incurs huge financial loss for DISCOMs. Considering the huge loss to DISCOMs, all SERCs have limited the quantum of RE capacity that can be installed by captive consumers by linking to their connected load/sanctioned load. The maximum RE installed capacity allowed to captive consumers by some of the other SERCs are tabulated below:

Sl. No	State	RE Capacity limit allowed
1	Gujarat	50% of consumer's sanctioned load/contract demand
2	Rajasthan	80% of the sanctioned connected load/contract demand
3	Maharashtra	Contract Demand (in KVA) or sanctioned load (in KW)
4	Karnataka	Sanctioned load
5	UP	Sanctioned connected load/contract demand

6	Delhi	Sanctioned load. Service Line Development charges payable by the consumer if RE capacity exceeds this limit
7	Haryana	Connected load in case of LT and Contract Demand in case of HT
8	Tamilnadu	Capped commercially at 90% of the electricity consumption at the end of a settlement period. Excess energy generated beyond the 90% cap shall be treated as lapsed

In line with the approach adopted by other SERCs, the quantum of RE capacity that can be installed by captive consumers may be limited to their connected load/Contract Demand.

(10) Connectivity Related issues of 1MW solar plant installed by M/s.Bharat Charitable Hospital Society at West Eleri at Kasargode.

As per the existing Regulations, the applicant has to bear the cost of evacuation from the generating station to KSEBL grid. Accordingly, based on the application for connectivity of the 1MW solar plant of M/s.Bharat Charitable Hospital Society, Chief Engineer(Distribution – North Malabar), Kerala State Electricity Board Ltd issued a demand note dated 12-06-2018 amounting to Rs.27,00,000/- (Rupees Twenty Seven Lakhs only) to M/s.Bharat Charitable Hospital Society. Once the firm remits the amount, KSEB Ltd will take necessary action to provide connectivity.

(11) Action plan for giving connectivity within definite time frame

Issues now faced with connectivity:

- (i) There is delay due to **Inadequate manpower and testing facility**. More than 60% of the solar connectivity requests are received from Thodupuzha, Ernakulam, Perumbavoor, Thrissur and Irinjalakud, and these areas were covered by the testing wing from Kalamassery. There was shortage of man power and lack of adequate testing kits and other equipments.

To overcome the above bottlenecks, now, KSEBL has decided to utilize APTS wings of Thiruvananthapuram, Thrissur and Palakkad, and also to purchase 3 numbers of test kits. With these measures, KSEB Ltd is expected to process the connectivity requests in a timely manner.

(ii) Lack of net meters

There is acute shortage of net meters available with KSEB Ltd. Even though prompt tendering activities are being carried out to procure net meters, participation of bidders in the tender is very poor. KSEBL has invited quotations for purchase of 300

numbers of single phase meters, 300 numbers of three phase whole current net meters and 10 numbers of HT net meter for meeting the urgent requirement.

(iii) Evacuation issues:

On receiving the application for connectivity, KSEBL has to conduct feasibility study through load flow analysis to arrive at the optimum evacuation scheme. The site feasibility has to be ensured and cost of the evacuation system has to be worked out. Based on this, the infrastructural Development Charges have to be estimated and intimated to the developer. After receiving the charges, the evacuation system can be constructed within the timelines specified in the KSERC (Grant of Connectivity and Open Access) Regulations, 2013 issued by the Commission.

To overcome the delay in providing evacuation facilities, KSEB Ltd proposes the following,-

- (a) As per the guidelines issued by the Government to provide evacuation facilities in each potential areas, KSEBL shall develop the evacuation facility according to a master plan prepared in consultation with ANERT. The plan shall include construction of pooling station, transmission/sub transmission line from pooling station to substation and augmentation/up gradation required for existing substations and lines for further evacuation. KSEBL shall also prepare an estimate for such evacuation facility beyond and including pooling station. The estimate shall also include supervision charges payable to KSEB. The construction and maintenance of evacuation lines from WEGs to the pooling station shall be at developer's cost and responsibility.
- (b) Once the present system of cost estimation and creation of transmission system for individual wind project is replaced with formation of evacuation system based on the master plan and collection of predetermined prorate amount from all the developers, the time required for grant of connectivity by KSEBL can be reduced remarkably.

KSEB Ltd has further submitted that, its suggestions for revising the renewable energy regulations would be submitted separately.

Analysis and Decision of the Commission

18. The Commission has examined in detail each of the issues raised by the petitioners, comments of the KSEB Ltd and other stake holders, the provisions of the Electricity Act, 2003, Regulations notified by the Commission

and policies issued by the Central and State Governments consistent with the Electricity Act, 2003.

19. KSEB Ltd has raised apprehensions on the maintainability of the petition filed by the petitioners KSSIA and KREEPA, that the Commission cannot amend the Regulations on the basis of the petition filed by individuals. The Regulation 22 of the KSERC (Conduct of Business) regulations, 2003 stipulates as follows;

22. Initiation of proceedings.- *Proceedings may be initiated under these Regulations in one of the following manners:-*

- (a) Suo motu by the Commission,*
- (b) Upon a petition filed by the Board or a licensee,*
- (c) Upon a petition filed by the Government of Kerala,*
- (d) Upon a petition filed by an affected party.*

Provided that the Commission shall have the right to decide or order that any party is not an affected party for the purpose of these Regulations.

Provided further that the proceedings under (a), (b), (c) and (d) above shall pertain to matters relating to the powers and functions of the Commission as assigned to it under Section 86 and other provisions of the Act.

As above, as per the provisions of the KSERC (Conduct of Business) Regulations, 2003, the Commission can initiate proceedings on amending the Regulations, based on the petition filed by an affected party. Hence there is no merit in the apprehensions raised by the KSEB.

20. Based on the deliberations of the subject petitions, the following issues are considered by the Commission for detailed examinations.

- (1) The solar capacity that can be connected under Solar Regulations may be specified in terms of kW or MW instead of kWp or MWp.
- (2) The limit of the solar capacity, that can be connected to the distribution system, under Solar Regulations, 2014 may be enhanced from 1MW to 3 MW.
- (3) Relaxation may be granted for connectivity of the solar plants of the consumers having dedicated feeders/ own transformers.
- (4) Construction of evacuation facilities beyond the pooling station may be constructed by KSEB Ltd.
- (5) Direct the distribution licensees in the State to purchase electricity from solar and wind energy generators at preferential tariff.
- (6) Permit wind and solar IPP for third party sale without attracting wheeling charge and cross subsidy surcharge.
- (7) Permit wind and solar CPPs to wheel wind energy without attracting wheeling charge.

- (8) Permit grid connectivity of hybrid solar systems with battery backup.
- (9) Connectivity related issues of the 1 MW solar plant at West Eleri, installed by M/s Bharat Charitable Society.

The detailed analysis of the above issues are discussed in the following paragraphs,-

21. Issue No.1 : The solar capacity that can be connected under Solar Regulations may be specified in terms of kW or MW instead of kWp or MWp

The Commission has examined the issue in detail and noted the following.

- (i) In Photovoltaics, the maximum possible output of a solar generator operating under standard conditions is **defined** as its peak output, which is measured in watts or kilowatts and stated as either Wp (watt, peak) or **kWp**, respectively.
- (ii) A kWp is the peak power of a PV system or panel, kWp stands for kilowatt 'peak' of a system. The power is calculated under a standardised test for panels across all manufacturers to ensure that the values listed are capable of comparison.
- (iii) When the solar PV panels are operating, they will, over an hour convert the sun's radiance into electrical energy, which is measured in kilowatt hours (kWh). A PV panel with a peak power of 3kWp which is working at its maximum capacity for one hour will produce 3kWh.
- (iv) Direct current (**DC**) **electricity** is what **solar panels** produce and what batteries hold in storage, while **alternating current (AC) electricity** is the type used on the grid and in most household devices. A device called an inverter is required to convert the **DC electricity** from **solar panels** into appliance-friendly **AC**.
- (v) The **DC to AC ratio** (also known as the Inverter Load **Ratio**, or "ILR") is an important parameter when designing a solar project.

The Commission noted these facts. The rating of the solar panels are specified in terms of the kWp or MWp. However, the output of the solar plants after converting the power to AC is in MW. Accordingly, the maximum MW capacity, that can be injected into the grid may be less than the rating of the solar panels. So, for injecting/ connecting 1MW to the grid, the developer has to install solar panels of capacity more than 1 MWp. Accordingly, the Commission is of the view that, it is most appropriate to specify the minimum and maximum capacity that can be installed at the premises of the consumers may be specified in terms of 1kW/1 MW instead of 1 kWp/1MWp. However, this requires amendments in sub-Regulation (3) of Regulation 4 of the Solar Regulations, 2014. The Commission is in the process of finalization of the

comprehensive Regulations on Renewable Energy, which is in the previous publication stage. The Commission may consider all these aspects while finalising the draft Regulation.

22. Issue No.2: The limit of the solar capacity, that can be connected to the distribution system, under Solar Regulations, 2014 may be enhanced from 1MW to 3 MW.

The Commission is in the process of finalization of the comprehensive regulation on Renewable Energy. The Commission may consider the same in the draft regulation and may take appropriate decision after public consultation process.

23. Issue No 3: Relaxation may be granted for connectivity of the solar plants of the consumers having dedicated feeders/ own transformers.

The Commission has examined in detail this issue raised by the petitioner, with the provisions of the Regulations notified by the Commission. It is noted that, as per the provisions of the Solar Regulations, 2014 and its amendments in 2016, there is relaxation for connecting solar plants installed by the consumers at their premises, having dedicated feeders / own transformers. In order to get more clarity on the issue, the relevant provisions in the Solar Regulations (Amendment) Regulations, 2016 is extracted below.

- (1) Regulation: 5 (2)(a) : Obligation of the distribution licensee to give connectivity to the low tension feeders.

“2 (a) The distribution licensee shall give connectivity for the solar energy system of any eligible low tension consumer to a distribution transformer, till the cumulative capacity of the solar energy systems connected to the said transformer reaches fifteen percent of its rated capacity, irrespective of the average load on the said transformer as specified in clause (b) below.

(b) The distribution licensee shall give connectivity for the solar energy system of any eligible low tension consumer to a distribution transformer above fifteen percent of its rated capacity as specified in clause (a) above, till the cumulative capacity of the solar energy systems connected to the said transformer, reaches the average load on the said transformer between 8 AM and 4 PM during the period of seven days succeeding the date of submission of the application form for connecting the solar energy system:

Provided that the distribution licensee may adopt the average load of the distribution transformer assessed between 8 AM and 4 PM within a period of six months prior to the date of submission of the application form, if the licensee is convinced that there has been no considerable change of load on the said transformer after the previous assessment.”.

- (2) Regulations-6 (2). Obligation of the distribution licensee to give connectivity to the high tension feeders.

“(2) The distribution licensee shall give such connectivity to the solar energy system of any eligible consumer, generating electricity at 11000 volts, provided the cumulative capacity of the solar energy systems connected to the distribution feeder under a particular power transformer in the feeding substation is less than eighty percent of the average load of that feeder as assessed from the data available at the substation, relating to three hundred and sixty five days preceding the date of submission of the application form:

As extracted above, the Regulations 5(2)(a) of the Solar Regulations specifies the limiting criterion for connecting the solar capacity of the consumers to the LT feeders of the distribution licensee. Similarly, the Regulation 6(2) specifies the criterion for connecting the solar capacity to the HT feeders of the distribution licensee. The provisions of the above Regulations are general clauses applicable to all consumers connected to the particular feeder/transformers. However, in the case of the consumers having dedicated feeder/ transformer, the load of that particular consumers, through the dedicated feeder/ transformer only be considered while appraising the feeder capacity and transformer capacity as the case may be. If any of the consumers having dedicated feeders/ transformers faces any difficulty in this regard, such consumers can approach the Commission with the relevant details.

24. Issue No 4: Construction of evacuation facilities beyond the pooling stations may be constructed by KSEB Ltd at its cost

The connectivity of the wind and solar plants to the transmission system/ distribution system are governed by the provisions of the KSER (Connectivity and Intra-state Open Access) Regulations, 2013 (herein after referred as Open Access Regulations, 2013). As per the provisions of the said Regulations, the cost of construction/ installation of the dedicated line / augmentation of the transmission/ distribution system and associated facilities shall be borne by the generators. The relevant Regulations is extracted below for ready reference.

- (i) Sub Regulation (6) of Regulation 6 of the Open Access Regulations, 2013: Procedure for grant of connectivity to intra-state transmission system.

“6 (6) The cost of construction/installation of dedicated line or the augmentation of the transmission or distribution system and associated facilities shall be borne by the applicant and the requisite steps to be taken in this regard shall be as mentioned in the State Grid Code or the State Supply Code or the State Distribution Code as the case may be”

- (ii) Sub Regulations 6 and 7 of the Regulation-8 of the Open Access Regulations, 2013: Procedure for grant of connectivity for a generating station to distribution system:

(6) In case a dedicated line in distribution system is required to be constructed or where augmentation of the distribution system is to be carried out for grant of connectivity, distribution licensee shall, within thirty days from the date of receipt of application, inform the applicant about the broad design features, estimated cost and the time frame for completion of the dedicated line or the system augmentation.

(7) The cost of construction of dedicated line or the augmentation of the distribution system and associated facilities shall be borne by the applicant and the requisite steps to be taken in this regard shall be as mentioned in the detailed procedure.

The Commission also noted the fact that, if KSEB Ltd is directed to construct the evacuation facilities beyond the pooling stations upto the nearest substation of KSEB Ltd without recovering the cost from the beneficiaries, such cost shall be included in the ARR of the SBU- Transmission and SBU-Distribution of KSEB Ltd and this Commission has to allow KSEB Ltd to recover the same from all the consumers of the State through transmission charges/ wheeling charges/ retail tariff. Hence, till the Commission amend Open Access Regulations, 2013, KSEB Ltd is allowed to recover the cost of evacuation facilities as per the provisions of the Open Access Regulations, 2013 as extracted above.

25. Issue No.5: Direct the distribution licensees in the State to purchase electricity from solar and wind generators at preferential tariff.

Considering the recent trends in the reduction in cost of the installation of the solar and wind power plants in the Country and the consequent reduction in cost of generation of electricity from solar and wind power plants, this Commission also has not determined the generic tariff for the electricity generated from solar and wind power plants since the year 2017-18. The Central Commission also dispensed with the determination of the generic tariff of the solar and wind power plants from the financial year 2017-18.

The paragraph 6.4 (2) of the Tariff Policy 2016 notified by the Central Government in pursuance of Section-3 of the Electricity Act, 2003 also stipulate that the States shall endeavor to procure power from RE sources through competitive bidding.

Further, as per the provisions of the Electricity Act, 2003, the SERC's cannot insist the distribution licensees to purchase electricity from a particular RE generator.

Considering the above reasons, the Commission declines the above prayers of the petitioner.

26. Issue No.6: Permit wind and solar IPP for third party sale without attracting wheeling charge and cross subsidy surcharges.

Issue No.7: Permit wind and solar CPPs to wheel energy without attracting wheeling charges.

As per the Section 42 of the Electricity Act-2003, the distribution licensee is mandated to develop and maintain an efficient co-ordinated and economical distribution system within his area of supply. The cost of developing and maintaining the distribution system is being recovered from the users of the distribution system as wheeling charges approved by the Commission from time to time. In the case of consumers of the licensee, this wheeling charge is reflected in the retail tariff approved by the Commission. Accordingly, the Commission is ensuring that, the total approved ARR of the distribution infrastructure is being recovered by the distribution licensee from the users of the system. Accordingly, if the Commission orders to exempt a particular user of the distribution system from the payment of wheeling charges, the Commission has to allow the distribution licensee to recover the short fall on account of such exemption from the other users of the distribution system. This will result in increase in the per unit wheeling charges of the distribution licensee and ultimately results in increase of the retail tariff.

Further, till the year 2014-15, the cost of electricity generation from solar plants were very much higher than the cost of electricity from conventional sources, and at that period the development of the solar power was at nascent stage. Considering these facts, Central Government, till the year 2016, had exempted the solar generators from payment of inter-state transmission charges. However, the situation is now completely changed, and the tariff for the electricity generated from the solar plant is now at par with/ below the cost of generation from conventional sources. Similarly, the cost of generation from wind sources also is now at par with the conventional sources. Considering these facts into account, the Central Government limited the waiver of interstate transmission charges to the solar and wind projects subject to the following conditions.

- (i) Solar and wind projects entering into PPAs with Distribution licensees and other entities for sale of power from solar and wind projects for compliance of their RPOs.
- (ii) Solar and wind projects that are awarded through competitive bidding process in accordance with the guidelines issued by the Central Government.

Under these circumstances, this Commission is of the view that it is not proper to exempt the third party sale by the IPPs of solar and wind plant from payment of 'wheeling charges' and 'cross subsidy surcharge' and also for exempting the CPPs from 'wheeling charges'.

27. Issue No.8: Permit grid connectivity of hybrid solar systems with battery backup.

The Commission has examined in detail the issue raised by the petitioners. The Commission vide the orders dated 14.09.2017 and 26.06.2018, has

issued directions to KSEB Ltd to provide connectivity to the solar system with battery backup in the following cases:

- (i) Grid Connectivity of 100 kW SPV Power Plant at Mar Baselios College of Engineering and Technology (MBCET)
- (ii) Grid connectivity for the 4 kW roof top solar plant installed at his premises with battery backup of Dr Saseendran, Kozhikode

KSEB Ltd submitted that, as directed by the Commission, it had given connectivity to grid connected solar systems with battery back up in the above cases. KSEB Ltd further submitted that, in the interest of safety, transparency and uniformity, Commission may include specific provisions in the RE Regulations to provide connectivity to the solar systems with battery back up.

As per the Section 73 of the Electricity Act, 2003, Central Electricity Authority (CEA) is empowered to specify the safety requirements for construction, operation and maintenance of electrical plants and electrical lines, specify the conditions for installation of meters for transmission and supply of electricity etc. The provisions in the Central Electricity Authority (Installation and Operation of meters) Amendment Regulations, 2014 regarding the net metering of the solar plants with battery backup is extracted below:

“Note under clause ‘d’ of sub-regulation ‘2’ of regulation ‘7’ :

Note: In case of Net metering, Renewable Energy Plants with battery can supply the consumer load in the event of grid failure. In this case, an automatic isolating mechanism has to be provided at appropriate location to make islanding of the consumer load from the grid at the event of grid failure.

As per the Regulation 8 of the Solar Regulations, 2014, it is the responsibility of the distribution licensees to ensure that, the solar plants connected to the distribution system of the licensee shall conform to the specifications, standards and safety notified by the CEA. Accordingly, the KSEB Ltd and other distribution licensees shall provide grid connectivity of the hybrid solar systems with battery backup as per the CEA (Installation and Operation of meters) Amendment Regulations, 2014.

28. Issue No.9 Specific issue raised by Bharath Hospital on construction of evacuation facilities

Dr. Vinod Viswanathan, President, M/s Bharath Charitable Hospital Society, submitted that, KSEB Ltd demanded Rs 27 lakh for the construction of evacuation facilities for the 1 MW solar plant at Kasargode.

The Commission noted that, the 1 MW solar plant is being installed at West Eleri at Kasargod, for the use of the electricity at their hospital at Thirunakkara at Kottayam district. Since the plant is installed at a distant location, the 1 MW solar plant shall not come under the purview of the Solar Regulations, 2014, which is intended for the promotion of the solar installation at the premises of

the consumer itself. Hence, the electricity generated from the 1 MW solar plant is to be regulated as per the provisions of the RE Regulations 2015 along with the KSERC (Connectivity and intra-state open access) Regulations, 2013.

KSEB Ltd submitted that, once the firm remit the amount, necessary action will be initiated by them to provide connectivity of the 1 MW solar plant installed by them at Kasargod. However, KSEB Ltd shall explore the various alternatives providing connectivity and evacuation facilities to them, and come shall out with the best possible evacuation scheme and intimate the same to M/s Bharath Charitable Hospital Society with a copy to the Commission.

Once M/s Bharath Charitable Hospital Society, remit the cost of construction of the evacuation scheme as demanded by KSEB Ltd, they shall complete the evacuation scheme, within the time line specified for construction in the KSERC (connectivity and intra-state open access) Regulations, 2013, read with the provisions in the Kerala Electricity Supply Code, 2014.

29. The petitioners and the stakeholders can take up all other issues related to development of the electricity generation from Renewable Energy Sources, especially from Solar and Wind Energy sources during the finalization of the 'comprehensive Regulations on the development of Renewable Energy' which is under the process of finalization before the Commission.

The petitions filed by M/s KSSIA and M/s KREEPA are disposed off with the observations and decisions in the preceding paragraphs.

Sd/-
K. Vikraman Nair
Member

Sd/-
S. Venugopal
Member

Sd/-
Preman Dinaraj
Chairman

Approved for issue

K B Santhosh Kumar
Secretary

List of participants

Petitioners represented by:

1. Sri. Shaji Sebastian, KSSIA, Ernakulam
2. Shri. Sivaramakrishnan, Joint Secretary, KREEPA

Respondent represented by:

3. Shri. Bipin Sankar P, Deputy CE, KSEB Ltd.
4. Shri. K.G.P Nampoothiri, EE, TRAC, KSEB Ltd.
5. Smt. Latha S.V, AEE, TRAC, KSEB Ltd.

List of other Participants:

6. Shri. K.K Ibrahim, MD, Ramakkalmed Power (P) Ltd/ M/s Ramakkalmedu Green Energy Pvt Ltd/ M/s Aluva Plastics Consortium (P) Ltd
7. Shri. V. Varunkumar, Director, Siva Wind Turbine India (P) Ltd
8. Shri. Manoj Toms, Project Director, Ahalia Alternate Energy Pvt Ltd
9. Shri. Yadhukrishnan, Assistant Project Manager, Ahalia Alternate Energy Pvt Ltd
10. Shri. A.Balaji, Assistant Vice President, United Breweries Ltd.
11. Shri. Terance Acex, Wattsun Energy
12. Smt. Neenu Skaria, Electrical Engineer
13. Smt. Jesna Jose, Electrical Engineer
14. Shri. Sunny K.A, Ace Technologies
15. Shri. Suku Nayar K, INOX
16. Shri. Nevil Jose, Project manager, Bharath Hospital
17. Shri. J.Sudhakaran Nair, KSEB Pensioners' Association