

KERALA STATE ELECTRICITY REGULATORY COMMISSION
THIRUVANANTHAPURAM

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

STATEMENT OF OBJECTIONS / REASONS

Sub: Draft Kerala State Electricity Regulatory Commission (Renewable Energy & Net Metering) Regulations, 2020

The Commission has initiated the process of notifying the Kerala State Electricity Regulatory Commission (Renewable Energy & Net Metering) Regulations, 2019 [herein after referred to as Draft RE Regulations, 2019] in the month of August 2019.

The proposed draft Regulation was uploaded in the website of the Commission for information and for inviting comments on all the stake holders and other interested parties, in conformity with the electricity (procedure for previous publication) Rule 2005 notified by the Ministry of Power, Government of India dated 9th June 2005. The Commission also uploaded an explanatory memorandum highlighting the circumstances and other important parameters adopted in the draft Renewable Energy Regulations, 2019.

Commission held stakeholder's consultation at Ernakulam on 18.09.2019, and during the meeting the Commission explained to the stakeholders the background for revising the existing RE Regulations, and the various factors considered while notifying the Draft RE Regulations, 2019.

Commission conducted the public hearing on the draft Regulation at Thiruvananthapuram on 24.10.2019 and at Ernakulam on 31.10.2019. The response received from various stake holders during the public hearing as well as the written comments were also made available at the website of the Commission.

The Commission, in compliance with the provisions of the Electricity Act, 2003 and the Electricity (procedure for previous publication) Rule 2005, and after extensive consultation with all the stake holders, proceed to finalise the Kerala State Electricity Regulatory Commission (Renewable Energy & Net Metering) Regulations, 2019. The Commission considered the comments of the stake holders and other

interested parties on the draft Regulations raised in the public hearing and the written comments while finalising the Regulation..

The list of the stake holders who have participated during deliberations of the draft Renewable Regulations, 2019 is enclosed as **Annexure 1**. The analysis of the issues and findings of the Commission on each issue raised by the Stake holders are discussed in the subsequent paragraphs.

1. Clause (ac) of sub Regulation (1) of Regulation (2) of Draft RE Regulation 2019, the 'infirm power' is defined as under:

'Infirm Power' means the power injected by a generation project into the grid before the Date of Commercial Operation (COD), for testing, trial run & commissioning of the project. Since power from renewable energy sources is non firm in nature, the tariff fixed by the Commission post COD shall also be applicable for the power injected into the licensee system prior to CoD'.

Views of the stakeholders:

KSEB Ltd submitted the following on the definition of 'infirm power'.

It is not justifiable to force a distribution licensee to absorb the energy generated during testing purpose of a plant at the tariff of the plant, if the licensee does not intent to enter into PPA with the generator. Allowing a facility for testing and trial operation of a generator is a facility extended by the licensee to the generator. There can be cases of such injection from the plant who subsequently enters into contract for sale of power through open access or to other distribution licensees. Therefore tariff for testing purpose, trial run and pre-CoD may be charged at DSM rates.

Decision of the Commission

In the State of Kerala, as per the policies of the State Government, the first right of refusal of the electricity generated from all the RE Generators developed as IPP and excess generation after own use from Captive RE Generating Plants is vested with KSEB Ltd. Hence, electricity generated from IPPs and excess generation from CPPs are intended to be injected in to the State Grid for meeting the electricity requirement of the State and it has to be purchased by KSEB Ltd at the tariff approved by the Commission. Till date, KSEB Ltd, has been generating and procuring electricity from various sources for meeting the electricity requirement of the State including the power requirement of the other licensees supplying within their limited areas. Considering all these factors, and also considering the non firm nature of the RE sources, the Commission has taken the considered decision that the

tariff fixed by the Commission post CoD shall also be applicable for the power injected into the licensee system prior to CoD.

However, if the RE generator fails to have an arrangement/agreement with the KSEB Ltd or its successor entities and/or; if KSEB Ltd communicated its decision in writing their refusal to purchase power from such RE plant, in such cases the KSEB Ltd or its successor entities do not have any obligation to purchase the energy generated and injected from such RE plants to the power system of the State, and such energy has to be settled by SLDC at the Deviation Settlement rate.

It is further clarified that, all the RE generators who intend to install RE plant for supplying power to the distribution licensee should enter into an agreement/ MoU in advance with the licensee, otherwise identify a buyer for purchase of power from the RE plant before synchronising the plant with grid. Any energy injected to the grid by the RE generator without identifying a buyer shall be settled by the SLDC at Deviation settlement rates.

Considering all these aspects in detail, the Commission proposes to modify the definition Regulation 2(ac) of the draft Regulation as follows.

*“**Infirm Power**’ means the power injected by a generation project into the grid before the Date of Commercial Operation (COD), for testing, trial run & commissioning of the project. Since power from renewable energy sources is non firm in nature, the tariff fixed by the Commission post COD shall also be applicable for the power injected into the licensee system prior to CoD, subject to the condition that the RE generator enters into an agreement with the licensee to supply power from the RE plant at the tariff determined by the Commission.*

Provided that, if energy injected into the system by the RE generator prior to CoD without identifying a buyer or if there is no agreement with the licensee regarding the sale of power, SLDC shall settle the transactions at the Deviation Settlement Rates.”

2. Clause (aq) of sub Regulation (1) of Regulation (2) of Draft RE Regulation, ‘ Off-peak Hours/ Period’ is defined as under.

‘Off-peak Hours/Period’ means the period from 22.00 hours to 06.00 hours on the next day.

Similarly, Clause (at) of sub Regulation (1) of Regulation (2) of Draft RE Regulation, ‘ Peak hours’ is defined as under.

‘Peak Hours’ means the period from 18:00 hours to 22:00 hours on the same day;

Stake holders comments

(1) KSEB Ltd submitted as follows on this issue.

“The recent load pattern is such that the peak hour loading is extended up to 23.00 hours in the night and therefore there is a need for changing the peak hour and off peak hour time period”

(2) HT &EHT association submitted that, the suggestion of KSEB Ltd cannot be addressed while finalising the RE Regulations.

Decision of the Commission

Commission noted the submission of KSEB Ltd. The duration of the time blocks, viz-a-viz ‘Normal Hours or Normal Period’, ‘Off-Peak Hours or Off-Peak Period’ and ‘Peak Hours’ is being adopted from the Tariff Order dated 08.07.2019, approved by the Commission for the MYT period from 2018-19 to 2021-22. During the deliberations of the Tariff Order, KSEB Ltd has not raised such issues before the Commission. The scope of the proposed draft RE Regulation, 2019 is different and hence the Commission decided not to consider the proposal of KSEB Ltd to change the definition of the time blocks viz-a-viz ‘Normal Hours/Period’, ‘Off-Peak Hours/Period’ and ‘Peak Hours’ for the purposes of these Regulations.

3. Clause (be) of sub Regulation (1) of Regulation (2) of Draft RE Regulation, the ‘Renewable Source of Energy’ is defined as under.

‘Renewable Source of Energy’ means the category of renewable source for the generation of electricity such as small hydroelectric, wind, solar including its integration with combined cycle, biomass, bio fuel cogeneration, urban or municipal solid waste and such other sources approved by the MNRE;

KSEB Ltd submitted that, *Hydro above 25MW as per MoP notification may also be included in the definition of Renewable energy sources as per the office memorandum issued by Ministry of Power on 8-3-2019.*

Decision of the Commission

The Commission examined the office memorandum dated 8th March 2019 notified by Ministry of Power, Government of India, intended to promote hydro power sector in the Country. Large Hydropower Projects with capacity above 25 MW commissioned on or after the said notification is also declared as renewable energy source. Duly considering the office memorandum of the MoP, GoI dated 8th March 2019, the Commission decided to modify the Regulation 2(1)(be) of the Draft Regulation as under.

‘Renewable Source of Energy’ means the source for the generation of electricity from renewable sources such as small hydro, large hydro with capacity above 25 MW commissioned after 08.03.2019, wind, solar including its integration with combined cycle, biomass, bio fuel cogeneration, urban or municipal solid waste and such other sources approved by the MNRE as renewable source.

4. Renewable Purchase Obligation

Regulation-3. Obligation to purchase renewable energy

The Commission in the Draft RE Regulations, 2019, proposes the following RPO targets to be met by the obligated entities during the control period.

Financial Year	Quantum of purchase (in %) from Renewable Energy Sources (in terms of the total consumption of energy in KWh)		
	Non Solar	Solar	Total
2019-20	8.00	4.00	12.00
2020-21	9.00	5.25	14.25
2021-22	10.25	6.75	17.00
2022-23	*	*	*
2023-24	*	*	*

*Will be notified by the Commission later.

Comments of the Stakeholders

- (1) HT&EHT Electricity consumers Association (herein after referred as HT&EHT Association) raised the following comments on the draft RPO targets proposed by the Commission.
 - (i) The RPO targets in the State is already higher than many of the States with higher feasibility of RE generation. Hence the RPO targets may be freezed at the current level for the next ‘3’ years and may be further reviewed after three years.
 - (ii) The RPO targets fixed by MNRE are meant as broad guidelines to SERCs for determining RPO obligations. This need not be considered as legally binding directives,
 - (iii) Many of the States including Haryana, Telungana etc has not adopted the RPO targets proposed by MNRE.
- (2) Carborundum Universal Limited Electro Minerals Divisions Kalamassery, also raised the same issue as above.

Decision of the Commission

The Commission in the Explanatory Memorandum published along with the Draft RE Regulations, 2019 has explained in detail the rationale behind the RPO targets proposed in the Draft RE Regulations, 2019, which is extracted below for ready reference.

“The Commission noted that, the Central Government in July 2018 has specified a uniform RPO target of 21 % (non-solar RPO target of 10.5% and solar RPO target of 10.5%) by the year 2021-22 across the country. As per Section 86(1)(e) of the EA-2003, the Commission is empowered to specify the RPO targets to be met by the distribution licensees as a percentage of its total consumption, and the relevant Section of the EA-2003 is extracted below.

“86. (1) The State Commission shall discharge the following functions, namely: -

.....

(e) promote co-generation and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person, and also specify, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licence”.

Further the paragraph 6.4 (1) of the Tariff Policy 2016 notified by the Central Government in compliance of the Section 3 of the EA-2003 prescribed as follows.

“6.4 Renewable sources of energy generation including Co-generation from renewable energy sources:

- (1) Pursuant to provisions of section 86(1)(e) of the Act, the Appropriate Commission shall fix a minimum percentage of the total consumption of electricity in the area of a distribution licensee for purchase of energy from renewable energy sources, taking into account availability of such resources and its impact on retail tariffs. Cost of purchase of renewable energy shall be taken into account while determining tariff by SERCs. Long term growth trajectory of Renewable Purchase Obligations (RPOs) will be prescribed by the Ministry of Power in consultation with MNRE.”*

.....”

The Commission also noted that, almost all the SERCs including Andhra Pradesh, Assam, Gujarat, Haryana, Himachal Pradesh, Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Telangana are gradually moving towards the RPO

target fixed by the Central Government with an intermediary target for RPO at 17% by the year 2021-22.

Duly considering these facts in detail, the Commission proposes to fix the RPO target for the FY 2021-22 at 17% with the split up of the non-solar and solar targets, as detailed in the Table above. The Commission may notify the RPO targets for the FY 2022-23 and 2023-24 of the control period separately, after pre-publication and other procedure formalities.”

From the above, it can be seen that even through the Central Government has revised the RPO target by 21% by 2021-22, the Commission in the Draft RE Regulations, 2019 has proposed to fix the same at 17% only.

The Central Government has also notified model bidding guidelines for procuring Solar Energy within the Country on 3rd August, 2017 and the model bidding guidelines for procuring wind energy on 8th December 2017. The DISCOMS can procure wind and solar energy from any State within the Country for meeting the RPO targets fixed by the Commission, and Central Government has also exempted from transmission charges and losses for wheeling such power using inter-state transmission system. Moreover, the tariff of the Solar PV derived through bid route in the recent bids is in the range of Rs 2.50/unit to Rs 2.60/unit only. Similarly, the tariff of wind power derived through the bid route is in the range of Rs 2.83 to Rs 2.84/unit only.

Considering all these factors, the Commission is not consented to the remarks of the HT&EHT Association and others on this issue, and decided to fix the RPO target as proposed in the Draft Notification.

5. Regulation 4(1) of the Draft Regulation provide as under.

“Renewable Purchase Obligation (RPO) of the Distribution licensee

(1) Every distribution licensee shall meet the renewable energy at the percentage specified in Table 1 above, of the total energy (excluding quantum of energy met from hydro sources of power) supplied by it to the consumers within its areas of license

Provided that the renewable 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 solar energy generated or purchased in excess of solar renewable purchase obligation

may be accounted towards the non-solar renewable purchase obligation.”

Views of the Stakeholders:

(1) KSEB Ltd submitted as follows.

“ Flexibility between solar RPO and non solar RPO compliance may be added in the Regulation as follows:

Provided further that on achievement of Solar RPO compliance to the extent of 85% and above, remaining shortfall if any, can be met by excess Non-Solar energy purchased beyond specified non-solar RPO for that particular year.

Provided further that on achievement of Non-Solar RPO compliance to the extent of 85% and above remaining shortfall if any, can be met by excess solar energy purchased beyond specified solar RPO for that particular year.”

KSEB Ltd further submitted that, their proposal is conformity to the order of the Central Government dated 14th June 2018.

(2) The HT& EHT Association also raised the same issue during the hearing.

Decision of the Commission

Commission noted the argument of KSEB Ltd. As per the order of the Ministry of Power, GoI dated 14th June 2018, if the obligated entities met the Non-solar RPO to the extent of 85% and above, the remaining shortfall if any, can be met by excess solar energy purchased beyond specified solar RPO for that particular year. Similarly, on achievement of Solar RPO compliance to the extent of 85% and above, the remaining shortfall if any, can be met by excess Non-solar energy purchased beyond specified Non- solar RPO for that particular year.

However, unlike in other States, the sources of Non-solar RE sources such as small hydro, wind and bio-mass etc are very limited in the State. Further, due to the limited land availability, the capital cost and the resulting cost of generation from non-solar sources like small hydro and wind is likely to be higher in the State of Kerala. Considering these reasons, the Commission is of the view that, the excess solar energy after meeting the solar RPO can be accounted towards non-solar RPO without any restriction. Hence the Commission has not considered the suggestions of the stakeholders.

6. Regulation 4(1) of the Draft RE Regulations, 2019 provide as under:

' (1) Every distribution licensee shall meet the renewable energy at the percentage specified in Table 1 above, of the total energy (excluding quantum of energy met from hydro sources of power) supplied by it to the consumers within its areas of license'.

Stakeholders Comments

HT&EHT Industrial Electricity Consumers Association proposed to replace the sentence "*(excluding quantum of energy met from hydro sources of power)*" with "*Excluding Hydro, Solar, Wind and Any Other Non-conventional source of energy*".

Decision of the Commission

As part of promotion of Hydro Power in the Country, the Ministry of Power, Gol vide the office memorandum dated 08.03.2019 has declared the large hydropower with capacity above 25 MW, commissioned on or after the said notification as Renewable Energy. Accordingly, the Commission also included the large hydro plants commissioned after 08.03.2019 as renewable energy source. However, the large hydro plants with capacity above 25 MW and commissioned prior to 08.03.2019 cannot be declared as renewable sources and so the energy generated from such plants cannot be accounted towards RPO of the obligated entities. However, the Government of India vide the order dated 14th June 2018, has ordered to deduct the consumption met from large hydro plants from the total consumption of the obligated entity while specifying the RPO targets as a percentage of consumption of the obligated entities. Hence the Commission cannot be consented with the views of the HT&EHT Association. However, in view of the office memorandum dated 08.03.2019 of the MoP, Gol, the Commission decided to modify the sub Regulation (1) of Regulation 4 of the Draft RE Regulations 2019 as follows.

"Every distribution licensee shall meet the renewable energy obligation at the percentage specified in Table 1 above. For the purpose of computing the total energy consumption within the area of the distribution licensee, the quantum of energy met from large hydro sources of power with capacity above 25 MW, commissioned on or before 08.03.2019 shall be deducted."

7. Sub Regulation (7) of the Regulation (4) of the Draft RE Regulations 2019 proposed as follows.

"(7) A distribution licensee which is engaged in bulk purchase of electricity from another licensee shall not have separate obligation for

renewable energy purchase if,-

- (i) the seller licensee meets the renewable purchase obligation for the energy sold to the licensee also; and*
- (ii) The licensee reimburses, as approved by the Commission, to the seller licensee the additional cost incurred by the seller licensee for the generation or purchase of renewable energy to meet the renewable purchase obligation of the licensee.”*

Views of the Stakeholders

Cochin Special Economic Zone Authority (CSEZA), one of the small licensee purchasing power from KSEB Ltd submitted the following:

- (i) Small licensees like CSEZA is purchasing entire power requirement from KSEB Ltd. Hence KSEB Ltd required to confirm the quantum of energy supplied by them to small licensees from hydro sources in order to quantify their RPO.
- (ii) Since CSEZA is purchasing bulk power from supply Licensee KSEBL, CSEZA requests KSEBL to purchase/generate Renewable Energy to meet CSEZA's RPO also. But KSEB Ltd informed that they can support small licensees for purchase of renewable energy after 2020-21 only and KSEB Ltd asked to submit its firm commitments. CSEZA request to direct the Seller Licensee (KSEBL) to confirm and indicate the percentage/quantum of power supplied by them to small licensees from Hydro sources.

M/s Rubber Park and M/s KPUPL has also made similar suggestions.

Decision of the Commission

The Commission hereby clarify that, all the obligated entities including the buyer licensees purchasing power from KSEB Ltd has to meet the RPO as specified in the Regulations. Further, the Commission cannot direct KSEB Ltd to share the energy generated from its hydro plants with other obligated entities.

However, in the Draft RE Regulations, 2019, the Commission provided the following provisions.

“(7)A distribution licensee which is engaged in bulk purchase of electricity from another licensee shall not have separate obligation for

renewable energy purchase if,-

(i)the seller licensee meets the renewable purchase obligation for the energy sold to the licensee also; and

(ii)The licensee reimburses, as approved by the Commission, to the seller licensee the additional cost incurred by the seller licensee for the generation or purchase of renewable energy to meet the renewable purchase obligation of the licensee.”

The Commission vide the explanatory memorandum uploaded along with the Draft RE Regulations, 2019, provided the rationale behind the sub Regulation (7) of Regulation-4 of Draft RE Regulations, 2019, which is extracted below.

“ As per the draft Regulations, the RPO target proposed by the Commission has to be met by KSEB Ltd as well as the small licensees in the State purchasing power at the BST from KSEB Ltd, and other obligated entities including captive consumers and open access consumers. The quantum of the power purchase of all the small licensees together is around 2,5% of the total consumption of the State. As per the bidding guidelines notified by the Central Government, the minimum capacity limit for WEG for participating in competitive bidding guidelines is 25 MW at a location and the capacity limit for Solar Plant for participating in the competitive bid route is 5 MW.

Further, any amount incurred by the small licensees for meeting the RPO is pass through in ARR and thus reflected in the BST payable to KSEB Ltd. Considering the difficulty of the small licensees in meeting the RPO targets at competitive rates and this cost ultimately reflect in the BST payable to KSEB Ltd, the Commission is of the view that, ‘if the Supply Licensee KSEB Ltd meet the RPO for the energy sold to the small licensees, the small licensees are relieved from meeting the RPO separately. (Regulation 4(7) of the Draft)”

On this issue, the Commission further clarify that, KSEB Ltd is the State Government owned power utility, incumbent distribution licensee and Government’s instrumentality in implementing the State and Central Schemes in power sector in the State. KSEB Ltd is also utilising all the resources of the State as well as getting the financial support offered by the Central Government to the power sector of the State. Further, as per the policies of the State Government, there is an obligation for KSEB Ltd to supply power to other licensees especially to the ‘IT parks and Industrial Parks’ established through Government initiatives. Further, as already mentioned, the higher cost if any incurred by the buyer licensees for meeting the RPO shall ultimately reflect on the BST of KSEB Ltd. Considering these realities, the Top management of

KSEB Ltd shall appraise this matter in detail and shall take a strategy to meet the RPO for the entire consumption of the State including the power purchase by other licensees in the State. It will be ultimately beneficial to the KSEB Ltd and the State as a whole. Hence, KSEB Ltd shall favourably consider the suggestions of the small licensees in this regard.

8. Captive consumers with co-generation plants

Clause (i) of Sub Regulation (1) of Regulation (2) of Draft RE Regulation 2019, the term 'captive consumer' is defined as under.

'Captive consumer' means a consumer owning a captive generating plant including from the renewable energy sources or by co-generation located within the area of the distribution licensee where in the consumer is located.

Further, the Regulation 5 of the Draft RE Regulations 2019 specified as under.

" 5.0 Renewable Purchase Obligation of the Captive consumer

Every captive consumer, (except the consumers having standby generating sets, having capacity of and below 100 kW, and with plant load factor less than 10% irrespective of capacity of generating set) shall meet the quantum of renewable energy not less than the percentage specified in Table 1 above, of its total captive consumption.

Provided that the renewable energy, if any, generated and consumed by the captive consumer shall be accounted towards its renewable purchase obligation.

Provided further that the solar energy generated and consumed by the captive consumer in excess of solar renewable purchase obligation may be accounted towards its non-solar renewable purchase obligation."

Stakeholders comments

M/s Bharat Petroleum Limited, Kochi Refinery, requested to exempt the 'renewable energy sources or by co-generation plant' from the definition of captive consumer.

Decision of the Commission

In exercise of the powers conferred by Section 176 of the EA-2003, the Central Government vide the GSR 379(E) dated 8.06.2005 notified the

requirement of a Captive Generating Plant, wherein no exemption is granted for 'renewable energy plant or co-generation plants.

Further as per the first proviso to Regulation 5 of the Draft RE Regulation 2019, the renewable energy, if any, generated and consumed by the captive consumer shall be accounted towards its renewable purchase obligation.

Further, in view of the Judgments of the Hon'ble APTEL dated 02.01.2019 in Appeal No. 278 of 2015 and judgment dated 09.04.2019 in Appeal No. 322 and 323 of 2016, the Captive consumers meeting their electricity from co-generation plants do not have legal obligation to purchase power from renewable sources of energy in order to meet their Renewable Purchase obligation.

Considering these factors, the Commission modifies the Regulation 5 of the Draft RE Regulations, 2019 as follows.

“ 5. Renewable Purchase Obligation of the Captive consumer.-

Every captive consumer who owns a captive generating plant based on conventional fossil fuel, (except the consumers having standby generating sets, having capacity of and below 100 kW, or having stand by generating sets with plant load factor less than 10% irrespective of capacity of generating set) shall meet the quantum of renewable energy not less than the percentage specified in Table 1 above, of its total captive consumption.

Provided that the renewable energy, if any, generated and consumed by the captive consumer shall be accounted towards its renewable purchase obligation.

Provided further that the solar energy generated and consumed by the captive consumer in excess of solar renewable purchase obligation may be accounted towards its non-solar renewable purchase obligation.

Provided also that a captive consumer who produces and consumes energy from his co-generation plant, is not required to meet their Renewable Purchase Obligation, for the quantum of energy generated and consumed from such co-generation plant.”

9. Maximum RE capacity can be installed under 'net metering facility',

The Regulation 13(2) of the Draft RE Regulations, 2019 provide as under:

“ (2) The Grid Interactive Renewable Energy Systems, installed by a prosumer at his premise under these Regulations shall be:

- (a) of not less than one kW and not exceeding 1000 kW capacity on*

AC side of the inter connection point of the distribution system, limited to the sanctioned connected load / contract demand of the prosumer with the distribution licensee at the premises.

- (b) located within the premises of the eligible consumer;*
- (c) interconnected and operate safely in parallel with the distribution system of the licensee.*

Stakeholders comments;

- (1) M/s Kerala Renewable Energy Entrepreneurs & Promoters Association (KREEPA), submitted that,

“Considering the high density of roof top availability in Kerala State coupled with the lack of land availability’ it is suggested that, the upper ceiling for Net metering Regulation for distributed renewable energy shall be raised to 3 MW on AC side”

- (2) M/s Ahalya Alternate Energy Pvt Ltd, also suggested to enhance the upper capacity limit of Solar generation upto 3 MW considering the Capacity of 11 kV line complying with the Supply Code, 2014.

- (3) Mr. Shaji Sebastian, Electrical consultant also suggested to enhance the upper capacity limit of solar generation to 3 MWp.

Decision of the Commission

Commission noted the suggestions of the Stake holders. The Commission fixed the upper ceiling limit for the Solar PV capacity under net metering at 1 MW duly considering the model Regulations notified by the Forum of Regulators based on detailed study, and also the practice followed by other Regulators across the Country.

There is no restriction on the prosumers to install solar PV with capacity more than 1 MW at their premises if land is available. However, the benefits under net metering such as exemption from grid support charges, banking charges etc are not available to such prosumers, and such consumers has to be addressed as per Chapter IV of the Draft RE Regulations, 2019.

Considering these reasons, the Commission is not in a position to enhance the limit of the maximum capacity that can be connected under net metering Regulation to 3 MW.

However, for promoting RE installation under net metering facility, the Commission decided to allow the domestic consumers with

connected load upto 20 KW install RE plants at their premise upto 20 kW RE plant. Accordingly, the Regulations 13 (2) is modified as follows.

“ 13(2)The Grid Interactive Renewable Energy Systems, installed by a prosumer at his premise under this chapter shall be:

(a) of not less than one kW and not exceeding 1000 kW capacity on AC side of the inverter connected to the net meter of the distribution system, limited to the sanctioned connected load or contract demand as applicable to the prosumer, with the distribution licensee.

Provided that the domestic consumers with connected load up to 20 kW is permitted to install ‘Renewable Energy System’ of capacity up to 20 kW, irrespective of their connected load.

Provided further that the above limit of 20 kW connected load shall not apply in the case of group housing societies and residential flats, for common services such as lift, common lighting, club house, car parking, common areas etc.

Provided also that, prosumers including those prosumers mentioned above are also permitted to install Renewable Energy System in excess of their connected load or contract demand as applicable. However, the benefit of net metering shall not be allowed to such prosumers and such prosumers shall be treated at par with the prosumers having RE capacity more than 1 MW, as detailed in Chapter IV of these Regulations.

Provided also that, the Renewable Energy Systems installed by the prosumers under net metering as on the date of notification of these Regulations shall be allowed to continue irrespective of their contract demand or connected load.

(b) located within the premises of the prosumer;

(c) interconnected and operate safely in parallel with the distribution system of the licensee.”

10. Regulation 14(2) of the Draft RE Regulations, 2019 specified as under.

“(2)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 as the case be.”

Stakeholders comments

KSEB Ltd submitted that, increasing the cumulative capacity of distributed energy systems that can be connected to the feeder and/or distribution transformer to 100% may be done in a phased manner. This is to ensure that under worst case scenario without load, the voltage limit of 230V + 10% will not be violated and the safety of the working personnel and public from unintentional islanding is ensured. Hence KSEB Ltd suggested as follows.

'the cumulative capacity of distributed energy systems allowed to be interconnected with the distribution network shall not exceed 50% of the feeder and/or distribution transformer capacity as the case be. Beyond this interconnection may be provided only after studying the feasibility and on a case to case basis.

Provided that the Commission through separate orders fix and modify the cumulative capacity of distributed energy systems that can be interconnected with distribution network as a percentage of the feeder and/or distribution transformer capacity'.

Decision of the Commission

Commission noted the submission of KSEB Ltd. In the draft RE Regulations, 2019, based on the technical study carried out by the Forum of Regulators (FoR) across the Country, the Commission also proposed to fix the limit for connecting Distributed Renewable Energy (DRE) system to feeder or distribution transformer is proposed at 100% of the respective feeder or distribution transformer capacity. The Commission has also noted that, this report was finalised based on the studies conducted in few States in the Country.

The Commission, has considered the submission of KSEB Ltd and decided to limit the cumulative capacity of distributed energy systems that can be connected to the feeder and/or transformer in phased manner, and to start with 75% instead of 100% of the feeder and/or distribution transformer capacity. The Commission may review this after completing two years from the date of notification of this Regulation. In the mean time, KSEB Ltd may conduct a detailed study on this issue and submit the report before the Commission.

Hence the Commission modify the Regulation 14(2) of the Draft RE Regulation, 2019 as follows.

“(2)The cumulative capacity of distributed energy systems allowed to be interconnected with the distribution network shall not exceed 75 % of the feeder and/or distribution transformer capacity as the case be.

Provided that the distribution licensee shall publish the individual transformer capacities and the Renewable Energy Systems connected to their respective transformers, section wise, not later than 5th of every month in the distribution licensees respective section offices and in the licensee's website. The Commission may review these provisions after completion of two years from the date of notification of these Regulations."

11. Regulation 26(1) of the Draft RE Regulations, 2019 specified as under.

"26(1) 5% of the energy generated and injected in to the grid of the transmission and/or the distribution licensee shall be accounted towards 'grid support charges'".

Stakeholders Comments

- (1) Cochin International Airport Limited (CIAL) requests the Commission to withdraw the grid support charges as the transmission utility company is getting benefitted from the grid decongestion as well as the reduction in the losses from the transmission of the power from long distances. The load of the grid during that time would be met by the renewable energy locally.
- (2) M/s Travancore Cochin Chemicals Ltd also submitted that the banking charges @5% is extremely high.
- (3) HT&EHT Association submitted that, grid support charges should not be paid to the licensee, if the licensee is availing REC benefits on the power generated by the prosumer or else 50% of the REC benefits availed by the licensee shall be shared with the prosumer.
- (4) KSEB Ltd submitted the following regarding grid support charges.
 - (a) *Integrating and absorbing Renewable energy generation into the grid by the DISCOM involves additional costs in network management, power generation and procurement for the DISCOMs, which gets passed on to other consumers.*
 - (b) *Wind energy generation is available at its maximum during the monsoon, when distribution licensees' overall demand is lessened due to low agricultural load as well as lower air-conditioning loads. During this time, distribution licensees have to scale down lowcost thermal generation in order to absorb the wind energy, part of which will be treated as banked energy. But during the non-windy season when the system*

demand is higher and consequently cost of power is also high, use of banked energy by the captive and third-party users results in more costly power purchase by the distribution licensee to service such banked energy.

- (c) Similar situation happens during day time when solar generation peaks. DISCOM is forced to surrender their contracted power by paying fixed charges just to absorb solar generation by prosumers, only for facilitating the prosumer's need. The situation is aggravated by the fact that the power so absorbed by the DISCOM has to be returned to the prosumer at zero cost during peak hours, by scheduling even the costliest power by the DISCOM.*

Absorbing RE generation will lead to following adverse impacts to DISCOM and ultimately to the consumers of the State.

Decision of the Commission

The Commission noted the arguments of CIAL, KSEB Ltd and other stakeholders in detail. In the case of CIAL, the contract demand with KSEB Ltd is about 9 MVA, where as the total Solar PV installed by them is about 40 MW to meet their electricity demand. It means that, during day time, the CIAL can consume only upto 9MVA load only, out of the 40 MW Solar PV installed by them. The balance power of CIAL (40-9= 31 MW) has to be injected into the State Grid during day time and KSEB Ltd has to absorb the same.

In order to absorb the excess energy injected by CIAL during day time, the distribution licensee has to backdown/ regulate their power purchase contracts by incurring fixed cost. In order to return back the excess energy injected into the grid during peak and off-peak hours, the licensee has to purchase additional energy or generate excess energy from its own stations. Further, in order to return back the power, the licensee has to transmit power from its import points or switchyard of the generating stations, and it involves transmission charges, wheeling charges and losses. The licensee reported that, they do not have any advantage for the excess energy injected to the grid during day time by CIAL or such consumers, and thus incurring additional liability on this account, and ultimately this liability fall on the ordinary consumers of the State.

As per the tariff order dated 08.07.2019, the Commission has approved the transmission charges @ Rs 0.39/unit, wheeling charges @ Rs 0.55/unit, transmission losses at 4% and distribution losses at 9.63%. The overall charges payable for availing open access is more than Rs 1.00/unit.

However, as part of the promotion of the RE generation in the State, the Commission propose to levy only 5% of the energy generated and injected into the grid as grid support charges. With an average cost of generation in the range of @Rs 4.00/unit to Rs 4.50/unit, the grid support charges proposed by the Commission is only about Rs 0.20/unit to Rs 0.225/unit on the energy generated and injected. Commission is of the view that, all the prosumers with RE capacity above 1 MW shall bear this meagre grid support charges @5% of the total energy injected from RE plants installed by them for getting the support of the grid.

Hence the Commission proposed to retain the Regulation 26(1) as proposed in the Draft RE Regulations, 2019.

12. Regulation 26(3) of the Draft RE Regulation provide as under.

“26(3) The prosumer is permitted to account the renewable energy injected in a time block (normal hours, peak hours and off-peak hours) during the billing period, against the consumption in a different time block during the same billing period, subject to the following conditions.

- (i) During peak hours, 80% of the net energy injected in blocks other than peak hours, be allowed to adjust against peak hour consumption.*
- (ii) In other time blocks namely normal hours and off-peak hours, 100% of the net energy injected in other blocks will be allowed to be adjusted against the consumption in other time blocks.”*

Stakeholders Comments

- (1) CIAL requests the commission to look into the peak hour restriction which does not address the off peak hour promotion as done in the present regulation. CIAL request commission to amend the draft as per the following after considering the off peak hour system also.
 - (i) During peak hours, 80% of the energy generated in other time blocks is allowed to adjust against peak hour consumption.

- (ii) During off peak hours, 120% of the energy generated in other time blocks is allowed to adjust against the off peak hour consumption.
- (2) M/s Tranvancore Cochin Chemicals Ltd submitted that, as per the draft Regulation, 80% of the energy is only allowed to draw during peak hours and 100% during off-peak hours. If the prosumer is restricted to draw less during peak hours, they should be permitted to draw more during off-peak hours. In the existing RE Regulation, the ToD pattern of 1:0.66:1.33 is specified. This shall be maintained.
- (3) KSEB Ltd submitted the following on this issue.
 - (i) The purpose of ToD metering is to flatten the demand curve and avoid sharp peak in the demand curve. Allowing facility to adjust 80% of the energy banked during other time blocks will increase the tendency of the consumers to consume more during peak hours, distorting the principle of ToD billing. This has serious adverse implications on the system.
 - (ii) KSEBL depends on power exchanges for meeting its peak load as Long term contracts cannot be entered into for meeting only peak load requirement. The difference between normal hour rate and peak hour rate was less during 2017, but now, the normal hour rate has come to the range of 70% of peak hour rate, except for few months
 - (iii) As, there is significant difference between peak hour power purchase rate and other time block rates, allowing 80% of the energy banked during normal hour rate/off peak hour rate against peak hour consumption will adversely affect the financials of DISCOMs, which will burden the other consumers of the State. Considering the above, KSEB Ltd requested that instead of increasing the percentage to 80%, it may be brought down to 65% of the energy generated in blocks other than peak hours for adjusting against peak hour consumption.

Decision of the Commission

The Commission examined in detail the comments of the Stake holders. The electricity generation from Solar PV system is only during day time. The excess energy injected into the grid during the day time by the prosumers/ captive consumers has to be return back

during peak and off-peak hours. KSEB Ltd submitted that, in order to return back such energy, they depend on the power exchanges.

The existing KSERC (Renewable Energy) Regulations, 2015 was notified on 11.11.2015. The Commission has examined the rate in the IEX during the period from April to October 2015 prior to date of notifying the KSERC (Renewable Energy) Regulations, 2015 and the present rate from April to October, 2019, and the details are given below.

Energy rate in IEX from April to October 2015 (prior to notifying KSERC (Renewable Energy) Regulations, 2015

Month	Day time	Peak hours	Off-peak hours	peak hour rate as (%) of Normal hour rate	Off peak rate as (%) of day time rate
	Rs/MWh	Rs/MWh	Rs/MWh	%	%
Apr-15	5969	11548	5310	193	89
May-15	5318	8376	4103	158	77
Jun-15	3332	3766	2238	113	67
Jul-15	3803	4579	2423	120	64
Aug-15	5386	5803	3681	108	68
Sep-15	6624	6757	4960	102	75
Oct-15	5434	5740	3268	106	60
Average				129	71

Energy rate in IEX from April to October 2019

Month	Day time	Peak hours	Off-peak hours	Peak hour rate as (%) of Normal hour rate	Off peak rate as (%) of day time rate
	Rs/MWh	Rs/MWh	Rs/MWh	%	%
Apr-19	3043	4345	3368	143	111
May-19	2846	3972	3505	140	123
Jun-19	2713	4080	3476	150	128
Jul-19	2694	4705	3294	175	122
Aug-19	2831	4543	3089	160	109
Sep-19	2475	3444	2574	139	104
Oct-19	2596	3772	2599	145	100
Average				150	114

As seen from the above tables that, this year, the energy rate during peak hours is about 50% higher than the energy price during day time. Accordingly, as per the present trend of IEX price during peak hours, only 66% of the energy injected during day time can be

allowed to adjust against peak hour consumption. However, the Commission in the draft has allowed to adjust 80% of the energy injected in other time blocks during peak hours and this will be advantageous to the consumers.

.The Commission has also examined the proposal of CIAL that, during night off-peak time, the prosumers may be allow to consume 120% of the energy injected into the grid during day time. As seen from the above tables that, in the year 2015, the energy price in IEX during day time is about 140% higher than the rate in the night off-peak hours.

However, the situation has completely changed this year. At present the energy rate during day time is only about 88% of the energy rate during night off peak hours. This trend may likely to continue in near future with the large scale integration of the 'solar power' in the National grid during day time and the DISCOM has to be return back during off-peak hours.

Considering the higher energy price of off-peak hours compared to the day time price, the Commission cannot allow the request of CIAL and other stakeholders in this regard. However, the Commission may review this issue also after two years based on the details to be submitted by KSEB Ltd.

13. Regulation 27(1) of the draft RE Regulations, 2019 provide as under;

“27(1) Any captive consumer, using the transmission and/or distribution system of the licensee for wheeling the energy generated from the renewable energy plant to a different location within the area of the distribution licensee, shall pay the following charges approved by the Commission from time to time.

- a. Transmission charges*
- b. Wheeling charges*
- c. Transmission losses and Distribution losses, and*
- d. Any other charges approved by the Commission.”*

Stakeholders comments

- (1) Kerala Renewable Energy Entrepreneurs & Promoters Association (KREEPA) submitted that, transmission and wheeling charges make the RE power unviable for Captive consumers. KSERC could offer concessions/ waivers of open access if the project is based on renewable energy. The concessions could be in the form of reduced transmission charges, wheeling charges,

transmission or distribution losses or cross subsidy surcharge, energy banking etc for intra-state projects.

- (2) M/s Ramakkalmedu Power Private Ltd submitted that, the RE generators under CPP and IPP have to pay the entire charges such as transmission charges, wheeling charges, cross subsidy surcharges, in addition to losses and banking charges. He requested to exempt the RE generators from the payment of transmission charges and wheeling charges.
- (3) M/s Aluva Plastic submitted that, the entire energy generated from Solar plants may be exempted from the transmission charges, wheeling charges and T&D losses. In the case of solar power, 100% banking charges may be permitted without charging any banking charges.
- (4) Shri. Shaji Sebastian submitted that, the licensee levying the transmission charges, wheeling charges approved for the conventional energy for RE power also. He request that captive consumers with RE generation may be exempted from the payment of long term transmission charges. He further requested to reduce the transmission charges (short term) and wheeling charges @ 25% for captive consumers with RE generation.
- (5) M/s Malayala Manorama, submitted that the prosumers/ captive generators availing banking facility for their own use at the same premise of the prosumer or at a different premises fully owned by the consumer are exempted from open access charges and wheeling charges. However, banking charges/ grid support charges are applicable to such Prosumers or Captive Generators.
- (6) M/s NeenuSkaria, Chartered Engineer submitted that, the long term transmission charges @Rs 8705/MW/day allocated for firm power generated from conventional sources may not be made applicable for RE, because in the case of RE only the energy is transferring and not the power.

Decision of the Commission

- (1) The Commission noted the arguments of the various stakeholders to exempt the captive RE generators and IPPs from the payment of transmission charges, wheeling charges, transmission and distribution losses. The Commission has to examine whether such exemptions are required, and if so how it will affect the other ordinary consumers of the State.

The Commission vide the order dated 08.07.2019 has approved Rs 983.69 crore as ARR of the STU, and Rs 4846.39 crore as the net ARR of the distribution business of the incumbent licensee KSEB Ltd (excluding the cost of own generation & power purchase). The above cost is approved for maintaining the transmission and distribution assets created for transmitting and wheeling electricity within the State. These charges are to be recovered from the users of the transmission and distribution system. Based on the total power transferred through the transmission system, the per MW transmission charges is approved at Rs 8705/MW/day, and based on the total energy transacted through the transmission system in an year, the per unit transmission charge is approved at Rs 0.39/unit.

- (2) The Commission has examined in detail the issues raised by the stakeholders on the high transmission charges payable, approved by the Commission on per MW per day basis, especially in view of the low CUF of the solar and wind energy plants.

The Commission like to clarify that, the transmission charges approved @per MW basis has to be paid by the customers availing long term open access, so that the contracted transmission capacity is being reserved for such customers. However, transmission charges @per unit basis has to be borne by customers availing short-term open access including collective transactions.

But in the case of Captive consumers, who are in turn the embedded consumers of the licensee as long as such consumers maintain contract demand with the licensee. Hence, as long as the consumers maintain contract demand with the licensee, the distribution licensee is obliged to provide electricity to such consumers. Considering these issue in detail, the Commission hereby clarify that, as along as the Captive consumers maintain contract demand with the licensee, for drawing the quantum of power of and below the contract demand from a Captive plant owned by them, such customers are not required to pay long term open access charges @per MW basis. However, such consumers has to pay transmission charges @per unit basis approved by the Commission, for every unit injected into the grid from the RE plant owned by them. The Commission is of the view that, this will address the issues raised by many of the captive consumers including Malayala Manorama and others.

Accordingly, the Commission propose to insert following sub Regulations under Regulation-27.

“(2)Captive consumers whoa are embedded consumers maintaining the contract demand with the distribution licensee are required to pay transmission charges only on per unit basis at the rates as approved by the Commission from time to time.”

- (3) The HT & EHT consumers are availing open access in the State. The Commission vide the order dated 08.08.2019 has approved the wheeling charges for availing supply at HT level. Further, for approving the wheeling charges at HT level, the Commission considered 25% of the total distribution ARRAs cost uptothe HT level. Accordingly, the Commissionapproved the wheeling charge at Rs 0.55/unit for wheeling power at HT. Since the Commission has not approved the wheeling charge at LT level separately, the captive consumers and other consumers availing open access has to pay the wheeling charges at HT level till furthers orders.

The transmission losses approved for the year 2019-20 is 4% and the distribution loss is 9.63%. The consumers availing open access also has to bear the transmission and/or distribution loss depending on the voltage level of power injection and drawal.

The exemption/ concessions , if any, granted to the captive/ open access users, shall be fall on the balance consumers with the licensee, and it will results in additional increase in tariff to compensate the revenue short fall on account of the exemptions and concessions granted to the captive/ open access consumers.

The Commission as a statutory body, constituted as per the provisions of the Electricity Act, 2003, isduty bound to protect the interest of all the stakeholders including RE generators, captive consumers, open access consumer, ordinary consumers with the licensee and also has to ensure the financial viability of the distribution licensee to carry out their statutory functions.

- (4) The Commission has also examined whether the promotional tariff and other measures offered to the renewables in the years 2011-12, 2012-13,2013-14 are to be extended now. The observation of the Commission in this regard is given below.

In the recent past, lot of technological advancements has happened in all type of renewable energy technologies,

especially in Solar and wind, which resulted in considerable reduction in tariff. The capital cost of the Solar PV Plants, Wind Energy systems etc, has reduced drastically. Due to the reduction in capital cost of installation of Renewable Energy Generators and improved capacity utilization, especially wind and solar power plants, the tariff of the electricity generated from Wind & Solar has become much less than the cost of electricity generated from the conventional coal based power stations. A comparison of the generic tariff approved by the Hon'ble CERC during the period from 2010-11 to 2016-17 is given below.

Generic tariff approved by CERC

Year	Solar	Wind
	(Rs/unit)	(Rs/unit)
2010-11	14.95	3.73
2011-12	12.94	3.94
2012-13	9.35	4.87
2013-14	7.87	5.27
2014-15	6.95	5.45
2015-16	6.35	5.34
2016-17	5.08	5.36

* With the benefit of AD

CERC dispensed with determination of generic tariff for wind and solar since the year 2017-18, considering the drastic reduction in the capital cost of wind and solar plants, and also to facilitate the distribution licensees to go in for competitive bidding route for procuring solar and wind power. In the recent auction done by SECI in June 2019, the lowest solar PV tariff derived is **Rs 2.54/unit** only. Similarly in a recent bid for wind in February 2019, the lowest tariff derived is Rs 2.83/unit.

A comparison of the bench mark capital cost approved by grid connected SPV systems by CERC/ MNRE over the years is given below.

Year	Bench mark capital cost	Remarks
	(Rs. Cr/MW)	
2011-12	10.00	CERC, O&M cost allowed extra
2013-14	8.00	
2016-17	5.30	
2019-20	4.50	MNRE, includes O&M cost for 5 years

The cost of solar PV modules also has considerably reduced during the last few years, as detailed below (source public domain)

Year	Cost of Solar PV modules
	(Rs/Wp)
2015	31.1
2016	27.5
2017	20.6
2018	19.6
2019	18.0

The above tables reveals that, the capital cost and tariff of the electricity generated from solar PV systems reduced drastically over the years. As already mentioned, at present the tariff for the electricity generated from the solar PV systems and WEG projects are much less than the tariff for electricity generated from the conventional power. Further, the tariff for the solar PV is much less than grid power supplied by the distribution licensee, especially for commercial consumers.

The average cost of supply of grid power approved vide the order dated 08.07.2019 is about Rs 6.10/unit. Further, the average energy charge for LT commercial consumers is more than Rs 7.50/unit and the average energy charge for HT commercial consumers is Rs 7.00/unit. Hence it is a commercial decision of the captive consumers/ open access consumers to opt for RE generation from wind or solar instead of grid power. While deciding so, such users also has to factor the charges payable for using the transmission and distribution system of the licensee, which is a firm liability of the licensees.

Considering these reasons, the promotional measures offered by the Central Government in the form of waiver of transmission charges and losses to the individual consumers are completely withdrawn. At present the transmission charges and losses in inter-state lines are exempted only to the power purchased under bidding route by DISCOMS and other obligated entities to meet their RPO.

Considering the present day tariff of the electricity generated from Solar PV system and WEG, which is much less than the tariff of the conventional power and also the grid power supplied by the DISCOMS, the Commission cannot exempt the captive

consumers and IPPs from the payment of transmission charges, wheeling charges and loss.

However, as a promotional measure, the Commission has provided the following.

- (i) Captive consumer has to pay transmission charges at per unit basis only, instead of the transmission charge at per MW basis.
- (ii) Time block wise adjustment of energy. 100% of the day time energy is allowed to adjust during off-peak hours, and 80% of the energy injected during day time is allowed to adjust during peak hours.
- (iii) RE capacity more than the contracted demand is allowed, on payment of 5% of the energy injected as grid support charges.
- (iv) Banking facility is allowed from one billing period to subsequent billing period till the end of the settlement period, on payment of 5% of the energy banked as banking charges.
- (v) Promotional wheeling charges for captive consumers at LT, and such consumers has to pay wheeling charges approved for LT only.

14. Regulation 26(7) of the Draft RE Regulations provide as under.

“26(7) The quantum of energy generated from the renewable energy plant by a prosumer at his premise, shall be permitted to be accounted towards the RPO of the distribution licensee”.

Similarly, Regulation 27(6) of the Draft Regulation provide as under.

“27(6) The quantum of energy from the renewable energy plant generated and consumed by the captive consumer during the settlement period after accounting for its RPO, if any, shall be permitted to be accounted towards the RPO of the distribution licensee”.

Objections and comments of the stakeholders

- (1) M/s Travancore Cochin Chemicals Ltd suggested that, the prosumers shall be permitted to trade REC certificates.
- (2) HT&EHT Association submitted that the REC benefit enjoyed by the licensee shall be shared with the prosumer.
- (3) M/s CIAL submitted that.
 - (i) Utility company is already been allowed to charge banking charges for the banked energy. Hence CIAL requests the commission to relook this condition of accounting the generated energy towards the RPO of the distribution licensee company. CIAL suggests to modify the conditions as follows.
 - a. If the Distribution company charges the banking charges to the renewable generator company, the REC for this generation should not be accounted towards the RPO of the distribution company. It shall remain in the ownership of the renewable generator.
 - b. If the REC of the renewable energy is accounted towards the RPO of the distribution licensee, banking charges should not be charged by the distribution licensee for the banked energy by the renewable generator.

Decision of the Commission

- (1) In the draft RE Regulations, 2019, the Commission specified that, the quantum of energy generated and consumed by the prosumer and captive consumer, after accounting their RPO, if any, shall be permitted to account towards the RPO of the distribution licensee wherein the RE plants are located.
- (2) The eligibility criterion for an RE generator to participate in REC mechanism is specified in Central Electricity Regulatory Commission (Terms and Conditions for Recognition and Issuance of Renewable Energy Certificate for Renewable Energy Generation) Regulations, 2010 and its subsequent amendments. Few among many conditions specified there in for eligibility to participate in REC is summarised below.

- (i) The RE generator shall not avail any benefit in the form of concessional/ promotional transmission or wheeling charges or banking facility benefit.

It is also clarified there in that, banking facility therein means the facility of time block wise adjustments, i.e., the facility of utilising the banked energy during peak time even when it was injected during off-peak hours.

- (ii) Captive Generating Plant (CGP) based on RE sources also not eligible to participate in REC, if such plant, has been commissioned prior to 29th September 2010 or after 31st March 2016. Further, the CGP has to register with the Central Agency on or before 30th June 2016.

- (3) In the draft RE Regulations, 2019, the Commission has exempted the prosumers from the payment of transmission charges, wheeling charges and losses for the energy injected and withdrawing from the grid.

It is also noted that, the prosumers not under net metering facility is allowed to install more capacity than its contract demand for meeting the energy balance of the consumer. The Commission has specified to levy 5% of the total energy injected into the grid only as grid support charges and also discussed under item 12 above, the grid support charges proposed by the Commission is much less than the actual transmission charges, wheeling charges and losses borne by the licensee to absorb the excess power injected by the CIAL and such consumers during day time and to return back the power during peak and off-peak period. Considering these reasons, the entire electricity generated from the RE plants installed by the prosumers are allowed to account towards the RPO of the distribution licensee wherein the prosumers are located.

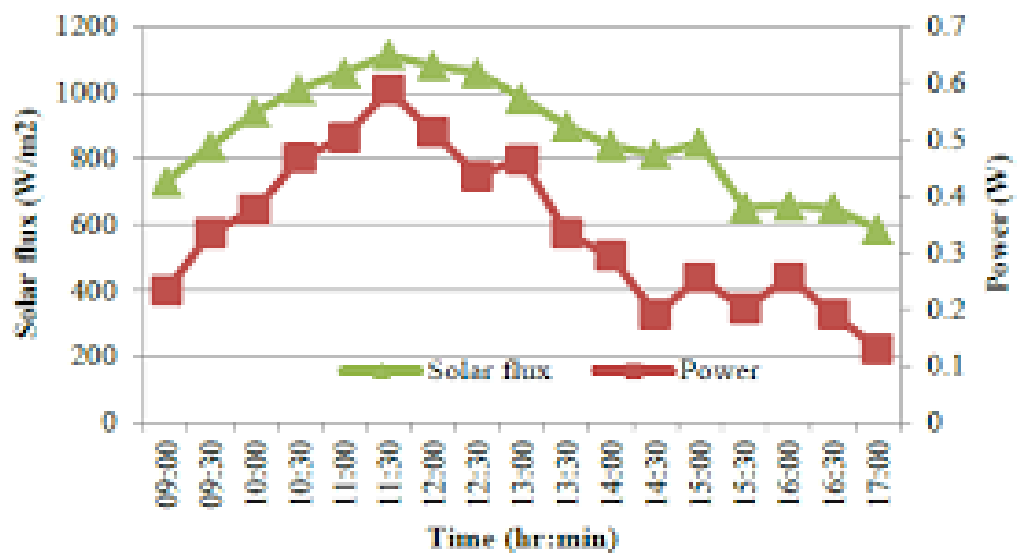
- (4) As already discussed earlier, the Commission allowed time block wise adjustment for the electricity generated from the RE plant installed as Captive consumption. Further, as long as the captive consumers retain the contract demand with the licensee, such consumers are exempted from payment of the transmission charges approved at per MW basis, but has to pay the same approved at per unit basis. Moreover, the CGPs installed from 01.04.2016 is not eligible for REC.

It is to be mentioned here that, if the banking facility is not extended to the Solar PV generators and WEG, it is very difficult

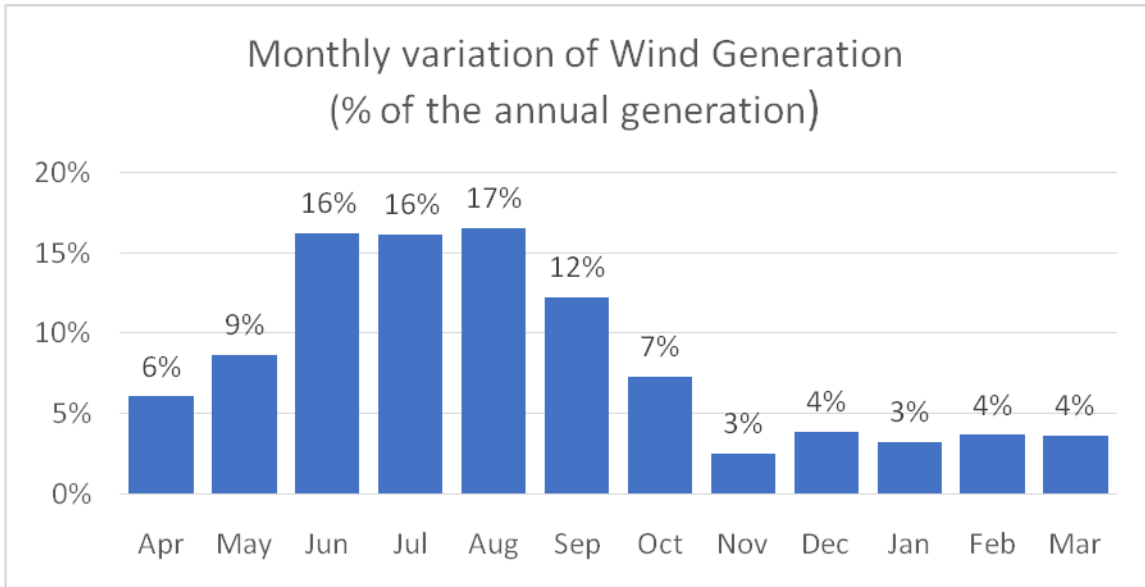
for the captive consumers of such plants to manage their load requirement due to the following.

- (i) Electricity generation from the solar plant is limited to day time only. Hence in order to meet the electricity demand during peak and off-peak hours, the captive consumer has to bank the surplus energy generation during day time with the utility. Without granting such facility by the licensee it may be difficult for the captive consumer to meet the electricity demand of the peak and off-peak hours.

Typical daily variation of solar power



- (ii) Wind generation is highly infirm. Further, wind generation in the State is mainly concentrated during monsoon months. The monthly variation of wind generation in the State is given below.



(iii) Moreover, as per the Central Electricity Regulatory Commission (Terms and Conditions for Recognition and Issuance of Renewable Energy Certificate for Renewable Energy Generation) Regulations, 2010, the REC benefit is not available to the CGP established on or after 01.04.2016.

Considering the above reasons, the Commission has retained the provisions in the draft RE Regulations, 2019, to account the electricity generation from the RE plants established by the prosumers and captive consumers against the RPO of the distribution licensee.

15. Issue on whether the power injection and power drawl would be the same for captive consumers availing banking facility.

M/s Bharath Hospital during the public hearing at Ernakulam brought the issue that, they are a consumer of KSEB Ltd at Kottayam with contract demand 400 kVA. In order to meet their electricity demand and also considering the low CUF of the solar plants, they installed 1 MW solar plant at Kasargod district. Since the power injection and drawl are not the same, KSEB Ltd is not granting open access facility for drawing the power injected at Kasargod and to draw the same at Kottayam.

Similar issue was also raised by other prosumers and other captive consumers that, considering the low CUF and also to meet the energy requirement, the prosumers, captive consumers and open access consumers are allowed to inject more than the contract demand of the consumer with the licensee.

Decision of the Commission

Commission examined the matter in detail and clarify the following.

(1) Prosumers eligible to get net metering benefits

In the RE Regulations,2019, the Commission provided various concessions and exemptions to the prosumers under net metering facility such as exemption of transmission charges, wheeling charges, transmission and distribution losses, and permission of time blockwise adjustment of the energy injected during day time and off-peak time.

Considering the likely financial impact on such consumers on the total power system of the State and other consumers, and also to provide equal opportunity to all eligible consumers, the Commission restrict the RE capacity that can be installed by prosumers under net metering at connected load/ contract demand or 1 MW, whichever is higher.

Further, by limiting the capacity of the grid interactive RE system so installed by the prosumers with the connected load/ contract demand, the prosumers can utilise the same service line and installation for the injection of the excess power into the grid and can avoid the cost of further system strengthening in this regard.

However, as a promotional measure, the LT domestic consumers with connected load upto 20 kW is permitted to install 'roof top solar PV system' irrespective of their connected with net metering facility.

Further, other consumers with adequate space at their premise can install Solar PV system irrespective of the connected load/ contract demand, but the benefit of net metering shall not be allowed to such consumers.

Hence the Commission propose to insert the following proviso under Regulation 13 (2) (a).

“Provided that the domestic consumers with connected load up to 20 kW is permitted to install ‘Renewable Energy System’ of capacity up to 20 kW, irrespective of their connected load.

Provided further that the above limit of 20 kW connected load shall not apply in the case of group housing societies and residential flats, for common services such as lift, common lighting, club house, car parking, common areas etc.

Provided also that, prosumers including those prosumers mentioned above are also permitted to install Renewable Energy System in excess of their connected load or contract demand as applicable. However, the benefit of net metering shall not be allowed to such prosumers and such prosumers shall be treated at par with the prosumers having RE capacity more than 1 MW, as detailed in Chapter IV of these Regulations.

Provided also that, the Renewable Energy Systems installed by the prosumers under net metering as on the date of notification of these Regulations shall be allowed to continue irrespective of their contract demand or connected load.”

(2) Prosumers not under net metering facility.

As a promotional measure for facilitating RE installation , prosumers not availing net metering facility are permitted to install RE capacity at their premises irrespective of the connected load to off-set their energy consumption on annual basis.

Such prosumers are also exempted from the transmission charges, wheeling charges, transmission and distribution losses. They are also permitted for the time blockwise adjustment of the energy injected during day time and off-peak time. However, they have to bear 5% of the energy injected as grid support charges.

However, if any system strengthening required for connecting the grid interactive RE system with the grid, this has to be done at the cost of the consumer. Further, if there is system constraints in connecting the RE system with the capacity more than the contract demand, this has to be intimated to the prosumers within the limit specified in the Open Access Regulations, 2013.

The prosumer also eligible to get payment for the net surplus energy banked with the licensee at the end of the settlement period at the APPC.

Accordingly, the Commission propose to insert sub Regulation (2) under Regulation 22 as below.

“(2)Prosumers and captive consumers including those prosumers mentioned in third proviso to sub Regulation (2) of Regulation 13 under these Regulations are permitted to install Renewable Energy Systems, irrespective of their connected load or contract demand as the case may be, to offset their energy consumption on annual basis, subject to the terms and conditions specified in this Chapter.”

(3) Captive consumers

Considering the low CUF of the RE plants, especially the solar and wind plants, the captive consumers may have to install RE capacity upto 4 to 5 times the contract demand to fully adjust the energy requirement of such consumers. Hence, as promotional measure, the captive consumers also permitted to install RE capacity irrespective of the connected load/ contract demand of the consumer.

Since, unlike the prosumers, in the case of captive consumers, the location of the RE plant and the consumer premises are different. So, the CGP has to wheel the power generated from the RE plant to their consumer premise using the transmission and distribution system of the distribution licensees. For availing such facility, the captive consumers has to get the open access facility.

The Commission has already clarified in earlier paragraph that, such consumer has to pay transmission charges @per unit basis only as long as the consumers maintain the contract demand with the licensee.

Further, captive consumers has also to pay wheeling charges and the losses in the system, to the extent of the units wheeled by them from the location of the RE plant to the consumer premise.

Since the capacity of the RE plant is more than the contract demand, the licensee has to absorb and bank the excess power injected in to the grid from the plant and the licensee has to bank same on payment of the grid support charges as provided in the Regulations.

Further, by extending such banking facilities and other promotional measures offered to the captive consumers, the entire generation from the RE plant after accounting the RPO obligation of the captive consumer, if any shall be accounted towards RPO of the distribution licensee.

However, if any system strengthening required for connecting the grid interactive RE system with the grid, this has to be done at the cost of the Captive Generating Plant. Further, if there is system constraints in connecting the RE system with the capacity more than the contract demand, this has to be intimated to the prosumers within the limit specified in the Open Access Regulations, 2013.

Considering the above, the Commission hereby clarify that, the Captive consumers also eligible to install more RE capacity than their contract demand, only to meet their own energy requirement. The entire electricity generated from the RE plant, after accounting the RPO of the captive consumers, if any, can be accounted towards the RPO of the distribution licensee.

16. Capital cost and other parameters specified in the draft Regulation for determining the project specific/ generic tariff of Wind Energy Projects/ Solar Projects.

Objections and comments of the Stake holders

- (1) M/s INOX Renewables Limited submitted that, the land cost in the State is quite high and the same need to be factored in the capital cost proportionally. Ideally, the capital cost of wind projects in Kerala ason todayis in the range of Rs 6.50 to 7.00 crore /MW.

M/s INOX appreciated the decision of the Commission to determine the generic tariff for CUF @24% only.

M/s INOX submitted that, though the lending rates are falling down these days, no lenders are really turning up for RE projects because of various risks involved in it. Even though the lenders agree to lend the project the rate of interest kept on little higher by factoring the risks. INOX proposed to fix the interest on debt at 12% and interest on working capital at 13%.

M/s INOX proposed O&M cost for the base year @Rs 12.00 lakh/MW instead of Rs 8.00 lakh/MW proposed in the draft Regulation.

M/s INOX also suggested to determine the generic tariff with and without the benefit of accelerated depreciation, because as per the Income Tax Act, 1961, the option of availing the benefit of accelerated depreciation or not is vested with the developer.

- (2) Mr. Shaji Sebastian, Electrical consultant suggested that, the generic tariff for solar may be fixed at Rs 4.00/unit and wind at Rs 4.50/unit.
- (3) KREEPA submitted that, the power evacuation cost, land cost etc are not considered in solar PV

Decision of the Commission

The Commission vide the Regulation 51 (1) specified the norms for capital cost, technical and financial parameters for determining the generic tariff/ project specific tariff for Wind Energy projects. The Commission has been adopting the technical and financial parameters specified by the Central Electricity Regulatory Commission (CERC) as specified in the CERC (Terms and Conditions for Tariff Determination) from Renewable Energy Sources, Regulations, 2017.

The Commission noted that the CERC has dispensed with the determination of project specific tariff for renewable energy systems since the year 2017-18. It is also brought to the attention of the Commission that, in the meeting chaired by the Hon'ble Chief Minister on 01.07.2017, it was decided that in future renewables that are developed by private IPPs within the State shall be procured only through annual bids. Section 63 of the Electricity Act 2003, specifies that, the State Commissions shall adopt the tariff, if such tariff has been determined through transparent process of bidding in accordance with the guidelines issued by the Central Government. However, as per the bidding guidelines issued by the Central Government on 8th December 2017, the minimum bid capacity for wind projects is specified at 25 MW. Similarly, as per the bidding guidelines notified by the Central Government on 3rd August 2017, the minimum bid capacity of the solar PV project is specified as 5 MW.

Considering these limitations, the Central Government vide the Office Memorandum dated 12th June, 2019, has communicated the need for creating an enabling frame work for procuring power from grid connected Solar having capacity less than 5MW and Wind project having capacity less than 25MW. The Central Government suggested that the SERC may determine Feed-in Tariff (FiT) for such projects. The Central Government also suggested to notify the Feed-in Tariff considering the average of the competitively discovered Tariff in the previous years.

Considering these limitations and to promote the Renewable Power in the State, the Commission proposes to specify the Generic Tariff for the following types of renewable energy project.

- (i) Wind projects having capacity of and below 25MW.
- (ii) Small hydro projects having capacity below 5MW.
- (iii) Solar PV projects having capacity of and below 5MW

CERC has not determined the capital cost of Solar PV plants and Wind Energy Plants considering the technological advancements and competitive tariff determined through competitive bidding route. Hence

considering the market trend, the Commission tentatively fixed the capital cost of wind projects at Rs 5.50 crore/MW. Though M/s INOX suggested to increase the cost to Rs 6.50 crore per MW to Rs 7.00 crore per MW, they could not produce any supporting documents to substantiate their claim.

The Commission vide the Regulation 53 of the Draft RE Regulations, 2019 has tentatively fixed at Rs 4.00 crore/MW. M/s KREEPA suggested that the cost of power evacuation and land cost etc are not considered in fixing the normative capital cost.

The Commission noted the suggestions of the stake holders. It is a fact that, the land cost in the State is comparatively higher than the same in other States. However, without any supporting documents on the realistic capital cost of Wind Energy Projects and Solar PV plants, the Commission cannot adopt the capital cost proposed by the Stake holders. The Commission also examined the capital cost of wind and solar projects adopted by other SERCs across the country. TNERC has adopted a capital cost of Rs 5.25 crore /MW for determining the generic tariff of Wind plants. Usually, about 80% of the cost of the wind plant is for plant and machinery, which is more or less uniform across the Country. Balance 20% of the cost is being accounted towards land cost, power evacuation cost etc. Considering the fact that the land cost in the State is high compared to other States, **the Commission proposes to fix the Capital cost of Wind Project at Rs 5.75 crore/MW instead of Rs 5.50 crore /MW tentatively fixed in the draft Regulations.** The Capital cost approved is applicable for the entire control period without any escalation considering the cost reduction in Wind Power plants in the recent past. However, the Commission may review the same after two years, if found necessary.

The Commission noted that, the capital cost adopted by TNERC for MW scale Solar PV systems for the year 2019-20 is Rs 3.35 crore/MW and the capital cost adopted by KERC for MW scale solar project is Rs 3.50 crore/MW. The Maharashtra ERC has adopted a capital cost of Rs 2.62 crore/MW based on the bid tariffs. Considering the market trends and the capital cost adopted by other SERCs it can be seen that, the capital cost of Rs 4.00 crore/MW tentatively fixed by the Commission in the Draft RE Regulations, 2019, can take into account the land cost prevailing in this State. Hence the Commission decide to fix the capital cost of the Solar PV projects at Rs 4.00 crore/MW as proposed in the draft RE Regulations, 2019.

As already mentioned, the Commission has adopted the technical and financial parameters for determining the project specific tariff/ generic tariff as per the CERC (Terms and Conditions for Tariff Determination)

from Renewable Energy Sources, Regulations, 2017 and its amendments from time to time.

17. Clarity on the charges payable by prosumers, captive consumers and open access consumers under the KSERC (Renewable Energy and Net metering) Regulations, 2019.

During the hearing, stakeholders requested before the Commission to clearly specify various charges payable by the prosumers, captive consumers and open access consumers under the KSERC (Renewable Energy and Net metering) Regulations, 2019 for using the transmission and distribution system of the licensees. The charges payable by the various users of the transmission and distribution system including prosumers, captive consumers and open access consumers are detailed below.

Charges payable by the users of the transmission and distribution system under the KSERC (Renewable Energy and Net metering) Regulations, 2020

Sl No	Category	Transmission charges	Wheeling charges	T&D losses	Cross subsidy charges	Grid support charges	Banking charges	Maximum RE capacity can be installed
	Category							
1	Prosumers with net metering facility*	NA	NA	NA	NA	NA	NA	Connected load or contract demand as applicable
2	Prosumers with RE capacity above 1 MW	NA	NA	NA	NA	Yes. 5% of the energy injected into the system from the RE plant	For the surplus energy banked beyond billing period, 5% of energy banked is levied as banking charges.	No limit for RE capacity can be installed for own use
3	Prosumers not covered under net metering facility**	NA	NA	NA	NA			
4	Captive consumers	Yes, @per unit basis	Yes, as per the Tariff orders issued by the Commission from time to time			No such facility including banking allowed		
5	Open access consumers	Yes@ per MW basis						

Note

* For domestic consumers, RE capacity upto 20 kW can be installed irrespective of connected load

** Prosumers with connected load/ contract demand less than 1 MW/MVA can installed RE capacity higher than the connected load or contract demand as applicable, without availing net metering facility.

18. Time frame for processing the applications etc by the licensee under the KSERC (Renewable Energy and Net metering) Regulations, 2020

During the public hearing, the stake holders also requested before the Commission to clearly specify the time frame for providing feasibility certificate and connectivity etc by the distribution licensee. The details are given below.

Time frame for providing connectivity

Sl No	Service	Time limit	Remarks
1	Feasibility Certificate from Licensee	15 Days from the date of receipt of application	Reg 18(4)
2	Application for Registration before the licensee	30 days from the date of receipt of feasibility certificate	Reg 19(1)
3	Scrutiny of the application by the licensee	7 woking days from the date of receipt of application	Reg 19(2)
4	Registration	Within 7 working days from the date of submission of completed application and registration fee	Reg 19(3)
5	Inspection and safety checks by Electrical inspectorate	With in 10 working days from the date of submission of work completion report	
6	Testing of RE system by the distribution licensee	Within 7 days from the date of submission of the approval of Electrical inspector	Reg 19(7)
7	Net meters to be purchase by licensee	Distribution licensee shall provide the same within 10 days from the date of submission of the approval of Electrical Inspector	Reg 13(1)
8	Testing of Net Meter if arranged by consumer	14 calender days from the date of submission of meters	Reg16(3)

Secretary
Kerala State Electricity Regulatory Commission

List of stakeholders participated in the public hearings on Draft RE Regulations, 2019

1. M/s Ahalia Alternative Energy Pvt. Ltd, Palakkad, Kerala.
2. All Kerala Renewable energy developers Association, Perumbavoor
3. Dr. Vinod Viswanathan, M/s Bharath Charitable Hospital Society, Kottayam, Kerala.
4. Malayala Manorama, PB No. 311, TB Road, Palakkad
5. Kerala State Electricity Board Limited, Thiruvananthapuram.
6. Sri. Shaji Sebastian, Electrical consultant, Industrial Electricity Consumers Consortium, Ernakulam.
7. Kerala Renewable Energy Entrepreneurs & Promoters Association (KREEPA), Aluva.
8. Ramakkelmedu Power Private Limited, Perumbavoor
9. Aluva Plastic Conortium (P) Ltd, Erumathala P.O, Aluva.
10. INOX WIND Infrastructure Services Limited, NOIDA, UP.
11. Travancore Cochin Chemicals Ltd, Kochi.
12. Cochin Special Economic Zone Authority, Kochi. 682037.
13. K.K. Plastics, Perumbavoor.
14. Hydropower, Pindimana P.O, Kothamangalam.
15. Bharat Petroleum Corporation Limited, Kochi Refinery.
16. The Kerala State Small Industries Association, Kalamassery.
17. Cochin International Airport Limited, Cochin
18. The Kerala HT&EHT Industrial Electricity Consumers Association, Kalamassery.
19. English India Clay Limited, Thiruvananthapuram.
20. Carborundum Universal Limited, Kalamassery.