



# കേരള ഗസറ്റ് KERALA GAZETTE

## അസാധാരണം EXTRAORDINARY

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### KERALA STATE ELECTRICITY REGULATORY COMMISSION

#### NOTIFICATION

No. 1204/D(T)/2019/KSERC

*Dated, Thiruvananthapuram, 7 th February, 2020.*

Preamble,- In exercise of the powers conferred by sub-section (1) of Section 181 of the Electricity Act, 2003 (Central Act 36 of 2003) read with clause (e) of subsection (1) of Section 86 thereof and all other powers enabling it in this behalf and after previous publication, the Kerala State Electricity Regulatory Commission hereby makes the following Regulations, namely:-



# Kerala State Electricity Regulatory Commission (Renewable Energy and Net Metering) Regulations, 2020

## Chapter – I

### Preliminary

#### 1. Short title, application, extent and commencement.-

(1) These Regulations may be called the 'Kerala State Electricity Regulatory Commission (Renewable Energy and Net Metering) Regulations, 2020'.

(2) These Regulations shall apply to all the existing and new, Grid Interactive Renewable Energy Systems, consumers, prosumers, captive consumers, captive generating plants, generating companies, distribution licensees and obligated entities, in the matter of Determination of Tariff of Renewable Energy, Renewable Purchase Obligation, Net Metering, Banking, Generation Based Incentives and related matters.

(3) These Regulations shall extent to the whole State of Kerala.

(4) It shall come into force from the date of publication in the Official Gazette.

#### 2. Definitions and Interpretations.-

(1) **Definitions**,-In these Regulations, unless the context otherwise requires,

(a) **'Act'** means the Electricity Act, 2003 (Central Act 36 of 2003);

(b) **'Application'** means a request for connectivity of Renewable Energy System to the State transmission and/or distribution grid, as the case may be and, as per the application form duly filled in all respect, as required by the distribution licensee, along with the copy of the receipt as proof of payment of necessary charges and accompanied by all necessary documents including copies of approvals from statutory or other authorities;



- (c) **'Application form'** means the application form complete in all respects in the appropriate format by the distribution licensee, before the payment of applicable charges;
- (d) **'Auxiliary energy consumption' or 'AUX'** in relation to a period in case of a generating station means the quantum of energy consumed by auxiliary equipment of the generating station and transformer losses within the generating station, expressed as a percentage of the sum of gross energy generated at the generator terminals of each unit of the generating station;
- (e) **'Banking facility'** means such facility whereby the prosumer or the captive generator of Renewable Energy System injects energy into the grid during a time block or period and have a right to draw back the energy from the grid at a subsequent different time block or period, subject to the terms and conditions specified in these Regulations;
- (f) **'Beneficiary'** with respect to these Regulations means a licensee who has an agreement with a Renewable Energy Generator for purchase of power from the plant at the tariff approved by the Commission;
- (g) **'Billing period'** means the period as approved by the Commission for which electricity bills are regularly prepared by the licensee for different categories of consumers;
- (h) **'Capital cost'** means the capital cost as defined in the Regulations under Chapter V;
- (i) **'Captive consumer'** means a consumer owning and consuming electricity generated from a captive generating plant including from the captive renewable energy sources or captive co-generation, as the case may be;
- (j) **'Captive Generating Plant'** means a power plant including the renewable energy plant or co-generation plant, set up by any person to generate electricity primarily for his own use and includes a power plant set up by any co-operative society or association of persons for generating electricity primarily for use of its members



and as specified in Electricity Rules, 2005 published by the Government of India and amended from time to time;

- (k) **‘Central Agency’** means the agency operating the National Load Dispatch Centre or such other agency as the Central Commission may designate from time to time for the purpose of implementation of the scheme relating to issuance of renewable energy certificate and performance of other duties as assigned under the provisions of the Central Electricity Regulatory Commission (Terms and Conditions for Recognition and Issuance of Renewable Energy Certificate for Renewable Energy Generation) Regulations, 2010, as amended from time to time;
- (l) **‘Central Commission’** means the Central Electricity Regulatory Commission referred to in sub-section (1) of Section 76 of the Electricity Act, 2003;
- (m) **‘Certificate’** means the Renewable Energy Certificate issued by the Central Agency in accordance with the procedures approved under the provisions of the Central Electricity Regulatory Commission (Terms and Conditions for Recognition and Issuance of Renewable Energy Certificate for Renewable Energy Generation) Regulations, 2010, as amended from time to time;
- (n) **‘Co-generation’** means a process which simultaneously produces two or more forms of useful energy (including electricity);
- (o) **‘Commission’** means the Kerala State Electricity Regulatory Commission;
- (p) **‘Conduct of Business Regulations’** means the Kerala State Electricity Regulatory Commission (Conduct of Business) Regulations, 2003 as amended from time to time;
- (q) **‘Connected load’** expressed in kW or kVA means aggregate of the rated capacities of all energy consuming devices or apparatus which can be simultaneously used, excluding stand-by load if any, in the premises of the consumer, which are connected to the service line of the distribution licensee;



- (r) **‘Connection agreement’** means an agreement between State Transmission Utility (STU), and / or distribution licensee and an eligible entity, for connecting the renewable energy system to the intra-state transmission system and / or distribution system, as per the provisions of the KSERC (Connectivity and Intra-state Open Access) Regulations, 2013;
- (s) **‘Consumer’** means any person who is supplied with electricity for his own use by a licensee or the Government or by any other person engaged in the business of supplying electricity to the public under Electricity Act, 2003 or any other law for the time being in force and includes any person whose premises is, for the time being, connected for the purpose of receiving electricity with the works of a distribution licensee, the Government or such other person, as the case may be;
- (t) **‘Contract Demand or Contracted Demand’** means the maximum demand in kW or kVA, agreed to be supplied by the distribution licensee and indicated in the agreement executed between such licensee and the consumer; or the contracted load or contract demand duly revised thereafter;
- (u) **‘Control Period’ or ‘Review Period’** means the period during which the norms for determination of tariff for renewable energy specified under these Regulations shall remain valid;
- (v) **“Eligible consumer”** means a consumer getting supply of electricity from the distribution licensee in its area of supply, who intends to use a grid connected Renewable Energy system installed in his premises to offset a part of or all of the consumer's own electrical energy requirements as per the provisions of these Regulations;
- (w) **“Energy and Power”**. ‘Energy’ is the ability to do work, where as the ‘Power’ is the rate of doing work. In SI units, the unit of Power is ‘watt’, ‘kilo watt’ or ‘Mega watt’ and the Energy is measured as “kilowatt hour (kWh)”;



- (x) **‘Financial Year’** means the period beginning from first of April in a Gregorian calendar year and ending on the thirty first of March of the next calendar year;
- (y) **‘Forbearance Price’** means the ceiling price for the Certificate for each category of renewable energy, as determined by the Central Commission in accordance with the REC Regulations, within which only, the certificate can be dealt in the power exchange;
- (z) **‘Generic tariff’** means the tariff determined in these Regulations for the electricity generated from the Renewable Energy Plants as per the norms and parameters specified in these Regulations;
- (aa) **‘Grid Interactive Renewable Energy System’** means a Renewable Energy System which is connected to the transmission or distribution system of the licensee, and is capable of injecting energy into such system;
- (ab) **‘Grid Support Charges’** means the charges to be paid by the prosumers, captive consumers and other users, but excludes consumers availing net metering facility having ‘Grid Interactive Renewable Energy Systems’, for facilitating energy injection into the transmission system and/or distribution system irrespective of their connected load or contract demand;
- (ac) **‘Gross calorific value’ or ‘GCV’** in relation to a fuel used in a generating station means the heat produced in kCal by complete combustion of one kilogram of solid fuel or one litre of liquid fuel or one standard cubic meter of gaseous fuel, as the case may be;
- (ad) **‘Gross station heat rate’ or ‘SHR’** means the heat energy input in kCal required to generate one kWh of electrical energy at the generator terminals of a thermal generating station;
- (ae) **‘Hybrid Solar Power Plant’** means the solar powerplant that uses other forms of energy input sources along with solar energy for electricity generation;
- (af) **‘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.

- (ag) **'Installed capacity' or 'IC'** means the summation of the name plate capacities of all the units of the generating station or the capacity of the generating station (reckoned at the generator terminals), approved by the Commission from time to time;
- (ah) **'Inter-connection Point'** shall mean interface point of renewable energy generating facility with the transmission system or distribution system, as the case may be:
  - (i) the interface of the renewable energy system with the outgoing terminals of the meter/distribution licensee's cut-outs/ switch gear fixed in the premises of the prosumer.
  - (ii) In relation to wind energy projects and solar photovoltaic Projects, inter-connection point shall be line isolator on outgoing feeder on High Voltage side of the pooling substation;
  - (iii) In relation to small hydro power, biomass power and non fossil fuel based cogeneration power projects and solar thermal Power Projects the inter-connection point shall be line isolator on outgoing feeder on HV side of generator transformer;
- (ai) **'Invoice'** means either a bill or a supplementary bill or an invoice or a supplementary invoice raised by the distribution licensee relating to the billing cycle or billing period;
- (aj) **'kW'** means kiloWatt;



- (ak) **‘Licensee’** means a person who has been granted license under Section 14 of the Act and includes a person deemed to be a licensee under Section 14 of the Act;
- (al) **‘MNRE’** means the Ministry of New and Renewable Energy of the Government of India;
- (am) **‘Municipal solid waste’ or ‘MSW’** means and includes commercial and residential waste generated in municipal or notified areas in either solid or semi-solid form excluding industrial hazardous wastes but including treated bio-medical waste;
- (an) **‘Net meter’** means the bi-directional meter, along with allied metering equipment, to be installed and maintained by the licensee, for reading the net import or export of electrical energy by the prosumer from/ to the distribution system and the corresponding import/export of power from/to the distribution system, and shall be an integral part of the net metering system;
- (ao) **“Net metering”** means an arrangement under which renewable energy system installed at the premise of the prosumer receives or delivers electricity, if any, to the distribution licensee, after off-setting the electricity supplied by distribution licensee during the applicable billing period;
- (ap) **‘Non fossil fuel based co-generation’** means the process in which more than one form of energy (such as steam and electricity) are produced in a sequential manner by use of biomass, provided the project may qualify to be a co-generation project if it fulfills the eligibility criteria as specified in these Regulations;
- (aq) **‘Non-firm power’** means the power generated from renewable sources, the hourly variation of which is dependent upon nature’s phenomenon like sun, cloud, wind, etc., that cannot be accurately predicted;





- (ar) **‘Non-solar Certificate’** means the certificate issued in respect of the electricity generated from renewable sources of energy other than solar source;
- (as) **‘Normal Hours or Normal Period’** means the period from 06.00 hours to 18.00 hours on the same day;
- (at) **‘Obligated Entity’** means the distribution licensee or the captive consumer or the open access consumer in the State of Kerala, who is mandated to fulfill renewable purchase obligation under these Regulations;
- (au) **‘Off-peak Hours or Off Peak Period’** means the period from 22.00 hours to 06.00 hours on the next day;
- (av) **‘Open Access’** means the non-discriminatory provision for the use of transmission lines or distribution system or associated facilities with such lines or system by any licensee or consumer or a person engaged in generation in accordance with the Regulations specified by the Appropriate Commission;
- (aw) **‘Operation and maintenance expenses’ or ‘O&M expenses’** means the expenditure incurred on operation and maintenance of the renewable energy system or part thereof, and includes the expenditure on manpower, repairs, spares, consumables, insurance and overheads;
- (ax) **‘Peak Hours’** means the period from 18:00 hours to 22:00 hours on the same day;
- (ay) **‘Power Exchange’** means any licensed entity operating as an exchange for transaction of electricity in terms of the orders issued by the Central Commission;
- (az) **‘Preferential Tariff’ or ‘Feed in Tariff’** means the tariff determined by the Commission for purchase of energy from a generating station using renewable energy sources by a distribution licensee;



- (ba) **'Premises'** includes any land, building, structure or roof top or part or combination thereof; which is included in the details and sketches specified in the application or in the agreement for grant of electric connection or in such other records relating to revision of connected load or contract demand;
- (bb) **'Project'** means a generating station and the evacuation system up to inter-connection point, as the case may be, and in case of a small hydro generating station, includes all components of generating facility such as dam, intake water conductor system, power generating station and generating units of the scheme as apportioned to power generation till the Date of Commercial Operation (COD) and shall be known as 'Station' after the declaration of COD;
- (bc) **'Prosumer'** means a captive consumer, having a renewable energy system installed at the same premise of the consumer who generates and consumes the electricity generated from such renewable energy system and who can also inject the surplus power from the renewable energy system into the grid using the same network;
- (bd) **'REC Regulations'** means the Central Electricity Regulatory Commission (Terms and Conditions for Recognition and Issuance of Renewable Energy Certificate for Renewable Energy Generation) Regulations, 2010, as amended from time to time;
- (be) **'Renewable Energy'** means the electricity generated from any renewable sources of energy;
- (bf) **'Renewable Energy Meter'** refers to a unidirectional energy meter, installed and used solely to record the renewable energy generation from renewable energy system installed at the consumer's premises;



- (bg) **‘Renewable Energy System’** means the power plant and connected systems other than the conventional power plant, generating grid quality electricity from renewable energy sources;
- (bh) **‘Renewable Purchase Obligation’ or RPO** means the obligation of an entity to purchase electricity generated from a renewable source of energy as per these Regulations;
- (bi) **‘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;
- (bj) **‘Seller Licensee’** means a distribution licensee which sells electricity to other licensees;
- (bk) **‘Settlement Period’** means, the periods for the purpose of accounting of electricity from the following categories of renewable sources,-
- (i) from solar sources, the period from the first day of October in a Gregorian calendar year to the thirtieth day of September in the next calendar year; and
  - (ii) from non-solar sources, the period from the first day of April in a Gregorian calendar year to the thirty first day of March in the next calendar year;
- (bl) **‘Small Hydro’** means Hydro Power projects with a station capacity upto and including 25 MW;
- (bm) **‘Solar Certificate’** means the certificate issued in respect of electricity generated from solar source;



- (bn) **‘Solar Meter’** means a unidirectional energy meter installed as an integral part of the net metering system, at the point at which the electricity generated by the solar energy system is delivered to the main panel of the prosumer;
- (bo) **‘Solar PV power’** means the Solar Photo Voltaic power project that uses sunlight for direct conversion into electricity through Photo Voltaic technology;
- (bp) **‘State Agency’** means the agency in the State of Kerala designated by the Commission to act as the agency for accrediting and recommending the renewable energy system for registration and for undertaking the functions assigned by the Commission under these Regulations;
- (bq) **‘Supply Code’** means the ‘Kerala Electricity Supply Code, 2014’, as amended from time to time;
- (br) **‘Tariff Order’** in respect of a licensee means the order issued from time to time by the Commission, stipulating the rates to be charged by the licensee from various categories of consumers for supply of electrical energy and for other services;
- (bs) **‘Tariff Period’** means the period for which the tariff is determined by the Commission on the basis of the norms specified under these Regulations, for the sale of electricity from a renewable energy system. The Tariff period under these Regulations shall be determine with the useful life as defined in Regulation 2.1(bu).
- (bt) **‘Time block’** means the period/ duration in a day specified for the purposes of these Regulations.
- (bu) **‘Useful Life’** in relation to a unit of a generating station including evacuation system shall mean the following duration from the date of commercial operation (COD) of such generation facility, namely:-



(a) Wind energy power project	25 years
(b) Bio mass power project with Rankine cycle technology	20 years
(c) Non-fossil fuel cogeneration project	20 years
(d) Small Hydro Electric Plant	35 years
e) Municipal Solid Waste (MSW)/ and Refuse Derived Fuel (RDF) based Power project	20 years
f) Solar PV/Solar thermal power project	25 years

**(2) Interpretations,-**

(a) These Regulations shall be interpreted and implemented in accordance with, and not at variance from, the provisions of the Act and the Rules and Regulations made thereunder.

(b) Words, terms and expressions as defined in the Electricity Act, 2003 and in the Rules made thereunder by the Central Government, -Government of Kerala, Regulations issued by the Central Electricity Authority, the Central Electricity Regulatory Commission and the Commission which are used in these Regulations shall have and carry the same meanings as defined and assigned to them in the said Act, Rules and Regulations, unless it has been defined in this Regulation.

(c) In the interpretation of these Regulations, unless the context otherwise requires:-

- (i) Words in the singular or plural term, as the case may be, shall also be deemed to include the plural or the singular term, respectively;
- (ii) Reference to any Statute, Rule, Regulation or Guideline shall be construed as including all statutory provisions consolidating,



amending or replacing such Statute, Rule, Regulation or Guideline referred to, as the case may be;

- (iii) terms “include” and “including” shall be deemed to be followed by “without limitation” or “but not limited to”, regardless of whether such terms are followed by such phrases or words of like import.



## Chapter - II

### Renewable Purchase Obligation and Renewable Energy Certificates

#### 3. Obligation to purchase renewable energy.-

Distribution licensees, Captive Consumer and Open access consumer in the State of Kerala shall have the obligation to generate and/or in the alternative to purchase the quantum of renewable energy as specified in the Table below;

Table-1

Financial Year	Quantum of generation and/or purchase from Renewable Energy Sources as a (%) of total consumption (in terms 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.

#### 4. Renewable Purchase Obligation (RPO) of the Distribution licensee.-

(i) 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.



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

Provided further that the solar energy generated or purchased in excess of solar renewable purchase obligation may be accounted towards meeting the non-solar renewable purchase obligation.

(ii) The quantum of electricity generated by a person who is not an obligated entity but utilizing the grid interactive renewable energy system of the distribution licensee shall be accounted towards the renewable purchase obligation of the distribution licensee, provided that the distribution licensee,-

- (i) purchases such electricity at preferential tariff; or at a tariff discovered through competitive bidding process;
- or
- (ii) afford to such person the benefit of banking facility for the renewable energy generated by him.

(iii) The quantum of electricity generated by a person who is an obligated entity, using grid interactive renewable energy system and consumed by him in excess of his renewable purchase obligation, may be accounted towards the renewable purchase obligation of a distribution licensee, provided the distribution licensee affords to such person, the benefit of banking facility for such electricity.

(iv) Any purchase of renewable energy under the power purchase agreements entered into by the distribution licensee and approved by the Commission, shall not be terminated till the expiry of the validity of such power purchase agreements, on the ground that the total quantity of renewable energy purchased including the quantity of renewable energy purchased under such agreements exceeds the renewable purchase obligation of such distribution licensee.

(v) The distribution licensee shall submit to the Commission, the proposed quantum of purchase of renewable energy from the solar sources and from the non-solar sources, separately in its petition for the approval of the Aggregate Revenue Requirement and Expected Revenue from Charges, for





each financial year of the control period.

(vi) A distribution licensee which is engaged in bulk purchase of electricity from another licensee shall not have separate obligation for purchase of renewable energy if,-

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

#### 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.

#### 6. **Renewable Purchase Obligation of the Open Access consumer.-**

(1) Every open access consumer shall meet the quantum of renewable energy not less than the percentage specified in Table 1 above, of the total energy availed by it through open access.



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

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

(2) The renewable purchase obligation of an open access consumer shall be based on the total energy purchased through open access including the energy purchased from renewable sources, if any. -

**7. Preference for the purchase from the renewable energy generating units within the State.-**

Every distribution licensee shall purchase the quantum of renewable energy required to meet its renewable purchase obligation preferentially from the renewable energy generating units within the State if available, with the prior approval of the Commission, and at the tariff approved by the Commission.

Provided that, considering the environmental concerns, the distribution licensee shall necessarily purchase the electricity generated from municipal solid waste, with the prior approval of the Commission at the tariff approved by the Commission.

**8. Purchase of Renewable Energy Certificates under the REC Regulations,-**

(1) If any obligated entity fails to satisfy its renewable purchase obligation during any financial year, it shall purchase Certificates to make good such short fall. Subject to the terms and conditions in these Regulations, the certificates shall be the valid instruments for the discharge of the mandatory renewable purchase obligation of an obligated entity.

(2) If the quantum of renewable energy generated or purchased from solar sources by an obligated entity falls short of its solar renewable purchase obligation during any financial year, such obligated entity shall purchase the solar certificates, to make good such shortfall.



(3) If the quantum of renewable energy generated or purchased by an obligated entity falls short of its non solar renewable purchase obligation, during any financial year, such obligated entity shall purchase non-solar certificates or solar certificates, to make good such short fall.

(4) Subject to such direction as the Commission may issue from time to time, the obligated entity shall be bound to act consistent with the provisions of the REC Regulations, for the procurement of the certificates for fulfillment of the renewable purchase obligation under these Regulations.

(5) The obligated entity, shall within two months after the end of every financial year, report the compliance of its Renewable Purchase Obligation of the respective year, including the details of the renewable energy certificates, if any, purchased for meeting the RPO and if directed by the Commission produce the same for verification and ascertaining the compliance.

#### **9. State Agency and its functions. -**

(1) A State Agency for accreditation and recommending the renewable energy projects for registration and for undertaking the functions under these Regulations shall be designated by the Commission.

(2) The State Agency shall function in accordance with the directions issued by the Commission and the procedures and Regulations specified by the Central Agency under the REC Regulations.

(3) The State Agency shall submit quarterly reports to the Commission in respect of compliance of renewable purchase obligation by the obligated entities in the format as approved by the Commission and may suggest to the Commission, appropriate action if any required, for the compliance of the renewable purchase obligation by the obligated entity.

(4) The Commission may from time to time fix the remuneration and charges payable to the State Agency for the discharge of its functions under these Regulations.

(5) If the Commission is satisfied that the State Agency is not able to discharge its functions efficiently, it may by order with reasons in writing, designate any other agency to function as the State Agency.



**10. Effect of default. -**

(1) In case any obligated entity who is a distribution licensee fails to comply with its renewable purchase obligation as provided in these Regulations during any financial year and fails to purchase the required number of certificates, the Commission may by order, direct such obligated entity to deposit into a separate fund, to be created and maintained by such entity in accordance with the directions issued by the Commission, such amount as the Commission may determine on the basis of the shortfall in the renewable purchase obligation and the forbearance price thereof.

Provided that in case of an obligated entity other than a distribution licensee, such entity shall deposit such amount in a fund to be maintained and administered by the State Agency or as may be directed by the Commission.

(2) The fund so created shall be utilized in such manner as may be directed by the Commission for the purchase of Certificates or for such other purposes for promoting the renewable energy within the State.

(3) The Commission may authorize the State Agency to procure, out of the amount in the fund, the required number of Certificates from the power exchange, to make good the shortfall in the renewable purchase obligation of such obligated entity.

**11. Power to review the RPO and to grant permission to carry forward the short fall in renewable purchase obligation.-**

(1) The Commission may review the renewable purchase obligation of the obligated entities and all matters incidental thereto periodically.

(2) The obligated entity which fails to meet its renewable purchase obligation in full in any financial year due to any genuine difficulty may apply to the Commission for permission to carry forward to the next financial year, the short fall in its renewable purchase obligation.

(3) The Commission shall issue appropriate orders on such application with reasons thereof and communicate the same to the obligated entity within a period of sixty days from the date of receipt of such application;



Provided that the application under Regulation 11.2 shall not be rejected without affording to the obligated entity, an opportunity of being heard.

(4) Where the Commission has granted permission to carry forward to the next financial year, the short fall in its renewable purchase obligation during that financial year, as per orders issued under Regulation 11.3 above, no proceedings for noncompliance of RPO under these Regulations shall be initiated against such Obligated Entity.



### Chapter III

## Grid Interactive Renewable Energy System under Net Metering Facility

### 12. Scope and application.-

(1) The Regulations under this Chapter are applicable to the following grid interactive renewable energy systems with net metering facility installed by a prosumer at his premise, subject to other conditions specified under Regulation 13.

- (i) Grid interactive Distributed Solar Energy Systems.
- (ii) Ground mounted solar energy systems.
- (iii) Hybrid solar power plant.
- (iv) Renewable energy system with battery storage facility.
- (v) Any other Renewable Energy Systems, installed at the premises of a eligible consumer.

### 13. General Conditions.-

(1) The distribution licensee shall provide the net metering arrangement to the prosumer, who intends to install Grid Interactive Renewable Energy Systems at his premise on non-discriminatory and first come first serve basis, within 10 days from the date of submission of the approval of Renewable Energy System from the Electrical Inspector. In case the distribution licensee is not able to provide the net meters within the above mentioned 10 days, the eligible consumer after intimating the licensee can purchase the net meters at his own cost conforming to the specifications to be notified by the licensee at their website.

(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.

(3) The grid interactive renewable energy system under net metering installed at the premise of the eligible individual prosumer shall utilize the same service line and installation for injection of excess power into the grid.

Provided that, when a prosumer install Renewable Energy System in excess of the connected or contract demand as applicable, the expense for the augmentation of the distribution system required for connectivity shall be borne by the prosumer.

Provided also that the maximum capacity that can be installed by a single phase consumer shall be limited to 5 kW.

A prosumer having electric connections in different premises owned by him shall be eligible to install separate renewable energy system in each of such premises subject to the provisions of these Regulations.



(4) The specifications, capacity and output of the renewable energy system shall be in conformity with the provisions relating to the connected load or contract demand permissible at each voltage level as specified in the Kerala Electricity Supply Code, 2014, as amended from time to time.

**14. Connectivity.-**

(1) The distribution licensee shall, without any delay or discrimination, provide net metering arrangements to the prosumer, subject to other provisions and technical limits specified in these Regulations.

(2) The cumulative capacity of distributed energy systems allowed to be interconnected with the distribution network shall not exceed 75 % of the 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 5<sup>th</sup> of every month in the distribution licensees respective section offices and also in the licensee's website. The Commission may review these provisions after completion of two years from the date of notification of these Regulations.

**15. Inter connection with the Grid, technical Standards and Safety.-**

(1) The interconnection of the renewable energy system with the distribution system of the licensee shall conform to the specifications and standards as provided in the Central Electricity Authority (Technical Standards for connectivity of the Distributed Generation Resources) Regulations, 2013 and to the relevant provisions of the Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010, as amended from time to time;

(2) The Net meter and Renewable energy meter installed shall conform to the standards, specifications and accuracy class, as provided in the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006, as amended from time to time and be installed in such a manner that they are accessible for reading.

(3) The licensee shall, while intimating the feasibility as per these Regulations, inform the prosumer, the specifications and such other details of the





components, if any, to be installed along with the renewable energy system as per the provisions of these Regulations.

(4) The prosumer shall comply with the specifications and standards as provided by the licensee and shall install manually operated isolating switch and grid-tied inverter/ associated equipment with sufficient safeguards to prevent injection of electricity from the renewable energy system to the distribution system of the licensee when the distribution system is de-energized.

#### **16. Metering arrangement.-**

(1) The net meter shall be installed at the interconnection point of the prosumer with the net work of the distribution licensee.

(2) All meters installed shall comply with the CEA (Installation and Operation of Meters) Regulations, 2006 and subsequent amendments thereof.

Provided that, consumers having ABT compliant meters with net metering facility shall not be required to install additional Net meter.

(3) The distribution licensee shall make available correct Net meter and Renewable energy meter to the eligible consumer who proposes to install a renewable energy system in his premises.

Provided that, if the eligible consumer elects to purchase the said meter(s), he may procure and present them to the distribution licensee for testing and installation.

Provided further that, the licensee shall complete the testing and installation of the renewable energy meter and the net meter purchased by the eligible consumer, within a period of 14 calendar days from the date of presentation of such meters for testing.

(4) The distribution licensee shall undertake the testing of meters before installation to ensure accuracy of the meter. The meter(s) shall be jointly inspected by both the eligible consumer and the distribution licensee, and shall



be sealed by the distribution licensee.

Provided that, the meters shall be tested, installed and sealed by the distribution licensee in accordance with the provisions of Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006, as amended from time to time, and also as per the procedure specified in the Electricity Supply Code.

(5) The licensee may collect from the eligible consumer, the security deposit and rent for the renewable energy meter and net meter, if provided by the licensee, at the rates approved by the Commission from time to time.

(6) The distribution licensee, shall within three months of the date of notification of these Regulations, modify its existing billing infrastructure to facilitate the metering arrangements as envisaged under these Regulations.

**17. Use of excess electricity generated from renewable sources in another premise.-**

(1) The prosumer shall have the right for wheeling the excess electricity during a billing period to another premises owned by him within the area of supply of the distribution licensee subject to the following conditions:-

- (i) the right of wheeling and consumption of excess electricity shall be available to the prosumer irrespective of the category of tariff in the other premises;
- (ii) such right for wheeling the excess electricity shall be available for the use in his second premises only after the prosumer meets his full demand in the premises, where the electricity is generated using renewable energy system;
- (iii) The quantum of excess electricity wheeled shall be calculated based on sub-Regulation (5) below and accounted in subsequent bills of the other premise.



(2) The prosumer shall apply to the licensee for availing the wheeling facility as per the sub-Regulation (1) above, with necessary particulars of such other premises where, such excess electricity generated by the renewable energy system installed in one of his premises, is proposed to be used.

(3) The licensee shall after due verification of the application submitted under sub-Regulation (2) above and after satisfying about its genuineness, grant the permission to use the excess electricity in such other premises owned by the prosumer, within 7 calendar days of receipt of the application.

(4) The modifications, if any, required in the metering system in such other premises of the prosumer where the excess electricity is proposed to be used, shall be made by the distribution licensee at the cost of the prosumer. Alternatively the prosumer can make such modifications to the metering system at his own cost, subject to the compliance of the distribution licensee standards and technical specifications.

(5) The prosumer has to bear the applicable wheeling charges, and distribution losses, as approved by the Commission from time to time for the quantum of excess renewable energy wheeled from one of his premise to another premise.

(6) The electricity generated by a prosumer using the renewable energy system installed in his premises and wheeled to another premise under this Regulations, shall be exempted from payment of cross subsidy surcharges.

**18. Procedure for grant of feasibility certificate to the renewable energy system to be connected with the distribution system.**

(1) Any eligible consumer who proposes to install a renewable energy system in his premises shall apply in the form in Annexure-A to the local office of the distribution licensee, to issue feasibility certificate to connect the renewable energy system to the distribution system of the licensee along with the application fee as specified in the Schedule to these Regulations:

(2) The licensee shall acknowledge the receipt of the application form and register the applications immediately and shall process the application in the chronological order of its receipt.



(3) The distribution licensee shall maintain a separate Application Register for reference and records.

(4) On receipt of the application form for the feasibility certificate to connect the renewable energy system to the grid, the distribution licensee shall undertake technical feasibility within 15 days of the date of receipt of the application and intimate the applicant the feasibility or otherwise as the case may be.

(5) While intimating the feasibility for connecting the renewable energy system, the distribution licensee shall furnish to the applicant;

- (i) the details of documents to be submitted by the applicant along with the scheme for installation of renewable energy system to the distribution system;
- (ii) the technical specifications as well as other particulars of the grid-tied inverter/equipment and manually operated isolating switch to be installed by the applicant;
- (iii) the technical specifications and other particulars of the Renewableenergy meter and Net meter.

#### **19. Procedure for grant of connectivity to the renewable energy system.-**

(1) The eligible consumer shall, within 30 days from the date of receipt of the intimation regarding feasibility and capacity of the RE system proposed to be connected to the distribution system, as specified in sub Regulations 18(4) and 18(5) above, submit a formal application in the format specified in Annexure-B for the registration of his scheme for installing the renewable energy system, along with the documents and technical specifications as stipulated in Regulation 18(5).

(2) The distribution licensee shall, within seven working days from the date of receipt of the application, scrutinize the documents and intimate the following:

- (i) The particulars of defects, if any, in the application along with the instructions to cure such defects.
- (ii) The fee for registration of the scheme for installation of the renewable energy system as specified in this Regulation.



(3) The distribution licensee shall, on receipt of the fee amount as per the sub Regulation (2) above and on curing the defects, if any, noticed in the application and the documents submitted under sub Regulation (1) above;

- (i) Register the scheme and assign a Registration number with in seven days of receipt of completed application in all respect.
- (ii) The registration given under clause (i) above shall be valid for a period of one year from the date of registration, unless the validity period is extended by the distribution licensee under clause (iii) below.
- (iii) The distribution licensee may on application from an eligible consumer, for good and sufficient reasons beyond the control of the applicant, extend the validity of registration for a period not exceeding another six months, if no other application for connectivity is pending for want of the distribution transformer capacity or the feeder capacity, as the case may be.
- (iv) The distribution licensee may allot to other applicants, based on the date of their application seniority and in accordance with the provisions of these Regulations, such capacity for connectivity of renewable energy system, if the eligible consumer whose scheme has been registered does not avail the connectivity within the period of validity of registration.

Provided that, the registration fee remitted in such cases shall not be refundable.

- (v) The distribution licensee may, on receipt of a written request from the eligible consumer before the expiry of the validity of his registration, allow him to withdraw his application, on satisfaction of the condition that he is not able to install the renewable energy system within the period of validity of the registration, due to reasons beyond his control. In such a case the distribution licensee shall refund eighty percent of the registration fee to the applicant.
- (vi) The registration fee shall be forfeited, if the applicant fails, to install the renewable energy system within the period of validity of his registration or to withdraw the application as per clause (v) above.
- (vii) The distribution licensee shall refund to the eligible consumer eighty percent of the registration fee collected by it, if the eligible consumer has installed the renewable energy system within the period of



validity of the registration.

(4) The applicant shall, within the period of validity of registration, procure the renewable energy system conforming to the technical specifications and get it installed by a licensed Electrical Contractor.

(5) The eligible consumer shall obtain from the Electrical Inspector having jurisdiction over the area, necessary sanction for commissioning the renewable energy system, in accordance with the provisions of the Central Electricity Authority (Technical Standards for Connectivity of Distributed Generation Resources) Regulations, 2013 and produce the sanction to the distribution licensee.

(6) The Electrical Inspector, shall undertake the inspection and safety checks, within 10 working days from the submission of the work completion report, and issue safety certificate.

(7) The distribution licensee shall, within seven days from the date of submission of approval of the Electrical Inspector, test the renewable energy system in accordance with the provisions of the Central Electricity Authority (Technical Standards for Connectivity of Distributed Generation Resources) Regulations, 2013.

(8) On successful completion of the test as specified in sub Regulation (7) above, the distribution licensee and the eligible consumer shall execute a connection agreement in the format containing the general and specific conditions, as approved by the Commission, in accordance with the provisions of the Central Electricity Authority (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations, 2013.

(9) The licensee shall, within seven days from the date of execution of the agreement as specified in Sub Regulation (8) above, connect the renewable energy system to the distribution system.

## 20. **Banking facility for prosumers.-**

(1) In case the energy injected by the prosumer from his renewable energy system exceeds the energy consumed by him from the distribution licensee during the billing period, such excess energy is allowed to be banked with the distribution licensee and to be carried forward to the subsequent billing periods of the settlement period.



(2) The distribution licensee is permitted to account the energy generated from above such renewable energy system installed by the prosumer towards its RPO.

**21. Net metering, Energy Accounting, Banking and Settlement.-**

(1) The distribution licensee shall take the meter reading of the 'renewable energy system' regularly for each 'billing period' and record the readings of both the renewable energy meter and the net meter.

(2) For each billing period, the distribution licensee shall make the following information available in its bill to the prosumer:

- (i) Time period wise (normal hours, peak hours and off-peak hours) Renewable energy generation recorded in the energy meter for the prosumer with connected load above 20 kW, and total generation from the RE system for the prosumers with connected load 'of and below 20kW'.
- (ii) Time period wise electricity consumption of the prosumer with connected load above 20 kW, and total consumption in the case of the prosumer with connected less than 20 kW.
- (iii) Net billed electricity, if any, for which payment is to be made by the prosumer;
- (iv) Excess energy brought forward from the last billing period;
- (v) Excess energy carried forward to the next billing period.

(3) The energy accounting, banking and settlement of energy generated, drawn and injected by a prosumer with connected load of and below 20 kW shall be done as below;

- (i) The distribution licensee, during a billing period shall extend the facility to the prosumer having connected load of and below 20 kW under net metering arrangements, to draw back from the grid, the electricity injected during a time block at a different time period without any restriction.



- (ii) In case the electricity supplied by the distribution licensee during any billing period exceeds the electricity injected in to the grid by the prosumer from his renewable energy system, the distribution licensee shall raise a bill for the net electricity consumption at the prevailing tariff, after adjusting any excess electricity banked from the previous billing period;
  - (iii) In case the electricity injected by the prosumer's renewable energy system exceeds the electricity consumed from the distribution licensee during the billing period, such excess energy shall be allowed to be banked and be carried forward to the next billing period as specified under Regulation 20(1) above.
- (4) Accounting and settlement of energy generated, drawn and injected by the prosumer having connected load above 20 kW;
- (i) The electricity injected from the renewable energy system in a time period during a billing period shall be first set off against the electricity consumed during the same time period.
  - (ii) Any excess generation over consumption in that time period during the billing period shall thereafter be set-off against other time period, subject to the following.
    - (a) 80% of the net energy injected in time periods other than peak hours, be allowed to adjust against peak hour consumption.
    - (b) The net energy injected during peak hours shall be allowed to be adjusted 100% during the peak hour and the balance shall be allowed to be adjusted 120% during other time blocks.
    - (c) At all other time periods, except energy injection during peak hours, 100% of the net energy injected in any time periods will be allowed to adjust against the consumption, during the time period other than peak hours.
  - (iii) Any excess generation during a billing period, after adjusting against the consumption during the same billing period as per clause (i)&(ii) above shall be banked and carried forward, to the next billing period as specified under Regulation-20(1) above.





- (iv) Such surplus energy carried forward to the next billing period after accounting for the banking charges specified therein shall be, accounted along with the renewable energy generation during the subsequent billing period, and the same shall be settled against the energy drawn in the subsequent billing period as per the procedures specified under clause (i) & (ii) above.
  - (v) If the electricity injected into the system by the prosumer as measured in the net meter, is less than the total electricity drawn from the licensee, during any billing period, the licensee shall recover from such prosumer, the electricity charges at the rates applicable as per the tariff order issued by the Commission, for the net quantum of electricity drawn by him from the distribution system, after taking into account any balance electricity banked in the previous billing period.
- (5) The licensee shall pay to the prosumer for the net electricity balance in his account at the end of the settlement period, at the Average Power Purchase Cost (APPC) approved by the Commission;
- Provided that, in case of delay in payment of the net amount due to the prosumer beyond 30 days from the settlement date, the licensee shall pay interest to the prosumer at the FBIL rate +200 base points prevailing on 1<sup>st</sup> April of the settlement year.
- (6) The prosumer is exempted from the payment of transmission charges, wheeling charges, cross subsidy surcharges for the electricity generated and consumed at the same premises from the renewable energy system under net metering facility.
- (7) The quantum of electricity generated from the renewable energy system of the prosumer, shall qualify for accounting towards the Renewable Purchase Obligation (RPO) of the distribution licensee, as specified elsewhere in these Regulation.



## Chapter – IV

### Prosumers having capacity more than 1 MW, Captive Consumers and Independent Power Producers

#### 22. **Scope and applications.-**

(1) The provisions under the Regulations 22 to 29 are applicable to the following grid interactive renewable energy systems;

- (i) A prosumer having Renewable Energy Systems with installed capacity more than 1 MW at his premise for his own use, including a prosumer not covered under net metering specified in Chapter-III of these Regulations.
- (ii) Renewable Energy Systems installed by a Captive consumer, at a location different from the location of its usage, but within the State for his own use, and,
- (iii) Renewable energy system installed by a Renewable Energy Generator as an Independent power producer, for third party sale using the transmission and/or distribution system of the utility.

(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.

#### 23. **Connectivity.-**

(1) The distribution licensee or the State transmission utility, as the case may be, shall on demand, provide connectivity for the renewable energy generation system, as per the provisions, specified in KSERC (Connectivity and Intra State Open Access) Regulations, 2013, as amended from time to time.

Provided that, if the distribution licensee delays granting connectivity with reference to the time lines specified in KSERC (Connectivity and Intra State Open Access) Regulations, 2013, as amended from time to time, the



Commission may take action against the licensee as per the provisions of the Electricity Act, 2003.

(2) The interconnection of the renewable energy system with the transmission and/or distribution system shall conform to the provisions under the Central Electricity Authority (Technical Standards for Connectivity of Distributed Generation Resources) Regulations, 2013 and Central Electricity Authority (Measures Relating to Safety and Electric Supply) Regulations, 2010, and other applicable regulations dealing with connectivity and safety, as amended from time to time.

**24. Metering system.-**

(1) The Renewable Energy Generator/ Captive Generating plant, the captive consumer and the open access customer as the case may be, shall install Special Energy Meters (SEM) as specified in the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006 as amended from time to time, for accounting the quantum of energy generated, the quantum of energy injected into the transmission and/or distribution system and the quantum of energy consumed.

Provided that, if the RE generator/ consumer, elects to purchase his own special energy meter, he shall purchase the same from the firms empaneled by the STU/ distribution licensee, as specified in the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006 as amended from time to time:

(2) Special Energy Meters installed shall be capable of measuring the 15 minutes time-block-wise 'active energy and reactive energy', in accordance with the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006 as amended from time to time and the provisions of State Grid Code. The metering system shall have remote terminal unit (RTU) to facilitate real time monitoring by the SLDC as and when specified by the Commission.

(3) Special Energy Meters shall be open for inspection by any person authorized by the STU or the State Load Despatch Centre or the distribution licensee, as the case may be.



25. **Open Access.-**

(1) Any person generating electricity from renewable sources of energy, shall have the right for open access to the distribution system/ transmission system of the licensee/ STU in the State, for transmitting and/or wheeling the renewable energy, subject to the terms and conditions specified as follows,-

- (i) Open Access shall be granted as per the provisions under KSERC (Connectivity and Intra State Open Access) Regulations, 2013.
- (ii) Open Access charges such as application fee, SLDC/ NLDC charges, Transmission/ distribution losses, transmission/ wheeling charges, reactive energy charges, deviations and grid support charges, surcharges etc., as per Electricity Act, 2003/ Kerala State Electricity Regulatory Commission (Connectivity and Intra State Open Access) Regulations, 2013 and the Tariff orders issued by the Commission from time to time, as the case may be, applicable to the persons availing open access.

(2) The Renewable Energy Generator shall follow the Indian Electricity Grid Code 2010, Kerala State Grid Code and the relevant CERC/ KSERC Regulations and procedures for forecasting, scheduling and dispatch of renewable energy, as amended from time to time.

26. **General Conditions and charges applicable for the use of the transmission and distribution system by a prosumer, having a Renewable Energy System with capacity more than 1 MW at the same premise for his own use.-**

(1) 5% of the energy injected into the grid of the transmission and/or the distribution licensee shall be accounted towards 'grid support charges' and the balance 95% shall be treated as net energy.

(2) If the net energy during a time period (normal hours, peak hours and off-peak hours) in a billing period is fully consumed by the captive consumer during the same time period (normal hours, peak hours and off-peak hours) in that billing period itself, *for such quantum of renewable energy, the prosumer is exempted from the payment of transmission charges, wheeling charges and, losses in transmission system and distribution system approved by the Commission.*



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

- (i) 80% of the net energy injected in time periods other than peak hours, be allowed to be adjusted against peak hour consumption.
- (ii) The net energy injected during peak hours shall be allowed to be adjusted 100% during the peak hour and the balance shall be allowed to be adjusted at 120% during other time blocks.
- (iii) At all other time periods, except energy injection during peak hours, 100% of the net energy injected in any time periods will be allowed to be adjusted against the consumption, during the time period other than peak hours.

(4) The excess energy, if any, available at the end of the billing period is allowed to be banked and carried forward to the subsequent billing period of the settlement period, subject to the following,-

- (i) 95% of the energy so banked only will be allowed to be adjusted in the subsequent billing period of the settlement period and 5% of the banked energy shall be accounted towards banking charges of the distribution licensee.
- (ii) Time period wise adjustment of the energy generated in a time period and accounted against the consumption in different time period during the billing period shall be followed as detailed under clause (3) above.

Note: The 5% banking charges on the energy banked at the end of billing period shall not be cumulative, i.e., once 5% energy is deducted as banking charges during a billing period, no further banking charges will be applicable for this excess energy, if any arising out of such banked quantum of energy in the subsequent billing periods.

Clarification: For example, in the month of April, 50000 units is the surplus energy with the prosumer after making the adjustments as detailed under Sub Regulation (3) above. The energy banked in the month of April after accounting for banking charges shall be  $(50000 \times 0.95)$  47500 units. Thereafter in the month of May, 20000 units is the surplus energy with the prosumer after making the adjustments as detailed under Sub Regulation (3) above. Here the energy banked in the month of May shall be  $(20000 \times 0.95)$  19000 units, and the total energy so banked at the prosumer account at the end of the month May shall be  $47500 + 19000 = 66500$  unit.



(5) The licensee shall pay, within one month, for the net surplus energy available at the credit of the prosumer at the end of the settlement period as per sub Regulation (4) above, at the Average Pooled Power Purchase Cost (APPC) of the licensee approved by the Commission, from time to time.

(6) The prosumer, who installed the Renewable Energy System at the same premise is exempted from the payment of transmission charges, wheeling charges, transmission losses and distribution loss for the quantum of energy generated from the RE plant and adjusted against his consumption during the settlement period, in the same premises.

(7) The quantum of energy generated from the Renewable Energy System by a prosumer at his premise after meeting his renewable purchase obligation, if any, shall be permitted to be accounted towards the RPO of the distribution licensee, in accordance with the REC Regulations and its amendments from time to time.

**27. General Conditions and charges applicable, for the use of the transmission and distribution system by a Captive Consumer.-**

(1) Any captive consumer, using the transmission and/or distribution system of the licensee for wheeling the energy generated from the Renewable Energy System to a different location within the State, 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.

(2) Captive consumers who maintain 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) Captive consumers under these Regulations are permitted to install



Renewable Energy System at their premise irrespective of their connected load or contract demand, to offset their energy consumption on annual basis, subject to the terms and conditions specified in these Regulations.

Provided that, as a promotional measure, such consumers are permitted to inject energy into the grid during any time period and to draw back the energy during any other time period subject to the condition specified in sub-Regulation (5) below and without enhancing the connected load/contract demand up to the RE capacity.

Provided further that such consumers shall be required to pay 5% of the energy injected into the grid from the RE plant as 'grid support charges'.

(4) If the net energy, after deducting the approved transmission and/or distribution loss, injected from the renewable energy system during a time period (normal hours, peak hours and off-peak hours) in a billing period is fully consumed by the captive consumer during the same time period (normal hours, peak hours and off-peak hours) in that billing period itself, for such quantum of electricity, the captive consumer is exempted from the banking charges.

(5) The captive consumer is permitted to consume the electricity injected from the Renewable Energy System during a time period (normal hours, peak hours and off-peak hours), in a different time period (normal hours, peak hours and off-peak hours) during the same billing period, subject to the following conditions,-

- (i) 80% of the net energy injected in time periods other than peak hours, be allowed to adjust against peak hour consumption.
- (ii) The net energy injected during peak hours shall be allowed to be adjusted 100% during the peak hour and the balance shall be allowed to be adjusted 120% during other time blocks.
- (iii) At all other time periods, except energy injection during peak hours, 100% of the net energy injected in any time periods will be allowed to adjust against the consumption, during the time period other than peak hours.

(6) The excess energy, if any, available at the end of the billing period is allowed to be banked and carried forward to the subsequent billing period of the settlement period, subject to the following,-



- (iii) 95% of the energy so banked only be allowed to be adjusted in the subsequent billing period of the settlement period and 5% of the banked energy shall be accounted towards banking charges of the distribution licensee.
- (iv) Time period wise adjustment of the energy generated in a time period and accounted against the consumption in different time period during the billing period shall be followed as detailed under clause (5) above.

Note: The 5% banking charges on the energy banked at the end of billing period shall not be cumulative, i.e., once 5% energy is deducted as banking charges during a billing period, no further banking charges will be applicable for this excess energy, if any arising out of such banked quantum of energy in the subsequent billing periods.

Clarification: For example, in the month of April, 50000 units is the surplus energy with the prosumer after making the adjustments as detailed under Sub Regulation (3) above. The energy banked in the month of April after accounting for banking charges shall be  $(50000 \times 0.95)$  47500 units. Thereafter in the month of May, 20000 units is the surplus energy with the prosumer after making the adjustments as detailed under Sub Regulation (3) above. Here the energy banked in the month of May shall be  $(20000 \times 0.95)$  19000 units, and the total energy so banked at the prosumer account at the end of the month May shall be  $47500 + 19000 = 66500$  unit.

(7) The licensee shall pay, within one month, for the net surplus energy available at the credit of the prosumer at the end of the settlement period as per sub Regulation (4) above, at the Average Pooled Power Purchase Cost (APPC) of the licensee approved by the Commission, from time to time.

(8) The quantum of energy from the Renewable Energy System 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.

(9) The above accounting shall be valid only till the time intra state deviation settlement mechanism put in place.





**28. General Conditions and charges applicable, for usage of the transmission and distribution system by an independent renewable power generator/ open access consumer.-**

(1) A consumer purchasing power from an independent renewable power generator or a Renewable Power Generator supplying power to a third party by availing open access of the distribution system of a licensee shall pay to the licensee the following charges approved by the Commission from time to time,-

- (i) Transmission charges;
- (ii) Wheeling charges;
- (iii) Cross subsidy surcharges;
- (iv) Transmission losses and Distribution losses; and
- (v) Any other charges approved by the Commission.

(2) All other terms and conditions specified in the KSERC (Connectivity and Intra State Open Access) Regulations, 2013 is applicable for the IPPs and open access consumers who intent to avail open access in the transmission system and/or distribution system of the licensee.

(3) The distribution licensee is not obliged to extend the time period wise adjustment, banking facilities or any such other facility under these Regulations for open access consumers and Independent Renewable Energy Generators.

**29. Accounting and settlement of Renewable Energy consumed by prosumer/ captive consumer under Regulation 26 and 27 above.-**

(1) For each billing period, the distribution licensee shall, record the reading at the 'renewable energy meter' and the 'consumer meter' regularly for each of the time period.

(2) For each billing period, the distribution licensee shall make the following information available on its bill to prosumer/ captive consumer under these Regulations,-

- (i) Time period wise details of the electricity consumption of the prosumer/ captive consumer.
- (ii) Time period wise details of the electricity injected from the



### Renewable Energy System.

- (iii) The net energy banked from the previous billing period (closing balance of the net surplus renewable energy if any available at the end of the previous billing period).
- (iv) Detailed calculation statement of the time period wise adjustments, if any.
- (v) Net billed electricity, if any, for which a payment is to be made by the prosumer/ captive consumer;
- (vi) Excess electricity, if any, to be carried forward to the next billing period.

(3) In case the energy drawn by the prosumer/captive consumer is more than the net energy injected from the RE plant after the adjustments for charges specified in these Regulations, the distribution licensee shall raise a bill for the energy drawn from the grid at the prevailing tariff, after taking into account any excess electricity carried forward from the previous billing period;

(4) The licensee shall pay for the net electricity banked by the prosumer/ captive consumer at the end of the settlement period, at the Average Power Purchase Cost (APPC) approved by the Commission;

Provided that, in case of delay in payment of the net amount due to the consumer beyond 30 days from the settlement date, the licensee shall pay interest to the consumer at the FBIL + 200 base points for the period of delay.

(5) No carry forward of banked electricity shall be done beyond the settlement period.

(6) Captive consumers under these Regulations shall pay applicable transmission charges and/or wheeling charges, transmission losses and distribution losses and other levies, as approved by the Commission from time to time.

(7) Open access consumers and independent Renewable Power Generators shall be liable to pay transmission charges and/or wheeling charges, transmission losses and distribution losses, cross subsidy surcharges and other levies, as approved by the Commission from time to time.

(8) The distribution licensee/ STU/SLDC shall raise separate bill for



transmission charges, wheeling charges, transmission and distribution losses or any other charges payable by such consumers, as detailed under Regulations 26 and 27 above.

**30. Renewable Energy Certificate Scheme.-**

Any person generating electricity from renewable sources of energy is eligible for the benefits of 'Renewable Energy Certificate mechanism (REC)' as provided under REC Regulations:-



## Chapter V

### Determination of Tariff for the Electricity Generated from Renewable Energy Sources

#### 31. Scope and extent of application.-

The provisions under these Regulations shall be applicable for determining the project specific tariff/ generic tariff as determined by the Commission for the electricity generated from Renewable Sources of Energy plants commissioned during the control period specified in these Regulations, under Section 62 read with Section 86 of the Electricity Act, 2003.

#### 32. Norms for determination of tariff.-

(1) The principles, norms and parameters specified in these Regulations are applicable for determination of tariff for the electricity generated from the Renewable Source of Energy plants that have declared commercial operation during the control period specified in these Regulations.

Provided that, while determining the principles, norms and parameters for determination of tariff, the Commission have considered appropriate operational and financial parameters of each category of renewable source of energy and to the extent possible, provides an allowance, based on technology, fuel, market risk, social and environmental benefits and other relevant factors.

Provided further that, the Commission, while formulating and notifying the principles, norms and parameters for determination of tariff for the renewable energy from various categories of renewable source of energy, is guided by the National Electricity Policy and Tariff Policy published under Section 3 of the Act and the principles, norms and parameters specified by the Central Commission for this purpose.

Provided also that, until separate principles, norms and parameters are specified by the Commission for the control period, the principles, norms and parameters specified by the Central Commission for the purpose of determination of tariff for the electricity generated from various categories of renewable sources of energy, as specified in the Central Electricity Regulatory Commission (Terms and Conditions for Tariff Determination from Renewable



Energy Sources) Regulations, 2017, as amended from time to time, shall be adopted by the Commission for the purpose of determination of tariff under these Regulations.

(2) The norms and parameters specified in this Regulation shall be the ceiling norms and shall not prevent the generator and the distribution licensee from mutually agreeing for more economic norms than that specified in these Regulations.

**33. Control Period or Review Period.-**

(1) The Control Period or Review Period under these Regulations shall be for five (5) years, starting from the financial year 2019-20.

Provided that the tariff determined as per these Regulations for the Renewable Energy Projects commissioned during the Control Period, shall continue to be applicable for the entire duration of the Tariff Period as specified in Regulation 34 below.

(2) In case the Regulations for the next Control Period are not notified until the commencement of next Control Period, the Commission may provisionally adopt the principles, norms and parameters notified by the Central Commission for the period concerned.

Provided that if the principles, norms and parameters for the next control period are not notified until the commencement of the next control period by the Commission or by the Central Commission, the norms as applicable for the just concluded control period shall be provisionally adopted for determination of tariff.

Provided further that, as soon as the principles, norms and parameters are notified for the next control period, the Commission shall be firmed up the tariff for such renewable projects which have declared commercial operation in the next control period. The firmed up tariff shall be applicable from the date of commercial operation of such projects, for which provisional tariff is assigned as per the above proviso.

**34. Tariff Period.-**

(1) The Tariff Period for Renewable Energy power projects will be same as their Useful Life as defined in Regulation 2(1).



(2) Tariff period for a renewable energy generating station under these Regulations shall be applicable from the date of declaration of commercial operation (CoD) of the renewable energy generating stations. However considering the non firm nature of renewable energy, power injected into the grid prior to the CoD of a project shall also continue to be paid the same tariff as determined post CoD.

(3) Tariff determined for a Renewable Energy Project, which declared CoD during the current control period as mentioned in Regulation 33, shall be applicable for the entire Tariff period of the RE project.

**35. Generic Tariff for the Electricity Generated from Renewable Sources of Energy.-**

(1) The Commission may, if considered necessary determine, , the generic tariff for each financial year of the control period, for the electricity generated from the following categories of renewable sources of energy in accordance with the principles, norms and parameters specified or adopted by the Commission in these Regulations and considering the normative values of capital cost, rate of interest and other parameters notified under these Regulations, by an order published in the official Gazette.

- (i) Solar Photo Voltaic (PV) of capacity of and below 5 MW at a location,
- (ii) Wind Energy of capacity of and below 25 MW at a location,
- (iii) Small Hydro Electric plants having capacity of and below 5 MW.

Provided that, the generic tariff so determined shall be the upper ceiling limit and shall not prevent the generator and distribution licensee from agreeing to a lower tariff than the generic tariff determined by the Commission.

Provided further that, the generic tariff so determined by the Commission as mentioned above shall not prevent the right of the generator to get a project specific tariff determined, if they so desire, by the Commission as per the provisions of these Regulations. However, the distribution licensee/ purchaser of electricity from RE sources under these Regulations shall pay only the lower of the 'generic tariff of the year of CoD or the project specific tariff' as determined by



the Commission.

Provided also that, the generic tariff determined by the Commission shall also not prevent the right of the distribution licensee to procure power from the renewable energy sources through competitive bidding route as per Section 63 of the Electricity Act, 2003.

(2) The generic tariff determined by the Commission for a financial year under these Regulation, shall be applicable to the renewable energy projects which declares commercial operation (COD) during that financial year.

Provided that the generic tariff determined by the Commission for a financial year shall be applicable provisionally to the renewable energy projects which are commissioned after the close of that financial year, till such time, the tariff is revised by the Commission:

Provided further that, as soon as the generic tariff is revised by the Commission for the financial year in which the renewable energy project is commissioned, the revised generic tariff shall be assigned to such renewable energy projects, for which provisional tariff is assigned as per the above proviso from the date of declaration of its Commercial Operation.

(3) For claiming the generic tariff applicable to the wind energy projects in a wind zone, the project developer shall submit necessary and sufficient details for classification of the project into a particular Capacity Utilization Factor (CUF) based on Annual Mean Wind Power Density ( $W/m^2$ ) validated by the National Institute of Wind Energy.

(4) Notwithstanding anything to the contrary contained in these Regulations, the normative parameters and the generic tariff applicable to Small Hydro projects having capacity of and below 5 MW, Wind Energy having capacity of and below 25 MW and Solar PV plants having capacity of and below 5 MW, for the financial year 2019-20 is specified in Annexure I to III attached.



**36. Project Specific Tariff for the Electricity Generated from Renewable Sources of Energy.-**

(1) The Commission may, based on a petition for determination of tariff as per the provisions of Electricity Act 2003, determine by an order the project specific tariff, on a case to case basis, for the Renewable Energy projects. This shall be done in accordance with the principles, norms and parameters specified or adopted by the Commission as per these Regulations.

(2) Provided that the financial norms as specified under these Regulations, shall be ceiling norms while determining the project specific tariff for such Renewable projects.

(3) A petition for determination of project specific tariff shall be accompanied by such fee as may be determined by Regulations and be accompanied by:

- a) Detailed Project Report outlining technical and operational details, site specific aspects, premise for capital cost, financing plan, project economic viability etc.;
- b) Estimates of cost of all major components for the project with evidence to its reliability.
- c) A statement indicating the project completion cost, evidence for all major expenditures incurred, sources of financing with its terms/ conditions etc for the period, for which tariff is to be determined;
- d) A statement containing full details of any subsidy and incentive available, claimed and received, due or assumed to be due from the Central Government and/or the State Government;
- e) Any other information as decided by the Commission, for determining the project specific tariff for the project.

(4) For the determination of project specific tariff, the generating company shall submit the break-up of all the capital cost items accompanied by relevant paid vouchers/ tax receipts and other verifiable documents with its petition in the manner specified above.





Provided that, the project specific tariff so determined shall be limited to the generic tariff determined by the Commission for the particular year of CoD, if it exceeds the generic tariff for that year and shall be based on the norms and parameters specified in these Regulations.

### **37. Tariff Structure & Design.-**

(1) The tariff for renewable energy technologies shall be a single part tariff consisting of the following cost components:

- (a) Return on equity; wherein maximum equity allowable for RoE shall be limited to 30% of the capital cost;
- (b) Interest on loan capital;
- (c) Depreciation;
- (d) Interest on working capital;
- (e) Operation and maintenance expenses.

(2) The generic tariff or the project specific tariff, as the case may be, shall be determined from the year of commercial operation of the project, on levelized basis.

Provided that, the levelisation shall be carried out over the 'useful life' of the Renewable Energy project, specified under these Regulations.

Provided further that, for the purpose of levellised tariff computation, the discounting factor equivalent to Pre Tax weighted average cost of capital shall be considered.

### **38. Principles for the dispatch for Electricity Generated from Renewable Energy Sources.-**

(1) All the renewable energy power plants, unless and otherwise exempted, shall be treated as 'MUST RUN' power plants and shall not be subjected to 'Merit order Dispatch' principles.

(2) Scheduling of Renewable Energy plants shall be governed by KSERC (Forecasting, Scheduling, Deviation Settlement and Related Matters of Solar and Wind Generation Sources) Regulations, 2019 and its amendments from time to time.



## **Financial Principles**

### **39. Capital Cost.-**

The norms for the capital cost, specified in these Regulations, shall be inclusive of the costs for all capital works including plant and machinery, civil works, erection and commissioning charges, financing and interest costs during construction, and evacuation infrastructural costs up to the licensees inter-connection point.

### **40. Debt Equity Ratio.-**

(1) For all renewable energy projects, the debt-equity ratio shall be 70:30 of the capital cost as approved by the Commission as on the date of commercial operation shall be considered for tariff determination.

Provided that, while determining the project specific tariff under these Regulations, if the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan:

Provided further that, if the equity actually deployed is less than 30% of the capital cost, the actual equity deployed shall be considered for determination of project specific tariff:

(2) The equity invested in foreign currency shall be designated in Indian Rupees on the date of each investment. The overnight MIBOR notified by FBIL for that particular date shall be exchange rate for such conversion to Indian Rupees.

### **41. Loan and Finance Charges.-**

(1) **Loan Tenure :** A normative loan tenure of 13 years shall be considered for the purpose of determination of tariff under these Regulations.

(2) **Interest Rate:** (i) The loans arrived at under Regulation 40 shall be considered as the gross normative loan for calculation of interest on loan. The normative loan outstanding as on April 1<sup>st</sup> of every year shall be worked out by deducting the cumulative depreciation up to March 31<sup>st</sup> of previous year from the gross normative loan.



(ii) A normative interest rate of two hundred (200) basis points above the average State Bank of India Marginal Cost of Funds based Lending Rate prevalent during the last available six months shall be considered for allowing interest during loan tenure.

(i) Notwithstanding any moratorium period availed by the generating company, the repayment of loan shall be considered from the first year of date of commercial operation of the project.

#### **42. Depreciation.-**

(1) The Capital Cost of the asset approved by the Commission shall be the basis for calculation of depreciation. The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to a maximum of 90% of the capital cost of the asset.

(2) Depreciation rate of 5.28% per annum for first 13 years and remaining depreciation to be spread over the remaining useful life of the RE assets considering the salvage value of the project as 10% of project cost shall be considered.

(3) Depreciation shall be charged from the first year of commercial operation.

Provided that if the commercial operation of the asset was only for part of the first year of commercial operation, depreciation shall be charged on pro rata basis.

#### **43. Return on Equity.-**

The normative Return on Equity shall be 14% on the normative equity under Regulation 40 above. Income Tax/ Minimum Alternate Tax (MAT) on ROE if any, paid by the generator, shall be reimbursed separately by the distribution licensee on production of documentary evidence of remittance, annually for the entire useful life of the project.

#### **44. Interest on Working Capital.-**

(1) The Working Capital requirement in respect of Wind energy projects, Small Hydro Power, Solar PV and Solar thermal power projects, projects based on Municipal Solid Waste shall be computed in accordance with the following:



- a) Normative Operation & Maintenance expenses for one month;
- b) Receivables equivalent to two months energy charges for sale of electricity calculated on the normative Capacity Utilization Factor (CUF);
- c) Maintenance spare @ 15% of operation and maintenance expenses.

(2) Interest on Working Capital shall be at interest rate equivalent to the normative interest rate of three hundred (300) basis points above the average State Bank of India MCLR (One Year Tenor) prevalent during the last available six months for the determination of tariff.

#### 45. Calculation of CUF/PLF .-

The number of hours for calculation of CUF/PLF (wherever applicable) for various RE technologies shall be 8760 in an year.

#### 46. Operation and Maintenance Expenses.-

(1) 'Operation and Maintenance or O&M expenses' shall comprise of, repair and maintenance (R&M), establishment costs including employee expenses and administrative and general expenses.

(2) Operation and maintenance expenses shall be determined for the Tariff Period based on normative O&M expenses specified by the Commission in these Regulations for the first Year of Control Period.

(3) Normative O&M expenses allowed during first year of the Control Period (i.e. FY **2019-20**) under these Regulations shall be escalated at the rate of 5.72% per annum over the Tariff Period.

#### 47. Rebate.-

(1) If the payment of bills for charges payable under these Regulations is made by the distribution licensee to the renewable generator within five **calendar** days of presentation of bills by the renewable generator, a rebate of 2% shall be allowed to the licensee.

(2) Where payments are made by the distribution licensee to the RE generator within a period of one month of presentation of bills by the generating



company, a rebate of 1% shall be allowed to the licensee.

**48. Late payment surcharge.-**

In case the payment of any bill for charges payable under these Regulations is delayed beyond a period of 60 days from the date of billing, a late payment surcharge at the rate of 1.25% per month shall be levied by the renewable energy generator.

**49. Sharing of Clean Development Mechanism (CDM) Benefits.-**

(1) The proceeds of carbon credit from approved CDM project shall be shared between generating company and concerned beneficiaries in the following manner, namely:

- a) 100% of the gross proceeds on account of CDM benefit to be retained by the project developer in the first year after the date of commercial operation of the generating station;
- b) In the second year, 10% of the CDM benefit shall be shared with the beneficiaries and the balance 90% of the benefit shall be retained by the project developer.
- c) In the third year onwards, the share of the beneficiaries shall be progressively increased by 10% every year till it reaches 50%, thereafter the proceeds shall be shared in equal proportion, by the generating company and the beneficiaries.

**50. Subsidy or Incentive by the Central / State Government.-**

(1) The Commission shall take into consideration any incentive or subsidy offered by the Central or State Government, including accelerated depreciation benefit if availed by the generating company, for the renewable energy power plants while determining the tariff under these Regulations.

Provided that the following principles shall be considered for ascertaining income tax benefit on account of accelerated depreciation, for the purpose of tariff determination:



- i) Assessment of benefit shall be based on the Commission approved capital cost, accelerated depreciation if availed by the developer at the rate as per relevant provisions under Income Tax Act and corporate income tax rate.
- ii) Capitalization of RE Projects for the full financial year;
- iii) Per unit benefit shall be derived on levelized basis at a discounting rate equivalent to weighted average cost of capital.

#### 51. **Taxes and Duties.-**

Tariff determined under these Regulations shall be exclusive of taxes and duties as may be levied by the appropriate Government:

Provided that the taxes and duties levied by the appropriate Government shall be allowed as “pass through” on actual incurred basis, subject to proof of payment.

#### **Technology Specific Parameters**

#### 52. **Wind Energy Project.-**

(1) **Capital Cost,** - The Commission shall determine the capital cost and tariff based on prevailing market trends for wind energy project of capacity of and below 25 MW at a location. The Commission has fixed the normative capital cost for wind projects of capacity of and below 25 MW which declares commercial operation for the first year of the control period at Rs 5.75 crore/MW,

(2) **Capacity Utilization Factor (CUF).** The normative CUF for the control period specified in this Regulation shall be as follows:



	Annual Mean Wind Power Density	CUF %
	(W/m <sup>2</sup> )	
1	upto 220	22
2	221-275	24
3	276-330	28
4	331-440	33
5	> 440	35

Provided that, on completion of two years from the commercial operation date, if the actual CUF varies by (+) or (-) 5 % for that project, then the annual mean wind power density specified above shall be measured at 100 meter hubheight and the tariff shall be re-determined for the CUF corresponding to the measured wind power density.

Provided further that, for the purpose of classification of wind energy project into particular wind zone class, as per MNRE guidelines for wind measurement, wind mast either put-up by NIWE or a private developer and validated by NIWE, would normally be extended 10 km from the mast point in all directions for uniform terrain and limited to appropriate distance in complex terrain with regard to complexity of the site.

(3) **Operation and Maintenance (O&M) Expenses,-** The Commission shall determine the O&M Expenses based on the prevailing market information, and allowing an escalation rate of 5.72% over the previous year.

Normative O & M rates for the financial year 2019-20 is taken as Rs 8.00 lakh per MW, based on the prevailing market information.

The generic tariff applicable for the Wind projects of capacity of and below 25 MW for 2019-20 is given as Annexure-II.

### 53. **Small Hydro Project.-**

(1) **Capital Cost,-** The normative capital cost ceiling for small hydro projects during first year of the Control Period shall be as given below:



<b>Project Size</b>	<b>Capital Cost (Rs. lakh/ MW)</b>
Below 5 MW	779
5 MW to 25 MW	707

Provided further that, the Capital Cost for SHP as specified for first year of control period will remain valid for the entire duration of the control period, unless reviewed by the Commission.

(2) **Capacity Utilization Factor,-** The capacity utilization factor (CUF) for the small hydro projects shall be 30%.

Provided that, on completion of three years from commercial operation date, if the actual average CUF varies by (+) or (-) 10 % of the normative CUF, the Commission may revise the tariff at the actual average CUF on a petition filed by the RE generator of the distribution licensee with relevant supporting details.

(3) **Auxiliary Consumption:** Normative Auxiliary Consumption for the small hydro projects shall be 1%.

(4) **Operation and Maintenance Expenses,-**

(i) Normative O&M expenses for the first year of the Control period shall be as given below.

<b>Project Size</b>	<b>O&amp;M Expenses for the first year of the controlperiod (Rs. Lakh/MW)</b>
Below 5 MW	32.41
5 MW to 25 MW	23.47

(ii) Normative O&M expenses of the first year of the control period as above shall be escalated at the rate of 5.72% per annum for the tariff





period for the purposes of tariff determination.

(iii) The generic tariff applicable for SHEP < 5 MW capacity for the FY 2019-20 is given as Annexure-I.

**54. Solar PV Power Project.-**

(1) **Technology Aspects,-** Norms for Solar Photovoltaic (PV) power projects under these Regulations shall be applicable for grid connected PV systems that directly convert solar energy into electricity and are based on technologies such as Crystalline Silicon, Thin Film etc. as may be approved by MNRE.

(2) **Capital Cost,-** The Commission shall determine capital cost and tariff, based on prevailing market trends for Solar PV projects of capacity of and below 5 MW at a location. The normative capital cost for Solar PV project commissioned during the control period shall be limited to Rs 4.00 crore/ MW.

(3) **Capacity Utilization Factor,-**The Capacity Utilisation Factor for Solar PV project shall be 19%.

(4) **Operation and Maintenance Expenses,-**The Commission shall determine O&M expenses based on prevailing market trends for Solar PV project, and allowing an escalation rate of 5.72% over the previous year.

Provided that, normative O & M rates for the first year of the control period specified in this Regulation is taken as Rs 6.00 lakh/MW.

(5) **Auxiliary Consumption,-**The auxiliary consumption factor shall be 0.25% of gross generation.

(6) The generic tariff for solar projects having capacity of and below 5 MW for the FY 2019-20 are provided in Annexure III

**55. Power Projects using Municipal Solid Waste/Refuse Derived Fuel and based on Ranking Cycle Technology.-**

(1) **Technology Aspect,-** The norms for tariff determination specified hereunder are for power projects which use Municipal Solid Waste (MSW) technologies for power generation.



(2) **Capital Cost,-** The Commission shall determine only project specific capital cost and tariff based on prevailing market trends for MSW projects.

(3) **Plant Load Factor,-** Threshold PLF for determining fixed charge component of tariff for the power projects which use MSW shall be:

	Particulars	PLF
a)	During the first year from the date of CoD	65%
c)	From 2 <sup>nd</sup> year onwards	75%

Provided that, the stabilization period shall not be more than 6 months from the date of commissioning of the project.

(4) **Auxiliary Consumption,-** The auxiliary power consumption for MSW/RDF based power projects shall be 15%.

(5) **Operation and Maintenance Expenses,-** The Commission shall determine only project specific O&M expenses based on prevailing market trends for MSW/RDF projects.



**CHAPTER- VI**  
**MISCELLANEOUS PROVISIONS**

**56. Norms specified shall be ceiling norms.-**

The norms specified in these Regulations are the ceiling norms and shall not preclude the generating company and distribution licensees from agreeing to the improved norms other than the one specified in these Regulations. In case the improved norms results in better economy and lower tariffs are agreed to, such improved norms shall be applicable for determination of tariff.

**57. utility driven schemes.-**

These Regulations do not preclude the right of a Distribution licensee to undertake RE projects as per the schemes/ policies of the State and Central Government with the prior approval of the Commission.

**58. Generation based incentives for off-grid solar schemes.-**

Generation based incentives as per the order of the Commission dated 11.11.2019 is available to the off-grid captive solar plants upto 30.09.2021.

**59. Deviation from Norms.-**

(1) As stated above the tariff determined under these Regulations shall be a ceiling tariff. The renewable generator and the distribution licensee may mutually agree to charge a lower tariff than the tariff determined on the basis of norms and parameters specified in these Regulation, with the prior approval of the Commission.

**60. Renewable Energy Advisory Committee.-**

(1) In order to facilitate and encourage the implementation of Renewable Energy Systems in the State under these Regulations, the Commission shall, notify the Renewable Energy Advisory Committee with the following members, for discharging the functions detailed under sub Regulations (2) below;



- (i) Secretary to the Commission, Chairman of the Committee;  
Director (Technical) of the Commission;
- (ii) Representative from the Power Department, in State Government;
- (iii) Representative from the Chief Electrical Inspector;
- (iv) Representative from State Transmission Utility;
- (v) Representative from SLDC;
- (vi) Chief Engineer RE cell KSEB Ltd;
- (vii) Each zonal Distribution Chief Engineers of KSEB Ltd, as representative;
- (viii) One representative among the small licensees on rotational basis;
- (ix) Representative from ANERT as State Nodal Agency;
- (x) One representative, each from representing domestic category, commercial category and Industrial category among their consumer associations, protesting consumer interests;
- (xi) One representative from Renewable Energy Generators
- (xii) One representative each from Small Scale Industries Associations, manufacturing RE companies, HT&EHT Electricity Industrial Consumers Associations and KREEPA..

(2) The Renewable Energy Committee constituted under sub Regulation (1) above, shall discharge the following functions, -

- a) Address the various difficulties and issues concerning connectivity faced by the State Transmission Utility and/or distribution licensee(s) in the State.
- b) Address and to develop common procedures for registering and processing the applications by the STU and /or distribution licensees.
- c) Advise the distribution licensee(s) to develop consumer friendly procedures, billing systems etc.;



- d) Develop technical standards for assessing the impact of the Renewable Energy in the Kerala power system.
- e) Develop standards for data exchange between Renewable Energy System and the distribution licensee;
- f) Promote cross-learning among the distribution licensees and other stakeholders;
- g) Assist in developing common programs for facilitating Renewable Development by the incumbent distribution licensee.

#### **61. Renewable Energy Cell.-**

(1) The incumbent distribution licensee shall, within one month from the date of notification of these Regulations constitute an in-house RE Cell, to promote Renewable Energy deployment in the State, to execute the functions assigned to the Distribution Licensee under these Regulations.

(2) RE Cell shall be headed by an officer in the rank of Chief Engineer or equivalent.

(3) RE Cell shall be provided with necessary authority and resources so as to execute the functions assigned to the Distribution Licensee under these Regulations.

(4) The RE cell shall carry out the following functions on behalf of the distribution licensee.

- a) Design interconnection processes and procedures;
- b) Ensure and Manage web based application system for processing DRE applications;
- c) Develop and monitor mechanism for online monitoring of RE Systems by the distribution licensee control centre;
- d) Obtain regulatory approvals;
- e) Guide persons desirous of setting up RE Systems in the State;
- f) Facilitate training of field officers on RE;
- g) Appraise field officials about the changes in processes and procedures;



- h) Ensuring modifications billing procedures/ systems to account for provisions in these Regulations;
- i) Undertake monitoring and reporting as envisaged under these Regulations;
- j) Coordinate with RE Advisory Committee and attend meetings of the same;
- k) Prepare standard documents, such as expression of interest, RFP, energy purchase and energy sale agreement, tripartite agreement etc., if the distribution licensee decides to procure power under through competitive bidding;
- l) Preparation of plan for procurement of energy from DRE sources;
- m) Undertake analysis of data collected from DRE systems.

**62. Penalty or compensation for non compliance by the distribution licensee.-**

(1) In case of failure to meet timelines prescribed under these Regulations, penalty of Rs. 1000 per day for each day of delay shall be levied on the distribution licensee.

(2) The penalty accrued during the year under these Regulations will be deducted from the Return on Equity of the distribution licensee for that year.

**63. Procedure for getting approval of the detailed procedure for implementing the provisions of these Regulations.-**

(1) KSEB Ltd, as the incumbent distribution licensee, shall within one month from the date of notification of these Regulations in official Gazette, shall prepare and submit to the Commission, in co-ordination with STU the detailed procedure for implementing the provisions of these Regulations, including the following;

- (i) procedure for getting feasibility certificate for getting connectivity for RE systems.
- (ii) Filing applications for connectivity including format and fees to be remitted.



- (iii) Procedure for availing banking facility including the draft banking agreement.
- (iv) Billing procedure under net metering facility provided under Chapter-III,
- (v) Accounting and billing procedures for prosumer having RE plant with capacity more than 1 MW and captive use specified under Chapter-IV.

**64. Power to give directions.-**

The Commission may from time to time issue such directions and orders as considered appropriate for implementation of these Regulations.

**65. Power to relax.-**

The Commission may by general or special order, for reasons to be recorded in writing, and after giving an opportunity of hearing to the parties likely to be affected, relax any of the provisions of these Regulations on its own motion or on an application made before it by an interested person.

**66. Power to amend.-**

The Commission may from time to time add, vary, alter, suspend, modify, amend or repeal any provisions of these Regulations.

**67. Power to remove difficulties.-**

If any difficulty arises in giving effect to any of the provisions of these Regulations, the Commission may, by an order, make such provisions, not inconsistent to the provision of the Act and these Regulations, as may appear to be necessary for removing the difficulty.



## 68. List of Annexure and Forms

Annexure	Details
<b>A</b>	Application for connectivity of Renewable Energy System
<b>B</b>	Application for the registration of the scheme for Renewable Energy System
<b>I</b>	Generic Tariff for SHEP having station capacity of and below 5 MW- for the FY 2019-20
<b>II</b>	Generic Tariff for Wind Energy Projects having capacity of and below 25 MW with CUF 24%- for the FY 2019-20 .
<b>III</b>	Generic Tariff Solar PV Projects having capacity of and below 5 MW –for FY 2019-20.

## 69. Repeal and Savings.-

(1) Save as otherwise provided in these Regulations, the following Regulations are hereby repealed;

- a. Kerala State Electricity Regulatory Commission (Renewable Energy) Regulations, 2015.
- b. Kerala State Electricity Regulatory Commission (Renewable Energy) Amendment Regulations, 2017.
- c. Kerala State Electricity Regulatory Commission (Grid Interactive Distributed Solar Energy Systems) Regulations, 2014.





d. Kerala State Electricity Regulatory Commission Grid Interactive Distributed Solar Energy Systems) Amendment Regulations, 2016.

(2) Notwithstanding such repeal, anything done or any action taken under the said Regulations shall be deemed to have been done or taken under the corresponding provisions of these Regulations.

By order of the Commission,

C. R. SATHEESH CHANDRAN,  
*Administrative Officer in-charge of Secretary.*



## **Explanatory Note**

(This does not form part of the Notification, but is intended to achieve its general purport).

Section 86(1)(e) of the Electricity Act, 2003 authorizes the State Electricity Regulatory Commission to promote co-generation and generation of electricity from Renewable Source of Energy by providing suitable measures for connectivity with the grid and sale of electricity to any person and specify for the purchase of electricity from such sources a percentage of the total consumption of electricity within the area of the distribution licensee. Accordingly Kerala State Electricity Regulatory Commission had, for achieving the above purposes issued various regulations viz. Kerala State Electricity Regulatory Commission (Grid Interactive Distribution Solar Energy System) Regulations, 2014 and Kerala State Electricity Regulatory Commission (Renewable Energy) Regulations, 2015. In the recent past, there are lot of developments, technological advancement in all type of renewable energy technologies to reduction of tariff. Further the capital cost of solar PV plants wind energy systems etc has reduced drastically. Due to reduction in capital cost of installation of renewable energy especially wind and solar and improved capacity utilization, tariff of these sources become much less, even less than electricity generated from conventional coal based power stations. Considering these aspects, the Commission has decided to issue a comprehensive regulation on the Renewable Energy in supersession of existing Regulations. Kerala State Electricity Regulatory Commission had formulated the draft Kerala State Electricity Regulatory Commission (Renewable Energy & Net Metering) Regulations, 2019 & had previously published in the website of the Commission on 14.08.2019 for eliciting the opinion and suggestions of general public. Further Commission had conducted the public hearing on the draft Regulation at Thiruvananthapuram on 24.01.2019 and at Ernakulam on 31.10.2019. After considering all suggestions and objections received directly and in the public hearing, the Commission approved the final Kerala State Electricity Regulatory Commission (Renewable Energy and Net Metering) Regulations, 2020 and decided to publish the same in the official gazette.

This Notification is intended to achieve the above purpose.



**Annexure-A****APPLICATION TO SEEK CONNECTIVITY OF RENEWABLE  
ENERGY SYSTEM****[Regulation 18(1)]**

1.	Name and Full Address of Consumer		
2.	Telephone No.	Res:	Mob:
3.	E-mail address		
4.	Consumer No. & Category		
5.	Sanctioned Connected Load/ Contract Demand		
6.	Whether the Consumer is under ToD billing system		
7.	Capacity of Renewable Energy System proposed to be connected		
8.	Type of Renewable Energy System proposed (Solar, Wind, Biomass etc.)		
9.	Location and address of proposed Renewable Energy System (roof top/ ground mounted/ any other).		
10.	Preferred mode of communication (Post/ By Hand/Electronic)		

Place:

Date:

Signature of Consumer



### **Acknowledgement**

**Application Registration Number.....**

Name..... Consumer

No.....

Date..... Time.....

Application fee paid Rs..... by Cash/Cheque/DD/RTGS

RE Plant Capacity..... kW

Name of Officer

Signature

Office Seal

(Designation)



**APPLICATION FOR REGISTRATION OF THE SCHEME FOR RENEWABLE  
ENERGY SYSTEM [Regulation 19(1)]**

1.	Name	
2.	Telephone No.	
3.	E-mail	
4.	Consumer No.	
5.	Connected Load/ Contract Demand of Consumer	
6.	Application No. & Date	
7.	Renewable Energy Source	
8.	Capacity of Renewable Energy System to be connected	
9.	Technical specifications and other particulars of Renewable Panel, Grid Tied Inverter and Interlocking System etc. proposed to be installed-whether attached	Yes/No
10.	Technical specifications and other particulars of Renewable energy meter and Net meter to be installed- whether attached.	Yes/No
11.	Whether consumer opts to purchase meter himself or from Distribution Licensee	
12.	Drawings for installing the Renewable Energy System- whether attached	Yes/No
13.	Proposed date of completion of the installation	

Place:

Date:

Signature of consumer



## Acknowledgement

Received the application for registration of the scheme for Renewable Energy System

Name & Address: .....

..... Date .....

Registration Number: .....

Consumer Number:

.....

Renewable Plant Capacity & Type: .....

Mode of payment (Cheque/DD/NEFT/RTGS) ..... Amount Rs. ....

Details of Cheque/DD/RTGS/NEFT .....

Name of Officer

Signature

Seal

(Designation of Officer)



**Small Hydro Electric Projects having installed capacity of and below 5 MW**

**(2019-20)**

Sl	Head	Sub Head	Detailed Head	Unit	Norm
1	Power	Capacity	(i) Installed Power Generation	MW	1
			(ii) Capacity Utilisation factor	%	30
			(iii) Auxiliary consumption	%	1
			<b>(iv) Useful life</b>	<b>Years</b>	35
2	Project cost	Capital	<b>Power plant cost</b>	<b>Rs .Cr</b>	7.79
3	Source of Fund		<b>Tariff period</b>	<b>Years</b>	35
		<u>Debt- equity</u>	Debt	%	70
			Equity	%	30
		Debt component	Loan amount/MW	Rs.Cr	5.45
			Moratorium	Years	0
			Repayment period (include moratorium)	Years	13
			Interest rate	(MCLR+2)%	10.41
		Equity component	Equity amount/ MW	Rs.Cr	2.34
			Normative RoE	%	14.00
4	Financial				
		Depreciation	Depreciation rate for first 13 years		5.28
			depreciation rate for next 22 years		0.97
5	Working capital	For Fixed charges	O&M charges	Months	1
			Maintenance spare	% of O&M expenses	15
			Receivable for debtors	Months	2
			Interest on working capital	(MCLR+3)%	11.41
6	Operation and Maintenance	O&M expenses	O&M 2019-20	Rs. Lakh/MW	32.41
			<b>O&amp;M expense escalation</b>	%	5.72
			<b>O&amp;M expense for 2019-20</b>	<b>Rs.</b>	32.41



			72	<b>Lakh/MW</b>	
Generic Tariff - for 35 years without the benefit of accelerated depreciation			5.91	Rs/unit	
Accelerated depreciation			0.38	Rs/unit	
<b>Generic Tariff for 35 years with the benefit of accelerated depreciation</b>			5.53	<b>Rs/unit</b>	





## Annexure-II

<b>Wind Energy Generation Projects located in wind zone with CUF 24% (capacity ≤ 25 MW at a location)(2019-20)</b>					
Sl No	Head	Sub Head	Detailed Head	Unit	Norm
1	Power Generation	Capacity	(i) Installed Power Generation Capacity	MW	1
			(ii) Capacity Utilisation factor	%	24
			(iii) Auxiliary consumption	%	0
			(iv) Useful life	Years	25
2	Project cost	Capital cost /MW	<b>Power plant cost</b>	<b>Rs .Cr</b>	5.75
3	Source of Fund		<b>Tariff period</b>	<b>Years</b>	25
		<u>Debt- equity</u>	Debt	%	70
			Equity	%	30
		Debt component	Loan amount/MW	Rs.Cr	3.85
			Moratorium	Years	0
			Repayment period (include moratorium)	Years	13
			Interest rate	(MCLR+2)%	10.41
		Equity component	Equity amount/ MW	Rs. Cr	1.65
			Normative RoE	%	14.00
4	Financial Assumptions				
		Depreciation	Depreciation rate for first 13 years		5.28
			depreciation rate for next 12 years		1.78
5	Working capital	For Fixed charges	O&M charges	Months	1
			Maintenance spare	% of O&M expenses	15
			Receivable for debtors	Months	2
			Interest on working capital	(MCLR+3)%	11.41
6	Operation and	O&M	O&M 2019-20	Rs. Lakh/MW	8.00



	Maintenance	expenses	74		
			<b>O&amp;M expense escalation</b>	%	5.72
			O&M 2019-20	<b>Rs. Lakh/MW</b>	8.00
Generic Tariff - for 25 years without the benefit of accelerated depreciation			4.10	Rs/unit	
Accelerated depreciation			0.35	Rs/unit	
<b>Generic Tariff for 25 years with the benefit of accelerated depreciation</b>			3.75	<b>Rs/unit</b>	



**Solar PV projects with capacity < 5 MW at a location****(2019-20)**

Sl No	Head	Sub Head	Detailed Head	Unit	Norm
1	Power Generation	Capacity	(i) Installed Power Generation Capacity	MW	1
			(ii) Capacity Utilisation	%	19
			(iii) Auxiliary consumption	%	0.25
			(iv) Useful life	Years	25
2	Project cost	Capital cost /MW	<b>Power plant cost</b>	<b>Rs .Cr</b>	4.00
3	Source of Fund		<b>Tariff period</b>	<b>Years</b>	25
		<u>Debt- equity</u>	Debt	%	70
			Equity	%	30
		Debt component	Loan amount/MW	Rs.Cr	2.80
			Moratorium	Years	0
			Repayment period (include moratorium)	Years	13
			Interest rate	(MCLR+2)%	10.41
		Equity component	Equity amount/ MW	Rs. Cr	1.20
			Normative RoE	%	14.00
4	Financial Assumptions				
		Depreciation	Depreciation rate for first 13 years		5.28
			depreciation rate for next 12 years		1.78
5	Working capital	For Fixed charges	O&M charges	Months	1
			Maintenance spare	% of O&M expenses	15
			Receivable for debtors	Months	2
			Interest on working capital	(MCLR+3)%	11.41
6	Operation and Maintenance	O&M expenses	O&M expense 2019-20	Rs. Lakh/MW	6.00



			<b>O&amp;M expense escalation</b>	<b>%</b>	<b>5.72</b>
			<b>O&amp;M expense for 2019-20</b>	<b>Rs. Lakh/MW</b>	<b>6.00</b>
Generic Tariff - for 25 years without the benefit of accelerated depreciation			3.66	Rs/unit	
Accelerated depreciation			0.31	Rs/unit	
<b>Generic Tariff for 25 years with the benefit of accelerated depreciation</b>			<b>3.35</b>	<b>Rs/unit</b>	

## SCHEDULE

(See Regulations 18.1 & 19.3)

Sl. No	Description	Amount
1	Application Fee	Rs1000.00
2	Registration Fee	Rs 1000/kW or part thereof

