

# **Punjab State Electricity Regulatory Commission**

## **Notification**

**The 7<sup>th</sup> May, 2015**

**No.PSERC/Secy./Regu. 101** - In exercise of powers conferred under Section 181 read with Section 61 and 86(1)(e) of the Electricity Act, 2003 (Act 36 of 2003) and all other powers enabling it in this behalf, the Punjab State Electricity Regulatory Commission hereby makes the following regulations for Grid Connected Rooftop Solar Photo Voltaic (SPV) Systems based on Net Metering.

### **1 Short title & commencement**

- 1.1 These Regulations may be called the Punjab State Electricity Regulatory Commission (Grid Interactive Rooftop Solar Photo Voltaic Systems based on Net Metering) Regulations, 2015.
- 1.2 These Regulations shall come into force from the date of publication of the same in the official Gazette.

### **2. Definitions & Interpretation**

In these Regulations, unless the context otherwise requires:-

- (a) "Act" means the Electricity Act 2003 (36 of 2003) as amended from time to time;
- (b) "Agreement" means an agreement signed by the distribution licensee with the eligible consumer for net metering arrangement;
- (c) "Billing Cycle" or "Billing Period" means the period for which regular electricity bills as specified by the Commission are issued by the distribution licensee to different categories of consumers;
- (d) "Commission" means the Punjab State Electricity Regulatory Commission;
- (e) "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 the Act or any other law for the time being in force and includes any person whose premises are for the time being connected for the purpose of

receiving electricity with the works of distribution licensee, the Government or such other person, as the case may be;

- (f) “Contract Demand” means the maximum demand in kVA (kilo Volt Ampere) sanctioned to the consumer and computed in the manner as approved by the Commission;
- (g) “Distribution Licensee” means a licensee authorized to operate and maintain a distribution system for supplying electricity to the consumers in his area of supply;
- (h) “Eligible Consumer” means a consumer of electricity in the area of supply of distribution licensee, who uses a rooftop SPV system installed in his premises to offset part or all of the own electrical requirements, given that such systems can be ‘self owned’ or ‘third party owned’;
- (i) “Financial Year” or “Year” means period beginning from first day of April and ending with thirty first day of March of next year in English Calendar Year;
- (j) “GoP” means Government of Punjab in the Department of New and Renewable Energy;
- (k) “Interconnection Point” means the interface of rooftop solar power generation facility under net metering arrangements with the network of distribution licensee and shall normally be the point where net meter is installed;
- (l) “Invoice” means the monthly bill or a supplementary bill or a monthly invoice or a supplementary invoice raised by the distribution licensee to the consumer;
- (m) “kWp” means kilo Watt peak;
- (n) “Net Metering” means an arrangement under which rooftop SPV system installed at eligible consumer premises delivers surplus electricity, if any, through net meter to distribution licensee for offsetting the electricity supplied by distribution licensee during the applicable or subsequent billing period but within settlement period;
- (o) “Obligated Entity” means the entity mandated by the Commission under clause (e) of sub section (1) of section 86 of the Act to fulfill the renewable purchase obligation and identified under PSERC

(Renewable Purchase Obligation & its compliance) Regulations, 2011, as amended from time to time;

- (p) “Premises” means roof tops or/and any areas on the land, building or infrastructure or part or combination thereof in respect of which a separate meter or metering arrangement have been made by the distribution licensee for the supply of electricity;
- (q) “Renewable Energy Certificate” (REC) means the certificate issued in accordance with the procedures prescribed in Central Electricity Regulatory Commission( Terms and Conditions for recognition & issuance of Renewable Energy Certificate for Renewable Energy Generation) Regulations, 2010 as amended from time to time;
- (r) “Rooftop Solar System” means the Solar Photo Voltaic system installed in the premises of the consumer that uses solar energy for direct conversion into electricity through photo voltaic technology;
- (s) “Sanctioned Connected Load” means the load in kW (kilowatt), or BHP (Break Horse Power), agreed to be supplied by the licensee and indicated in the A&A Form executed between the distribution licensee and the consumer;
- (t) “Settlement Period” means the period beginning from first day of October in an English calendar year and ending with thirtieth day of September of next year;
- (u) “Solar Meter” means a unidirectional energy meter installed as an integral part of the net metering system at the point at which electricity generated by Solar Photo Voltaic (SPV) system, is delivered to the main panel of eligible consumer;
- (v) “Supply Code” means the PSERC (Electricity Supply Code & Related Matters) Regulations, 2014, as amended from time to time;
- (w) “Tariff Order” in respect of a licensee means the Order issued by the Commission for the relevant year for that licensee indicating the rates to be charged by the licensee from various categories of consumers for supply of electrical energy and for other services;

- (x) All other words and expressions used in the regulation although not specifically defined herein above, but defined in the Act (Electricity Act, 2003) shall have the meaning assigned to them in the Act.
- (y) All other words and expressions used herein but not specifically defined in these regulations and the Act but defined in any other law passed by the Parliament/State Assembly or regulations framed under the Act, shall have the meaning assigned to them in such law/regulations.

### **3. Scope and Application**

- 3.1 These Regulations shall apply to distribution licensee and consumers of such distribution licensee in the State of Punjab.
- 3.2 Any consumer in the area of supply of distribution licensee may install rooftop solar system under net metering arrangement which
  - a) shall be of minimum 1 kWp & upto 1 MWp (AC side) capacity with or without battery back up support
  - b) shall be located in the consumer premises
  - c) shall interconnect and operate safely in parallel with the distribution licensee network.
- 3.3 These regulations do not preclude the right of any person to undertake rooftop solar projects above 1 MWp capacity through alternative mechanism.
- 3.4 The net metering facility shall also be applicable to such consumers who have installed rooftop solar system before commencement of these regulations subject to compliance of these regulations.

### **4. General Conditions**

The distribution licensee shall offer the provision of net metering arrangement to the eligible consumer, who intends to install grid connected rooftop solar system, in its area of supply on non-discriminatory and first come first serve basis:

Provided, the consumer is eligible to install the grid connected rooftop solar system of the rated capacity as specified in these regulations:

Provided further that the distribution licensee shall offer the provision of net metering to the consumer for the target capacity as specified in these regulations:

Provided also that the interconnection of such system with the grid is undertaken as specified in CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations, 2013, as amended from time to time:

Provided also that the distribution licensee shall accept the SPV power as per the useful life of the SPV system as per CERC Regulations.

## **5. Capacity Target for Distribution Licensee**

- 5.1 The distribution licensee shall provide net metering arrangement to eligible consumers as long as the total capacity (in MW) of rooftop solar systems does not exceed the target capacity determined by the Commission:

Provided that initially, a maximum cumulative capacity to be installed by eligible consumers under net metering in the area of supply of each distribution licensee shall be as decided by the Commission. Thereafter, the target capacity shall be reviewed on yearly basis by the Commission:

Provided further the cumulative capacity of rooftop solar system to be allowed to a particular distribution transformer shall not exceed 30% of the rated capacity of the distribution transformer.

- 5.2 The distribution licensee shall provide information regarding distribution transformer level capacity available for connecting rooftop solar system under net metering arrangement within two months from the date of notification of these regulations. The distribution licensee thereafter shall update the distribution transformer level capacity available and the cumulative capacity of the rooftop solar systems installed under net metering arrangement on yearly basis by 30th April and shall provide the information on its website as well as to the Commission.

## **6. Eligible consumer and individual project capacity.**

- 6.1 All eligible consumers of electricity in the area of the supply of distribution licensee can participate in the solar rooftop net metering arrangement subject to target capacity.
- 6.2 The maximum capacity of rooftop solar system shall not exceed 80% of the sanctioned load (kW) or contract demand of the consumer (in kVA converted to kW by using a power factor of 0.9):

Provided that the installed capacity shall not be less than 1 kWp and shall not exceed 1MWp (AC side) for a single eligible consumer:

Provided further that a variation in the rated capacity of the system within a range of five percent shall be allowed.

## **7. Procedures for application and registration**

- 7.1 A consumer intending to set up the rooftop SPV system can download the 'Agreement' form from the website of the distribution licensee free of cost and shall submit the same along with processing fee of ₹50/kVA or part thereof subject to maximum of ₹10000/ to designated officer of the distribution licensee for grant of permission to set-up the plant.
- 7.2 After checking the feasibility, the applicant shall be issued Letter of Approval by distribution licensee within 30 days of receipt of application. The consumer shall set up the plant and submit the work completion report alongwith Single Line Diagram of the synchronizing and protection arrangement issued by the plant supplier/EPC contractor as per standards and specifications approved by the State Nodal Agency, within 180 days.
- 7.3 Before any application for setting up rooftop solar plant at a particular distribution transformer is rejected by the distribution licensee due to any reason, the consumer shall be served with a 15 days notice to attend to the observations and remove the deficiencies. In case the approval cannot be granted due to non-availability of capacity, then the application of the consumer may be considered after availability of the capacity, if the consumer so opts.

- 7.4 After site verification, distributing licensee shall install and seal the Bi-directional energy meter within 10 days of the submission of completion report and plant will be treated as commissioned for net-metering commercial operations from that date.
- 7.5 In case of delay, the consumer shall have to get further extension from distribution licensee. Such extension will be granted for a maximum period of 2-months only and the approval granted will lapse automatically if the project is not set-up even in the extended 2 months period. However, the consumer will be eligible to apply afresh in the next financial year but his application will be kept at the bottom of the list of applicants. Such consumer will be permitted to set-up the plant only if after allotting the capacity to all successful applicants above him, there is still capacity available for allotment.
- 7.6 The distribution licensee shall circulate the procedure and formats including standard "Agreement" form after approval from the Commission and upload the same on its website for information of stake holders within a month of the notification of the regulations.

## **8. Interconnection with the Grid, Standards & Safety**

- 8.1 The interconnection of the rooftop solar system with the network of the distribution licensee shall conform to the standards as provided in Central Electricity Authority (Technical Standard for Connectivity of the Distributed Generation Resources) Regulations, 2013 as amended from time to time.
- 8.2 The interconnection of the rooftop solar system with the distribution system of the licensee shall conform to the relevant provisions of the Central Electricity Authority (Measures relating to Safety and Electric Supply), Regulations, 2010, as amended from time to time.
- 8.3 The grid interactive rooftop solar system may be installed with or without battery backup:

Provided that where the rooftop solar system is installed with battery backup (full load backup/partial load backup), the inverter shall have separate backup wiring to prevent the battery/decentralized generation

power to flow into the grid in the absence of grid supply and manual isolation switch shall also be provided.

- 8.4 The consumer shall be responsible for safe operation, maintenance and rectification of any defect of the rooftop solar system upto the point of Net Meter beyond which the responsibility of safe operation, maintenance and rectification of any defect in the system, including the Net Meter, shall be that of the licensee.
- 8.5 The consumer shall provide appropriate protection for islanding of SPV system from the network of distribution licensee during grid/supply failure.
- 8.6 The licensee shall have the right to disconnect the rooftop solar system at any time in the event of possible threat/damage, from such rooftop solar system to its distribution system, to prevent any accident or damage, without any notice.

**9. Third Party Owned Rooftop Solar PV system based on Net Metering**

- 9.1 The third party owned rooftop solar PV net metering model may consist of the developer or intermediaries leasing out solar PV system to interested rooftop owners. The owner of the premises provides the rooftop and engages a turnkey installer to design and install the system. The installers may also offer integrated service of leasing, commissioning and maintenance of Solar PV system to owners and guaranteeing standards of performance.
- 9.2 In the third party owned solar PV system based on net metering, the electricity generated from such plants/system shall be used to meet the eligible consumer's internal electricity needs, while the excess generation shall be fed into the Grid (network of licensee) on Net Metering basis.
- 9.3 The developer shall continue to be the owner of equipment in third party owned system, to qualify for claiming depreciation on capital cost for the solar PV system with associated direct tax benefits, if any.
- 9.4 For all intents and purposes, the distribution licensee shall deal with the rooftop owner or consumer only and arrangement between rooftop owner and developer shall be personal to them.



## 10. **Metering**

10.1 The metering system shall be as per CEA (Installation and Operation of Meters) Regulations, 2006, as amended from time to time.

10.2 The solar meter (a unidirectional meter) is required to be installed as an integral part of the net metering system at the point at which the electricity is generated by Solar Energy System and delivered to the main panel.

10.3 The net metering equipment (Bi-directional meters) and the Solar meter (unidirectional) as per CEA Regulations shall be installed and maintained by the distribution licensee at the cost of the eligible consumer:

Provided the eligible consumer may procure the net meter/solar meter and present the same to the distribution licensee for testing and installation as per Regulation 21.2 of the Supply Code. No meter rental shall be charged from the consumer. In case meters are provided by the distribution licensee, consumer shall be liable to pay meter rental as approved by the Commission. The location of the meter shall be as per CEA Metering Regulation.

10.4 The installed meters shall be jointly inspected and thereafter sealed by the distribution licensee in the presence of the consumer as per the procedure laid down in Supply Code:

Provided that in case the eligible consumer is under the ambit of TOD Tariff, the meter compliant of recording time of day consumption/generation shall be installed.

10.5 The meter reading taken by the distribution licensee shall form the basis of commercial settlement.

## 11. **Energy Accounting and Settlement**

11.1 The accounting of the electricity generated, consumed and injected by the rooftop solar system under these regulations shall become effective from the date of connectivity of such system with the network of distribution licensee.

11.2 The procedure for billing and energy accounting shall be as under:-

- a) For each billing cycle the consumer shall receive an energy account statement showing quantum of electricity injected by the eligible consumer in the billing period, electricity supplied by the distribution licensee in the billing period, net billed electricity for payment by the consumer for that billing cycle and net carried over electricity to the next billing period separately.
- b) In case the electricity injected exceeds the electricity consumed from licensee's supply system during the billing cycle such excess injected electricity shall be carried forward to the next billing cycle as electricity banked and may be utilized in the next billing cycle(s) within the settlement period. In such a case, the distribution licensee shall issue an invoice containing all these details.
- c) In case the electricity supplied by the distribution licensee during any billing period exceeds the electricity injected by the eligible consumer, the distribution licensee shall raise a bill for net electricity consumption as per applicable tariff of that category after taking into account any electricity credit balance from previous billing period.
- d) In case the eligible consumer is under the ambit of TOD tariff, the electricity consumption in any time block i.e. peak hours, off peak hours etc. shall be first compensated with the electricity injected in the same time block. Any excess injection over and above the consumption in any other time block in a billing cycle shall be accounted as if the excess injection occurred during non peak hours.
- e) The surplus energy measured in kWh/kVAh shall be utilized to offset the consumption measured in kWh/kVAh and may not be utilized to compensate any other fee and charges imposed by the licensee as per the orders of the Commission.
- f) The Monthly Minimum Charges (MMC), where applicable, shall be leviable on total consumption of the consumer of each billing cycle and not on net consumption. A normative power factor of 0.9 shall be considered for conversion of kWh to kVAh, wherever applicable.
- g) The distribution licensee shall also take the reading of solar meter for recording total solar power generated by Solar PV system of consumer.

h) In case of any dispute in billing, the consumer can approach the Dispute Settlement Committee, Consumer Grievances Redressal Forum and Electricity, Ombudsman in accordance with PSERC (Forum & Ombudsman) Regulations, 2008, as amended from time to time.

11.3 The electricity generated from a rooftop solar system shall not exceed 90% of the electricity consumption by the consumer in a settlement period. The excess energy generated in a billing circle shall be allowed to be carried forward to the next billing cycle upto the end of the settlement period:

Provided that in the event of electricity generated exceeds 90% of the electricity consumed at the end of the settlement period no payment shall be made by the distribution licensee and shall not be carried forward to next settlement period and the same shall be treated as inadvertent injection:

Provided also that at the beginning of each settlement period, cumulative carried over solar electricity injected shall be reset to zero.

11.4 All the rules & regulations applicable to the consumers of the distribution licensee for the applicable category shall also be applicable to the eligible consumer who uses the rooftop solar system.

## **12. Applicability of other charges**

The rooftop solar system under net metering arrangement whether self-owned or third party owned, installed on the premises of eligible consumer, shall be exempted from various provisions of PSERC(Terms & Conditions for Intra-State Open Access) Regulations, 2011, as amended from time to time:

Provided that the Commission may review such exemption from time to time.

## **13. Eligibility to Participate under Renewable Energy Certificate (REC) Mechanism**

The eligibility for issuance of renewable energy certificate shall be as per the eligibility criteria specified under 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.

**14. Renewable Purchase Obligation**

The quantum of electricity consumed by eligible consumer, who is not defined as Obligated entity, from the rooftop solar system under net metering arrangement shall qualify towards compliance of Renewable Purchase Obligation (RPO) for the distribution licensee.

**15. Penalty or Compensation**

In case of failure of net metering system, the provisions of Supply Code shall apply.

**16. Termination of agreement**

16.1 The eligible consumer may terminate the agreement at any time by giving 30 days prior written notice to the licensee.

16.2 If an eligible consumer breaches any term of the agreement and does not remedy the breach within 30 days of receipt of written notice from the distribution licensee of the breach or any other valid reason to be recorded in writing, the distribution licensee may terminate the agreement without any further notice.

16.3 Eligible consumer, upon termination of the agreement, shall disconnect forthwith the photovoltaic system from licensee's distribution system.

**17. Power to give directions**

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

**18. Removal of difficulties**

If any difficulty arises in giving effect to the provisions of these Regulations, the Commission may, by an order, make such provision, not being inconsistent with the Act and these Regulations, which appears to the Commission to be necessary for removal of the difficulties.

**19. 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, may relax any of the provisions of these Regulations of its own or on an application made before it by an interested person.

**20. Power to amend**

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

By the Order of the Commission

Secretary to the Commission