

# Model Regulation for Rooftop Solar Grid Interactive systems based on Net metering



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Draft Model Regulation for Rooftop Solar Grid  
Interactive systems based on Net metering

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In exercise of powers conferred under sections 61, 66, 86(1)(e) and 181 of the Electricity Act, 2003 (Act 36 of 2003) and all other powers enabling it in this behalf, and after previous publication, the .....(Name of State) Electricity Regulatory Commission hereby makes the following regulations for the grid connected Solar Rooftop Photovoltaic system:

## 1 Short title, and commencement

These regulations may be called the .....Electricity Regulatory Commission (Rooftop Solar Grid Interactive systems based on Net metering) Regulations, 2013

- 1.1 These regulations may come into force from the date of their notification in the Official Gazette

## 2 Definitions and Interpretations

2.1 In these regulations, unless the context otherwise requires,

- a) "Act" means the Electricity Act, 2003 (36 of 2003) and subsequent amendments thereof;
- b) "agreement" means an agreement entered into by the Distribution licensee and the consumer;
- c) "billing cycle or billing period" means the period for which regular electricity bills as specified by the Commission, are prepared for different categories of consumers by the licensee;
- d) "Commission" means the .....(Name of State) Electricity Regulatory Commission constituted under the Act;
- 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 this 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 a distribution licensee, the Government or such other person, as the case may be;
- f) "contracted load" or "contract demand" means the maximum demand in kW, kVA or BHP, agreed to be supplied by the licensee and indicated in the agreement executed between the licensee and the consumer;
- g) "Distribution licensee" or "licensee" means a person granted a license under Section 14 of the Act authorizing him to operate and maintain a distribution system for supplying electricity to the consumers in his area of supply;
- h) "Electricity Supply Code" means the Electricity Supply Code specified under section 50 of the Act and subsequent amendments thereof;

- i) 'eligible consumer' means a consumer of electricity in the area of supply of the distribution licensee, who uses a rooftop solar system installed in the consumer premises, to offset part or all of the consumer's own electrical requirements, given that such systems can be self-owned or third party owned;
  - j) "financial year" or "year" means the period beginning from first of April in an English calendar year and ending with the thirty first of the March of the next year;
  - k) "interconnection point" means the interface of solar power generation facility system with the network of distribution licensee;
  - l) "invoice" means either a Monthly Bill / Supplementary Bill or a Monthly Invoice/ Supplementary Invoice raised by the distribution licensee
  - m) "kWp" means kilo Watt peak;
  - n) "net metering" means an arrangement under which rooftop solar system the system installed at eligible consumer premises delivers surplus electricity, if any, to the Distribution Licensee after off-setting the electricity supplied by distribution licensee during the applicable billing period.
  - o) "obligated entity" means the entity mandated under clause (e) of subsection (1) of section 86 of the Act to fulfill the renewable purchase obligation and identified under .....RPO Regulations;
  - p) "premises" means rooftops or/and elevated areas on the land, building or infrastructure or part or combination thereof in respect of which a separate meter or metering arrangements have been made by the licensee for supply of electricity;
  - q) 'rooftop solar system' means the solar photo voltaic power system installed on the rooftops of consumer premises that uses sunlight for direct conversion into electricity through photo voltaic technology;
  - r) "Renewable Energy Certificate (REC)" means the means the certificate issued in accordance with the procedures approved by the Central Electricity Regulatory Commission;
  - s) 'settlement period" means the period beginning from first of April in an English calendar year and ending with the thirty first of the March of the next year;
  - t) "tariff order" in respect of a licensee means the most recent order issued by the Commission for that licensee indicating the rates to be charged by the licensee from various categories of consumers for supply of electrical energy and services;
- 2.2 All other words and expressions used in these Regulations although not specifically defined herein above, but defined in the Act, shall have the meaning assigned to them in the Act. The other words and expressions used herein but not specifically defined in these Regulations or in the Act but defined under any law passed by the Parliament applicable to the electricity industry in the State shall have the meaning assigned to them in such law.

### 3 Scope and application

3.1 These Regulations shall apply to the distribution licensee and consumers of electricity of distribution licensee of the State of .....

3.2 The eligible consumer may install the rooftop solar system under net metering arrangement which,

- a) shall be within the permissible rated capacity as defined under these Regulations.
- 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 relevant state authorities to undertake rooftop solar projects above 1 MWp capacity through alternative mechanisms.

#### **4 General Principles**

4.1 The distribution licensee shall offer the provision of net metering arrangement to the 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 that the distribution licensee shall offer the provision of net metering to the consumer for the target capacity as specified under these Regulations;

Provided further that the consumer is eligible to install the grid connected rooftop solar system of the rated capacity as specified under these Regulations;

Provided also that the interconnection of such system with the grid is undertaken as specified under these Regulations till such time the competent authority notifies the technical standards for connectivity with the grid.

#### **5 Capacity Targets for distribution licensee**

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

Provided a maximum cumulative capacity of.....MW<sup>1</sup> shall be allowed to eligible consumers under net metering, on yearly basis, in the area of supply of the distribution licensee;

Provided that the cumulative capacity to be allowed at a particular distribution transformer shall not exceed 15% of the peak capacity of the distribution transformer;

5.2 The distribution licensee shall update distribution transformer level capacity available for connecting rooftop solar systems under net metering arrangement on yearly basis 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 supply of the distribution licensee can participate in the solar rooftop net metering arrangement (reference to sub clause 2.1(i) of this Regulation).

6.2 The maximum rooftop solar system capacity to be installed at any eligible consumer premises shall be governed by the eligibility of interconnection with the grid for that eligible consumer;

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<sup>1</sup> To be decided by the State Electricity Regulatory Commission (SERC)

Provided that the maximum installed capacity shall not exceed 1 MW;

Provided further that the installed capacity is aligned with the .....Electricity Supply Code provisions for permitting consumer connections

## 7 Interconnection with the Grid

7.1 The interconnection of the rooftop solar system with the network of the distribution licensee shall be made as per the technical standards for connectivity of distributed generated resources regulations to be notified by the competent authority. Until such time, the interconnection of the rooftop solar system of a particular capacity, with the network of the distribution licensee, shall be as per the contracted load and/or respective voltage level applicable to the consumer as per the provisions of..... Electricity Supply Code.

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

Provided further that the system qualifies the technical requirements for grid interconnection with the network of the distribution licensee

## 8 Energy Accounting and Settlement

8.1 For each billing period, the licensee shall show the quantum of injected electricity by eligible consumer in the billing period, supplied electricity by distribution licensee in the billing period, net billed electricity for payment by the consumer for that billing period and net carried over electricity to the next billing period separately;

Provided that in the event the electricity injected exceeds the electricity consumed during the billing period, such excess injected electricity shall be carried forward to next billing period as electricity credit and may be utilized to net electricity injected or consumed in future billing periods;

Provided further that in the event the electricity supplied by the distribution licensee during any billing period exceeds the electricity generated by the eligible consumer's rooftop solar system, the distribution licensee shall raise invoice for the net electricity consumption after taking into account any electricity credit balance remaining from previous billing periods;

Provided, in case the eligible customer is under the ambit of time of day tariff, as determined by the Commission from time to time, the electricity consumption in any time block (e.g., peak hours, off-peak hours, etc.) shall be first compensated with the electricity generation in the same time block. Any cumulated excess generation over consumption in any other time block in a billing cycle shall be accounted as if the excess generation occurred during the off-peak time block.

Provided also that the excess electricity measured in kilo-watt hour may only be utilized to offset the consumption measured in kilo-watt hour and may not be utilized to compensate any other fee and charges imposed by the distribution licensee as per the instructions of ..... Electricity Regulatory Commission

Provided also that the distribution licensee in addition to consumer tariff shall be eligible to raise invoice for any other charges as allowed by the ..... Electricity Regulatory Commission

- 8.2 The electricity generated by the rooftop solar system of an eligible consumer shall not be more than 90% of the electricity consumption by the eligible consumer at the end of the settlement period.

Provided that such injection of the above mentioned eligible consumer shall be settled only as per net metering arrangement at the end of each settlement period;

Provided further that in the event the 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 unwanted/ inadvertent injunction.

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

- 8.3 In case of any dispute in billing it would be settled by the consumer grievance redressal forum and if issue still remains unresolved shall be settled by the .....<sup>2</sup>Electricity Regulatory Commission following appropriate procedure.

## 9 Solar Renewable Purchase Obligation

- 9.1 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.

## 10 Applicability of other charges

- 10.1 The rooftop solar system under net metering arrangement, whether self-owned or third party owned installed on eligible consumer premises, shall be exempted from banking, wheeling and cross subsidy.

Provided that banking shall be defined as per the .....Regulations<sup>3</sup>.

## 11 Eligibility to Participate under Renewable Energy Certificate Mechanism

- 11.1 The 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 and subsequent amendments thereof;

## 12 Metering arrangement

- 12.1 The metering system shall be as per the installation & operation of meters for rooftop solar systems under net-metering arrangement to be notified by the competent authority.
- 12.2 Until such time bi-direction meters (net meters) shall be installed for rooftop solar systems under net-metering arrangement. The net meters shall be of accuracy class 1.0 or better or as per the specifications notified by the competent authority. These meters shall be

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<sup>2</sup> To be as per State Regulations

<sup>3</sup> To be as per State Regulations

Meter Reading instrument (MRI) compliant or wireless equipment for recording meter readings.

Provided, if bills are prepared on the basis of MRI downloads or if meter reading is taken on the basis of remote meter-reading and the consumer wishes to have a record of the reading taken, he shall be allowed so by the licensee.

12.3 The main Solar Meters shall be of 0.2s class accuracy and with facility for recording meter readings using Meter Reading Instrument (MRI). Check meters shall be mandatory for rooftop solar systems having capacity more than 20 kW. For installations size of less than and equal to 20 kW, the solar Check meters would be optional.

12.4 Provided that the cost of new/additional meter (s) shall be borne by the eligible consumer and installed & owned by the distribution licensee.

12.5 The meters installed shall be jointly inspected and sealed on behalf of both the parties and shall be interfered/tested or checked only in the presence of the representatives of the consumer and distribution licensee or as per the .....code<sup>4</sup> specified by the ..... Electricity Regulatory Commission;

Provided that the eligible consumer shall follow the metering specifications, provisions for placement of meter as developed by the distribution licensee from time to time and as per the .....code<sup>5</sup>;

Provided further that in case the eligible consumer is under the ambit of time of day tariff, meters compliant of recording time of day consumption/generation shall be employed.

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

### **13 Penalty or Compensation**

In case of failure of net metering system, the provisions of penalty or compensation shall be as per the provisions of the standard of performance regulations for distribution licensee.

### **14 Power to give directions**

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

### **15 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 on its own motion or on an application made before it by an interested person

### **16 Power to amend**

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<sup>4</sup> To be as per State Regulations

<sup>5</sup> To be as per State Regulations



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

(Secretary)