

# GUJARAT ELECTRICITY REGULATORY COMMISSION

WHEREAS the Gujarat Electricity Regulatory Commission have published in the Gujarat Government Gazette on different dates the following, namely:-

(Net Metering Rooftop Solar PV Grid Interactive Systems) Regulations, 2016;  
(Notification No. : 5/2016, Dated: 18.06.2016)

- A. (Net Metering Rooftop Solar PV Grid Interactive Systems) Regulations, 2016; (First Amendment), 2017;  
(Notification No. : 2 OF 2017, Dated: 06.10.2017)
- B. (Net Metering Rooftop Solar PV Grid Interactive Systems) Regulations, 2016; (Second Amendment), 2020;  
(Notification No. : 2 OF 2020, Dated: 23.01.2020)
- Inserted/ Replaced matter is shown as [ ]<sup>A</sup> at appropriate place; wordings inserted/ replaced shown within square brackets;
  - In both of above cases; -<sup>A</sup> ; superscript A implies that change is caused by Amendment '1';

## Notification No. 5/2016

### Regulations for Net Metering Rooftop Solar PV Grid Interactive Systems, June 2016

Date: 18/06/2016

#### Notification No. 5/2016

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, the Gujarat Electricity Regulatory Commission hereby makes the following Regulations for the grid connected Solar Rooftop Photovoltaic System:

#### 1. Short title, and commencement:

- 1.1 These Regulations shall be called the Gujarat Electricity Regulatory Commission (Net Metering Rooftop Solar PV Grid Interactive Systems) Regulations, 2016.
- 1.2 These Regulations shall come into force from the date of its notification in the Official Gazette.

#### 2. Definitions and Interpretations:

- 2.1 In these Regulations, unless the context otherwise requires,
- “Act”** means the Electricity Act, 2003 (36 of 2003) as amended from time to time;
  - “Agreement”** means a connection agreement entered into between the Distribution Licensee and the consumer;
  - “Area of supply”** means the geographic area within which the licensee, for the time being, is authorised by its licence to supply the electrical energy;
  - “Average Power Purchase Cost”** (APPC) means the Weighted Average Pooled Price at which the distribution licensee has purchased the electricity including cost of self-generation, if any, in the previous year from all the energy suppliers on long-term, medium-term and short-term basis, but excluding energy purchased from renewable energy sources,
  - “Billing Cycle or Billing Period”** means the period for which regular electricity bills are prepared for different categories of consumers by the Distribution licensee, as specified by the Commission;

- f) **“Commission”** means the Gujarat Electricity Regulatory Commission constituted under the Act;
- g) **“Consumer”** means any person who is supplied with electricity for his own use by a Distribution 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, for the time being, is 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;
- h) **“Connected load”** expressed in kW, kVA or HP, refers to aggregate of the manufacturer’s rated capacities of all the energy consuming devices or apparatus connected with the Distribution licensee’s service line on the consumer’s premises which can be operated simultaneously. For the purpose of levy of any charges and for deciding the supply voltage, the connected load shall be determined as per the method prescribed in the Gujarat Electricity Regulatory Commission (Electricity Supply Code and Related Matters) Regulations, 2015 and subsequent amendments thereto;
- i) **“Contracted load”** or **“Sanctioned load”** or **“Contracted demand”** means the maximum demand in kW, kVA or HP, agreed to be supplied by the licensee and indicated in the agreement executed between the licensee and the consumer;
- j) **“Distribution licensee”** or **“licensee”** or **“supply licensee”** means a person who is granted a licence under Section 14 of the Act authorizing him to operate and maintain a distribution system and supplying electricity to the consumers in his area of supply;
- k) **“Electricity Supply Code”** means the GERC (Electricity Supply Code and Related Matters) Regulations, 2015 notified by the Commission under Section 50 of the Act as amended from time to time;
- l) **“Eligible Consumer”** means a consumer of electricity in the area of supply of the distribution licensee, who intends to use a Rooftop Solar PV System, given that such system is self-owned, to offset part or all of the consumer’s own electrical requirements.
- m) **“Financial Year”** or **“Year”** means the period beginning from first (1<sup>st</sup>) of April in an English calendar year and ending on thirty first (31<sup>st</sup>) of March of the next year;
- n) **“Interconnection Point”** means the interface of Rooftop Solar PV System connected with the load side of meter/Distribution licensee cut out/switch gear fixed in the premises of the consumer.
- o) **“Invoice”** means either a Regular Bill / Supplementary Bill or a Regular Invoice/ Supplementary Invoice raised by the distribution licensee as provided in Regulation 2.1(e) of these Regulations;

<sup>B[1]</sup> (oa) **“Micro, Small and Medium (Manufacturing) Enterprise or MSME (Manufacturing) Enterprise”** shall mean a registered enterprise as per the definition of Micro, Small and Medium Manufacturing Enterprises and in accordance with the provisions of the Micro, Small and Medium Enterprises Development (MSMED) Act, 2006 as amended from time to time.

*As per Micro, Small and Medium Enterprises Development (MSMED) Act, 2006 the MSME (Manufacturing) category is defined as – The enterprises engaged in manufacture or production of goods pertaining to any industry specified in first schedule to Industries (Development and Regulation) Act, 1951 or employing plant and machinery in the process of value addition to the final product having a distinct name or character or use. The Manufacturing Enterprises are defined in terms of Investment in Plant and Machinery as under:*

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<sup>1</sup> Inserted a new sub-clause (oa) after clause (o) of sub-Regulation 2.1 of Regulation 2, vide Second amendment (B), 2020.

<b>TYPE</b>	<b>MANUFACTURING</b>
	<b>Investment in Plant &amp; Machinery</b>
<i>Micro Enterprises</i>	<i>Not more than Rs. 25 Lakh</i>
<i>Small Enterprises</i>	<i>More than Rs. 25 Lakh but does not exceed Rs. 5 Crore</i>
<i>Medium Enterprises</i>	<i>More than Rs. 5 Crore but does]B</i>

- p) **"Net Metering"** means an arrangement under which Rooftop Solar PV System installed at Eligible Consumer's premises delivers surplus electricity, if any, to the Distribution Licensee after off-setting the electricity supplied by the distribution licensee to such Eligible Consumer during the applicable billing period.
- q) **"Net meter"** means an appropriate energy meter capable of recording both import & export of electricity or a pair of meters one each for recording the import and export of electricity as the case may be;
- r) **"Obligated entity"** means the entity mandated under clause (e) of sub-section (1) of Section 86 of the Act to fulfil the Renewable Purchase Obligation and identified as such under Gujarat Electricity Regulatory Commission (Procurement of Energy from Renewable Energy Sources) Regulations, 2010 as amended from time to time;
- s) **"Premises"** means rooftops or/and Open 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;
- t) **"Rooftop Solar PV Power Plant" or "Rooftop Solar PV System" or "Solar Generating Plant"** means the Solar Photo Voltaic Power Plant including small solar systems installed on the rooftops/ground mounted or open land of consumer premises that uses sunlight for direct conversion into electricity through photovoltaic technology;
- u) **"Renewable Energy Certificate (REC)"** means the certificate issued in accordance with the procedures approved by the Central Electricity Regulatory Commission;
- v) **"Renewable Energy System"** means the system to generate electricity from such source(s) which are recognized as renewable energy source(s) by the Gujarat Electricity Regulatory Commission in GERC (Procurement of Energy from Renewable Energy Sources) Regulations, 2010 as amended from time to time;
- w) **"State Nodal Agency"** means the agency as designated by the State Government through Solar Policy 2015;
- x) **"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 to 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, or defined under any law passed by the Parliament applicable to the electricity industry in the State shall have the meaning assigned to them in the Act or in such law.
- 2.3 Headings or Capital words are inserted for convenience and may not be taken into account for the purpose of interpretation of these Regulations;
- 2.4 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;
- 2.5 Abbreviations used in these Regulations shall have the meanings as stated in **Annexure – I**.

### 3. Scope and Application:

- 3.1 These Regulations shall apply to the distribution licensee and consumers of electricity of distribution licensee availing supply from it in its area of supply in the State of Gujarat, or consumers who are receiving electricity from its own generating source but situated in the distribution licensee area.
- 3.2 The Eligible Consumer may install the Rooftop Solar PV System under net metering arrangement which,
- shall be within the permissible rated capacity as defined under these Regulations.
  - shall be located in the consumer's premises.
  - shall interconnect and operate safely in parallel with the distribution licensee network.
- 3.3 These Regulations do not preclude the right of relevant Distribution licensee or State Government Department/authorities to undertake Rooftop Solar PV projects above 1 MW capacity through alternative mechanisms.

### 4. General Principles:

The distribution licensee shall provide the net metering arrangement to the eligible consumer, who intends to install grid connected Rooftop Solar PV System, in its area of supply on non-discriminatory and first come first served basis.

Provided that the consumer is eligible to install the grid connected Rooftop Solar PV System of the rated capacity as specified under these Regulations;

Provided further that the interconnection of such system with the grid is undertaken as specified under the Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007 read with Central Electricity Authority (Technical Standards for Connectivity of Distributed Generated Resources) Regulations, 2013 and provisions of GERC (Terms and Condition of Intra-State Open Access) Regulations, 2011 as amended from time to time.

### 5. Capacity Targets for Distribution Licensee:

The Distribution Licensee shall provide net metering arrangement to Eligible Consumers.

~~<sup>B</sup> [ <sup>2</sup> Provided that the cumulative capacity to be allowed at a particular distribution transformer shall not exceed 65% of the peak capacity of the distribution transformer;~~

*Provided that the cumulative capacity to be allowed at a particular distribution transformer shall not exceed capacity of the distribution transformer.]<sup>B</sup>*

- 5.1 The distribution licensee shall update distribution transformer capacity available for connecting Rooftop Solar PV Systems under net metering arrangement on yearly basis and shall provide the information to the Commission.

Provided that if augmentation of transformer/distribution network is required, the cost of such augmentation shall be borne by the consumer.

The capacity of Rooftop Solar PV System to be installed at the premises of any consumer shall not be less than one Kilo Watt (1kW).

### 6. Eligible Consumer and individual project capacity:

- 6.1 In addition to the general eligibility defined in Regulation 2.1(I) of these Regulations, the Eligible Consumer for the Rooftop Solar PV System with net metering shall:

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<sup>2</sup> Omitted and inserted second para of Regulation 5, vide Second amendment (B), 2020.

- i. be a consumer of the local distribution licensee;
- ii. own or be in legal possession of the premises including the rooftop or terrace or building or infrastructure or open areas of the land or part or combination thereof on which the Solar PV System is proposed to be installed;
- iii. connect the proposed Rooftop Solar PV System to the Distribution System of the Licensee;
- iv. consume all of the electricity generated from the Rooftop Solar PV System at the same premises. If the consumer is not able to consume all of generated electricity in the same premises, he shall be governed by Regulation 9 of these Regulations.

6.2 <sup>A</sup>~~<sup>3</sup> The maximum Rooftop Solar PV System capacity to be installed at any Eligible Consumer's premises shall be upto a maximum of 50% of consumer's sanctioned load/contract demand;~~

~~<sup>B</sup><sup>4</sup> The maximum Rooftop Solar PV System capacity to be installed at any Eligible Consumer's premises except Residential Consumers shall be upto a maximum of 50% of consumer's sanctioned load/contract demand; whereas in case of Residential Consumers, the Rooftop Solar PV System capacity shall be irrespective of their sanctioned load/contract demand.]<sup>A</sup>~~

*The maximum Rooftop Solar PV System capacity to be installed at any Eligible Consumer's premises except Residential Consumers (including connections for common utilities such as water works, elevators, common passage lights, street lights, garden, gym, swimming pool etc. which are being charged residential tariff) and MSME (Manufacturing) Enterprise shall be upto a maximum of 50% of consumer's sanctioned load/contract demand; whereas in case of Residential Consumers (including connections for common utilities such as water works, elevators, common passage lights, street lights, garden, gym, swimming pool etc. which are being charged residential tariff) and MSME (Manufacturing) Enterprise, the Rooftop Solar PV System capacity shall be irrespective of their sanctioned load/contract demand.]<sup>B</sup>*

Provided that the installed capacity shall not be less than 1 kW and shall not exceed 1 MW;

Provided also that the installed capacity is aligned with the provisions for permitting consumer connections as stated in the Gujarat Electricity Regulatory Commission (Electricity Supply Code and Related Matters) Regulations, 2015 as amended from time to time, read with the provisions of GERC (Terms and Conditions of the Intra-State Open Access) Regulations, 2011 as amended from time to time.

## 7. Procedure for Application

Various activities and different authorities are associated with the Solar Rooftop PV project. It is necessary that the different entities carry out the works within prescribed time limit. Therefore, time frame prescribed in the table below shall be scrupulously followed by the concerned authorities.

Sr. No.	Activity	Sub Activity	Duration in day(s)
1.	Registration at <sup>B</sup> <sup>5</sup> <del>GEDA</del> <i>GEDA or agency designated by the Government of Gujarat]</i> <sup>B</sup>	<sup>B</sup> <del>[GEDA</del> <i>GEDA or agency designated by the Government of Gujarat]</i> <sup>B</sup> shall issue Registration Certificate	5 days from receipt of duly completed application
2.	Approval from Chief Electrical Inspector	CEI shall approve Single Line Diagram, Earthing Diagram and Wiring Diagram	10 days from receipt of duly completed application

<sup>3</sup> Omitted and inserted first para of sub-Regulation 6.2 of Regulation 6, vide First amendment (A), 2017

<sup>4</sup> Omitted and inserted first para of sub-Regulation 6.2 of Regulation 6, vide Second amendment (B), 2020.

<sup>5</sup> Replaced wordings "GEDA" as "GEDA or agency designated by the Government of Gujarat" of Regulation 7, vide Second amendment (B), 2020.

<del>A<sup>6</sup>3.</del>	<del>Application to Distribution Licensee</del>	<del>Applicant shall submit application in prescribed format along with following compliance and documents to Distribution Licensee</del> <ul style="list-style-type: none"> <li><del>• Capacity of Solar Rooftop to be installed (Maximum shall be 50% of the Consumer's sanctioned load)</del></li> <li><del>• Copy of registration at GEDA</del></li> </ul>	
3.	Application to Distribution Licensee	Applicant shall submit application in the prescribed format along with following compliance and documents to Distribution Licensee <ul style="list-style-type: none"> <li>• Capacity of Solar Rooftop to be installed (Subject to Regulation 6.2) ]<sup>A</sup></li> <li>• Documents related to legal possession of roof-top /NOC of co-owners, in case of joint ownership.</li> <li>• Approval of Chief Electrical Inspector (CEI) for Single Line Diagram, Earthing Diagram and Wiring Diagram.</li> </ul>	
4.	Technical Feasibility Report (TFR)	On Registration with Distribution Licensee, letter to concerned Circle/Division for TFR and informing applicant regarding specifications of CTPT, meter.	5 days from receipt of duly completed application
5.	TFR from field	TFR to include following: <ol style="list-style-type: none"> <li>a) Name of Consumer.</li> <li>b) Load details of the building where roof-top is to be installed as under: Name of Division, Sub-Division, Consumer Name, Consumer No., Address, Tariff, Contract Demand/Load, Connected Load</li> <li>c) Name of 11KV feeder, Trans-former capacity, Solar Rooftop capacity already connected as well as approved/sanctioned o this transformer including this proposed Solar Rooftop capacity whether total Rooftop solar capacity is within the rated capacity of transformer.</li> <li>d) Maximum demand recorded during last one year.</li> <li>e) No dues certificate.</li> <li>f) No legal disputes pending certificate.</li> <li>g) Detailed estimate to be recovered</li> </ol>	10 days from the letter of Head Office

<sup>6</sup> Omitted and inserted sub-activity (3) of Regulation 7, vide first amendment (A), 2017.

		<p>from applicant for strengthening of Distribution Licensee's system for the work to be carried out for providing connectivity and evacuation facility of surplus power to be injected by the applicant.</p> <p>Note: Solar installation to be restricted up to T/C capacity, and if required, it is to be strengthened at the cost of Solar Rooftop Generator.</p>	
6.	Post TFR	<p>On receipt of TFR from field, Head Office shall issue letter to applicant regarding In principle consent for connectivity, payment of connectivity charges and execution of connectivity agreement within 15 days.</p> <p style="text-align: center;">OR</p> <p>Issuing estimate to applicant for system strengthening (if required) to be paid within 30 days, payment of connectivity charges and execution of connectivity agreement.</p>	5 days from receipt of TFR from field office
7.	Signing of connectivity agreement and issuance of letter to applicant for completion of project work	<p><b>Case 1 ( No system strengthening required)</b> On payment of Connectivity Charges and execution of Connectivity Agreement within 15 days of consent. Letter to applicant to complete the project work within 6 months</p> <p><b>Case 2 (If system Strengthening required)</b> On payment of Connectivity Charges and execution of Connectivity Agreement within 30 days along with payment of estimate. letter to applicant to complete the project work within 6 months.</p>	<p>5 days from execution of agreement</p> <p>5 days from execution of agreement</p>
8.	System strengthening by Distribution Licensee	Distribution Licensee to complete the work of system strengthening on payment of estimate.	45 days in parallel to project installation
9.	Notice to applicant for commissioning	Issuance of two months-notice to applicant for commissioning of the project on expiry of 6 months project completion period.	Within 5 days on expiry of 6 months
10.	In case of non-completion of work by applicant	If no intimation received from applicant on expiry of 2 months-notice period, application shall be cancelled informing the applicant within 30 days forfeiting all charges paid for Solar Rooftop Project.	Within 5 days on expiry of 2 months
11.	On completion of work by applicant	<p>Intimation to applicant to submit following documents within 5 days: (if not submitted along with intimation of commissioning by applicant)</p> <ol style="list-style-type: none"> <li>1. Ownership of Solar PV system</li> <li>2. Installation charging approval of Chief Electrical Inspector( CEI)</li> </ol>	5 days from receipt of completion letter from applicant

		<p>3. Meter/CTPT testing certificate from High-tech lab and ERDA.</p> <p>4. All equipment should comply with IEC standards. Applicant to submit relevant IEC certificate/test reports for all equipments, i.e. for modules/SPV/inverters/cables/junction box/Transformer/RMU/CTPT/ meter etc.</p> <p>5. <sup>B</sup>[ <del>7 Installation of proper protection system (inverter shall have anti islanding feature) along with second line of protection such as no volt relay, applicant has to pay connectivity charges and execute connectivity agreement with Distribution Licensee</del></p> <p><i>Installation of proper protection system (inverter shall have anti islanding feature) along with second line of protection such as no volt relay (for Solar PV system above 10 Kw), applicant has to pay connectivity charges and execute connectivity agreement with Distribution Licensee.]<sup>B</sup></i></p> <p>Note: If applicant is not submitting above documents within 5 days, application shall be cancelled forfeiting all charges paid for Solar Rooftop Project.</p>	
12.	Intimation to Field Office	On receipt of documents from the applicant, intimation to Field Office/Sub-division for installation of meter (Solar meter to record total generation and bidirectional/ABT meter for net metering).	5 days from receipt of documents from the applicant
13.	Report from field/sub-division	Installation of meter (Solar meter to record total generation and bidirectional/ABT meter for net metering) and intimate to applicant and report to HO	7 days from receipt of letter from HO
14.	Intimation to <sup>B</sup> [ <del>GEDA</del> GEDA or agency designated by the Government of Gujarat] <sup>B</sup>	Distribution Licensee shall intimate to <sup>B</sup> [ <del>GEDA</del> GEDA or agency designated by the Government of Gujarat] <sup>B</sup> for issuing commissioning certificate	5 days from receipt of letter from Distribution Licensee
15.	Issuance of Commissioning Certificate from <sup>B</sup> [ <del>GEDA</del> GEDA or agency designated by the Government of Gujarat] <sup>B</sup>	<sup>B</sup> [ <del>GEDA</del> GEDA or agency designated by the Government of Gujarat] <sup>B</sup> shall visit the site in consultation with Distribution Licensee and applicant and issue Commissioning Certificate	5 days from the receipt of intimation from applicant



## 8. Interconnection with the Grid: Standards and Safety:

- (1) The interconnection of the Rooftop Solar PV System with the network of the distribution licensee shall be made as per the Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007, CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations, 2013 and GERC (Terms and Conditions of Intra-State Open Access), Regulations, 2011 as amended from time to time.

The interconnection of the Rooftop Solar PV System with the distribution system of the licensee shall conform to the relevant provisions of Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 as amended from time to time.

Provided that a variation in the rated capacity of the system within a range of five percent (5%) shall be allowed;

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

- (2) The connectivity levels at which the Rooftop PV Solar System shall be connected with the grid are as specified below:

Sr. No.	Connected load of Eligible Consumer	Connectivity level
1.	Upto 6 kW	240 V- single phase
2.	Above 6 kW and upto 18.65 kW	415 V-Three phase
3.	Above 18.65 kW and upto 100 kW/kVA	415 V-Three phase
4.	Above 100 kW/kVA	HT level

- (3) The above connectivity norms are applicable to all the Rooftop Solar PV System for seeking connectivity with the network of the distribution licensees. HT consumers may install Rooftop Solar PV System at LT/HT voltage and connect them to their LT/HT system for interconnection of Rooftop Solar PV System with the local distribution licensee's grid, for which the relevant provisions of the Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010, as amended from time to time, Central Electricity Authority (Standards of connectivity of distributed generation resources) Regulations, 2013 and GERC (Terms and Conditions of Intra- State Open Access) Regulations, 2011 as amended from time to time shall be applicable.
- (4) The Rooftop Solar PV Energy Generator shall be responsible for safe operation, maintenance and rectification of defects of its system up to the interconnection point beyond which the responsibility of safe operation, maintenance and rectification of any defects in the system including the net meter shall rest with the distribution licensee.
- (5) The consumer/ Rooftop Solar PV Energy Generator shall be solely responsible for any accident to human being/ animals whatsoever (fatal/non-fatal/departmental/non-departmental) that may occur due to back feeding from the Rooftop Solar PV System when the grid supply is off, based on the issue decided by the Chief Electrical Inspector. The distribution licensee reserves the right to disconnect the consumer's installation at any time in the event of such exigencies to prevent accident or damage to men and materials.
- (6) The tests as per EN 50160 and as per distribution licensee's standards shall be carried out by the Chief Electrical Inspector to ensure the quality of power generated from the Rooftop Solar PV System.
- (7) Any alternate source of supply shall be restricted to the consumer's network and the consumer shall be responsible to take adequate safety measures to prevent battery power/diesel generator power/back-up power extending to distribution licensee's LT grid on failure of distribution licensee's

grid supply.

- (8) The distribution licensee shall have the right to disconnect the Rooftop Solar PV System from its system at any time in the following conditions:
  - (i) Emergencies or maintenance requirement on the distribution licensee's system,
  - (ii) Hazardous conditions existing on the distribution licensee's system due to operation of Rooftop Solar PV System or protective equipment as determined by the Distribution Licensee/Transmission Licensee/SLDC, and
  - (iii) Adverse electrical effects, such as power quality problems, on the electrical equipment of other consumers of the distribution licensee caused by the Rooftop Solar PVS system as determined by the distribution licensee.
- (9) Subject to sub Regulation 8(4) above, the distribution licensee may call upon the Rooftop Solar PV generator to rectify the defect within two days of such intimation.
- (10) The Rooftop Solar PV System should be capable of detecting an unintended islanding condition. This system must have anti-islanding protection to prevent any unfavourable conditions including failure of supply. IEC-62116 shall be followed to test islanding prevention measure for grid connected photovoltaic inverters.
- (11) Every Rooftop Solar PV System shall be equipped with automatic synchronization device:

Provided that Rooftop Solar PV System using inverter shall not be required to have separate synchronization device, if the same is inherently built into the inverter.
- (12) The Rooftop Solar PV System operating in parallel with electricity system shall be equipped with the following protective functions to sense abnormal conditions on electricity system and cause the Rooftop Solar PV System to be automatically disconnected from the electricity system or to prevent the Rooftop Solar PV System from being connected inappropriately to the electricity system;
  - (i) Over and under voltage trip functions if voltage reaches above 110% or below 80% respectively with a clearing time upto two (2) seconds;
  - (ii) Over and under frequency trip functions, if frequency reaches 50.5 Hz or below 47.5 Hz with a clearing time upto 0.2 seconds;
  - (iii) The Rooftop Solar PV System shall cease to energize the circuit to which it is connected in case of any fault in the circuit;
  - (iv) A voltage and frequency sensing and time delay function to prevent the Rooftop Solar PV System from energizing a de-energized circuit and to prevent the Rooftop Solar PV System from reconnecting with electricity system unless voltage and frequency is within the prescribed limits and are stable for at least sixty (60) seconds; and
  - (v) A function to prevent the Rooftop Solar PV System from contributing to the formation of an unintended island, and cease to energize the electricity system within two (2) seconds of the formation of an unintended island.
- (13) The equipment of the Rooftop Solar PV System shall meet the following requirements:
  - (i) Circuit Breakers or other interrupting equipment shall be suitable for their intended application with the capability of interrupting the maximum available fault current expected at their location,
  - (ii) The Rooftop Solar PV System and associated equipment shall be so designed that the failure of any single device or component shall not potentially compromise the safety and reliability of the electricity system and

- (iii) Paralleling device of the Rooftop Solar PV System shall be capable of withstanding 220% of the nominal voltage at the interconnection point.
- (14) Every time the Rooftop Solar PV System of the Eligible Consumer is synchronized with the distribution system, it shall not cause voltage fluctuation greater than  $\pm 5\%$  at the point of inter connection.
- (15) After considering the maintenance and safety procedures, the distribution licensee may require a Rooftop Solar PV System to provide a manually operated isolating switch between the Rooftop Solar PV System and the electricity system, which shall meet following requirements:
  - (i) Allow visible verification that separation has been accomplished;
  - (ii) Include indications to clearly show open and closed positions;
  - (iii) Be capable of being reached quickly and conveniently twenty four (24) hours a day by licensee's personnel without requiring clearance from the applicant;
  - (iv) Be capable of being locked in the open position;
  - (v) May not be rated for load break nor may have feature of over-current protection; and
  - (vi) Be located at a height of at least 2.44 m above the ground level.
- (16) Prior to synchronization of the Rooftop Solar PV System for the first time with the distribution system of the licensee the applicant and the licensee shall agree on the protection features and control diagrams.
- (17) The power conditioning unit shall have the features of filtering out harmonics and other distortions before injecting the energy into the system of the distribution utility. The technical standards, power quality standards and inverter standards shall be as per Annexure – V of these Regulations or any other standards as may be specified by CEA from time to time.
- (18) The commissioning test of the Rooftop Solar PV System shall be carried out in the presence of representatives of consumer/owner of Rooftop Solar PV System, GEDA and concerned officer of the distribution licensee. The commissioning certificate shall be signed by all the above named parties. Date of commissioning shall be recognised from the date on which successful commissioning test is conducted.
- (19) The Commissioning certificate must contain of the following details:
  - i Details of Solar PV panels including name of the manufacturer, type, size/capacity of the panels, etc.
  - ii Details regarding inverter, types of inverters and size;
  - iii Total capacity of the Solar PV Plant;
  - iv Details of meter installed along with the types of meter accuracy, serial number, etc.

## 9. Energy Accounting and Settlement:

~~<sup>B7</sup> Any energy injected prior to commissioning shall be deemed as inadvertent power. The consumer/Solar PV owner is not eligible to receive any monetary compensation for such inadvertent power.~~

~~9.1 For each billing period, the licensee shall show the quantum of electricity injected by Eligible Consumer/Solar PV system in the grid, electricity supplied by the distribution licensee, net billed electricity for payment by the consumer and net exported energy after adjustment against the consumption separately.~~

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<sup>8</sup> Omitted and inserted Regulation 9, vide Second amendment (B), 2020.

**(1) For Residential and Government consumers**

9.2 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 PV System, the distribution licensee shall raise invoice for the net electricity consumption at the consumer's prevailing tariff;

In the event the electricity injected exceeds the electricity consumed during the billing period, such excess injected electricity shall be purchased by the concerned Distribution Licensee at the APPC rate determined by the Commission for the year in which the Rooftop Solar PV System is commissioned for whole life of the Rooftop Solar PV System; e.g. for the Rooftop Solar PV System commissioned during 2016-17, the APPC rate determined by the Commission for FY 2015-16 shall be applicable.

Banking of energy shall be allowed within one billing cycle of the consumer.

The distribution licensee in addition to consumer tariff shall be eligible to raise invoice for any other charges as allowed by the Gujarat Electricity Regulatory Commission from time to time.

**(2) ~~For Industrial, Commercial and Other Consumers utilizing the 'energy attribute' of the generated solar energy from the Rooftop Solar PV System and not registered under REC mechanism.~~**

9.3 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 PV System, the distribution licensee shall raise invoice for the net electricity consumption at the consumer's prevailing tariff;

In the event the electricity injected exceeds the electricity consumed during the billing period, such excess injected electricity after adjustment of consumption shall be purchased by the concerned Distribution Licensee at the APPC rate determined by the Commission for the year in which the Rooftop Solar PV System is commissioned for whole life of the Rooftop Solar PV System;

Banking of energy shall be allowed within one billing cycle of the consumer, wherein set off may be given against energy consumed at any time of the billing cycle. However, peak charges shall be applicable for consumption during peak hours.

The distribution licensee in addition to consumer tariff shall be eligible to raise invoice for any other charges as allowed by the Gujarat Electricity Regulatory Commission from time to time.

**(3) ~~For Industrial, Commercial and Other Consumers utilizing the 'energy attribute' of the generated solar energy from the Rooftop Solar PV System and utilizing the 'renewable attribute' for RPO compliance.~~**

9.4 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 PV System, the distribution licensee shall raise invoice for the net electricity consumption at the consumer's prevailing tariff;

In the event the electricity injected exceeds the electricity consumed during the billing period, such excess injected electricity after adjustment of consumption in 15 minutes time block shall be purchased by the concerned Distribution Licensee at the APPC rate determined by the Commission for the year in which the Rooftop Solar PV System is commissioned for whole life of the Rooftop Solar PV System;

**(4) ~~For Industrial, Commercial and Other Consumers utilizing the 'energy attribute' of the generated solar energy from the Roof top Solar PV System and utilizing the 'renewable attribute' for REC.~~**

9.5 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 PV System, the distribution licensee shall raise invoice for the net electricity consumption at the consumer's prevailing tariff;

~~In the event the electricity injected exceeds the electricity consumed during the billing period, such excess injected electricity after adjustment of consumption in 15 minute time block shall be purchased by the concerned Distribution Licensee at the 85% of APPC rate determined by the Commission for the year in which the Rooftop Solar PV System is commissioned for whole life of the project;~~

- 9.6 ~~The energy accounting and settlement for wheeling power from solar projects other than Rooftop set up for captive purpose shall be in line with the provision at Para 9.3 to 9.5.~~

*Energy Accounting and Settlement Any energy injected prior to commissioning shall be deemed as inadvertent power. The consumer/Solar PV owner is not eligible to receive any monetary compensation for such inadvertent power.*

*For each billing period, the licensee shall show the quantum of electricity injected by Eligible Consumer/Solar PV system in the grid, electricity supplied by the distribution licensee, net billed electricity for payment by the consumer and net exported energy after adjustment against the consumption separately.*

**9.1 For Residential and Government Consumers:**

*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 PV System, the distribution licensee shall raise an invoice for the net electricity consumption at the consumer's prevailing tariff;*

*In the event the electricity injected exceeds the electricity consumed during the billing period, such excess injected electricity shall be compensated by the concerned Distribution Licensee at the rate of Rs. 2.25 per unit or the rate, if any, specified by the Commission for Surplus Injection Compensation (SIC) from time to time for the whole life of the Rooftop Solar PV System.*

*Banking of energy shall be allowed within one billing cycle of the consumer.*

*The distribution licensee in addition to consumer tariff shall be eligible to raise an invoice for any other charges as allowed by the Gujarat Electricity Regulatory Commission from time to time.*

**9.2 For Industrial other than MSME (Manufacturing) Enterprise, Commercial and Other Consumers utilizing the 'energy attribute' of the generated solar energy from the Rooftop Solar PV System and not registered under REC mechanism:**

*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 PV System, the distribution licensee shall raise an invoice for the net electricity consumption at the consumer's prevailing tariff;*

*In the event the electricity injected exceeds the electricity consumed during the billing period, such excess injected electricity after adjustment of consumption shall be compensated by the concerned Distribution Licensee at the rate Rs. 1.75 per unit or the rate, if any, specified by the Commission for Surplus Injection Compensation (SIC) from time to time for whole life of the Rooftop Solar PV System;*

*Banking of energy shall be allowed within one billing cycle of the consumer, wherein set off may be given against energy consumed at any time of the billing cycle. However, peak charges shall be applicable for consumption during peak hours.*

*The distribution licensee in addition to consumer tariff shall be eligible to raise an invoice for any other charges as allowed by the Gujarat Electricity Regulatory Commission from time to time.*

**9.3 For MSME (Manufacturing) Enterprise Consumers utilizing the 'energy attribute' of the generated solar energy from the Rooftop Solar PV System and not registered under REC mechanism:**

*The energy accounting shall be carried out on 15 minutes time block basis*

*In the event the electricity injected by the Rooftop Solar PV System exceeds the electricity consumed during any 15 minutes time block resulting in net energy injection in to the grid, such excess injection*

*after in to the grid shall be compensated by the concerned Distribution Licensee at the rate of Rs. 1.75 per unit or the rate, if any, specified by the Commission for Surplus Injection Compensation (SIC) from time to time for whole life of the Rooftop Solar PV System;*

*In the event the electricity consumption by the eligible consumer during any 15 minutes time block period exceeds the electricity injected by the Eligible Consumer's Rooftop Solar PV System resulting in energy supplied by the distribution licensee, the distribution licensee shall raise an invoice for the aggregated sum of such electricity supply in each 15 minutes time block during the billing period at the consumer's prevailing tariff;*

*The distribution licensee in addition to consumer tariff shall be eligible to raise an invoice for any other charges as allowed by the Gujarat Electricity Regulatory Commission from time to time.*

*However, if the installation of Roof Top Solar PV by the MSME (Manufacturing Enterprise) consumer is within 50% of the Contracted capacity, then it shall be governed by Regulation 9.2 as above.*

**9.4 For Industrial, Commercial and Other Consumers utilizing the 'energy attribute' of the generated solar energy from the Rooftop Solar PV System and utilizing the 'renewable attribute' for RPO compliance.**

*The energy accounting shall be carried out on 15 minutes time block basis.*

*In the event the electricity injected by the Rooftop Solar PV System exceeds the electricity consumed during any 15 minutes time block resulting in net energy injection in to the grid, such excess injection after adjustment of consumption in 15 minutes time block shall be compensated by the concerned Distribution Licensee at the rate of Rs. 1.75 per unit or the rate, if any, specified by the Commission for Surplus Injection Compensation (SIC) from time to time for whole life of the Rooftop Solar PV System;*

*In the event the electricity consumption by the eligible consumer during any 15 minutes time block period exceeds the electricity generated by the Eligible Consumer's Rooftop Solar PV System resulting in energy supplied by the distribution licensee, the distribution licensee shall raise an invoice for the aggregated sum of such electricity supply in each 15 minute time block during the billing period at the consumer's prevailing tariff.*

**9.5 For Industrial, Commercial and Other Consumers utilizing the 'energy attribute' of the generated solar energy from the Rooftop Solar PV System and utilizing the 'renewable attribute' for REC.**

*The energy accounting shall be carried out on 15 minutes time block basis.*

*In the event the electricity injected by the Rooftop Solar PV System exceeds the electricity consumed during any 15 minutes time block resulting in net energy injection in to the grid, such excess injection after adjustment of consumption in 15 minutes time block shall be compensated by the concerned Distribution Licensee at the rate of Rs. 1.50 per unit or the rate, if any, specified by the Commission for Surplus Injection Compensation (SIC) from time to time for whole life of the Rooftop Solar PV System;*

*In the event the electricity consumption by the eligible consumer during any 15 minutes time block period exceeds the electricity injected by the Eligible Consumer's Rooftop Solar PV System resulting in energy supplied by the distribution licensee, the distribution licensee shall raise an invoice for the aggregated sum of such electricity supply in each 15 minute time block during the billing period at the consumer's prevailing tariff.*

**9.6 The energy accounting and settlement for wheeling power from solar projects other than Rooftop set up for self-consumption purpose shall be in line with the provision at Regulation 9.2 to Regulation 9.5.**

**9.7 In the event of any amount payable by the concerned DISCOM at the end of billing cycle, the same shall be shown as credit and to be carried forward in the next billing cycle. At the end of Financial Year, if the credit amount for the consumer is more than Rs. 100/- , such credit amount shall be paid by the concerned DISCOM to the consumer. In case the credit amount at the end of the Financial Year is less than Rs. 100/-, the same shall be carried forward in the next billing cycle of the following Financial**

**10. Dispute Resolution:**

- 10.1 In case of any dispute pertaining to these Regulations and its interpretation, it shall be decided by the Gujarat Electricity Regulatory Commission by observing the prescribed procedure.

**11. Solar Renewable Purchase Obligation:**

- 11.1 The quantum of electricity consumed by the Eligible Consumer, who is not defined as an obligated entity, from the Rooftop Solar PV System under net-metering arrangement shall qualify towards compliance of Renewable Purchase Obligation (RPO) for the distribution licensee and no REC shall be issued as the generated solar energy shall be used to meet the Distribution licensee's RPO.

Industrial, Commercial and other than Residential and Government Consumers, utilizing both, 'energy attribute' as well as 'renewable attribute' of the generated solar energy, the solar energy generated and consumed by such consumers during the 15 minute time block shall be credited towards meeting the consumer's RPO and no REC shall be issued for such generation.

- 11.2 However, surplus energy, if any, exported during the 15 minute time block purchased by distribution licensee, shall be credited towards meeting the Distribution Licensee's RPO and no REC shall be issued for such generation.

Provided that if such consumers utilize the 'renewable attribute' to get Renewable Energy Certificate under the REC mechanism then entire solar energy generated in 15 minute time block shall be considered for issuing REC.

**12. Applicability of other charges:**

- 12.1 The Rooftop Solar PV System under net metering arrangement, installed on the Eligible Consumer's premises, shall be exempted from Transmission Charge, Transmission Loss, Wheeling Charge, Wheeling Loss, Cross Subsidy Surcharge and Additional Surcharge.

**13. Metering arrangement:**

- 13.1 The metering system shall be as per the Central Electricity Authority (Installation & Operation of Meters) Regulations, 2006as amended from time to time.

- 13.2 Bi-directional meter or alternately two separate meters for import and export of the same accuracy class as the consumer's meter existing before the commissioning of the Rooftop Solar PV System shall be installed in replacement of existing meter. Such meters may be provided by the distribution licensee or consumer. If the meter is installed by the distribution licensee in that case, cost of the same shall be recovered from the consumer.

- 13.3 Industrial, Commercial and Other consumers utilizing both 'energy attribute' as well as 'renewable attribute' of the generated solar energy shall have to use ABT compliant meter.

- 13.4 These meters shall be Meter Reading instrument (MRI) or wireless equipment compliant 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.

13.5 <sup>B</sup>~~9~~ The main Solar Meters shall be of 0.2s class accuracy and with facility for recording meter readings using Meter Reading Instrument (MRI) or wireless equipment. Check meters shall be mandatory for Rooftop Solar PV Systems having capacity more than 20 kW. For installations size of less than or equal to 20 kW, the Solar Check meters would be optional.

~~Provided that the cost of new/additional meter (s) shall be borne by the Eligible Consumer such meter shall be tested and installed by the distribution licensee.~~

~~The meters installed shall be inspected, verified for the accuracy and sealed by the distribution licensee in the presence of the representative of the consumer.~~

~~Provided 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 installed.~~

*The main Solar Meter and Net Meter shall be of 1.0 and 0.5S or better class accuracy as per Table (a) 'Meter for Solar Generation Measurements' and Table (b) 'Meter for Net Metering Measurements' respectively at Annexure VI and with facility for recording meter readings using Meter Reading Instrument (MRI) or wireless equipment. Check Meters shall be mandatory for Rooftop Solar PV Systems having capacity more than 20 kW. For installations size of less than or equal to 20 kW, the Solar Check Meters would be optional.*

*Provided that the cost of new/additional meter (s) shall be borne by the Eligible Consumer and that such meter(s) shall be tested and installed by the distribution licensee.*

*The meters installed shall be inspected, verified for the accuracy and sealed by the distribution licensee in the presence of the representative of the consumer.*

*Provided that in case the Eligible Consumer is under the ambit of time of day tariff, meters capable of recording time of day consumption/generation shall be installed.]<sup>B</sup>*

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

**14. Sharing of CDM benefits:**

100% of the gross proceeds on account of CDM benefit to be retained by the Rooftop Solar PV System owner.

**15. Demand Cut:**

No demand cut shall be applicable for the Residential and Government consumers. However, Industrial, Commercial and Other consumers shall be exempted from demand cut up to 50% of the installed solar capacity, wherever technically feasible.

**16. Penalty or Compensation:**

In case of failure of net metering system, penalty or compensation shall be payable as per the provisions of the GERC (Standard of Performance of Distribution Licensee) Regulations, 2005 as amended from time to time.

**17. Power to give directions:**

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

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<sup>9</sup> Omitted and inserted sub-Regulation 13.5 of Regulation 13, vide Second amendment (B), 2020.



**18. 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, after following due process of law.

**19. Power to amend:**

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

**20. Power to Removal of difficulty:**

If any difficulty arises in giving effect to these Regulations, the Commission may issue necessary orders or clarification/interpretation to remove such difficulties either on its own volition, or based on representations from stakeholders.

Date: 18/06/2016

Place: Gandhi Nagar

**Sd/-**

**ROOPWANT SINGH, IAS**

**Secretary**

**Gujarat Electricity Regulatory Commission**