

GERC/Legal/2023 No- 1087
Date: 06.06.2023.

- 7 JUN 2023



R. P. A. D.

Gujarat Electricity Regulatory Commission

6th Floor, GIFT ONE, Road 5-C, Zone 5, GIFT CITY,
Gandhinagar-382 355, GUJARAT, INDIA.
Ph. : +91-79-2360 2000 Fax : +91-79-2360 2054/55
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To,
The Managing Director
Madhya Gujarat Vij Company Limited
Sardar Patel Vidyut Bhavan,
Race Course Circle, Vadodara - 390007.

Sub: Petition No. 2210 of 2023, in the matter of Petition under Sections 61, 66, 86 (1) (e) and 181 and other applicable provisions of the Electricity Act, 2003 read with GERC (Net Metering Rooftop Solar PV Grid Interactive System) Regulations, 2016 and subsequent amendments thereto, for approval of levy of per KW based System strengthening charges from Residential Solar applicants towards expenditure to be incurred by Distribution Licensee for System strengthening of Distribution Network for providing new Solar Rooftop System/enhancement in existing solar capacity to residential category consumers.

The above **Petition No. 2210 of 2023**, is scheduled for hearing on **21.06.2023 at 11:30 Hours**. You are informed to remain present either personally or through your advocate or through authorized representative at the Commission's Office at 6th Floor, GIFT ONE Tower, Zone 5, Road 5C, GIFT City, Gandhinagar - 382355, Gujarat. In the absence, the matter will be decided on merits and on the basis of records.

You are also directed to provide five copies of further submission if any, to the Commission, from the receipt of this letter.

With Regards,

[Roopwanti Singh, IAS]
Secretary

Gujarat Electricity Regulatory Commission
Gandhinagar, Gujarat

Copy to the Co-Petitioners:

- (1) The Managing Director, Paschim Gujarat Vij Company Limited.
- (2) The Managing Director, Uttar Madhya Gujarat Vij Company Limited.
- (3) The Managing Director, Dakshin Gujarat Vij Company Limited.



MADHYA GUJARAT VIJ COMPANY LTD.

Regd. Office : Sardar Patel VidyutBhavan,

Race Course, Vadodara - 390 007.

Tele: (Dir) 0265-2330635 - PBX : 2310582 to 86

FAX: (Dir) 0265 - 2340692 Email : acerc.mgvcl@gebmail.com

CIN No. U40102GJ2003GCO42907



Ref No.MGVCL/RA&C/DSM/328

Date: 1.05.2023

To
The Secretary
Gujarat Electricity Regulatory Commission
6th floor, GIFT-ONE
Road 5C, Zone-5, GIFT CITY
Gandhinagar 382355

Sub: Petition under Section - 61, 66, 86 (1) (e) and 181 and other applicable provisions of the Electricity Act 2003 read with the Gujarat Electricity Regulatory Commission (Regulations for Net metering Rooftop Solar PV Grid interactive System) Notification No.5 of 2016 and subsequent amendments, for approval of levy of per KW based System strengthening charges from Residential Solar applicants toward expenditure to be incurred by Distribution Licensee for System strengthening of Distribution Network for providing new Solar rooftop System / Enhancement in existing solar Capacity to Residential Category Consumers.

Respected Sir,

Please find attached herewith the Petition (1-original plus 4- copies) on above mentioned subject. MGVCL has made payment of petition filling fees of Rs 10,000/- as per Schedule 24 (1) of GERC (Fees, Fines and Charges) Regulations 2005 on 1.5.2023.

And the details thereof are attached herewith.

Thanking You,

Yours faithfully

(K.B. Dhebar)

Add. Chief Engineer (RA&C)
MGVCL

Copy to:-

1. The Chief Engineer, PGVCL Rajkot
2. The Chief Engineer, DGVCL, Surat
3. The Chief Engineer, UGVCL, Mehsana

**BEFORE THE HONORABLE GUJARAT ELECTRICITY REGULATORY
COMMISSION AT GANDHINAGAR**

Case No.

Filing No.

IN THE MATTER OF

Petition under Section – 61, 66, 86 (1) (e) and 181 and other applicable provisions of the Electricity Act 2003 read with the Gujarat Electricity Regulatory Commission (Regulations for Net metering Rooftop Solar PV Grid interactive System) Notification No.5 of 2016 and subsequent amendments, for approval of levy of per KW based System strengthening charges from Residential Solar applicants toward expenditure to be incurred by Distribution Licensee for System strengthening of Distribution Network for providing new Solar rooftop System / Enhancement in existing solar Capacity to Residential Category Consumers.

**AND
IN THE MATTER OF**

Madhya Gujarat Vij Company Ltd (MGVCL)
"Sardar Patel Vidyut Bhavan, Race Course,
Vadodara - 390 007.

PETITIONER

**AND
IN THE MATTER OF**

1. Paschim Gujarat Vij Company Ltd (PGVCL)
Rajkot
2. Uttar Gujarat Vij Company Ltd (UGVCL)
Mehsana
3. Dakshin Gujarat Vij Company Ltd (DGVCL)
Surat

CO-PETITIONERS

MOST RESPECTFULLY SHOWTH

PREAMBLE

- 1.0 The erstwhile Gujarat Electricity Board has been unbundled in seven functional entities under the Gujarat Electricity Industry Reorganization and Comprehensive Transfer Scheme, 2003 notified under the Gujarat Electricity Industry (Reorganization and Regulation) Act 2003. The activities of Generation, Transmission, Distribution, Bulk power purchase and supply undertaken by erstwhile Gujarat Electricity Board has been entrusted to separate seven functional entities. The generation activity is assigned to Gujarat State Electricity Corporation Ltd. (GSECL), the transmission activity is assigned to Gujarat Energy Transmission Corporation Ltd. (GETCO) and the distribution activity is assigned to four Distribution companies viz. Uttar Gujarat Vij Company Ltd. (UGVCL), Madhya Gujarat Vij Company Ltd. (MGVCL), Dakshin Gujarat Vij Company Ltd. (DGVCL) and Paschim Gujarat Vij Company Ltd. (PGVCL). Further, the function of bulk purchase and bulk sale of power along with co-ordination activities is assigned to Gujarat Urja Vikas Nigam Ltd. (GUVNL) as per the re-organization scheme.
- 2.0 It is submitted that in exercise of power conferred under Section – 181 read with Section – 61 ,66 & 86 (1) (e) of the Electricity Act 2003, Hon'ble Commission vide Notification No: 5 of 2016 notified the Gujarat Electricity Regulatory Commission (Regulations for Net metering Rooftop Solar PV Grid interactive System) Regulations, 2016 .
- The clause no., 5 states that "The Distribution licensee shall provide net metering arrangement to Eligible Consumers. 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".
- The clause no., 5.1 states that "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 the augmentation shall borne by the consumer".
- The copy of the Regulations is annexed in petition as an **ANNEXURE-A**.
- 3.0 Hon'ble Commission vide Notification no. 2 of 2020 (**ANNEXURE-B**) has amended the Clause no. 5 of the Regulations as under:-
- "The Distribution Licensee shall provide net metering arrangement to Eligible Consumers. Provided that the cumulative capacity to be allowed at a particular Distribution Transformer shall not exceed capacity of Distribution transformer". And mention in clause no. 5.1 of principal



regulation that “if augmentation of transformer/Distribution network is required the cost of the such augmentation shall borne by the consumer.”

SUBMISSION:-

- 4.0 It is submitted that in terms of the provisions of above regulations, State owned Distribution Licensees are recovering charges in estimates towards Net metering charge, Meter Box charge, Meter testing fee, Connectivity charge and System strengthening (i.e. augmentation of transformer/ Distribution network) if application to provide new solar rooftop system / enhancement of existing solar capacity based on actual expenditure incurred as per the prevailing cost data.
- 5.0 Further, it is submitted that solar capacity for new system / enhancement of existing capacity shall allow in KW up to the Transformer capacity in KW by considering 0.9 PF. So if the capacity of distribution transformer is 100 KVA then DISCOMs allow cumulative capacity up to 90 KW on that transformer. DISCOMs considered the solar rooftop applications up to the spare capacity of solar (i.e. capacity of distribution transformer) on a particular transformer without recovering transformer augmentation cost (i.e. System Strengthening) on first come first serve basis.
- If, any applicant comes after exhaust of spare capacity of Distribution Transformer for solar system, DISCOMs propose augmentation of Distribution Transformer centre to the next higher capacity and issue estimate to the applicant to recover the differential cost of Distribution Transformer Augmentation charges (i.e. System strengthening charge).
- 6.0 It is submitted that day by day penetration of Solar is increasing and as a result, there is possibility of capacity of Transformers for solar system in most of societies in urban areas will be reached to 100 %. Due to this, large amount of estimate is required to be paid by individual applicant, who applied first after exhaust solar capacity of a particular transformer, which may affect the progress of Scheme. As of now, number of such type of consumers is less but in future the number may be increased.
- 7.0 Under SURYA Gujarat scheme, the Government is promoting solar rooftop by giving good amount of subsidy to the residential solar roof top connections and as a result, as on 20.4.23 total **393080** Nos **1544.447** MW solar systems are installed in the PV Slab from 1 KW to 100 KW and it is seen that maximum benefit taken by consumer's in 3.01 to 4 KW Slab (i.e 184043 Nos) which covers 47 % of total RTS installed as shown in table A. Due to this rise in providing roof top solar it is resulted into major variations in the estimate amount to be



recovered from solar applicants for new solar system / enhancement of existing solar system with system strengthening charge.

TABLE A

Sr., No	PV Capacity Slab	SPV System Installed			
		No's	%	MW	%
1	1.00 KW	291	0.07	0.289	0.02
2	1.01 KW TO 2.00 KW	11120	2.83	21.82	1.41
3	2.01 TO 3.00 KW	88314	22.47	256.52	16.61
4	3.01 KW TO 4.00 KW	184043	46.82	638.62	41.35
5	4.01 KW TO 5.00 KW	52806	13.43	238.33	15.43
6	5.01 KW TO 6 KW	39006	9.92	218.28	14.13
7	Above 6 KW & Upto 10 KW	15396	3.92	132.55	8.58
8	Above 10 KW & Upto 25 KW	1863	0.47	28.97	1.88
9	Above 25 KW & Upto 50 KW	212	0.05	7.023	0.45
10	Above 50 KW & Upto 100 KW	29	0.01	2.047	0.13
11	Above 100 KW & Upto 500 KW	0	0.00	0	0.00
12	Total	393080	100.00	1544.47	100.00

8.0 It is submitted that the present provisions of the Regulations for recovery of System strengthening charges on the basis of actual expenditure incurred towards augmentation of transformer / strengthening of line etc. in case of System strengthening is required is resulting into wide variability and non-uniformity in the estimate charges. It will discourage incoming new applicants after capacity for solar system of particular transformer exhaust and will create disparity among consumers of same society owing to the above factors leading to consumer resentment / grievances.

9.0 It is submitted that Nos. of consumers/applicants have been representing to various authorities including at Government of Gujarat level to reduce the charges to be recovered by Distribution licensee from solar residential applicants for new solar system / enhancement of existing solar capacity, even in case when estimate issued with System strengthening Charge.

In view of above, there is need to review the present norms for recovery of charges specifically to provide net metering arrangement to eligible consumer for new solar rooftop system / enhancement of existing solar



capacity with system strengthening charge, so as to avoid discrepancy in the estimate charges. Also to rationalize the charges by adopting appropriate methodology / mechanism.

- 11.0 Under the circumstances, with an aim to bring standardization and simplicity in the charges and also to have uniform applicability of such charges across ALL DISCOMs, MGVCL as petitioner and Other Distribution Companies as Co-petitioners have preferred the present petition for seeking for approval of Hon'ble Commission for levy of per KW based charges from Residential Solar applicants toward expenditure to be incurred by Distribution Licensee for System strengthening of Distribution Network for providing new Solar rooftop system / enhancement in existing solar capacity to Residential Consumers.

APPROACH/METHODOLOGY FOR APPROVAL OF PER KW BASED CHARGES

- 12.0 As a part of 'Ease of doing business' and at the same time to ensure simplicity, uniformity and acceptability in the estimate charges, it is felt appropriate to suggest for per KW based estimate charge on demanded solar capacity from Residential Consumers to provide net metering arrangement for new solar rooftop system / enhancement of existing solar capacity instead of present norms of recovery of charges on the basis of actual expenditure incurred by Distribution Licensee in case of System strengthening required.

- 13.0 It is submitted that the merits enumerated in case of per KW based recovery of estimate charges for Residential Category consumers to provide net metering arrangement for new solar rooftop system / enhancement capacity of existing solar system intended to be supplied through overhead network are reiterated hereunder.

- There shall be uniform recovery of transformer charges from all applicants for Residential new solar rooftop system / enhancement of existing solar capacity.
- Benefited to consumers who really want to adopt solar rooftop system but unable to pay large amount of estimate towards transformer augmentation due to financial situation which will promote solar energy development in the state.
- It will be easy for prospective consumers to work out cost towards Residential solar rooftop new connection/ Additional load.
- Prompt issuance of estimate would be possible.
- Installation of solar rooftop system would be faster.



- Recovery of estimate charge for installation of solar rooftop system for residential consumers will be socialised so that no huge burden comes on individual consumer.

14.0 Under the proposed methodology, the recovery of charges shall be on Rs per KW basis for solar capacity demanded by prospective Residential applicants seeking New Solar Rooftop System / enhancement in existing solar capacity and proposed to be worked out as under:

- For determination of per KW based charges, methodology on the basis of transformer centre augmentation charges is derived. As per the Cost data of Discoms for Rural area and urban areas, Transformer augmentation charges separately calculated. Calculation sheet attached herewith – **Annexure-C**
- Per KVA charge is to be derived on the basis of Augmentation charges for particular transformer center is to be divided by full capacity of that transformer instead of differential capacity of augmentation with the concept that the augmentation charges is to be bared by all prospective consumers of that transformer instead of recovering of total cost of augmentation of transformer from first single incoming consumers for which augmentation required.

For Example:- As per RE Cost Data- rural area

Transformer Augmentation Charge for 10 to 16 KVA is =
Rs. 7332

This charge is for differential capacity of 6 KVA of new Consumers

But Per KVA charge is to be derived on full capacity
i.e. $16 \text{ KVA} = 7332 / 16 = \text{Rs.}458 / \text{KVA}$.

- In line with above concept Per KVA Charge is derived for all augmentation capacity from 10 KVA to 200 KVA with respect to RE Cost data and Urban Cost data separately for all Discoms. Accordingly average for Per KVA charges is calculated for augmentation capacity from 10 KVA to 200 KVA which is as under.

As per RE Cost data of All Discoms:-

Ave.Per KVA Charges: - 824 Rs

With Considering 0.9 PF,

Ave. Per KW Charges: - $824/0.9 = 915 \text{ Rs}$

As per Urban Cost data of All Discoms:-



Ave.Per KVA Charges: - 788 Rs

With Considering 0.9 PF.

Ave. per KW Charges= $788/0.9 = 875$ Rs

- For determining per KW based charge, as maximum solar penetration in urban area, the per KW Cost is to be considered as per urban cost data with nearer round off and tabulated as under.

Particulars	Fix per KW cost
System development charges for Residential consumers for new solar rooftop system / enhancement of existing solar capacity	Rs. 900 / KW

- 15.0** In terms of above, the per KW charges works out to Rs. 900/ as system strengthening charge for providing Net metering arrangement to Residential consumers for New Solar Rooftop System / Enhancement of existing solar Capacity..
- 16.0** It is proposed to approve above charges applicable from the date of the order of Hon'ble Commission.

It is further to submit that the order shall be applicable to applicants to whom estimates are not issued on the date of the Order of Hon'ble Commission.

- 17.0** It is submitted that the per KW based estimate charges as worked out as per above methodology shall be applicable with following terms and conditions:

- I. It will applicable for Residential Solar Rooftop Projects Only.
- II. Per KW charge is in lieu of System Strengthening is to be developed by DISCOM only.
- III. Proposed per KW charges shall be applicable to all Residential solar projects applicants demanding for new or additional load in future and it shall be same for new as well as additional load demand.

- 18.0** It is submitted that under Section – 61, 66, 86 (1) (e) and 181 and other applicable provisions of the Electricity Act 2003 read with the Gujarat Electricity Regulatory Commission (Regulations for Net metering Rooftop Solar PV Grid interactive System) Notification No.5 of 2016 and subsequent amendments, Hon'ble Commission has jurisdiction and authority to entertain the present petition and approve levy of per KW



based charges from Residential solar rooftop applicants toward expenditure to be incurred by Distribution Licensee for System strengthening of Distribution Network for providing Solar rooftop connections to Residential Projects.

19.0 The Petitioners crave leave of Hon'ble Commission to add, alter, amend /modify the memo of the petition and make further submission as and when required.

20.0 PRAYER:

A Petitioner most respectfully submits and prays as under:

- i. Hon'ble Commission may please to take on record the present petition.
- ii. Hon'ble Commission may please to approve the methodology for determination of per KW based system strengthening charge for Residential category consumer for new solar rooftop system / enhancement of existing solar capacity as contain at Para – 14 of the present petition.
- iii. Hon'ble Commission may allow recovery of Per KW based System strengthening charge on demanded solar capacity from Residential Category consumers for release new solar rooftop system / enhancement of existing solar capacity.
- iv. Hon'ble Commission may please to decide recovery of Per KW rate of Rs. 900 per KW from Residential consumers for release new solar rooftop system / enhancement of existing solar capacity.

DECLARATION

Except as stated herein in the Petition, it is stated that the subject matter of present Petition has not been raised by the Petitioner before any other competent forum and that no other competent forum is currently seized of the matter or has passed any order in relation thereto.

DATE: 28/4/2023

PLACE: VADODARA


PETITIONER

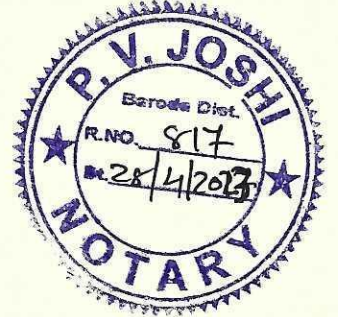
Additional Chief Engineer (RA&C)
Corporate Office
MGVCL, Baroda



IN THE MATTER OF:

Petition under Section – 61, 66, 86 (1) (e) and 181 and other applicable provisions of the Electricity Act 2003 read with the Gujarat Electricity Regulatory Commission (Regulations for Net metering Rooftop Solar PV Grid interactive System) Notification No.5 of 2016 and subsequent amendments, for approval of levy of per KW based charges from Residential Solar Rooftop applicants toward expenditure to be incurred by Distribution Licensee for System strengthening of Distribution Network for providing Solar rooftop connections to Residential Projects.

PEITIONER Madhya Gujarat Vij Company Limited
Sardar Patel Vidyut Bhavan
Race Course,
Vadodara – 390007



AND

- CO-PETITIONERS**
1. Paschim Gujarat Vij Company Ltd (PGVCL) Rajkot
 2. Uttar Gujarat Vij Company Ltd (UGVCL) Mehsana
 3. Dakshin Gujarat Vij Company Ltd (DGVCL) Surat

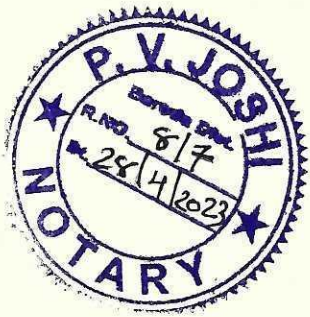


AFFIDAVIT

I, Kalpesh Dhebar, son of Bipinchandra Dhebar, aged 57, residing at "315 Shreem Complex, Opposite Gujarat Tractor, Mujmahuda, Manjalpur, and Vadodara-390011 do solemnly affirm and state as under:-



1. I am Additional Chief Engineer (RA&C) of Madhya Gujarat Vij Company Limited and am duly authorized by the said Petitioner to make this affidavit.
2. I say that the contents of the accompanying Petition are based on the records of the Petitioner Company maintained in normal course of business and believed by the Deponent to be true.
3. I say that the annexure is a true copy.




PETETIONER

Additional Chief Engineer (RA&C)
Corporate Office
MGVCL, Baroda

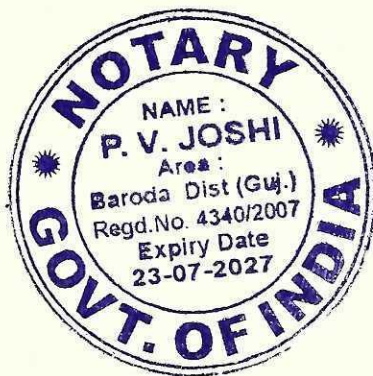
VERIFICATION:

I, the petitioner above named do hereby verify that the contents of my above affidavit are true to my knowledge, no part of it is false and nothing material has been concealed there from.

Verified at Vadodara on this 2nd April 2023.


PETETIONER

Additional Chief Engineer (RA&C)
Corporate Office
MGVCL, Baroda



Solemnly Affirmed/Declared
Sworn Before me by K. B. Dhebar


28/4/2023
P. V. JOSHI
NOTARY



सत्यमेव जयते

The Gujarat Government Gazette

EXTRAORDINARY
PUBLISHED BY AUTHORITY

Vol. LVII]

TUESDAY, JUNE 21, 2016/JYAISTHA 31, 1938

Separate paging is given to this Part in order that it may be filed as a Separate Compilation.

PART IV-C

Statutory Rules and Orders (Other than those published in Parts I, I-A and I-L) made by Statutory Authorities other than the Government of Gujarat including those made by the Government of India, the High Courts, the Director of Municipalities, the Commissioner of Police, the Director of Prohibition and Excise, the District Magistrates and the Election Commission, Election Tribunals, Returning Officers and other authorities under the Election Commission.

GUJARAT ELECTRICITY REGULATORY COMMISSION

Notification No. 5/2016

Regulations for Net Metering Rooftop Solar PV Grid Interactive Systems

June 2016

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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:

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,
 - a) **“Act”** means the Electricity Act, 2003 (36 of 2003) as amended from time to time;
 - b) **“Agreement”** means a connection agreement entered into between the Distribution Licensee and the consumer;
 - c) **“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;
 - d) **“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,
 - e) **“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 (1st) of April in an English calendar year and ending on thirty first (31st) 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;
- 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,
- a) shall be within the permissible rated capacity as defined under these Regulations.
 - b) shall be located in the consumer’s 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 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.

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;

- 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(l) of these Regulations, the Eligible Consumer for the Rooftop Solar PV System with net metering shall:

- 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 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;

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 GEDA	GEDA 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
3.	Application to Distribution Licensee	Applicant shall submit application in prescribed format along with following compliance and documents to Distribution Licensee <ul style="list-style-type: none"> • Capacity of Solar Rooftop to be installed (Maximum shall be 50% of the Consumer's sanctioned load) • Copy of registration at GEDA 	

Sr. No.	Activity	Sub Activity	Duration in day(s)
		<ul style="list-style-type: none"> • Documents related to legal possession of roof-top /NOC of co-owners, in case of joint ownership. • Approval of Chief Electrical Inspector (CEI) for Single Line Diagram, Earthing Diagram and Wiring Diagram. 	
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	<p>TFR to include following</p> <ol style="list-style-type: none"> a) Name of Consumer. 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 c) Name of 11KV feeder, Transformer capacity, Solar Rooftop capacity already connected as well as approved/sanctioned on this transformer including this proposed Solar Rooftop capacity whether total Rooftop solar capacity is within the rated capacity of transformer. d) Maximum demand recorded during last one year. e) No dues certificate. f) No legal disputes pending certificate. g) Detailed estimate to be recovered 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>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>	10 days from the letter of Head Office
6	Post TFR	<p>On receipt of TFR from field, Head Office shall issue letter to applicant regarding</p> <p>In principle consent for connectivity, payment of connectivity charges and</p>	5 days from receipt of TFR from field office

Sr. No.	Activity	Sub Activity	Duration in day(s)
		5. 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 Note: If applicant is not submitting above documents within 5 days, application shall be cancelled forfeiting all charges paid for Solar Rooftop Project.	
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 GEDA	Distribution Licensee shall intimate to GEDA for issuing commissioning certificate	5 days from receipt of letter from Distribution Licensee
15	Issuance of Commissioning Certificate from GEDA	GEDA 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:
- Emergencies or maintenance requirement on the distribution licensee's system,
 - 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
 - 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

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.

(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.

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 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.

- 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.

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: Gandhinagar

Sd/-
ROOPWANT SINGH, IAS
Secretary
Gujarat Electricity Regulatory Commission

Annexure - I**ABBREVIATIONS**

ABT	Availability Based Tariff
AC	Alternating Current
AT&C	Aggregate Technical and Commercial
BIS	Bureau of Indian Standards
CB	Circuit Breaker
CEA	Central Electricity Authority
CT	Current Transformer
DC	Direct Current
Distribution Licensee	Dakshin Gujarat Vij Company Limited, Madhya Gujarat Vij Company Limited, Uttar Gujarat Vij Company Limited, Paschim Gujarat Vij Company Limited, Torrent Power Limited– Ahmedabad, Torrent Power Limited- Surat, Torrent Energy Ltd., ASPEN Infrastructure Limited, Kandla Port Turst, MPSEZ Utilities Private Limited and Jubilant Infrastructure Limited
EHT	Extra High Tension
EHV	Extra High Voltage
FOR	Forum of Regulators
GBI	Generation Based Incentive
GEDA	Gujarat Energy Development Agency
GERC	Gujarat Electricity Regulatory Commission
GETCO	Gujarat Energy Transmission Corporation Ltd.
GIS	Geographical Information System
GOI	Government of India
GPS	Global Positioning System
GSM	Global System for Mobile Communications
GSS	Grid Substation
GUVNL	Gujarat Urja Vikas Nigam Ltd.
HP	Horse Power
HT	High Tension
IEC	International Electro-technical Commission
IEEE	Institution of Electrical and Electronics Engineers
INR	Indian Rupee
kV	Kilo Volt
kVA	Kilo Volt Ampere
kW	Kilo Watt
kWp	Kilo Watt Peak
kWh	Kilo-Watt Hour
LT	Low Tension
MNRE	Ministry of New and Renewable Energy
MPLS	Multi protocol Label Switching
MVA	Mega Volt-Ampere

MW	Mega watt
MWp	Mega Watt Peak
NM	Net-Meter
O&M	Operations and Maintenance
PCU	Power Conditioning Unit
PT/VT	Potential/Voltage Transformer
RE	Renewable Energy
REC	Renewable Energy Certificate
RPO	Renewable Purchase Obligation
SLDC	State Load Despatch Centre
SM	Solar Meter
SPV	Solar Photo Voltaic
TVM	Tri-Vector Meter
UM	Utility Meter

Annexure II

Application Form to be kept on web-site by the distribution licensee

Annexure-III**Connectivity charges payable by the solar roof top consumer/Solar PV project owner**

Connectivity Charges applicable for Rooftop Solar PV System shall be as under:

System Size	Applicable fees per connection
From 1 kW up to 6 kW	INR 1,500
More than 6 kW up to 100 kW	INR 10,000
More than 100 kW up to 1 MW	INR 50,000

The Connectivity Charges for Rooftop Solar PV System shall be payable to the respective Distribution Licensee.

Annexure-IV**Inter connection Agreement between Distribution Licensees and solar roof top PV project owner****Net Metering Inter Connection agreement**

This Agreement is made and entered into at (location)_____ on this (date) _____ day of (month)_____ year _____ between the Consumer, by the name of ----- having premises at (address) _____ as first party

AND

_____ (Name of the Distribution Licensee), Company registered under the Companies Act 1956/2013 and functioning as the "Distribution Licensee" under the Electricity Act 2003 having its Head Office at, _____ (hereinafter referred to as ___ or Distribution Licensee which expression shall include its permitted assigns and successors) a Party of the Second Part.

AND, WHEREAS _____(name of the consumer) desires to set-up such Solar Photovoltaic Rooftop System of ___ kW at _____ connected with (Name of the Distribution Licensee)'s grid at _____ Voltage level for his/her/its own use within the same premises.

WHEREAS, the Gujarat Energy Development Agency (GEDA) through letter dated _____ has registered for developing and setting up _____ kW own Rooftop Solar PV System for his/her/its own use under Gujarat Solar Power Policy – 2015 at his/her/its premises in legal possession including rooftop or terrace.

And whereas, the Distribution Licensee agrees to provide grid connectivity to the Consumer for injection of the electricity generated from his Rooftop Solar PV System of capacity ___ kilowatts (kW) into the power system of Distribution Licensee and as per conditions of this agreement and in compliance with the applicable Policy / rules/ Regulations/ Codes (as amended from time to time) by the Consumer which includes-

1. Government of Gujarat Solar Power Policy 2015
2. Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010.
3. Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007 as amended from time to time
4. Central Electricity Authority (Installation and Operation of Meters) Regulation 2006.
5. Gujarat Electricity Regulatory Commission (Electricity Supply Code & Related Matters) Regulations, 2015,
6. Gujarat Electricity Regulatory Commission Distribution Code, 2004 and amendments thereto,
7. Instruction, Directions and Circulars issued by Chief Electrical Inspector from time to time.
8. CEA (Technical Standards for connectivity of the Distributed Generation) Regulations, 2013 as amended from time to time.

Both the parties hereby agree as follows:

1. Eligibility

- 1.1 Consumer shall own the Rooftop Solar PV System set up on its own premises or premises in his legal possession.
- 1.2 Consumer needs to consume electricity in the same premises where Rooftop Solar PV System is set up.

1.3 Consumer shall ensure capacity of Rooftop Solar not to exceed 50% of his contract load/demand/sanctioned load during initial 2 years of the connectivity agreement.

1.4 Consumer has to meet the standards and conditions as specified in Gujarat Electricity Regulatory Commission Regulations and Central Electricity Authority Regulations and provisions of Government of Gujarat's Solar Power Policy 2015 for being integrated into grid/distribution system.

2. Technical and Interconnection Requirements

2.1 Consumer agrees that his Rooftop Solar PV System and Net Metering System will conform to the standards and requirements specified in the Policy, Regulations and Supply Code as amended from time to time.

2.2 Consumer agrees that he has installed or will install, prior to connection of Rooftop Solar Photovoltaic System to Distribution Licensee's distribution system, an isolation device (both automatic and inbuilt within inverter and external manual relays) and agrees for the Distribution Licensee to have access to and operation of this, if required and for repair & maintenance of the distribution system.

2.3 Consumer agrees that in case of non availability of grid, Rooftop Solar Photovoltaic System will disconnect/isolate automatically and his plant will not inject power into the Licensee's distribution system.

2.4 All the equipments connected to the distribution system shall be compliant with relevant International (IEEE/IEC) or Indian Standards (BIS) and installations of electrical equipments must comply with Central Electricity Authority (Measures of Safety and Electricity Supply) Regulations, 2010 as amended from time to time.

2.5 Consumer agrees that licensee will specify the interface/inter connection point and metering point.

2.6 Consumer and licensee agree to comply with the relevant CEA Regulations in respect of operation and maintenance of the plant, drawing and diagrams, site responsibility schedule, harmonics, synchronization, voltage, frequency, flicker etc.

2.7 In order to fulfill Distribution Licensee's obligation to maintain a safe and reliable distribution system, Consumer agrees that if it is determined by the Distribution Licensee that Consumer's Rooftop Solar Photovoltaic System either causes damage to and/or produces adverse effects affecting other consumers or Distribution Licensee's assets, Consumer will have to disconnect Rooftop Solar Photovoltaic System immediately from the distribution system upon direction from the Distribution Licensee and correct the problem to the satisfaction of distribution licensee at his own expense prior to reconnection.

2.8 The consumer 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 plant when the grid supply is off if so decided by CEI. 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 man and material.

3. Clearances and Approvals

3.1 The Consumer shall obtain all the necessary statutory approvals and clearances (environmental and grid connection related) before connecting the photovoltaic system to the distribution system.

4. Access and Disconnection

4.1 Distribution Licensee shall have access to metering equipment and disconnecting means of the Rooftop Solar Photovoltaic System, both automatic and manual, at all times.

- 4.2 In emergency or outage situation, where there is no access to the disconnecting means, both automatic and manual, such as a switch or breaker, Distribution Licensee may disconnect service to the premises of the Consumer.

5. Liabilities

- 5.1 Consumer shall indemnify Distribution Licensee for damages or adverse effects from his negligence or intentional misconduct in the connection and operation of Rooftop Solar Photovoltaic System.
- 5.2 Distribution Licensee shall not be liable for delivery or realization by the Consumer of any fiscal or other incentive provided by the Central/State Government.
- 5.3 Distribution Licensee may consider the quantum of electricity generation from the Rooftop Solar PV System owned and operated by (i) Residential and Government Building, (ii) consumers who are not utilizing 'renewable attribute' for meeting its RPO or registered under REC Mechanism, (iii) surplus energy purchased by Distribution Licensees from the Rooftop Solar project which are not under REC Mechanism under net metering arrangement towards RPO compliance.

6. Metering:

Metering arrangement shall be as per Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006 as amended from time to time.

- (a) In case of Residential and Government Buildings, Bi-directional meter shall be installed of same accuracy class as installed before setting up of Rooftop Solar PV System.
- (b) In case of Industrial, Commercial and other consumers-
- (i) Type-1 consumer (consumers not utilizing 'Renewable' attribute for RPO or REC)-Bi-directional meter shall be installed of same accuracy class as installed before setting up of Rooftop Solar PV System.
- (ii) Type-2 (a) & (b) (consumers utilizing both 'renewable attribute' and 'energy attribute') ABT compliant meter having 15 minute integration shall be installed.

7. Commercial Settlement

All the commercial settlements under this agreement shall be as per Government of Gujarat's Solar Power Policy 2015 and Order No. 1of 2015 dated 17.08.2015 of the Gujarat Electricity Regulatory Commission and any subsequent orders in this regard. The commercial settlement will be as follows:

(A) Residential consumers and Government Building

- (i) In case of net import of energy by the consumer from distribution grid during billing cycle, the energy consumed from Distribution Licensee shall be billed as per applicable tariff to respective category of consumers as approved by the Commission from time to time. The energy generated by Rooftop Solar PV System shall be set off against units consumed (not against load/demand) and consumer shall pay demand charges, other charges, penalty etc as applicable to other consumers.
- (ii) In case of net export of energy by the consumer to distribution grid during billing cycle, Distribution Licensee shall purchase surplus power, after giving set off against consumption during the billing period, at the Average Pooled Power Purchase Cost (APPC) as determined by the Commission for the year in which the Rooftop Solar PV System is commissioned over the life of the system i.e. 25 years. Such surplus purchase shall be utilized for meeting RPO of Distribution Licensee. However, fixed / demand charges, other charges, penalty etc shall be payable as applicable to other consumers.

(B) For Industrial, Commercial and other consumers

- (a) Type-1 consumer (consumers not utilizing 'Renewable' attribute for RPO or REC)
- (i) in case of net import of energy by the consumers from distribution grid during billing cycle, the energy consumed from Distribution Licensee shall be billed as per applicable tariff to respective category of consumers as approved by the Commission from time to time. The energy generated by Rooftop Solar PV System shall be set off against units consumed (not against load/demand) and consumer shall pay demand charges, peak charges, other charges, penalty etc as applicable to other consumers of respective category.
 - (ii) In case of net export of energy by the consumer to distribution grid during billing cycle, Distribution Licensee shall purchase surplus power, after giving set off against consumption during the billing period, at the Average Pooled Power Purchase Cost (APPC) determined by the Commission for the year in which Rooftop Solar PV System is commissioned, over the life of the system i.e. 25 years. Such surplus purchase shall be utilized for meeting RPO of Distribution Licensee. However, fixed / demand charges, peak charges, other charges, penalty etc shall be payable as applicable to the respective category of consumers.
- (b) Type-2 (a) – consumers utilizing renewable attribute to meet its RPO
- (i) Energy accounting shall be undertaken on 15 minute basis. In case of net import of energy by the consumer from distribution grid, the energy consumed from Distribution Licensee shall be billed as per applicable tariff to respective category of consumers as approved by the Commission from time to time. The energy generated by Rooftop Solar PV System shall be set off against units consumed (not against load/demand) and consumer shall pay demand charges, peak charges, other charges, penalty etc. as applicable to the respective category of consumers.
 - (ii) In case of net export of power on 15 minutes basis after giving set off against consumption, Distribution Licensee shall purchase such surplus power at the APPC determined by the Commission for the year in which the Rooftop Solar PV System is commissioned over the life of the system i.e. 25 years. Such surplus purchase shall be utilized for meeting RPO of Distribution Licensee. However, fixed / demand charges, peak charges, other charges, penalty etc. shall be payable as applicable to the respective category of consumers.
- (c) Type-2 (b) – consumers utilizing renewable attribute under REC Mechanism
- (i) Energy accounting shall be undertaken on 15 minute basis. In case of net import of energy by the consumer from distribution grid, the energy consumed from Distribution Licensee shall be billed as per applicable tariff to respective category of consumers as approved by the Commission from time to time. The energy generated by Rooftop Solar PV System shall be set off against units consumed (not against load/demand) and consumer shall pay demand charges, peak charges, other charges, penalty etc. as applicable to the respective category of consumers.
 - (ii) In case of net export of power on 15 minutes basis after giving set off against consumption, Distribution Licensee shall purchase such surplus power at the 85% of APPC determined by the Commission for the year in which the Rooftop Solar PV System is commissioned over the life of the system i.e. 25 years. However, fixed / demand charges, peak charges, other charges, penalty etc shall be payable as applicable to the respective category of consumers.

8. Connection Costs

8.1 The Consumer shall bear all costs related to setting up of Rooftop Solar Photovoltaic System including metering and inter-connection. The Consumer agrees to pay the actual cost of modifications and upgrades to the service line, cost of up gradation of transformer to connect photovoltaic system to the grid in case it is required.

9. Inspection, Test, Calibration and Maintenance prior to connection

Before connecting, Consumer shall complete all inspections and tests finalized in consultation with the (Name of the Distribution license) and if required Gujarat Energy Transmission Corporation Limited (GETCO) to which his equipment is connected. Consumer shall make available to DISCOM all drawings, specifications and test records of the project or generating station as the case may be.

10. Records:

Each Party shall keep complete and accurate records and all other data required by each of them for the purposes of proper administration of this Agreement and the operation of the Rooftop Solar PV System.

11. Dispute Resolution:

11.1 All disputes or differences between the Parties arising out of or in connection with this Agreement shall be first tried to be settled through mutual negotiation, promptly, equitably and in good faith.

11.2 In the event that such differences or disputes between the Parties are not settled through mutual negotiations within sixty (60) days or mutually extended period, after such dispute arises, then for

- (a) any dispute in billing pertaining to energy injection and billing amount, it would be settled by the Consumer Grievance Redressal Forum and Electricity Ombudsman.
- (b) any other issues pertaining to the Regulations and its interpretation; it shall be decided by the Gujarat Electricity Regulatory Commission following appropriate prescribed procedure.

12. Termination

12.1 The Consumer can terminate agreement at any time by giving Distribution Licensee 90 days prior notice.

12.2 Distribution Licensee has the right to terminate Agreement with 30 days prior written notice, if Consumer commits breach of any of the terms of this Agreement and does not remedy the breach within 30 days of receiving written notice from Distribution Licensee of the breach.

12.3 Consumer shall upon termination of this Agreement, disconnect the Rooftop Solar Photovoltaic System from Distribution Licensee's distribution system within one week to the satisfaction of Distribution Licensee.

Communication:

The names of the officials and their addresses, for the purpose of any communication in relation to the matters covered under this Agreement shall be as under:

In respect of the (Name of distribution licensee): * Additional C.E.(R&C) _____ Gujarat Vj Company Limited/Equivalent Authority,	In respect of the Consumer (_____)
--	--

Authorised person by the distribution licensees ...

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed by their authorised officers, and copies delivered to each Party, as of the day and year herein above stated.

FOR AND ON BEHALF OF Distribution Licensee _____ Authorized Signatory WITNESSES 1. _____ (_____) 2. _____ (_____)	FOR AND ON BEHALF OF THE PROJECT OWNER _____ Authorized Signatory WITNESSES 1. _____ (_____) 2. _____ (_____)
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Annexure - V**Inverter Standards**

Inverter should comply with IEC61683/IS61683 for efficiency and measurements and should comply with IEC 60068-2(1,2,14,30)/ Equivalent BIS Standard for environmental testing.

Inverter should supervise the grid condition continuously and in the event of grid failure(or)under voltage(or) overvoltage, Solar System should be disconnected by the circuit Breaker/Auto switch provided in the inverter and shall comply with requirements specified at Regulation 8 of these Regulations.

Harmonics Standards

As per the standard IEEE519, the permissible individual harmonics level shall be less than 3% (for both voltage and current harmonics) and Total Harmonics Distortion (THD) for both voltage and current harmonics of the system shall be less than 5%.

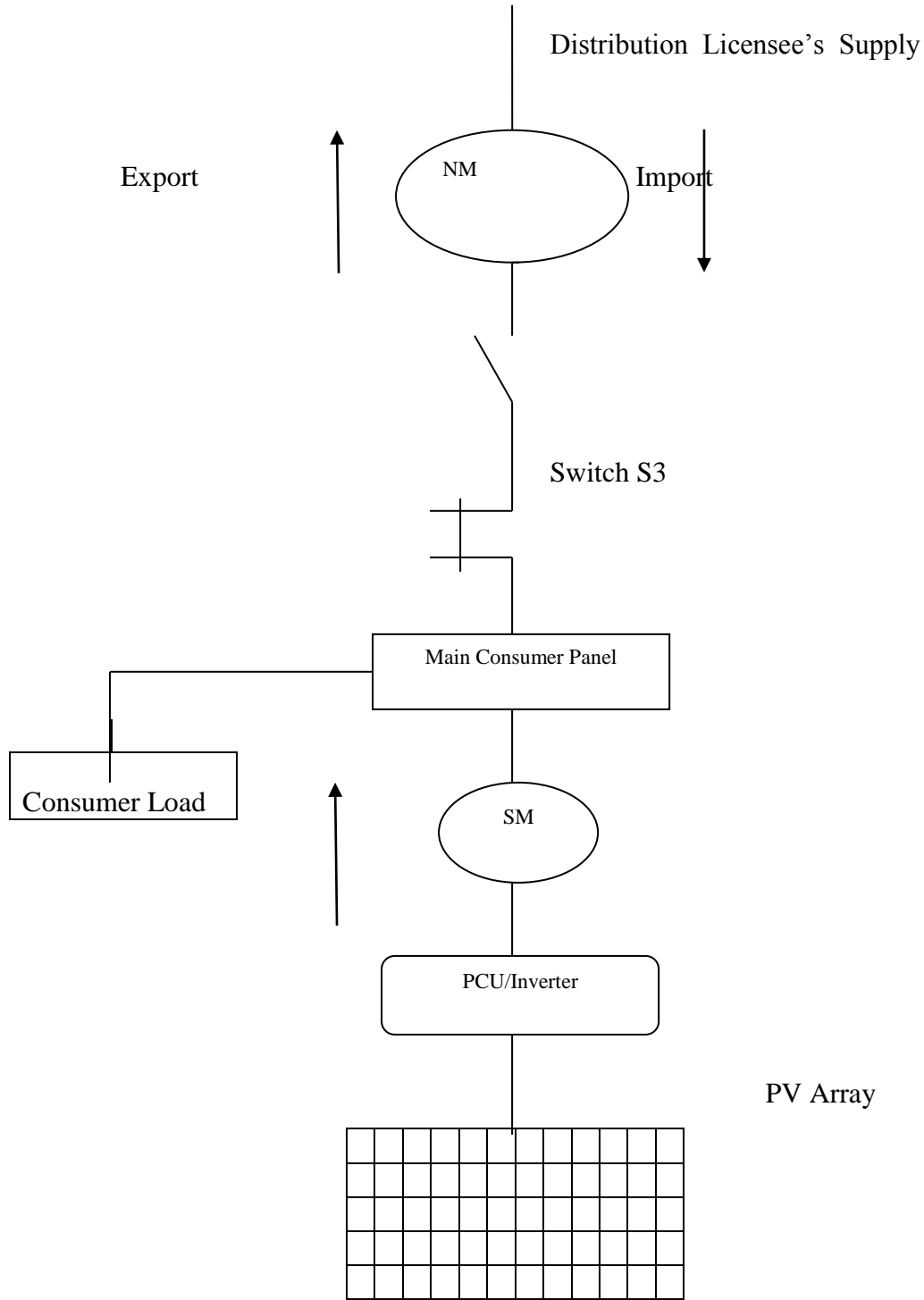
Technical and interconnection requirements Parameter

Parameter	Reference (as amended from time to time)	Requirement
Overall conditions of service	State Distribution/Supply Code	Compliance with the terms and conditions of supply.
Overall Grid Standards	Central Electricity Authority (Grid Standards) Regulations 2010	Compliance with Grid standards as regards the frequency, voltage and protection coordination.
Meters	Central Electricity Authority (Installation & Operation of Meters) Regulations, 2006	Compliance with the specifications of the meters.
Safety and supply	Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 as amended from time to time	Compliance with safety provisions for electrical installations and apparatus with voltage below and above 650volts.
Harmonic Requirements Harmonic Current	IEEE519 CEA (Technical Standards for Connectivity to the Grid) Regulations,2007 as amended from time to time	The Total Harmonic Distortion (THD) for voltage at the interconnection point should not exceed 5%. For the current distortion limits, the Total Demand Distortion (TDD) in terms of ratio of available short circuit current to the demand current (Isc/IL) should remain within limits specified for various harmonics for different TDD values.

Parameter	Reference (as amended from time to time)	Requirement
Synchronization	CEA (Technical Standards for Connectivity to the Grid) Regulations, 2007 as amended from time to time	Photo Voltaic system must be equipped with a grid frequency synchronization device. Every time the generating station is synchronized to the electricity system, it shall not cause voltage fluctuation greater than +/-5% at point of inter connection.
Voltage	CEA (Technical Standards for Connectivity to the Grid) Regulations, 2007 as amended from time	The voltage-operating window should minimize nuisance tripping and should be with in operating range of 80%to110%of the nominal connected voltage. The photovoltaic system must isolate itself from the grid within a clearing time of 2 seconds.
Flicker	CEA (Technical Standards for Connectivity to the Grid) Regulations, 2007 as amended from time.	Operation of Photovoltaic system should not cause voltage flicker in excess of the limits stated in IEC 61000standardsas follows: Short-term flicker(Pst):The flicker severity evaluated over a short period of time (10 minutes) should be ≤ 1 . <u>Long-term flicker (Plt)</u> :The flicker severity evaluated over a long period of time (typically 2hours) should be ≤ 0.65 .
Frequency	CEA (Technical Standards for Connectivity to the Grid) Regulations,2007 as amended from time	There should be over and under frequency trip functions with a clearing time of 0.2 seconds, when the Distribution system frequency deviates outside the specified conditions (50.5 Hz on upper side and 47.5Hz on lower side).
DC injection	CEA (Technical Standards for Connectivity to the Grid) Regulations, 2007 as amended from time.	Photovoltaic system should not inject DC power more than0.5% of full rated output at the inter connection point or 1% of rated inverter output current into distribution system under any Operating conditions.
Power Factor	CEA (Technical Standards for Connectivity to the Grid) Regulations, 2007 as amended from time	When the output of the inverter is greater than 50%, the power output from the inverter shall have a lagging power factor of greater than0.9.

Parameter	Reference (as amended from time to time)	Requirement
Islanding and Disconnection	CEA (Technical Standards for Connectivity to the Grid)Regulations, 2007 as amended from time	The photovoltaic system must island/disconnect itself within IEC standard stipulated time in the event of fault, voltage or frequency variations.
Overload and Overheat	CEA (Technical Standards for Connectivity to the Grid)Regulations, 2007 as amended from time	The inverter should have the facility to automatically switch off in case of overload or overheating and should restart when normal conditions are restored.
Paralleling Device	CEA (Technical Standards for Connectivity to the Grid)Regulations, 2007 as amended from time	Paralleling device of photovoltaic system shall be capable of withstanding 220% of the normal voltage at the interconnection point.

Schematic Arrangement for interconnection of Rooftop & Small PV Solar Power Plant with the Distribution Licensee's/Distribution Licensee's grid



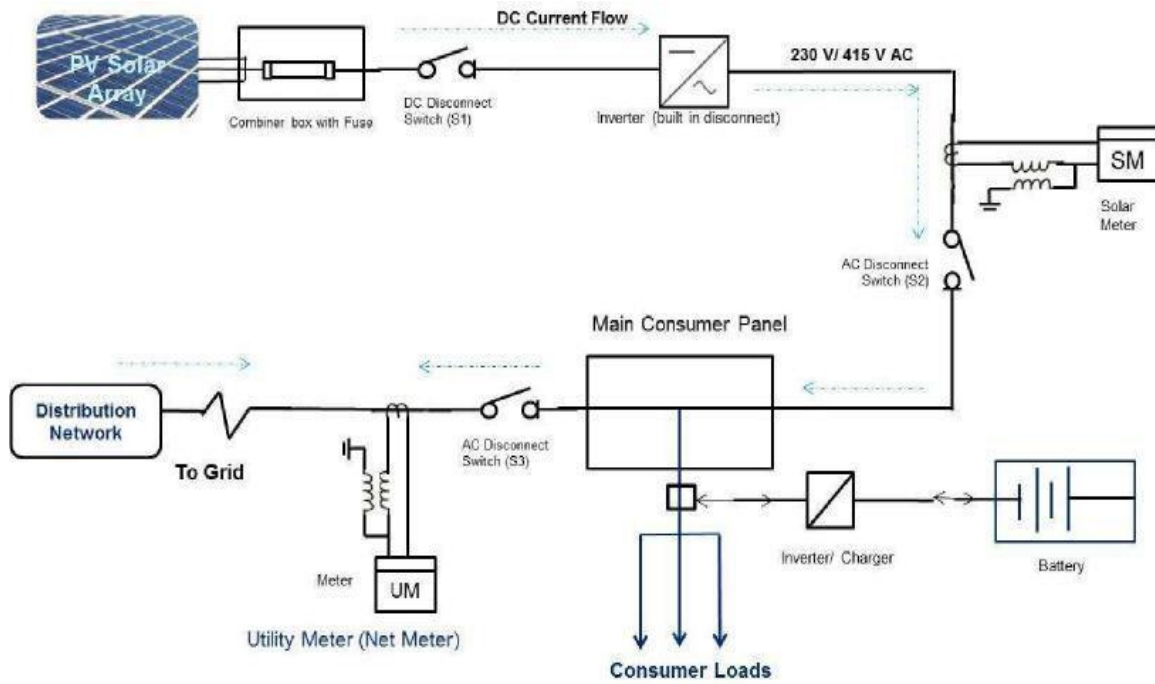
**Normally, Solar Generation shall be connected with Grid.
When grid fails, Inverter controlled Switch S3 Opens and on
restoration of grid S3 Closes.**

Abbreviations:

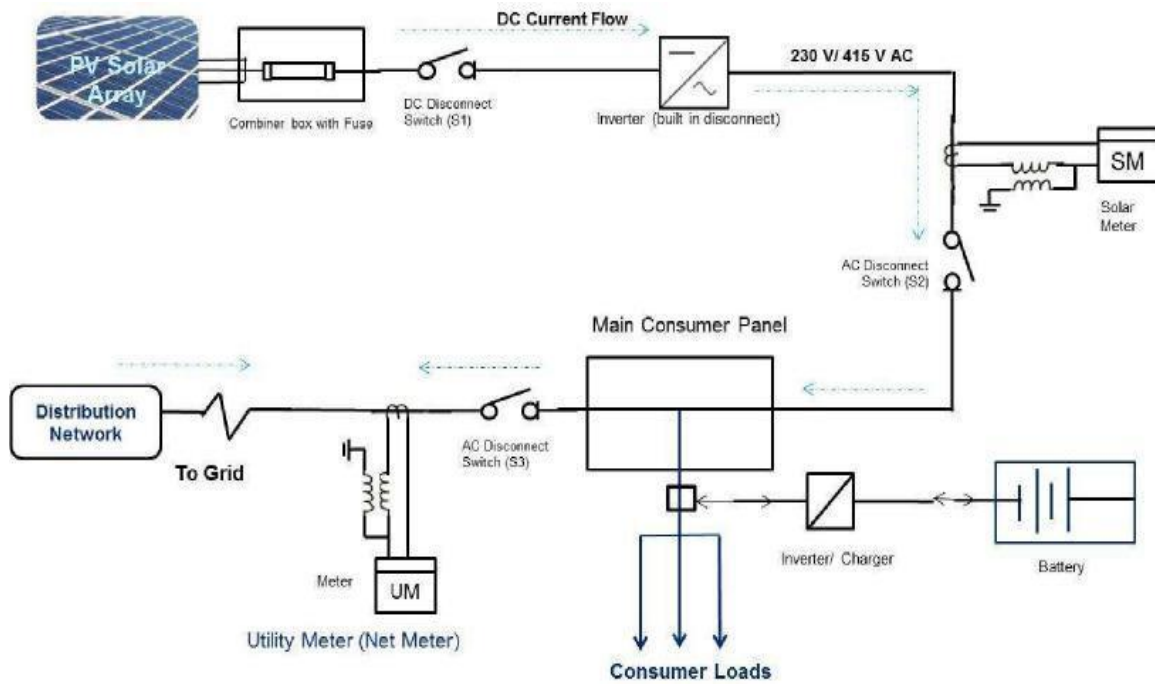
NM: Net Meter, SM: Solar Meter, PCU: Power Conditioning Unit

Net Metering configuration options

(1) Two meter configuration without storage



(2) Two meter configuration with storage



Annexure – VI**Specification for meters for net metering****(a) Meter for Solar Generation Measurements:****Solar Meter Major Technical Parameters**

Sr. No.	Technical Parameters	Connectivity at 415 V & below voltage level		
		Whole current meters		CT operated
1.	Applicability	Solar plant capacity upto 6 kW	Solar plant capacity above 6 kW and upto 15 kW	Solar Plant Capacity above 15 kW and upto 50 kW
2.	Number of phases and wires	Single Phase, 2 Wire	Three Phase, 4 Wire	ThreePhase, 4 Wire
3.	Measurand(s)	kWh	kWh	kWh, kVAh, kVA, PF
4.	Standard Voltage and frequency	240 V, 50±5%	3X240V(P- N), 415V(P- P) 50±5%	3X240V(P-N), 415V(P-P) 50±5%
5.	Current Rating	5-30	10-60	5 Amp
6.	Accuracy class	1.0	1.0	0.5S
7.	Indian Standard or IEC to which conforming	IS 13779-1999	IS 13779-1999	IS 14697, IS13779
8.	Import-export feature	Only Import	Only Import	Only Import
9.	Communication Port/Protocol	Optical/ DLMS	Optical, RS-232/DLMS	Optical, RS-232/ DLMS

(b) Meter for Net-Metering Measurements:**Net-Meter Major Technical Parameters**

Sr. No.	Technical Parameters	Connectivity at 415 V & below voltage level		
		Whole current meters		CT operated
1.	Applicability	Upto 6 kW connected load	Above 6 kW and upto 18.65 kW connected load	Above 18.65 kW and upto 50 kVA contract demand
2.	Number of phases and wires	Single Phase, 2 Wire	Three Phase, 4 Wire	Three Phase, 4 Wire
3.	Measurand(s)	kWh	kWh	kWh, kVAh, kVA, PF
4.	Standard Voltage and frequency	240 V,	3X240 V (P-N), 415 V (P- P) 50±5%	3X240 V (P-N), 415 V (P-P) 50±5%
5.	Current Rating	10-60	10-60	1 Amp
6.	Accuracy class	1.0	1.0	0.5S
7.	Indian Standard or IEC to which conforming	IS 13779-1999	IS 13779-1999	IS 14697,IS 13779
8.	Import-export feature	Import & Export	Import & Export	Import & Export
9.	Communication Port/ Protocol	Optical/ DLMS	Optical, RS-232/ DLMS	Optical, RS-232/ DLMS

GUJARAT ELECTRICITY REGULATORY COMMISSION (GERC)

GUJARAT ELECTRICITY REGULATORY COMMISSION (NET METERING ROOFTOP SOLAR PV GRID INTERACTIVE SYSTEMS) (SECOND AMENDMENT) REGULATIONS, 2020

NOTIFICATION NO. 2 OF 2020

In exercise of the powers conferred under Sections 61, 86 and 181 of the Electricity Act, 2003 (Act No. 36 of 2003) and all other powers enabling it in this behalf, and after previous publications, the Gujarat Electricity Regulatory Commission hereby makes the following Regulations, to amend the Gujarat Electricity Regulatory Commission (Net Metering Rooftop Solar PV Grid Interactive Systems) Regulations, 2016 (hereinafter referred to as "Principal Regulations") namely:

1) Short Title Extent and Commencement:

(i) These Regulations shall be called the Gujarat Electricity Regulatory Commission (Net Metering Rooftop Solar PV Grid Interactive Systems) (Second Amendment) Regulations, 2020.

(ii) These Regulations shall extend to the whole of the State of Gujarat.

2) These Regulations shall come into force with effect from the date of their publication in the Official Gazette.

3) **Amendment in Regulation 2.1 of the Principal Regulations:**

(a) **Addition of New Definition clause “Micro, Small and Medium (Manufacturing) Enterprise or MSME (Manufacturing)” in Regulation 2.1 of the Principal Regulations:**

The following new definition clause shall stand inserted in Regulation 2.1 after existing Regulation 2.1(o) of the Principal Regulations as Regulation 2.1 (oa):

(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:

TYPE	MANUFACTURING
	Investment in Plant & Machinery
Micro Enterprises	Not more than Rs. 25 Lakh
Small Enterprises	More than Rs. 25 Lakh but does not exceed Rs. 5 Crore
Medium Enterprises	More than Rs. 5 Crore but does not exceed Rs. 10 Crore

4) **Amendment in Regulation 5 of the Principal Regulation**

The second para of Regulation 5 of the Principal Regulations shall stand amended as under:

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

5) **Amendment in Regulation 6.2 of the Principal Regulations read with First Amendment:**

(a) **The first para of Regulation 6.2 of the Principal Regulations as well as the amended Regulations (First Amendment) shall stand amended as under:**

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.

6) **Amendment in Regulation 7 of the Principal Regulations:**

In this Regulation wherever the word 'GEDA' appears, the same shall stand replaced by 'GEDA or agency designated by the Government of Gujarat'.

In table at Sr.No. 11 Subactivity no.5 shall stand replaced as under:

"5. 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"

7) **Amendment in Regulation 9 of the Principal Regulations:**

Regulation 9 "Energy Accounting and Settlement" of the Principal Regulations shall stand replaced as under:

9) 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 Roof top 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 Year.

8) **Amendment in Regulation 13.5 of the Principal Regulations:**

Para 13.5 of the Principal Regulations, shall be replaced with the following para:

"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.”

9) **Deletion of both the diagrams under “Net Metering configuration options” i.e. (1) Two meter configuration without storage and (2) Two meter configuration with storage of the Principal Regulations:**

The diagrams under “Net Metering configuration options” of the Principal Regulations i.e. (1) Two meter configuration without storage and (2) Two meter configuration with storage shall stand deleted.

10) **Amendment in Clauses 7 (A) (ii) of Annexure IV to Principal Regulations pertaining to Interconnection Agreement between Distribution Licensee and Solar Rooftop PV Project Owner.**

The above Clause of Annexure- IV to the Principal Regulations, shall stand replaced with the following para:

(ii) “In case of net export (net injection) of energy by the consumer to distribution grid during billing cycle, the Distribution Licensee shall compensate for surplus power, after giving set off against

consumption during the billing period, 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 , over the life of the Rooftop Solar PV system i.e. 25 years. The entire Solar energy generation of such consumer shall be utilized for meeting the RPO of that Distribution Licensee. However, fixed / demand charges, other charges, penalty, etc. shall be payable as applicable to the respective category of consumers.”

11) **Amendment in Clause 7 (B) (a) (ii) of Annexure IV to Principal Regulations pertaining to Interconnection Agreement between Distribution Licensee and Rooftop PV Project Owner.**

The above Clause of Annexure- IV to the Principal Regulations, shall be replaced with the following para:

(ii) “In case of net export (net injection) of energy by the consumer to distribution grid during billing cycle, the Distribution Licensee shall compensate for surplus power, after giving set off against consumption during the billing period, 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, over the life of the Rooftop Solar PV system i.e. 25 years. The entire Solar energy generation of such consumer shall be utilized for meeting the RPO of that Distribution Licensee. However, fixed / demand charges, peak charges, other charges, penalty, etc. shall be payable as applicable to the respective category of consumers.”

12) **Addition of new Clause 7(B)(a)(iii) after Clause 7(B)(a)(ii) of Annexure IV to Principal Regulations pertaining to Interconnection Agreement between Distribution Licensee and**

Rooftop PV Project Owner.

(iii) "In case of installation of Roof Top Solar PV by the MSME(Manufacturing Enterprise) consumer is within 50% of Contracted Demand, then it shall be governed by Clause (i) & (ii) as above.

In case of installation of Roof Top Solar PV by the MSME (Manufacturing Enterprise) consumer is more than 50% of Contracted Demand, then the energy accounting shall be carried out on 15 minutes time block basis. In case of net export (net injection) of power on 15 minutes basis after giving set off against consumption, the Distribution Licensee shall compensate for such surplus power 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, over the life of the Rooftop Solar PV system i.e. 25 years. The entire Solar energy generation of such consumer shall be utilized for meeting the RPO of that Distribution Licensee. However, fixed / demand charges, peak charges, other charges, penalty, etc. shall be payable as applicable to the respective category of consumers."

13) **Amendment in Clause 7 (B) (b) (ii) of Annexure IV to Principal Regulations pertaining to Interconnection Agreement between Distribution Licensee and Solar Rooftop PV Project Owner.**

The above Clause of Annexure- IV to the Principal Regulations, shall be replaced with the following para:

(ii) "In case of net export (net injection) of power on 15 minutes basis after giving set off against consumption, the Distribution Licensee

shall compensate for such surplus power 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, over the life of the Rooftop Solar PV system i.e. 25 years. Such surplus energy purchased by the Distribution Licensee shall be utilized for meeting the RPO of that Distribution Licensee. However, fixed / demand charges, peak charges, other charges, penalty, etc. shall be payable as applicable to the respective category of consumers.”

14) **Amendment in Clauses 7 (B) (c) (ii) of Annexure IV to Principal Regulations pertaining to Interconnection Agreement between Distribution Licensee and Solar Rooftop PV Project Owner.**

The above Clause of Annexure- IV to the Principal Regulations, shall be replaced with the following para:

- (ii) “In case of net export (net injection) of power on 15 minutes basis after giving set off against consumption, the Distribution Licensee shall compensate for such surplus power 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, over the life of the Rooftop Solar PV system i.e. 25 years. However, fixed / demand charges, peak charges, other charges, penalty, etc. shall be payable as applicable to the respective category of consumers.”

15) **Amendment in Clause 1.3 of Annexure IV of the Principal Regulations:**

The existing Clause 1.3 of Annexure IV to the Principal Regulations shall

stand replaced with the following clause:

1.3 "Consumers other than Residential Consumers (Residential Consumers shall be including the 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 ensure capacity of Rooftop Solar not to exceed 50% of his contract load/demand/sanctioned load during the currency of the connectivity agreement.

Sd/-
[Roopwant Singh, IAS]
Secretary
Gujarat Electricity Regulatory Commission
Gandhinagar, Gujarat

Date: 23/01/2020.
Place: Gandhinagar.

Annexure-C -PER KW RATE CALCULATION

Sr No	Transformer center cost as per cost data of all Discoms			Transformer center Augmentation cost as per cost data of all Discoms			Per KVA Charge on Augmentation Price for full capacity from 10 to 200 KVA		
	KVA	For Rural area (Rs.)	For Urban/GIDC/H T (Rs.)	KVA	For Rural area (Rs.)	For Urban/GIDC/H T (Rs.)	KVA	For Rural area (Rs.)	For Urban/GIDC/H T (Rs.)
1	10	120440	154679						
2	16	127771	159847	10 to 16	7332	5168	10 to 16	458	323
3	25	144470	176517	16 to 25	16698	16670	16 to 25	668	737
4	63	198374	230790	25 to 63	53905	54274	25 to 63	856	861
5	100	247284	268289	63 to 100	48909	37498	63 to 100	489	375
6	200	576914	597333	100 to 200	329631	329045	100 to 200	1648	1645
Average of Per KVA Charge on Augmentation Price for full capacity from 10 to 200 KVA								824	788
Considerin PF 0.9 Average of Per KW Charge on Augmentation Price for full capacity from 10 to 200 KVA								915	875
As Solar penetration is Maximum in urban area, the Per KW Cost is to be considered as per urban cost data with nearer round off i.e 900 Rs/KW									