Draft Solar Power Tariff - Ground Mounted Grid Connected and Solar Rooftop with Net Metering Regulations - 2014

JERC invites suggestions / comments/inputs / objections on above draft Regulations of Joint Electricity Regulatory Commission for State of Goa and Union Territories (Solar Power Tariff- Ground Mounted Grid Connected and Solar Rooftop with Net Metering) Regulations from all the stakeholders including the licensees and consumers' organizations in writing or by an email, which should reach latest by 19th August 2014 on the following address:-

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(for the State of Goa & UTs)
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Joint Electricity Regulatory Commission for the State of Goa & Union Territories

July 2014

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JOINT ELECTRICITY REGULATORY COMMISSION

(FOR THE STATE OF GOA AND UNION TERRITORIES)

1 Objectives:

The utilities under the jurisdiction of JERC are dependent on the supply of power mainly from National Thermal Power Corporation (NTPC) and other central generating stations. Such power received may fall short of the full requirement of the respective territory. The distribution licensee thus has to resort to buying the power on short term / long term from other sources. The Solar Power produced in the territory will help reduce the power deficit. The broad objectives of these regulations are as under:

a. To empower the Consumer of electricity to participate in the development of the Power Sector and to become a producer of electricity while remaining as a Consumer also i.e. be proactively involved in the development of the Power Sector and be a “Prosumer” (Producer + Consumer).

b. To help India produce Green Power & get involved in Climate Control.

c. To be a proud owner of the Electricity Generation Plant for its own use and shave off the Electricity units consumed at higher tariff by setting off the Solar Units so produced. Programming the use of Solar Power first, followed by the conventional power, Diesel Engine Power and then battery power or as the need be, to reduce electricity bill by the Consumer.

d. To be a seller of Electricity to the extent of the excess Solar Power units so produced by getting connected to the Grid.

e. To help reduce the Average cost of Pooled Power purchased by Solar power generated in the Union Territory / State.

f. To use the Rooftop/ Vacant Space / Land effectively for Solar Power Generation use.

g. To be able to claim (if desired) accelerated depreciation benefits under Income Tax Rules as expenses against the Costs incurred for the Solar Project.

h. To be able to consume equivalent units of Solar Power produced one location and using at any other location within the same Union Territory / State by the Prosumer, or to a third party (as and when smart metering is made ready with hardware and necessary software within the Union Territory/ State).

i. To help meet the distribution licensee to meet Renewable Purchase Obligations (RPOs) at a cheaper price, as against buying from outsiders and paying for transmission charges & losses, or meeting the RPOs by buying the highly priced Renewable Energy Certificates without getting any Power, thus making average pooled power purchase cost much higher to the disadvantage of the Consumers.

j. To earn from the sale of Renewable Energy Certificates instead of selling solar power to the distribution licensee, if any Consumer wishes so.

k. To help Diesel abatement and use cheaper Solar Power as against Diesel Generator Power.

l. To develop more decentralized power and help in reducing Transmission & Distribution (T&D)

losses, thus reducing electricity tariff.

2 Challenges of Solar Power Generation in the JERC Territories

Solar Power Generation is a collaborative effort between the Government of India / State Government, Electricity Regulatory Commission, the State accredited agency for promoting renewable power, distribution licensees, the obligated entities/ Open access consumers and all other Consumers.

The Challenges are:

a. To help the Consumer get quality power and cheaper power.

b. Availability of land is a big constraint in the UTs./ State under the jurisdiction of JERC. Solar Rooftop is a feasible option to produce solar power.

c. No Conventional Power is generated in the jurisdiction of JERC except in Andaman & Nicobar and Puducherry & Goa and, thus the UTs/ State are dependent on Power sourced from outside the territory, and pay for Transmission Charges in addition to Transmission & Distribution losses.

d. The areas under the jurisdiction of the Commission are not very rich with Renewable Energy sources.

e. The areas are on the seashore (except Chandigarh) having a lot of rain and threat of sea floods.

f. Some territories under JERC mostly use Diesel Power as a source.

3 Regulations Brief

In exercise of powers conferred by Sub-Section (1) of Section 181 and Clauses (zd), (ze) and (zf) of Sub-Section (2) of Section 181, read with Sections 61, 62, 83 and 86 of the Electricity Act, 2003 and all other powers enabling it in this behalf, the Joint Electricity Regulatory Commission (for the State of Goa and Union Territories) based on the experience gained so far and feedback received from time to time from various stakeholders, reduce power deficit, empower consumers of electricity to participate in the development of Power Sector and become a Power producer of electricity while remaining as consumer, help India to produce green power , reduce average cost of Power, use Rooftop/ Vacant Space/ Land effectively for Solar Power Generation, help the distribution licensees to meet Renewable Power Purchase Obligation, earn from sale of Renewable Energy Certificate instead of selling Solar Power to distribution licensees and develop more decentralized power and help in reducing Transmission and Distribution losses, thereby reducing electricity tariff recognizes that need has arisen to frame **Joint Electricity Regulatory**

Commission for State of Goa and Union Territories (Solar Power Tariff- Ground Mounted Grid Connected and Solar Rooftop with Net Metering) Regulations.

Chapter I

Preliminary

4 Short title, Commencement and Extent

a. These Regulations shall be called the **"Joint Electricity Regulatory Commission for the State of Goa and Union Territories (Solar Power Tariff - Ground Mounted Grid Connected and Solar Rooftop with Net Metering Regulations) - 2014".**

These regulations cover:

i. Terms & Conditions for Determination of Tariff for Procurement of Power from Grid-connected Ground and Rooftop mounted Solar Projects; and

ii. Rooftop Solar Grid Interactive systems based on Net metering.

b. These Regulations shall come into force from the date of their publication in the official Gazette, and shall remain in force for a period of three (3) years from the date of commencement thereof, unless reviewed/revised earlier or extended by the Commission. These Regulations shall be applicable for determination of tariff in cases covered under these Regulations from FY 2014-15, and technical connectivity for net metering wherever applicable

Provided, that for all purposes including review matters pertaining to the period till coming in force of these regulations, the issues related to determination of solar tariff shall be governed by terms and principles adopted by the Commission for determination of project specific tariffs for the Solar PV plants, as applicable.

c. These Regulations shall apply to the whole of the State of Goa and the Union Territories of Andaman and Nicobar Islands, Chandigarh, Dadra & Nagar Haveli, Daman & Diu, Lakshadweep and Puducherry.

5 Definitions and Interpretations

a. In these Regulations, unless the context otherwise requires:

a.1. "**Act**" means the Electricity Act, 2003 (36 of 2003), and subsequent amendments thereof;

a.2. "**Auxiliary Energy Consumption**", or "**AUX"** in relation to a period in case of a power generating station means the quantum of energy consumed by auxiliary equipment of the power generating station, and transformer losses within the generating station, expressed as a percentage of the sum of gross energy generated at the generator terminals of all the units of the generating station;

a.3. "**Authority**" means the Central Electricity Authority referred to in sub-section (1) of Section 70 of the Act;

a.4. **"Agreement"** means an agreement entered into by the Distribution licensee and the consumer;

a.5. **"Billing cycle**" means the period for which regular electricity bills as specified by the Commission, are prepared for different categories of consumers by the licensee;

a.6. "**Capital Cost**" means the capital cost as defined in these Regulations;

a.7. **"Capacity Utilisation Factor (or CUF in abbreviation)"** means the annual average capacity utilization for generation of Solar power due to varying Solar Insolation due to weather conditions, geographical location or the cleanliness of the Solar Panels;

a.8. "**CERC**" or "**Central Commission**" means the Central Electricity Regulatory Commission.

a.9. "**COD**" or "**Date of commercial operation**" shall mean the date on which the generating plant is synchronised with the grid system;

a.10. "**Control Period**" or "**Review Period**" means the period during which the norms for determination of tariff specified in these Regulations shall remain valid;

a.11. "**Check Meter**" means a meter, which shall be connected to the same core of the current transformer (CT) and voltage transformer (VT) to which main meter or solar meter is connected and shall be used for accounting and billing of electricity in case of failure of main meter or solar meter;

a.12. "**Commission" or "Joint Electricity Regulatory Commission" or "JERC"** means the Joint Electricity Regulatory Commission for the state of Goa and Union Territories of Andaman and Nicobar Islands, Chandigarh, Dadra & Nagar Haveli, Daman & Diu, Puducherry and Lakshadweep referred to in sub-section (1) of Section 82 of the Act & constituted under the Act;

a.13. "**Consumer"** means any person who sources electricity for his own use from the distribution licensee or the Government or any other person engaged in the business of supplying electricity to the public under this Act or any other law for the time being in force and includes any person whose premises are, for the time being, connected for the purpose of receiving electricity with the works of a distribution licensee, the Government or such other person, as the case may be;

a.14. **"Contracted Load"** or "Contract Demand" means the maximum demand in kW, kVA or BHP, agreed to be supplied by the licensee and indicated in the agreement executed between the licensee and the consumer;

a.15. **"Distribution Licensee"** means a person granted a license under Section 14 of the Act authorizing the person to operate and maintain a distribution system for supplying electricity to the consumers in the area of supply of Electricity;

a.16. **"Electricity Supply Code"** means the Electricity Supply Code specified under section 50 of the Act and subsequent amendments thereof, based on which the Commission has

issued its own Electricity Supply code;

a.17. **"Eligible consumer"** means a consumer of electricity in the area of supply of the "Distribution licensee", who uses a rooftop solar system installed in the consumer premises, to offset part or all of the consumer's own electrical requirements, given that such systems can be self-owned or third party owned;

a.18. **"EPC"** means Engineering Procurement & Construction Contractor;

a.19. "**Existing Generating Station**" means a generating Solar PV Station, which has achieved COD prior to the coming into effect of these Regulations;

a.20. "**Grid**" means the high voltage backbone system of inter-connected transmission lines, sub-stations and generating plants;

a.21. "**Generation Tariff**" means tariff for ex-bus supply of electricity from Solar PV generating station;

a.22. "**Installed Capacity**" means the summation of the name plate capacities expressed in kWp of all the units of the generating station or the capacity of the project reckoned at the output terminals of the solar project approved by the Commission from time to time;

a.23. "**Inter-connection Point**" shall mean the interface point of the Solar PV project with the network of Distribution Licensees at appropriate voltage level;

a.24. **"Invoice"** means either a Monthly Bill / Supplementary Bill or a Monthly Invoice/ Supplementary Invoice" raised by the distribution licensee;

a.25. **"kWp"** means kilo Watt peak;

a.26. **"MMC"** means Minimum Monthly Charge;

a.27. **"Month"** means English calendar month starting with 1st day / date of the month ending with last day/ date of the month. Part Month will be applicable number of days in proportion to total number of days in the specific month;

a.28. "**MNRE**" means the Ministry of New and Renewable Energy of Government of India;

a.29. **"Net metering"** means an arrangement under which rooftop solar system installed at eligible consumer premises delivers surplus electricity, if any, to the Distribution Licensee after off-setting the electricity supplied by distribution licensee during the applicable billing period;

a.30. **"Obligated Entity"** means the distribution licensee(s), Captive user(s) and Open Access Consumer(s), the entities mandated under clause (e) of subsection (1) of Section 86 of the Act to fulfil the renewable purchase obligation and identified under JERC -RPO Regulations (as amended from time to time);

a.31. **"Open access consumer"** means a consumer permitted by the Distribution Licensee / Commission to receive supply of electricity from a person, other than distribution licensee of his area of supply, and the expression(s) includes a generator and a licensee, who has

availed of open access;

a.32. "**Operation and Maintenance Expenses**" means the expenditure incurred on operation and maintenance of the project, or part thereof, and includes the expenditure on manpower, repairs, spares, consumables, insurance, and overheads;

a.33. **"PPA"** means Power purchase agreement- a long term agreement of 25 Years between Solar Project Developer as seller of Solar Power from the Solar PV / Solar Thermal & the Distribution Licensee as buyer of Solar Power;

a.34. "**Project**" means a solar generating station including the evacuation system up to inter-connection point;

a.35. "**Project Developer**" shall mean the developer of the Solar PV project, who shall own and operate such project;

a.36. **"Prosumer"** mean a Consumer who is simultaneously Producer of Solar Power;

a.37. **"Premises"** means rooftops or/ Vacant Spaces and elevated areas on the land, building or the 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;

a.38. **"Renewable Energy Certificate (REC)"** means the certificate issued in accordance with the procedures approved by the Central Electricity Regulatory Commission;

a.39. "**Renewable Energy Power Plant**" means the power plant other than the conventional power plant generating grid quality electricity from renewable energy sources;

a.40. "**Renewable Energy Sources**" means sources of power generation which does not use conventional fuel but uses the Renewable Sources such as small hydro, wind, solar including its integration with combined cycle, biomass, bio fuel cogeneration, urban or municipal waste and other such sources as approved by MNRE;

a.41. **"Rooftop Photovoltaic (PV in brief)'** means a Rooftop PV and other small Solar PV generating station, installed on rooftops of residential, commercial and non-commercial buildings of the Consumer or on Roofs taken on lease by Project Developer, but excludes the historic architecture, using a technology that uses sunlight for direct conversion into electricity through Photo Voltaic technology. The system includes the evacuation system up to inter-connection point / Inverter, as the case may be;

a.42. "**Salvage Value**" means the estimated value of an asset at the end of its useful life;

a.43. **"Settlement period"** means the period beginning from first of April in an English calendar year and ending with the thirty first of the March of the next year;

a.44. **"Solar PV Power Project"** means a solar photo voltaic power project that uses sunlight for direct conversion into electricity through Photo Voltaic technology based on technologies such as crystalline Silicon or thin film etc. as may be approved by MNRE and includes the evacuation system up to interconnection point of the Grid; for grid connected ground and rooftop mounted solar PV system that directly convert solar power into electricity.

a.45. **"Solar Power Project Developer (SPD)"** means a consumer or an entity whose Solar project has been approved by the Distribution Licensee on the basis of the generic tariff approved by the Commission.

a.46. **"Solar Power Generator (SPG)"** means anyone who has started generating Solar power in the respective territory from an approved project.

a.47. "**Solar Thermal Power**" means the Solar thermal power plant that uses sunlight for direct conversion into electricity through concentrated solar power technology based on either line focus or point focus principle and by converting Solar Insolation to convert Water to steam for generating Power from Steam cycle turbine;

a.48. "**Solar Meter**" means a main meter used for measuring the units generated for the purpose of accounting and billing of electricity generated by the solar power projects;

a.49. "**State Agency**" means the agency in the concerned state as may be designated by the Commission to act as the agency for accreditation and recommending the renewable energy projects for registration and to undertake such functions as may be specified under clause (e) of sub-section (1) of Section 86 of the Act;

a.50. "**Tariff Period**" means the period for which the tariff is determined by the Commission on the basis of norms specified under these Regulations;

a.51. **"Tariff Order"** in respect of a licensee means the most recent retail tariff order issued by the Commission for that licensee indicating the rates to be charged by the licensee from various categories of consumers for supply of electrical energy and services;

a.52. "**Third Party Owned**" means in which a developer owns the Rooftop Solar system and also enters into a lease/commercial arrangement with the rooftop owner;

a.53. "**Useful Life**" in relation to a unit of a solar photovoltaic/thermal power project shall mean a period of 25 years from the date of commercial operation (COD) of such generation facility;

a.54. "**Weighted Average Cost of Capital (WACC)**" means the average of the costs of various sources of financing including debt and equity, each of which is weighted by its respective ratio in the total capital employed in the project;

a.55. **"Year"** or "**Financial Year**" means a period commencing on 1st April of an English Calendar year and ending on 31st March of the subsequent calendar year;

b. All other words and expressions used in these Regulations if not specifically defined herein above, but defined in the Act, shall have the meaning assigned to them in the Act. The other words and expressions used herein but not specifically defined in these Regulations or in the Act but defined under any law passed by the Parliament applicable to the electricity industry in the State shall have the meaning assigned to them in such law.

6 Scope of Regulations and Extent of Application

a. These Regulations shall be applicable to all the grid connected solar PV (including rooftop solar PV) and solar thermal projects, where tariff for electricity generated from such project/(s) is to be determined by the Commission under Section 62 read with Section 86 of the Act.

Provided that in case of grid connected ground and rooftop mounted solar power plants, these Regulations shall apply subject to the fulfilment of eligibility criteria specified in Regulation 7 of these Regulations.

b. Notwithstanding anything contained in these Regulations, the Commission shall adopt the tariff, if such tariff has been determined through a transparent process of bidding in accordance with the guidelines issued by the Central Government, as envisaged under Section 63 of the Act.

Provided that the tariff determined under the process of bidding is not higher than the generic tariff determined by the Commission for the State of Goa and the Union Territories.

7 Eligibility Criteria

Grid connected ground mounted Solar PV and Solar Thermal power projects of capacity equal to or more than 500 kWp, and Rooftop Solar PV of capacity equal to or more than 1 kWp but not more than 500 kWp at one location owned by one individual or entity, based on the technologies approved by Ministry of New & Renewable Energy of Government of India are eligible for connecting the project with Grid under these regulations.

a. The eligible consumer may install the rooftop solar system under these Solar Power Generation Regulations, provided the Solar System is:

   i. Within the permissible rated capacity as defined under these Regulations.

   ii. Located in the consumer premises.

   iii. Interconnected and operated safely in parallel with the distribution licensee network.

b. These regulations do not preclude the right of relevant state authorities to undertake rooftop solar projects of any larger capacity through any alternative mechanisms also.

c. Net metering facility will be implemented for the consumers of the Distribution licensees under the jurisdiction of the Commission who intend to get involved in solar green energy and set up Solar plants at available places on Rooftops of Individual households, industries, Govt./Semi-Govt./Local Body offices, commercial establishments, institutions, residential complexes etc. and will be eligible with project capacity from minimum 1kWp and not more than 500 kWp (AC side) at one location owned by one entity with/ without battery back-up support. Consumers will generate solar power for self-consumption and can feed excess power into the grid to be adjusted as per provisions of these regulations.

d. All eligible consumers of electricity in the area of supply of the distribution licensee can participate in the solar rooftop net metering arrangement.

e. The maximum Rooftop Solar System capacity to be installed at any eligible consumer premises shall be governed by the eligibility of interconnection with the grid for that eligible consumer;

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

8 Third party owned Rooftop Solar Project with net metering

In the third party owned Rooftop Net Metering model,

i. A Rooftop Owner can lease out / rent the Rooftop Space to a Solar Project Developer. Under this arrangement, the owner of the roof, engages a turnkey installer to design and install the system; or

ii. A Solar Rooftop project developer who leases the Solar Power System to the Roof Top Owner. In this arrangement, the installers offer an integrated service of leasing, commissioning and maintaining the systems to owners and guaranteeing standards of performance.

The electricity generated from such a system is used to meet the Rooftop owner's internal electricity needs while the excess generation is fed into the grid on net metering basis.

The arrangement between the two parties will be a mutual commercial arrangement between the two parties. It may include sharing Solar Power units such generated and fed to the grid after Net Metering.

The net meter billing will be with one of the two parties that is decided and informed to the Distribution Licensee.

This model has the following benefits:-

i. Benefits to rooftop owner: The household owner avoids large upfront investment for the solar equipment or performance risk of solar systems. Net metering allows the rooftop owner to save on power consumed from the grid to the extent of solar generation. A part of savings in energy bill of power consumption is shared with the developer by way of lease rentals.

ii. Benefits to developer: The leasing company generates revenues by way of lease rental from the rooftop owner under a contract. As it continues to be the owner of the equipment, it also qualifies for claiming depreciation on the capital cost of the Solar systems with associated direct tax benefits.

However, for all intent and purposes, the licensee will deal with the Rooftop owner/Consumer only and arrangement between rooftop owner and developer will be personal to them.

The Solar Power Units generated will be allowed Open access, as per JERC-9/2009 "Open Access in Transmission and Distribution Regulations, 2009" or as amended and in force, such third party owned system may normally result in an open access transaction with implications of wheeling charges and surcharge relating to cross subsidy. However, to encourage green energy, such Rooftop Solar System installations set up under these regulations would be exempted from open access restrictions and associated charges.

9 Solar Power Generation Capacities

a. The distribution licensee shall provide net metering arrangement to eligible consumers.

b. The distribution licensee similarly shall also facilitate the ground mounted Solar Project Development.

Provided that the cumulative solar capacity allowed at a particular distribution transformer shall not exceed the limit as specified in Annexure C to these regulations as a percent of the peak capacity of the distribution transformer;

Provided the total solar power generation capacity (in MW) in the respective territories does not exceed as indicated in Annexure F of these regulations. Capacities beyond the specified limits shall also be encouraged by the Commission once the Capacity targets required to meet the RPOs in the respective territories are achieved and the system is ready to take on extra Solar Power Transmission.

c. The distribution licensee shall update distribution transformer level capacity available for connecting the Solar Systems on a yearly basis and shall provide the information on its website as well as to the Commission.

Chapter II

General Principles of Solar Power Projects

10 Control Period.

a. These Regulations shall come into force from the date of notification, and unless reviewed /revised earlier or extended by the Commission, shall remain in force for the Control period from FY 2014-15 to FY 2016-17.

The parameters may be reviewed for each financial year (called the Review Period), keeping in view the effect of market dynamics which include, but are not limited to:

i. The ceiling limit in respect of the Capital cost and the interest rate and other benchmarked parameters for Solar Tariff determination.

ii. The solar tariff determined under these Regulations, for grid connected Ground mounted and Rooftop Solar Power projects which are commissioned during the control period, shall continue to be applicable for the entire duration of the Tariff Period as specified in these Regulations.

b. Notwithstanding anything contained in these Regulations, the benchmarked norms for Solar tariff determination in respect of grid connected ground and rooftop mounted Solar power projects set up prior to notification of these Regulations or where the project specific solar tariff was determined by the Commission shall be governed by the norms/benchmarks specified in these regulations as applicable to Solar Photo Voltaic Power Projects and Solar Thermal Power Projects, as amended from time to time or by the norms and principles adopted by the Commission for determination of project specific tariff for Solar PV projects, for the respective period of commissioning of such Solar PV Projects, which shall be considered as the ceiling limit in determining the Solar tariff for such Solar power projects. The provisions of the said Regulations, if have any bearing or impact on any previous solar tariff order may be considered for revision in tariff only after the approval of the Commission from the applicable date.

11 Tariff Period

1 The Tariff period for grid connected ground based Solar Power Plants (PV & Thermal) and Rooftop mounted Solar Projects shall be twenty-five (25) years and shall be reckoned from the date of commercial operation of the solar power projects.

i. Provided a Power Purchase agreement (PPA) is signed between the Solar Project Developer and the Distribution Licensees mandated to buy the Solar Power;

ii. Provided, the full capacity of the Solar Project as approved, gets commissioned with the time lines specified by the Commission, after signing of the PPA. If only a part of Plant capacity is commissioned within the specified time, the Solar tariff applicable will be for the part capacity that is commissioned. The Tariff for the balance part of un-commissioned project will be dealt on its commissioning as per the Solar tariff applicable for that part, if there is a change announced in Solar Tariff by the Commission.

iii. Provided, that the Solar Power Project planned to be developed comes within the Commission's approved total Solar Capacity for respective distribution licensee.

12 Generic Tariff

The Generic Tariff for Solar Power Projects as per Annexure A & B of these Regulations will be applicable for Solar Power Projects (Solar PV / Solar Thermal) including Solar Roof Top installations.

Chapter III

Financial Principles for computing Tariff

13 Tariff Structure

The tariff for grid connected ground mounted and rooftop mounted Solar Power Plants shall be a single-part tariff consisting of the following fixed cost components:

a. Capital Cost of the Project;
b. Interest on long-term loans;

c. Depreciation;
d. Return on Equity;
e. Interest on Working Capital; and
f. Operation and Maintenance (O&M) Expenses;

14 Levellised Tariff Design

1 The tariff shall be determined on the levellised basis for the tariff period; and, for the purpose of levellised tariff computation, discount factor equivalent to weighted average cost of capital (WACC) shall be considered.

Provided the Solar Project has been commissioned within the Control period during which the Power Purchase Agreement is signed allowing for Completion time as per these regulations even it goes beyond the specific year for which Solar Tariff is made applicable.

15 Capital Cost

1 The capital cost for Solar Power Projects for working out the Tariff shall be inclusive of all capital works including plant and machinery, civil works, erection and commissioning, financing and interest during construction, other misc. expenses such as overheads, administrative cost etc. during construction, and evacuation infrastructure up to the interconnection point, if any.

2 The normative capital cost ceiling limit for setting up of rooftop solar photovoltaic power projects shall be determined based on the capital cost of various items specified hereunder:

i. Landed Cost of Modules
ii. Land Cost for Ground Mounted / Capitalised Rooftop Rental or lease for Rooftop
iii. Civil & General works
iv. Mounting Structures
v. Power Conditioning Unit (PCU / Inverter)
vi. Cables & Transformers (if applicable)
vii. Preliminary and Operative expenses, Interest during Construction etc.

Provided, the Capital Subsidy or grant made available for the Project from Govt. of India or State Govt. or any agency shall be adjusted for working out the Tariff. The Generic Tariff as per these regulations shall be applicable after adjusting for same in the Capital Cost.

3 The normative capital cost ceiling limit for setting up of grid connected ground mounted Solar Photo Voltaic Power projects and Solar Roof Tops shall be as per Annexure A for the financial year specified.

4 The normative capital cost for Solar Thermal Power projects shall be as per Annexure B for the financial year specified.

Provided that the normative capital cost for Solar power projects may be reviewed annually by the Commission.

16 Debt-Equity Ratio

For the purpose of determination of tariff, the following provisions shall apply:

a. Debt Equity ratio of 70:30 shall be considered. However, if the equity actually deployed is less than 30%, the actual equity shall be considered and if the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan.

   Provided that the equity invested and debt drawn in the foreign currency shall be designated in Indian Rupees on the date of each investment, using the selling rates notified by the Reserve Bank of India on the date of such investment

b. The Commission shall take into consideration any capital grant or subsidy offered by the Central or State Government or any other agency, for the solar power projects while determining the tariff under these Regulations.

17 Interest and Financing Charges for Long Term Debt

i. **Interest Rate for long term debt**

a. The loans arrived at in the manner indicated in the Annexure A & Annexure B of these Regulations shall be considered as gross normative loan(s) for calculation of interest on loan. The normative loan outstanding as on April 1st of every financial year shall be worked out by deducting the cumulative repayment up to March 31st of previous financial year from gross the normative loan.

b. Notwithstanding any moratorium period availed by the generating company or project developer, the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the annual depreciation allowed.

c. For the purpose of computation of tariff, the normative interest rate shall be considered as an average State Bank of India (SBI) Base rate prevalent during the first six months of the previous year plus 300 basis points.

d. The Commission shall allow obligatory taxes on interest, commitment charges for getting loan, finance charges and any exchange rate difference arising from foreign currency borrowings, as finance cost.

18 Interest on Working Capital

a. The working capital requirement with respect to Solar power projects shall be computed in accordance with the following:
   i. Operation & Maintenance expenses for one month;
   ii. Receivables equivalent to Two (2) months of energy charges for sale of electricity calculated on the normative Capacity Utilization Factor;
   iii. Maintenance spares at the rate of 15% of operation and maintenance expenses;

b. Interest on Working Capital shall be at an interest rate equivalent to an average State Bank of India Base Rate equivalent during the first six months of the previous year plus 350 basis points.

19 Return on Equity

a. The base value for the equity shall be 30% of the capital cost or actual equity (whichever is less) as determined under these Regulations.

b. The normative return on equity shall be
   i. Pre-tax return of 20% per annum for the first 10 years
   ii. Pre-tax return of 24% per annum from 11th year onwards

20 Operation and Maintenance Expenses

a. Operation and Maintenance or O&M expenses shall comprise of repair and maintenance (R&M), establishment including employee expenses lease rental, if any, and administrative and general expenses including insurance.

b. The normative O&M expenses for Solar Power projects shall be as indicated in Annexure A and Solar Thermal power projects shall be as indicated under Annexure B.

c. Normative O & M expenses allowed during the first year of control period (i.e. FY 2014-15) under these Regulations shall be escalated at the rate of 5.72% per annum over the tariff period (i.e. from the 2nd year onwards).

21 Depreciation

a. The value base for the purpose of depreciation shall be the capital cost of the asset determined by the Commission. The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the capital cost of the asset.

b. Depreciation per annum shall be based on 'Differential Depreciation Approach' over loan period and beyond the loan tenure over the useful life shall be computed based on 'Straight Line Method'. The depreciation rate for the first 12 years of the tariff period shall be 5.83% of the capital cost per annum and the remaining depreciation shall be spread over the remaining useful life of the project from the 13th year onwards.

c. Depreciation shall be chargeable from the first year of commercial operation of the Project:

   However, in case the commercial operation of the asset is for a part of the year, depreciation charged shall be on pro-rata basis.

22 Accelerated Depreciation

The Tariff for Solar PV Projects (Ground Mounted / Solar Roof Top) has been indicated in the Annexure A.

Similarly, the Tariff for Solar Thermal Projects) has been indicated in the Annexure B.

The Tariffs have been determined under the two scenario i.e.

i. The Tariffs indicated are without availing the accelerated depreciation; and

ii. The Tariffs if the accelerated depreciation is availed by the Project developer.

The applicable tariff will depend upon whether the Project developer is availing / intend to avail the benefit of accelerated depreciation as per the provisions of the Income Tax Act.

The Project developer claiming higher tariff (without Accelerated Depreciation Benefit) has to give an affidavit every year in the beginning of the financial year to the effect that the Project developer is not claiming / intends claiming the benefit of the accelerated depreciation from Income tax department. This affidavit is required to be submitted before the processing of 1st bill for sale of power or its adjustment towards the total electricity consumed.

23 Availing Subsidy

a. The consumers interested in setting up of solar rooftop PV project can approach the State Agency for grant of applicable MNRE, Govt. of India grant as per the prevailing instructions/guidelines.

b. The Solar PV plant will be eligible for the fiscal and other incentives as per New and Renewable Sources Energy (NRSE) Policy 2012 of Govt. of India

24 Impact of Subsidies or Incentives by Central/State Government

The Commission shall take into consideration any incentive or subsidy or benefit available from the Central or State Government or any other agency, including accelerated or higher depreciation benefit, if availed by the generating company, for the renewable energy power plants while determining the tariff under these Regulations:

i. Provided that the following principles shall be considered for ascertaining income tax benefit on account of accelerated or higher depreciation, if availed, for the purpose of tariff determination:

i.1. Assessment of benefit shall be based on Capital Cost and accelerated or higher depreciation rate as per relevant provisions under the Income Tax Act;
i.2. Capitalization of grid connected ground and rooftop mounted solar power projects during second half of fiscal year;
i.3. Per unit benefit shall be derived on levellised basis at discount factor determined as per these Regulations:

ii. Provided further that in case the Solar Power Generator or project developer is not claiming accelerated or higher depreciation benefit, the Power Purchase Agreement entered into with the generating company or project developer shall include an undertaking by the generating company or project developer that accelerated or higher depreciation benefit would not be availed for the project.

iii. Provided further, that if accelerated or higher depreciation benefit has been claimed despite submission of the undertaking, the distribution licensee shall be entitled to recover the amount wrongly claimed along with penal charges @ 1.50 % per month on levellised tariff calculated on daily basis from the period of claiming accelerated depreciation from any bill that is next due or is pending for payment.

iv. Provided further that the Generation Based Incentive/Tariff Subsidy, if allowed by the Central/State Government would be governed by the terms and conditions of such scheme

25 Sharing of CDM Benefits

a. All risks, costs and efforts in development of such projects as CDM projects shall remain with the Project Developer/lead entity as the case may be, who is responsible for developing and registering these projects as CDM projects.

b. The proceeds of the carbon credit from approved CDM Project shall be shared between the project developers and concerned distribution licensee in the following manner, namely-

i. 100% of the gross proceeds on account of CDM benefit to be retained by the developer in first year after the date of commercial operation of the generating station.

ii. In the second year, the share of the project developer shall be 90% which shall be progressively decreased by 10% every year till it reaches 50%, where after the proceeds shall be shared in equal proportion by the project developer/generating company and the distribution company.

Provided, that the entire benefits obtained by the distribution licensee shall be fully passed on to the consumers.

26 Financial and Fiscal Calculations

For the purpose of levellised tariff computation, the discount factor equivalent to Post Tax weighted average cost of capital shall be considered. The generic tariff shall be determined on levellised basis for the Tariff Period.

i. **Weighted average Return on Equity:** (RoE for 1st 10 Years*10 Years + RoE for beyond 10 Years*(balance of useful life beyond 10 Years)) / Useful life years and the Formula applicable will be:

(Pretax ROE<= RoE % for 1-10 Years, Equity absolute amount *ROE on Equity for 1st 10 Years, Equity absolute amount * RoE for balance Useful life after 1st 10 years)

The Tariff will be adjusted for any other Rate of effective Income Tax applicable to the Solar Power Generator.

ii. **Discount factor for calculating Levellised Tariff:** ((Cost of Capital in % × 0.70 Long term loan Component × (1 – Corporate Income Tax %)) + (Weighted average Post Tax Return on Equity % × Equity %)).

27 Applicable Tariff

The Tariff applicable for each project at the time of signing the PPA shall be as approved by the Commission for each year.

i. Provided the Power Purchase Agreement (PPA) is signed between the Solar Power Project Developer and the Distribution licensee in the Specific Year of the Control Period:
ii. Provided the Solar Project comes within the time indicated in the Annexure G;
iii. Provided the Solar Project envisaged does not come in the duration specified above, the Tariff applicable for the project will be lesser of the two tariffs i.e. of the previous year when PPA was signed and the next year tariff during which the Project gets commissioned.

28 Power Bill Adjustment Rates for Solar Power fed into the Grid

The Consumer bill in Solar Rooftop will get adjusted as per the Tariff of Solar Power Tariff decided in these Regulations. If a consumer is net exporter of Solar electricity, the Consumer will get the payment that is paid six monthly i.e. on 30th Sept & 31ST March of each year.

The Ground mounted Solar Plants the invoice raised by the solar Power Generator will be paid within 2 months. The rebate for payment through Letter of Credit, or early payment and penalty on delayed payments is as per these regulations.

29 Taxes and Duties

a. The tariff determined under these Regulations shall be exclusive of taxes and duties as may be levied by the appropriate Government for sale of Solar Power, provided that the taxes and duties levied by the appropriate Government shall be allowed as pass through on actual basis.

b. Capital Cost or O&M Costs are inclusive of Taxes and Duties including Service Tax etc. applicable on these components.

Chapter IV

Solar Power Importance & Despatch Priority

30 Despatch principles for electricity generated from Solar Power

a. All grid-connected ground and rooftop mounted Solar PV plants shall be treated as 'MUST-RUN' power plants and shall not be subjected to 'merit order despatch' principles.

b. The grid connected ground and rooftop mounted Solar PV plants of various capacities will be connected at Voltage levels indicated in Annexure D. This shall be subjected to scheduling and despatch code as specified under Indian Electricity Grid Code (IEGC)-2010, as amended from time to time, except where specific provision has been made under the Joint Electricity Regulatory Commission (State Grid Code) Regulations, 2010, as amended from time to time.

Chapter V

Renewable Power Obligations –Solar

31 Quantum of Purchase of Electricity from Solar Power

The quantum of purchase of power from solar power projects by the utilities to discharge mandatory obligations shall be as specified in the Joint Electricity Regulatory Commission for state of Goa & Union Territories (Procurement of Renewable energy) Regulations, 2010. The quantum is indicated in Annexure F of these regulations. Beyond the RPO limits specified, the Commission will examine its implications including its impact on consumer tariff before taking a view in the matter.

32 Solar Power Capacity Targets for distribution licensee

a. Maximum cumulative capacity to be installed under these Guidelines shall be decided by the Commission on yearly basis. The shortfall in any year shall be carried forward to the next succeeding year provided that the cumulative capacity to be allowed at a particular distribution transformer shall not exceed the limits as specified in Annexure C to these regulations of the rated capacity of the distribution transformer; on first-cum-first serve. However, the Consumer or the Project Developer will have to apply afresh in the next financial year, in case the earlier application could not be considered due to approved Solar capacity constraints in the previous year.

b. The distribution licensee shall update distribution transformer level capacity available for connecting rooftop solar systems under net metering arrangement on yearly basis and shall provide the information on its website as well as to the Commission and the respective State Agency.

33 Solar Renewable Purchase Obligations Applicability

The quantum of electricity purchased by the distribution licensee of the respective licence area under the Commission's jurisdiction shall get covered towards the Solar RPOs for the Solar Power purchased from any consumer who is either a Non-obligated or an obligated entity whether covered under Solar Rooftop with Net Metring or Ground mounted Solar PV or Solar Thermal projects.

The Obligated entities including Open Access Consumers with load in excess of 1MW have to comply their own RPOs. In case, the obligated entity is also a Solar Power Generator and selling Solar Power to the distribution licensee, only Solar Power Generator would qualify for Renewable Power Obligation compliance.

34 Certifying Authority- the State Agencies

a. The Commission has appointed the following State agencies who will certify the RPOs generated by the Obligated entities in the State or UT and who are supporting the Stake Holders in Electricity Distribution & Consumption in development of Renewable Agencies and associated matters are:

1. The Member, Secretary
   Goa Energy Development Agency
   DST & E Building, 1st Floor Saligao Plateu
   Opp-Seminary Saligao, Bardez, Goa-433511
   Tel-0832-271194
2. The Chief Executive Officer,
   Chandigarh Renewable Energy, Science & Technology Promotion society (CREST)
   (Under the Aegis of Department of Science & Technology,
   Chandigarh Administration), 1st Floor, Paryavaran Bhawan, Madhya Marg, Sector 19 B, Chandigarh 160 019 . Tele : 0172-2703982
   Mr Ravinder Singh 98159-10344
   Crestchandiagrh@gmail.com

3. The Development & planning Office
   Administration of Dadra & Nagar Haveli, Silvassa
   Ph:0260-642070

4. The Principal Scientific Officer
   Department of Science & Technology, Moti Daman-396220

5. The Managing Director,
   Lakshadweep Energy Development Agency (LEDA)
   UT of Lakshadweep
   Kavaratti –PIN 682555

   Phone : 04896 – 262127, 04896 – 262127, 04896 - 262363 (O), 04896 -262291 (R)
   Fax : 91 - 4896 – 262936,
   E-Mail : lk-ktelect @ nic.in ,

6. The Director, Project Director, REAP
   Renewable Energy Agency Puducherry
   Bunglow No.2, A.F.T premises
   Cuddalore Main Road, Mudaliarpet
   Puducherry , Pin-605004
   Ph: 0413-2354339-2354319
   Fax: 0413-2354339-2354319
   E Mail-pdreap@dataone.in, pdrea@gmail.com

b. The Consumers and the Distribution Licensee shall contact the State Agency of the respective area of jurisdiction.
c. These state agencies shall also help the consumer in advising to set up the Solar Power Plants in the respective areas of their jurisdiction.

Chapter VI

Technical Parameters

35 Technology

a. Norms for Solar photovoltaic power projects under these Regulations shall be applicable for grid connected ground and rooftop mounted solar PV system that directly convert solar power into electricity and are based on technologies such as crystalline Silicon or thin film etc. as may be approved by MNRE.

b. Norms for Solar thermal power under these Regulations shall be applicable for Concentrated solar power (CSP) technologies viz. line focusing or point focusing, as may be approved by MNRE.

36 Interconnection with the Grid through Net Metering

These regulations apply only to the Grid Connected Solar Power Projects, whether Ground Mounted or Rooftop mounted. Investment and development for generation of Solar Power is encouraged by the Commission. However, the following conditions are to be adhered to

i. That a variation in the rated capacity of the system agreed between the Distribution Licensee and the Solar Project Developer shall remain within a range of five percent;

ii. System meets the technical requirements for grid interconnection with the network of the distribution licensee.

37 Technical and interconnection requirements

Given at Annexure C & D of these regulations. The Project developers shall adhere to the National & International Standards specified by MNRE as available at http://mnre.gov.in/file-manager/UserFiles/Scheme-Grid-Connected-Rooftop-&-small-solar-power-plants.pdf & CEA's Technical Standards for Connectivity of Distributed generation Resources) Regulation 2013.

38 Investment in the Grid Augmentation

The cost of any augmentation required after the interconnection point in the system of the distribution licensee shall be borne by the concerned distribution licensee

Provided that such capital expenditure, as may be approved by the Commission, shall be a pass through in the Aggregate Revenue Requirement of such distribution licensee.

39 Power Quality & Protection and Controls

The power quality & protection and controls shall conform to the standards specified in the CEA (Technical Standards for connectivity to the grid) Regulations, 2007 applicable to the distribution system as amended from time to time.

40 Communication Facilities

All grid connected solar PV power projects shall have meters with features to record energy for 45 days data storage for injection into the grid through solar meter as provided under these Regulations. All projects with capacity of 10 kWp and above shall have communication Port for exchanging real time information with the Distribution Licensee. For plant size of 1MWp and above the Communication will be with State Load Despatch Centre (SLDC) also in addition to the distribution licensee.

41 Installed Capacity- Defined

The maximum capacity of the Rooftop Solar System, as mentioned on AC side at the output of inverter based on rated inverter capacity, shall not be more than the limits as specified in Annexure C, D & F to these regulations of the Sanctioned Connected Load /Contract Demand (in KVA converted to kW at normative Power Factor of 0.90) of the consumer and the minimum capacity shall not be less than 1kWp. Eligible Consumers should assess their Rooftop Solar System plant capacity based on the shadow-less clear Rooftop area / vacant space(s), actual annual energy consumption pattern and the capacity of Distribution transformer.

42 Connectivity and Protection

Solar Rooftop systems will be allowed in house auto synchronization /de-synchronization facility with distribution system of the licensee at generation voltage level. They will utilize the same service line for excess power injection into the Grid which is currently being used by the consumer for drawal of power from utility's grid and will operate in synchronization with Distribution licensee's system provided that such injection of power from the Rooftop solar system shall not be more than the limit of the total consumption from the licensee's supply by the consumer in a Settlement Period. It will be mandatory for the solar rooftop generator to provide an appropriate protection system on their incoming side/ consumer premises with the feature of "Islanding the Solar generator", so as to achieve isolation of consumer power-system from utility power-system during grid failure including protection from voltage / lightning surges. The Power Conditioning Unit of the solar plant shall have features to filter out harmonics and other distortions before injecting the energy into the system of the Distribution Agency. The harmonics & inverter standards are as specified in Annexure C to these regulations.

43 Operation and Maintenance – Technical Requirements

a. The solar plant shall comply with the relevant standards specified by the MNRE / Bureau of Indian Standards (BIS) and CEA. The responsibility of operation and maintenance of the Solar Photo Voltaic (SPV) Generator including all accessories and apparatus lies with the consumer. The design and installation of the rooftop SPV should be equipped with appropriately rated protective devices to sense any abnormality in the system and carry out automatic isolation of the SPV from the grid. The inverters used should meet the necessary quality requirements and should be certified for their quality by appropriate authority; the protection logics should be tested

before commissioning of the plant.

b. The automatic isolation or islanding protection of SPV should be ensured for, no grid supply and low or over voltage conditions and within the required response time. Adequate rated fuses and fast acting circuit breakers on input and output side of the inverters and disconnect/isolating switches to isolate DC and AC system for maintenance shall be provided. The consumer should provide for all internal safety and protective mechanism for earthing, surge, DC ground fault, transients etc.

c. To prevent back feeding and possible accidents when maintenance works are carried out by Distribution Licensee personnel, Double pole/Triple pole with neutral isolating disconnect switches which can be locked by Distribution Licensee personnel should be provided. Responsibility of handling / maintaining such disconnect switches will be the responsibility of the Owner of the premises in whose territory this Switch is installed. This disconnecting switch is in addition to automatic sensing and isolating device on grid supply failure, and also is in addition to any other internal disconnect switches provided or needed to be provided keeping in view the safety of humans & any animals. In the event of LT/HT supply failure from the end of the Distribution Licensee, the consumer has to ensure that there will not be any Solar Power being fed to the LT/HT grid of Distribution Licensee. The consumer is solely responsible for any accident to human beings / animals whatsoever (fatal /non-fatal /departmental /non-departmental) that may occur due to back feeding from the SPV plant when the grid supply is off. Distribution Licensee reserves the right to disconnect the installation at any time in the event of damage to its grid, meter, etc. or to prevent accident or damage.

d. The consumer shall abide by all the codes and regulations issued by the Commission to the extent applicable and in force from time to time. The consumer shall comply with JERC/Distribution Licensee /CEA requirements with respect to safe, secure and reliable function of the SPV plant and the grid. The power injected into the grid shall be of the required quality as per Annexure D of these regulations or any other standards prescribed by CEA from time to time that are applicable at the time of Solar Project installation.

e. The consumer shall restrict the harmonic generation within the limit specified in the agreement or specified by the Central Electricity Authority as and when such regulation is issued.

f. The Solar Power Generator (SPG) (individual homes/commercial establishments) may establish LT grid interactive solar power plant in the Rooftop or elevated surface with the following options:

i. Grid interactive Solar System without battery.
ii. Grid interactive Solar System with battery backup.

However, in both the options, features as per regulation 44 shall be available so as to ensure islanding of the Solar system & prevent back feeding to Grid system of the Distribution Licensee.

The inverter standard shall be such that it should not allow Solar PV/battery power to extend to Distribution Licensee's LT grid on failure of Distribution Licensee's grid supply, irrespective of the LT connectivity options. The required inverter standards for three phase and single phase Solar PV are furnished in Annexure C. The inverter should be a sine wave inverter. Harmonic standards shall be as per IEEE 519.

44 Life of Plant and Machinery

The normative useful life of solar power projects (based on photovoltaic and thermal technologies) is as per the definition.

45 Capacity Utilization Factor (CUF)

The capacity utilization factor for estimation of electricity generation from grid connected ground and rooftop mounted Solar PV projects and the Solar Thermal Plants shall be as per Annexure A & B respectively.

Net Metering

Chapter VII

Metering, Billing, Payment & Adjustment

46 Metering / Billing: General Principles

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

i. Provided that the distribution licensee shall offer the provision of net metering to the consumer for the target capacity as specified under these Regulations;

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

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

47 Energy Accounting and Settlement

a. For each billing cycle, the licensee shall show the quantum of electricity injected into the Grid by the Prosumer, the electricity billed by distribution licensee and, Solar Power net billed for payment or adjustment in the Prosumer's Electricity bill for that billing cycle .

i. Provided, that in the event the electricity injected into the Grid exceeds than consumed during the billing cycle, such excess injected Solar Power units of electricity shall be carried forward to next billing cycle as electricity units credit and may be utilized to net electricity injected or consumed in future billing cycle;

ii. Provided further that in the event the electricity supplied by the distribution licensee during any billing cycle exceeds the electricity inducted into the Grid by the Prosumer of the Rooftop Solar system, the distribution licensee shall raise invoice for the net electricity consumption after taking into account any electricity credit balance remaining from

previous billing cycle(s);

iii. Provided, in case the Prosumer is under the ambit of time of day tariff, as determined by the Commission from time to time, the electricity consumption in any time block (e.g., peak hours, off-peak hours, etc.) shall be first compensated with the electricity generation in the same time block. Any cumulated excess generation over consumption in any other time block in a billing cycle shall be accounted as if the excess generation occurred during the off-peak time block. (This will be operative when the Licensee is ready with the Metering hardware and the Software);

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

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

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

b. The electricity generated by the Rooftop Solar system of the Prosumer shall not be more than the limit specified in Annexure F to these regulations, but the electricity planned to be supplied to the grid will be defined beforehand, of the electricity consumption by the Prosumer at the end of the settlement period.

c. In case of any dispute in billing and settlement it would be settled by the consumer grievance redressal forum and if the issue still remains unresolved shall be settled by the Ombudsman and if still not settled then by the Commission following appropriate procedure.

48 Solar Power Banking mechanism and Billing

a. On commissioning of the solar Rooftop system and at the end of each of the billing cycle/settlement period, the distribution licensee will take energy meter readings for import/drawal and export/injection of power and work out the net energy flow quantum from or to the consumer. In case the net flow is towards the distribution licensee i.e. the consumer has injected/exported the net surplus energy to the distribution licensee system, such quantum will be treated as energy banked by the Consumer with the Distribution Licensee in the current billing cycle. In such scenario, the consumer will be issued Energy Account Statement along with the bill for charges like meter rentals, service charges etc., and banked energy will be carried forward for accounting in the next billing cycle or till the Consumer intends it to be banked. If the net energy flow is from the distribution licensee, then the consumer will be issued the Energy Account Statement and Energy Bill for the net power drawn in the billing cycle plus other charges.

b. The Energy Account Statement to be issued to consumer by the distribution licensee for each billing cycle shall show the quantum of export/injected energy from roof-top Solar System, import / drawal of energy from the distribution licensee in the billing cycle, banked energy of the previous billing cycle, net billed energy for payment by the consumer for that billing cycle or net banked energy carried forward to the next billing cycle separately. The Energy Bill for import will be prepared as per the retail supply tariff as approved by the Commission for the category to which the consumer belongs. The energy exported to the

Distribution Licensee from the rooftop Solar system shall be set-off against the energy imported from the Distribution Licensee's grid at the JERC's approved retail supply tariff applicable to the particular consumer category.

c. At the end of the next and subsequent billing cycles/end of settlement period, the Distribution Licensee will take the energy meter reading and work out the net flow taking into consideration the energy banked in the previous billing cycle if any, along with the readings of import and export of power for current billing cycle and work out the net energy account bill, as the case may be. The procedure will be repeated at the end of every billing cycle. The settlement of net energy including any banked energy shall be done at the end of each settlement period based on consumption as per Annexure C . At the beginning of each settlement period, cumulative carried over injected energy shall be reset to zero.

d. All Rules and regulations including tariff will be governed by the orders of JERC and terms and conditions prescribed in Application & Agreement (A&A) form. An additional form/ MOU shall be signed between the licensee and seller of such roof-top Solar System/ Sources and shall include necessary terms and conditions of meter reading, meter-rent, billing, payment, payment security arrangements, rate of delayed payment surcharge etc. and will become the part of A&A Form.

e. All the instructions, rules and regulations applicable to the consumers of the Distribution Licensee for the applicable class/category including but not limited to the Tariff rates, Payment Schedule, Late payment surcharge, connected load/ contract demand, Load Surcharge, peak load restrictions, Advance Consumption Deposit etc., shall also be applicable to the Rooftop Solar plant owner as a consumer of the Distribution Licensee. Electricity duty shall be levied as per the instructions of Government of India or State Government of Goa (as applicable for respective territories) amended from time to time of the and any Electricity Duty applicable on the net power consumed from the grid.

f. As long as the consumer having set-up the solar power plant consumes power from the distribution licensee and /or generated from solar plant or banked solar energy up to or more than the Monthly Minimum Charges (MMC) level in any billing cycle, MMC shall not be leviable.

49 Charges for Banking of Solar Power Charges & Cross Subsidy

The Rooftop solar system under Net Metering arrangement, whether self-owned or third party owned installed on Eligible Consumer's premises, shall be exempted from charges in respect of electricity banking, wheeling charges and losses and cross subsidy.

Provided, that Solar Power banking shall be defined as per the JERC Regulations if & when issued, depending on the Banking to be made permissible.

The Ground Mounted Solar Power plant set up for the purpose of Sale of Power, no banking is allowed. There will not be any cross subsidy payable for Sale of Power.

50 Eligibility to Participate under REC Mechanism

The issuance of Renewable Energy Certificates shall be as per the eligibility criteria specified

under Central Electricity Regulatory Commission (Terms and Conditions for recognition and issuance of Renewable Energy Certificate for Renewable Energy Generation) Regulations, 2010 and as notified by JERC under : http://www.jercuts.gov.in/writereaddata/Files/rec8713.pdfand subsequent amendments thereof;

51 Penalty or Compensation – Failure in Net Metering System

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

52 Billing for Solar Power and Payment

a. Billing of the energy shall be carried out on a monthly basis.

b. Solar project developer shall raise the bill to the distribution licensee every month for the energy supplied.

c. The payments to the project developers in respect of the energy supplied shall be made by the distribution licensee within 60 days from the date of the bill.

53 Rebate for early release of payment

a. For payment of bills of the generating company or project developer through letter of credit or by cash/cheque within three working days of presentation of bills, a rebate of 2% shall be allowed.

b. If payment of bills of the generating company or project developer are made through letter of credit or by cash/cheque beyond three working days of presentation of bills but within thirty days of presentation of bills, a rebate of 1% shall be allowed.

54 Late Payment Surcharge on Solar Power Bills

In case the payment of any bill is delayed beyond a period of 45 days from the date of presentation of bill, a late payment surcharge of 1.25% of billed amount per month calculated on a daily basis shall be levied by the generating company or project developer.

55 Procedure for getting Permission to Set up a Solar Plant

The consumer intending to set up the Rooftop system can download the solar net-metering rooftop Application-cum-Agreement form from the website of the Distribution Licensee and shall submit the same to designated officer of the Distribution Licensee for grant of permission to set-up the plant. After checking the feasibility, the applicant shall be issued Letter of Approval by the Distribution Licensee within 30 days of receipt of application. The consumer shall set up the plant and submit the work completion report along with Single Line Diagram of the synchronizing and protection arrangement issued by the plant supplier/EPC contractor that the plant has been installed as per approved standards and specifications within the time indicated in Annexure G of these regulations. After site verification, the Distribution Licensee shall install and seal the Bi-directional energy meter(s) within 10 days of the submission of the report and plant will be treated as commissioned for net-metering commercial operations from that date. In case of delay

the consumer shall have to get further extension from the Distribution Licensee. Such extension will be granted for a maximum period of 2 (two) months only and the approval granted will lapse automatically if the project is not setup even in the extended 2-months period. However, he will be eligible to apply in the next financial year but his application will be kept at the bottom of the list of applicants and he will be permitted to set-up the plant only if all the applicants above him are selected and there is still capacity available for allotment.

56 Application Fee for Setting up the Solar Plant

The applicant shall pay application fee of Rs. 50/KVA along with the application to the Distribution Licensee.

57 Applicability of Renewable Energy Certificates and RPO

Net-metering injection is not eligible for REC. The quantum of electricity consumed by an eligible consumer, who is not defined as an obligated entity from the rooftop solar system under net-metering arrangement shall qualify as deemed Renewable Purchase Obligation (RPO) for the distribution licensee. In case the Consumer / Prosumer opts to claim REC for the Power Generated from the Solar Project, then the Electricity sold to the licensee will be at average cost of Procurement of Power as decided by the commission by the tariff order for each year. In addition, the Consumer shall also follow the guidelines on “Renewable Energy Certificates (REC) Accreditation Charges for issue of RECs for Renewal Energy Projects chargeable by State Agency” indicated under: http://www.jercuts.gov.in/writereaddata/Files/rec8713.pdf

Chapter VIII

Commission’s Mandate

58 Power to give directions

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

59 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.

60 Power to amend

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

61 Deviation from provisions of these Regulations

The Commission may deviate from any of the provisions contained in these Regulations on a suo-moto basis having regard to the circumstances of the case:

Provided that the reasons for such deviation shall be recorded in writing.

62 Power to remove difficulties

If any difficulty arises in giving effect to the provisions of these Regulations, the Commission may either suo-moto or on a petition, by generation or specific order, make such provisions not inconsistent with the provisions of the Act as may appear to be necessary after giving a reasonable opportunity to those likely to be affected by such order for removing the difficulty.
Power to remove difficulties

63 Review of regulations

The Commission, at the end of every three years from the date of publishing these Regulations or even earlier if considered just, proper and desirable by it considering the circumstances then prevailing, shall undertake a comprehensive review of these Regulations with the objective of improvement in the principles, procedures and methodologies.

64 Suggestions / Comments/ Inputs / Objections – Invitation of

JERC invites suggestions / comments/inputs / objections on above draft Regulations of Joint Electricity Regulatory Commission for State of Goa and Union Territories (Solar Power Tariff- Ground Mounted Grid Connected and Solar Rooftop with Net Metering) Regulations from all the stakeholders including the licensees and consumers' organizations in writing or by an email, which should reach latest by 19th August 2014 on the following address:-

Secretary,
Joint Electricity Regulatory Commission,
(for the State of Goa & UTs)
2nd Floor, HSIIDC office Complex, Udyog Vihar Phase- V,
Gurgaon -122016,
Tel:- 0124-2875302
Fax:- 0124-2342853
Email ID: secretaryjerc@gmail.com; secy-jerc@nic.in

-sd-
Keerti Tewari
Secretary
JERC for Goa & UTs

Annexures

A. Generic Tariff:Solar PV Power Plant-RooftoporGround Mounted

Tariff Determination in cases covered under JERC Regulations from FY 2014-15, i.e. April 1, 2014 : Solar Roof Top & Grid connected ground mounted Solar					
Parameter Values to determine tariff for Procurement of Power from Solar Roof Top					
Parameters	UOM	Value	Parameters	UOM	Value
Plant Size	MW	1	Working Capital:		
CUF (for UT and Goa)	%	19.00%	*O&M*	*Months*	1
Useful Life of Project	Years	25	*Spare*	*%*	15%
Project Cost	Lakh/MW	691	*Receivables*	*Months*	2
Tariff Period	Years	25	Interest on Wcap	%	13.21%
Debt Portion	%	70%	O&M Expenses for 20	Lakh	12.30
Equity Portion	%	30%	Escalation for O&M	%	5.72%
Debt	Lakh	483.70	Depreciation - 1st 12 Y	%	5.83%
Equity	Lakh	207.30	Depreciation from 13t	%	1.54%
Loan Repayment Period	Years	12	Income Tax Rate	%	33.99%
Interest Rate - Loan	%	12.71%	MAT Rate	%	20%
ROE - 1st 10 Years (pretax)	%	20%	80 IA Benefits	Yes/No	Yes
ROE from 11th Year (pretax)	%	24%	WACC	%	10.67%
Module Performance (Yr 1)	%	100%	Deration (every year	%	0.00%
Auxiliary Consumption	%	0.25%	Deration (1st to 2nd y	%	0.00%

The Parameters & its valus for Tariff Calculations are based on CERC parameters for Tariff Calculations. JERC reserves the right to review these during Review Period , keeping the structure unchanged during Control Period

The Weighted Average return on Equity is:

= {(Pretax RoE of 20% for first 10 Years X (1- 20.96 %MAT) x10 Years)+(Pretax RoE of 24% for next 15 Years X (1-33.99 %Corp. Tax) x15 Years)} / 25 Years = 15.83 % Rounded to 16%

These are representative calulations on these parameters. Based on applicableeffective Income tax for individual , or individual entity or corporation the apllicable tariff will be worked out

Deration of Panels is considered in Initial Capital Cost by higher Capacity

This Coloured cell means input required

This Coloured cell means output automatically calculated

Tariff for Solar PV Project - Grid connected ground mounted																										
Particulars	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Module Performance	%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Net Generation	MUs	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66
O&M	Lakh	12.30	13.00	13.75	14.53	15.37	16.24	17.17	18.16	19.19	20.29	21.45	22.68	23.98	25.35	26.80	28.33	29.95	31.66	33.48	35.39	37.42	39.56	41.82	44.21	46.74
Depreciation	Lakh	40.29	40.29	40.29	40.29	40.29	40.29	40.29	40.29	40.29	40.29	40.29	40.29	10.63	10.63	10.63	10.63	10.63	10.63	10.63	10.63	10.63	10.63	10.63	10.63	10.63
Interst on Loan	Lakh	58.92	53.80	48.68	43.56	38.44	33.32	28.20	23.08	17.96	12.84	7.72	2.60													
Interst on Wcap	Lakh	3.83	3.75	3.68	3.61	3.54	3.47	3.40	3.34	3.28	3.23	3.36	3.31	2.65	2.73	2.81	2.89	2.98	3.07	3.17	3.27	3.38	3.50	3.62	3.75	3.88
ROE	Lakh	41.46	41.46	41.46	41.46	41.46	41.46	41.46	41.46	41.46	41.46	49.75	49.75	49.75	49.75	49.75	49.75	49.75	49.75	49.75	49.75	49.75	49.75	49.75	49.75	49.75
Total Fixed Cost	Lakh	157	152	148	143	139	135	131	126	122	118	123	119	87	88	90	92	93	95	97	99	101	103	106	108	111
Year wise Tariff	Rs/KWh	9.44	9.17	8.91	8.64	8.38	8.12	7.86	7.61	7.36	7.11	7.38	7.14	5.24	5.33	5.42	5.52	5.62	5.73	5.84	5.97	6.09	6.23	6.37	6.53	6.69
Discount Factor		1.000	0.904	0.816	0.738	0.667	0.602	0.544	0.492	0.444	0.401	0.363	0.328	0.296	0.268	0.242	0.218	0.197	0.178	0.161	0.146	0.132	0.119	0.107	0.097	0.088
Levelised Tariff	Rs/KWh	7.74																								

Determination of Accelerated Depreciation Benefit for Grid connected ground mounted Solar PV Power Projects																										
Depreciation as per Company Law - Straight Line Method @ 5.28%																										
Particulars	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Normal Booked Depreciation	%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Normal Booked Depreciation	Lakh	36.48	36.48	36.48	36.48	36.48	36.48	36.48	36.48	36.48	36.48	36.48	36.48	36.48	36.48	36.48	36.48	36.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depreciation as per Income Tax Law - Written Down Value Method @ 80%																										
Opening	%	100.00%	60.00%	12.00%	2.40%	0.48%	0.10%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Allowed During the Year	%	40.00%	48.00%	9.60%	1.92%	0.38%	0.08%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	60.00%	12.00%	2.40%	0.48%	0.10%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Accelerated Depreciation	Lakh	276.40	331.68	66.34	13.27	2.65	0.53	0.11	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depreciation Benefit																										
Net Depreciation Benefit	Lakh	239.92	295.20	29.85	-23.22	-33.83	-35.95	-36.38	-36.46	-36.48	-36.48	-36.48	-36.48	-36.48	-36.48	-36.48	-36.48	-36.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tax Benefit	Lakh	81.55	100.34	10.15	-7.89	-11.50	-12.22	-12.37	-12.39	-12.40	-12.40	-12.40	-12.40	-12.40	-12.40	-12.40	-12.40	-12.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy Generation	MUs	0.83	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66
Tax Benefit	Rs/KWh	9.82	6.04	0.61	-0.48	-0.69	-0.74	-0.74	-0.75	-0.75	-0.75	-0.75	-0.75	-0.75	-0.75	-0.75	-0.75	-0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discount Factor		1.00	0.95	0.86	0.78	0.70	0.63	0.57	0.52	0.47	0.42	0.38	0.34	0.31	0.28	0.25	0.23	0.21	0.19	0.17	0.15	0.14	0.13	0.11	0.10	0.09

Levelised Benefit	Lakh	11.43
Levelised Generation	MUs	1.58
Levelised Benefit	Rs/KWh	0.72
Levelised Tariff with AD	Rs/KWh	7.01

B. Generic Tariff – Solar Thermal Power Plant

Tariff Determination in cases covered under JERC Regulations from FY 2014-15, i.e. April 1, 2014 : Grid connected ground mounted Solar Thermal					
Parameter Values to determine tariff for Procurement of Power from Grid-connected ground mounted Solar Thermal					
Parameters	**UOM**	**Value**	**Parameters**	**UOM**	**Value**
Plant Size	MW	1	Working Capital:		
CUF (for UT and Goa)	%	23.00%	*O&M*	*Months*	1
Useful Life of Project	Years	25	*Spare*	%	15%
Project Cost	Lakh/MW	1200	*Receivables*	*Months*	2
Tariff Period	Years	25	Interest on Wcap	%	13.21%
Debt Portion	%	70%	O&M Expenses (as per JERC)	Lakh	16.77
Equity Portion	%	30%	Escalation for O&M	%	5.72%
Debt	Lakh	840	Depreciation - 1st 12 Years	%	5.83%
Equity	Lakh	360	Depreciation from 13th Year	%	1.54%
Loan Repayment Period	Years	12	Income Tax Rate	%	33.99%
Interest Rate - Loan	%	12.71%	MAT Rate	%	20%
ROE - 1st 10 Years (pretax)	%	20%	80 IA Benefits	Yes/No	Yes
ROE from 11th Year (pretax)	%	24%	WACC	%	10.67%
Module Performance (Yr 1)	%	100%	Deration (every year after 2 years)	%	0.00%
Auxiliary Consumption	%	10.00%	Deration (1st - 2nd years)		0.00%

The Parameters & its valus for Tariff Calculations are based on CERC parameters for Tariff Calculations. JERC reserves the right to review these during Review Period , keeping the structure unchanged during Control Period

The Weighted Average return on Equity is:
= {(Pretax RoE of 20% for first 10 Years X (1- 20.96 %MAT) x10 Years)+(Pretax RoE of 24% for next 15 Years X (1-33.99 %Corp. Tax) x15 Years)} / 25 Years = 15.83 % Rounded to 16%

These are representative calulations on these parameters. Based on applicable effective Income tax for individual , or individual entity or corporation the apllicable tariff will be worked out

This Coloured cell means input required
This Coloured cell means output automatically calculated

Tariff for Solar Thermal Project - Grid connected ground mounted																										
Particulars	**Year -->**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
Module Performance	**%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Net Generation	**MUs**	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81
O&M	**Lakh**	16.77	17.73	18.74	19.82	20.95	22.15	23.41	24.75	26.17	27.67	29.25	30.92	32.69	34.56	36.54	38.63	40.84	43.17	45.64	48.25	51.01	53.93	57.02	60.28	63.72
Depreciation	**Lakh**	69.96	69.96	69.96	69.96	69.96	69.96	69.96	69.96	69.96	69.96	69.96	69.96	18.46	18.46	18.46	18.46	18.46	18.46	18.46	18.46	18.46	18.46	18.46	18.46	18.46
Interst on Loan	**Lakh**	102.32	93.43	84.53	75.64	66.75	57.86	48.97	40.07	31.18	22.29	13.40	4.51													
Interst on Wcap	**Lakh**	6.41	6.26	6.11	5.97	5.83	5.69	5.56	5.44	5.31	5.19	5.40	5.29	4.13	4.23	4.33	4.45	4.57	4.69	4.83	4.97	5.12	5.27	5.44	5.62	5.80
ROE	**Lakh**	72.00	72.00	72.00	72.00	72.00	72.00	72.00	72.00	72.00	72.00	86.40	86.40	86.40	86.40	86.40	86.40	86.40	86.40	86.40	86.40	86.40	86.40	86.40	86.40	86.40
Total Fixed Cost	**Lakh**	**267**	**259**	**251**	**243**	**235**	**228**	**220**	**212**	**205**	**197**	**204**	**197**	**142**	**144**	**146**	**148**	**150**	**153**	**155**	**158**	**161**	**164**	**167**	**171**	**174**
Year wise Tariff	**Rs/KWh**	**14.75**	**14.30**	**13.86**	**13.42**	**12.99**	**12.55**	**12.13**	**11.70**	**11.28**	**10.87**	**11.27**	**10.87**	**7.81**	**7.92**	**8.04**	**8.16**	**8.29**	**8.42**	**8.57**	**8.72**	**8.88**	**9.05**	**9.23**	**9.42**	**9.62**
Discount Factor		1.000	0.904	0.816	0.738	0.667	0.602	0.544	0.492	0.444	0.401	0.363	0.328	0.296	0.268	0.242	0.218	0.197	0.178	0.161	0.146	0.132	0.119	0.107	0.097	0.088
Levelised Tariff	**Rs/KWh**	**11.88**																								

Determination of Accelerated Depreciation Benefit for Grid connected ground mounted Solar Thermal Power Projects																										
Depreciation as per Company Law - Straight Line Method @ 5.28%																										
Particulars	**Year -->**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
Booked Depreciation	**%**	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Booked Depreciation	**Lakh**	**63.36**	**63.36**	**63.36**	**63.36**	**63.36**	**63.36**	**63.36**	**63.36**	**63.36**	**63.36**	**63.36**	**63.36**	**63.36**	**63.36**	**63.36**	**63.36**	**63.36**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Depreciation as per Income Tax Law - Written Down Value Method @ 80%																										
Opening	**%**	100.00%	60.00%	12.00%	2.40%	0.48%	0.10%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Allowed During the Year	**%**	40.00%	48.00%	9.60%	1.92%	0.38%	0.08%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	**%**	60.00%	12.00%	2.40%	0.48%	0.10%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Accelerated Depreciation	**Lakh**	**480.00**	**576.00**	**115.20**	**23.04**	**4.61**	**0.92**	**0.18**	**0.04**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Depreciation Benefit																										
Net Depreciation Benefit	**Lakh**	416.64	512.64	51.84	-40.32	-58.75	-62.44	-63.18	-63.32	-63.35	-63.36	-63.36	-63.36	-63.36	-63.36	-63.36	-63.36	-63.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tax Benefit	**Lakh**	141.62	174.25	17.62	-13.70	-19.97	-21.22	-21.47	-21.52	-21.53	-21.54	-21.54	-21.54	-21.54	-21.54	-21.54	-21.54	-21.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy Generation	**MUs**	0.91	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81
Tax Benefit	**Rs/KWh**	**15.62**	**9.61**	**0.97**	**-0.76**	**-1.10**	**-1.17**	**-1.18**	**-1.19**	**-1.19**	**-1.19**	**-1.19**	**-1.19**	**-1.19**	**-1.19**	**-1.19**	**-1.19**	**-1.19**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Discount Factor		1.00	0.95	0.86	0.78	0.70	0.63	0.57	0.52	0.47	0.42	0.38	0.34	0.31	0.28	0.25	0.23	0.21	0.19	0.17	0.15	0.14	0.13	0.11	0.10	0.09

Levelised Benefit	**Lakh**	**19.85**
Levelised Generation	**MUs**	**1.72**
Levelised Benefit	**Rs/KWh**	**1.15**

Levelised Tariff with Accelrated Depreciation	**Rs/KWh**	**10.73**

C. Summary of Various Boundary Parameters of Net Metering

Sl.	Particulars	JERC's Standards on Net Metering
1.	Regulation Status	For Comments as on this date
2.	Applicable w.e.f .	Immediately when Gazette notification is issued. Till then, Commission will follow these as guidelines.
3.	Eligibility	Consumers with Single or Three Phase supply Connection. For Single Phase Consumers, the Distribution Company has to take a view of System balancing.
4.	Cap on Banking of Surplus Power	30 % of the Annual generation capacity, banking period for electricity a maximum of 9 months.
5.	Settlement Period	Six Monthly basis on 30th Sept. & 31st March of every year
6.	Tariff for Excess Generation	As per Tariff Regulation of this Commission
7.	Restriction on Grid Penetration (Distribution Transformer (DT) Capacity)	30%
8.	REC Eligibility	Allowed as approved by State Nodal Agency, if Solar PV so generated is used for in house consumption or sold to the distribution company at the Average Cost of Power Purchase approved by the Commission for a Specific Financial Year.
9.	Maximum System Size at one location	500 kWp for Solar Rooftop The Ground Mounted Solar Plant can be of any size, subject to the overall MW limits specified
10.	Total Capacity for each licensee	As per Annexure C , cumulative capacity in a territory as per Annexure F of these regulations
11.	Project Owner	Any one – a consumer or a Project Developer
12.	Energy off taker	The distribution company
13.	Initiatives for Rooftop Owners	To be a Prosumer (Producer & a Consumer of Power)
14.	Sharing Concept of Power Generated	To use it in house and feed to the Grid excess so produced and have bill adjustment for conventional energy used during Non-Solar time & Non- Solar Days.

D. Energy Meter(s), Voltage level Harmonics & Inverter Standards

Energy Meter(s) Details				
Sl.	**Meter Description**	**Accuracy**	**Load of Consumer**	**Voltage Level**
1	Single Phase 10-60 A, whole current	Class-I	Up to 5 KW	Single Phase LT 230 V System Stability : to be examined by the Distribution Licensee
2	3 Phase 10-60 A, whole current	Class-I	More than 5KW & up to 25 KW	Three Phase LT 440 V
3	LT AC 3-Phase 4- Wires CT operated static DLMC compliant energy meter	Class- 0.5s or better	More than 25 KW & Below 100 KW	Three Phase LT 440 V
4	HT TPT Meter, DLMS Compliant & AMR Compatible	Class- 0.5s or better	100 KW and up to 4MWp	Three Phase HT (11 KV)
5	HT TPT Meter, DLMS Compliant & AMR Compatible	Class- 0.5s or better	4MWp and above	Three Phase HT (33 KV)

Harmonics Standards

As per the standard of IEEE 519, 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%.

Inverter Standards

Inverter should comply with IEC 61683/IS 61683 for efficiency and Measurements and should comply 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) over voltage, Solar System should be disconnected by the circuit Breaker / Auto switch provided in the inverter.

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Sl.	Parameter	Reference	Requirements
1.	**Overall conditions of service**	State Distribution/Supply Code	State Distribution/Supply Code
2.	**Overall Grid Standards**	Central Electricity Authority (Grid Standard) Regulations 2010	Central Electricity Authority (Grid Standard) Regulations 2010
3.	**Equipment**	BIS / IEC / IEEE	BIS / IEC / IEEE
4.	**Meters**	Central Electricity Authority (Installation & operation of meters) Regulation 2006 as amended time to time	Central Electricity Authority (Installation & operation of meters) Regulation 2006 as amended time to time
5.	**Safety and supply**	Central Electricity Authority(measures of safety and electricity supply) Regulations, 2010	Central Electricity Authority(measures of safety and electricity supply) Regulations, 2010
6.	**Harmonic Requirements** **Harmonic Current**	IEEE 519 CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013.	IEEE 519 CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013.
7.	**Synchronization**	IEEE 519 CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013	Solar 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 connection.
8.	**Voltage**	IEEE 519 CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013	The voltage-operating window should minimize nuisance tripping and should be under operating range of 80% to 110% of the nominal connected voltage. Beyond a clearing time of 2 second, the Solar System must isolate itself from the grid.
9.	**Flicker**	IEEE 519 CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013	Operation of Solar System should not cause voltage flicker in excess of the limits stated in IEC 61000 standards or other equivalent Indian standards, if any.
10.	**Frequency**	IEEE 519 CEA (Technical Standards for Connectivity of the	When the Distribution system frequency deviates outside the specified conditions (50.5 Hz on upper

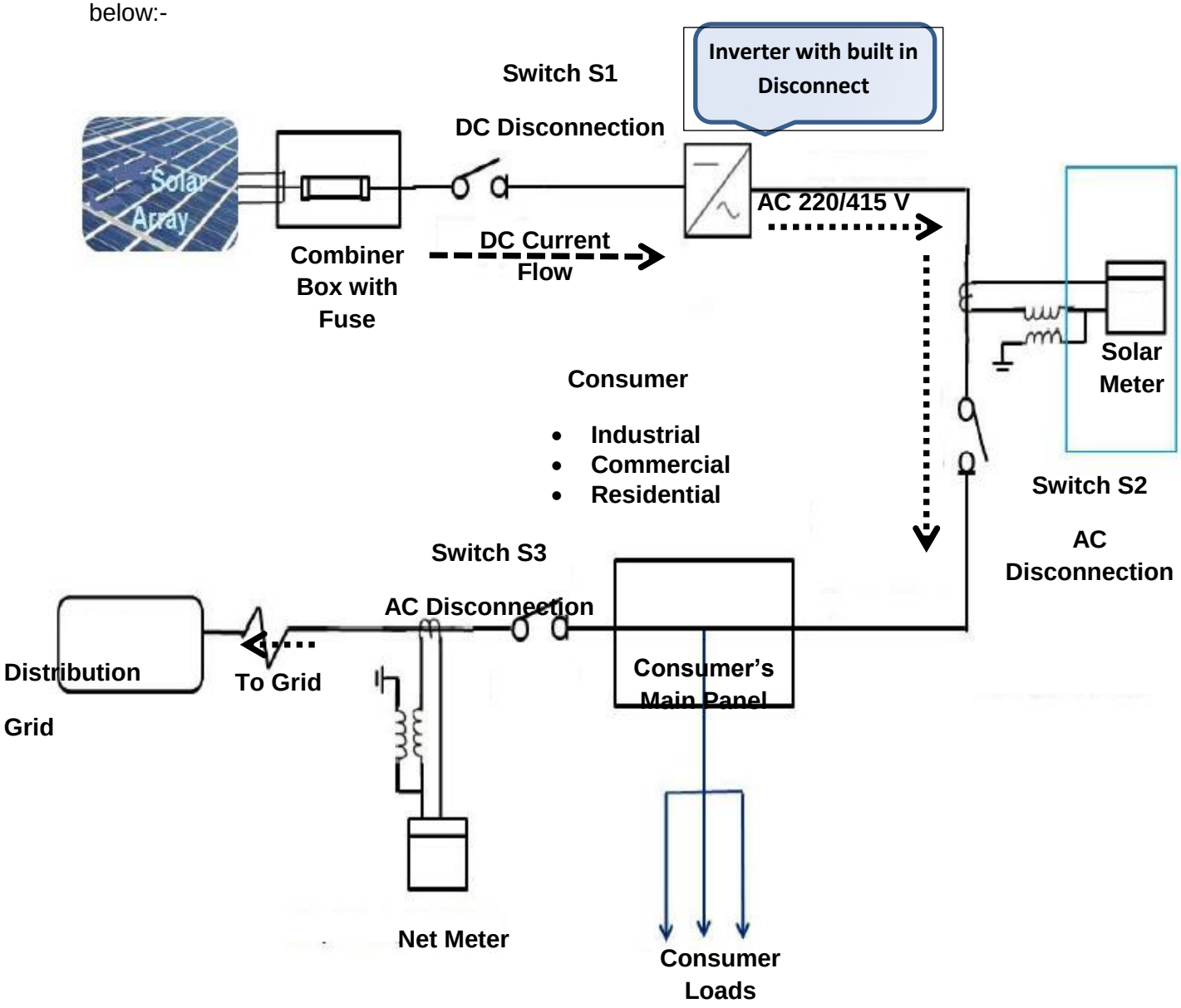
		Distributed Generation Resources) Regulations 2013	side and 47.5 Hz on lower side), There should be over and under frequency trip functions with a clearing time of 0.2 seconds.
11.	**DC injection**	IEEE 519 CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013	Solar System should not inject DC power more than 0.5% of full rated output at the interconnection point or 1% of rated inverter output current into distribution system under any operating conditions.
12.	**Power Factor**	IEEE 519 CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013	While the output of the inverter is greater than 50%, a lagging power factor of greater than 0.9 should operate.
13.	**Islanding and Disconnection**	IEEE 519 CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013	The Solar System in the event of fault, voltage or frequency variations must island/disconnect itself within IEC standard on stipulated period.
14.	**Overload and Overheat**	IEEE 519 CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013	The inverter should have the facility to automatically switch off in case of overload or overheating and should restart when normal conditions are restored.
15.	**Paralleling Device**	IEEE 519 CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013	Paralleling device of Solar System shall be capable of withstanding 220% of the normal voltage at the interconnection point.
16.	**Note:** The standards/specifications shall be subject to amendments/revisions from time to time as duly notified by the Distribution Licensee and the State Agency on its website.		

E. Meter Configuration options

The metering system for rooftop solar system, under net-metering arrangement, shall be as elaborated below which should be applicable till such time the Central Electricity Authority notifies the standards in this matter.

a) Two Meter Configuration without Storage

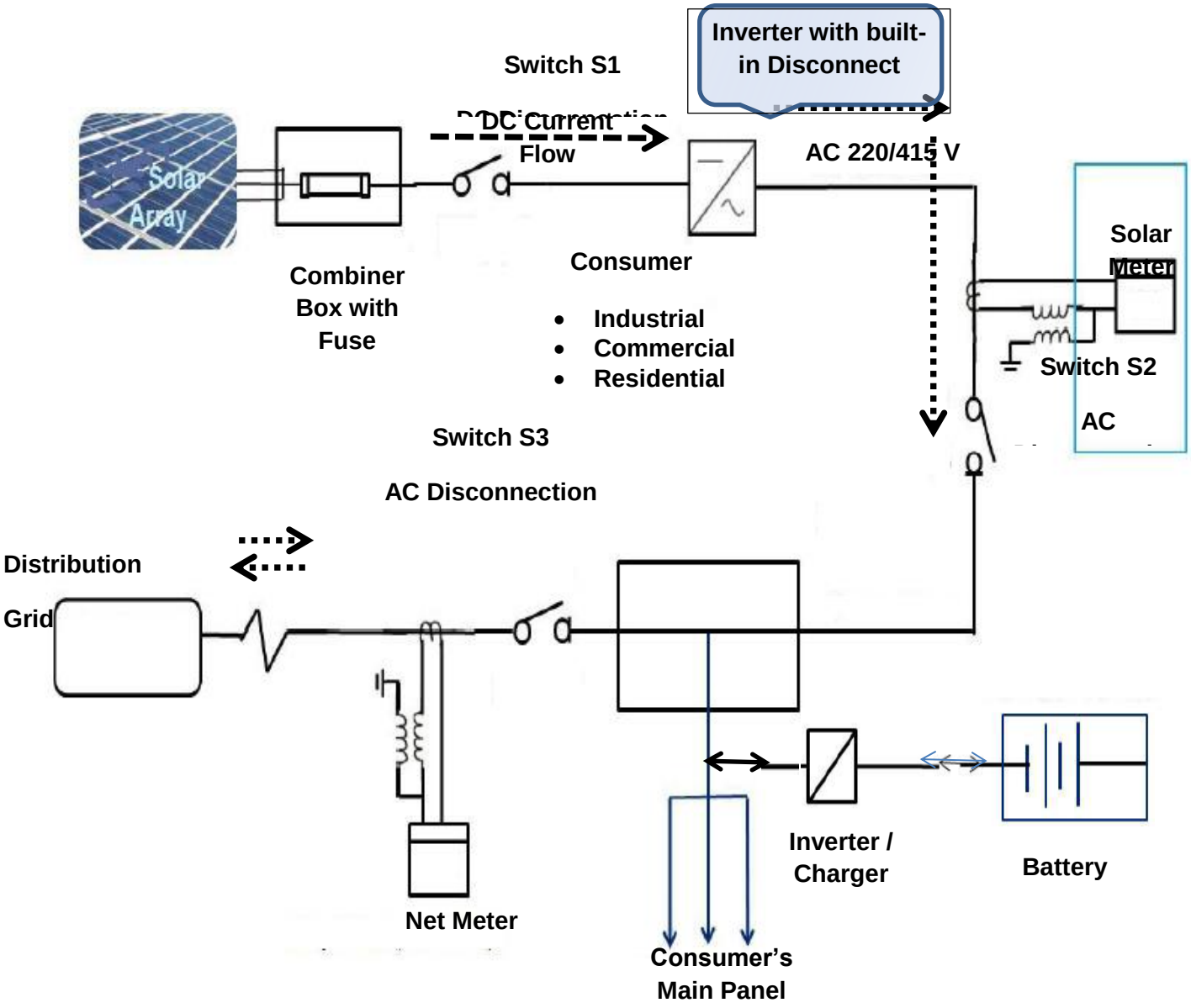
The metering protocol for 'Grid connected rooftop Solar System without storage' and location of solar meter and consumer meter shall be in accordance with the schematic below:-



The utility meter (Net-meter) has to be bi-directional meter to register both import grid electricity amount as well as export solar electricity amount.

b) Two Meter Configuration with Storage

The metering protocol for „Grid connected rooftop solar PV system with storage" and location of Solar Meter (SM) and Utility Meter (UM) shall be in accordance with the schematic below:-



The utility meter (Net-meter) has to be bi-directional meter to register both import grid electricity amount as well as export solar electricity amount.

F. RPO Targets / Requirements

As applicable for 2014-15 & Tentative Requirements for further Years up to FY 2016-17

Sl.	RPO % of the Sale of Power	Goa	A&N	Chandigarh	Daman & Diu	DNH	Lakashdweep	Puducherry
		a	b	c	d	e	f	g
		Sale of Power Mn. Units & Equivalent MW where indicated						
1		3078.09	231.49	1423.46	2083.87	5387.71	48.77	2545.00
		RPOs in Kwhr						
2	0.6% of Sales for FY2014-15	18468.54	1388.94	8540.76	12503.22	32326.26	292.62	15270.00
3	Indicative Eq. MW of Solar Plant 2014-15	11.54 MW	0.87 MW	5.34 MW	7.81 MW	20.20 MW	0.18 MW	9.54 MW
4	0.85% of Sales for FY 2015-16	26163.77	1967.67	12099.41	17712.90	45795.54	414.55	21632.50
5	Indicative Eq. MW of Solar Plant 2015-16	16.35 MW	1.23 MW	7.56 MW	11.07 MW	28.62 MW	0.26 MW	13.52 MW
6	1.15% of Sales for FY 2016-17	35398.04	2662.14	16369.79	23964.51	61958.67	560.86	29267.50
7	Indicative Eq. MW of Solar Plant 2016-17	22.12 MW	1.66 MW	10.23 MW	14.98 MW	38.72 MW	0.35 MW	18.29 MW
8	And so on for Years up to FY 2021-22							

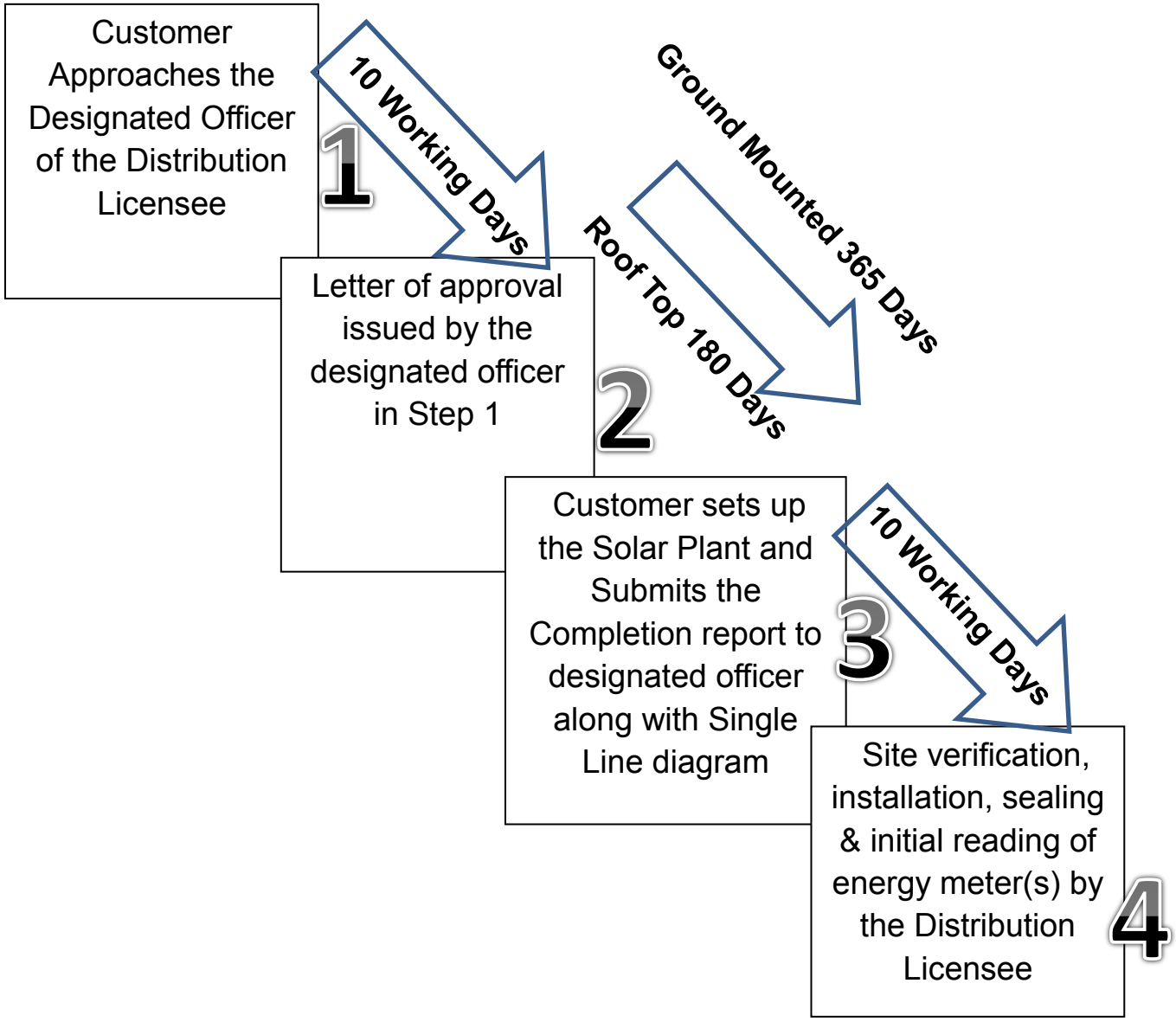
Financial Year	Minimum Quantum of Renewable Purchase Obligations (RPO) Solar RPOs %
2014-15	0.60
2015-16	0.85
2016-17	1.15
2017-18	1.50
2018-19	1.85
2019-20	2.20
2020-21	2.60
2021-22	3.00

This information is For Indicative MW /KW Plant Working

kWhrs / annum at various Capacity Utilization Factor (CUF), which will vary according to site conditions / Solar Panel Cleanliness / Location i.e. Goa or the UTs. Indicative Generation is :

CUF %	kWhrs Generation from 1000 Wp or 1 kWp
17.8	1560
18.0	1580
18.25	1600
18.5	1621
19.0	1666

G. Setting-up Grid Interactive Solar Plants: Time lines



H. Indicative Power Purchase Agreement between the Solar Project Developer & the Distribution Licensee

This Agreement is a document to be signed between the Solar Project Developer intending to sell Solar Power to the distribution licensee, may be examined by the respective parties before signing. The Commission does not interfere in the process of the PPA signing provided it is fair to the Consumer, motivates the developer of the Project thus attracting Investment into the sector for its development.

The PPA may include various clauses including but not limited to the following clauses for smooth operation of the PPA and may also include provisions in the interest of Consumer for getting Competitive tariff in terms of the Electricity act

Solar Power Plant Developer (SPD) shall obtain all Consents, Clearances and Permits required for supply of power to the Distribution Licensee and Solar Power Generator (SPG), after the plant is commissioned by the SPD, will comply with variousterms of this Power Purchase Agreement (PPA);

Definitions and Interpretations for Solar Power Sale

1. **Definitions and Interpretations**: In this PPA, unless the context otherwise requires means the following:-

   All the definitions in regulation 3 or any other applicable for the PPA may be indicated here.

2. **Tariff Period**

   Tariff period under this Tariff Order for solar PV power projects shall be twenty five (25) years and shall be reckoned from the date of commercial operation of the solar PV power projects.

3. **Tariff Applicable**

   The tariff for grid-connected solar PV power project/ Rooftop(as applicable) is single part tariff and is fixed as Rupees ……/ Kwh(as per Tariff approved by the Commission for a specific year).

4. **Dispatch Basis**

   This being a grid-connected solar PV power project shall be treated as 'MUST RUN' power plant and shall not be subjected to 'merit order dispatch basis by the Licensee.

5. **Quantum of Purchase of Electricity from Solar Power Plant**

   The quantum of purchase of power from solar PV power project under this PPA will be …….Mn Units / annum.

6. **Financial principles & technical parameters : To be decided by ….(To be decided by the Distribution Licensee)**
7. Depreciation shall be chargeable from first year of commercial operation.
8. Provided that in case of the commercial operation of the asset for part of the year, depreciation shall be charged on pro-rata basis.

9. Tariff of Solar Power Plant with Accelerated Depreciation / Without Accelerated Depreciation (Strike out the not applicable) shall be applicable.
10. This Tariff order assumes that Project will be commissioned in the …… quarter of the FY ……
11. Technology

As are approved by the Ministry of New and Renewable energy of Government of India under the Scheme.

12. Metering, Billing and Payment

I. Metering Arrangement Repeated as per these

II. Metering arrangement for the Project Proposed by the being Grid Connected shall be in accordance with:

a. The Solar Power Tariff - Ground Mounted Grid Connected and Solar Rooftop with Net Metering- 2014
b. Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006 as amended from time to time;
c. Joint Electricity Regulatory Commission (Grid Code) Regulations as amended from time to time;
d. JERC (Supply Code and Performance Standards) Regulations, as amended from time to time.

III. Solar energy exported by the Solar PV power Petitioner shall be metered for billing purpose through the meter designated as 'Solar Meter '. Such a Solar Meter shall meet the technical requirements/specifications of applicable category of an 'interface meter" defined in Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006 as amended from time to time.

IV. It shall be the responsibility of the Distribution Licensee and Petitioner to take down the joint meter reading and record the metered data.

V. Periodicity of testing, checking, calibration etc., shall be governed by the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006 as amended from time to time.

13. Billing and Payment

Billing of the energy shall be carried out on a monthly basis.

Solar Petitioner shall raise the bill to the distribution Licensee every month for the energy supplied.

To be mutually agreed between the Generator and the Licensee

Rebate

Where payments are made other than through letter of credit within a period of one month of presentation of bills by the Petitioner (Petitioner), a rebate of … shall be allowed.

14. **Miscellaneous**

Subsidy/Incentive by the Central/State Government

The Commission has taken into consideration that **no incentive or subsidy** offered by the Central or the administration of the Utility or any other authority is being availed by the Petitioner.

The Petitioner has proposed the Project based on Power Generation & the applicable Tariff will be based on Petitioner's availing the accelerated depreciation benefit or not.

In case any such benefit is being obtained by the Petitioner, or in case any benefit is announced later by any of the authorities or any material fact is not indicated by the Petitioner at this stage and found later the commission has right to re-determine the Tariff

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

15. Taxes and Duties

Tariff fixed under this PPA shall be exclusive of taxes and duties on sale of power as may be levied by the appropriate Government. Provided that the taxes and duties levied by the appropriate Government / administration shall be allowed as pass through on actual incurred basis.

16. Sharing of CDM Benefits

All risks, costs and efforts in developing such projects as CDM if any, projects shall remain with the SPG, who is responsible for developing and registering these project as a CDM project.

The proceeds of the carbon credit from approved CDM Project shall be shared between the SPG and concerned Distribution Licensee

As defined in the order / regulations, Provided that the entire benefits obtained by the Distribution Licensee shall be fully passed on to the consumers.

17. Investment in the Grid Augmentation

The cost of any augmentation required after the interconnection point in the system of the distribution Licensee shall be borne by the concerned Distribution Licensee.

Provided that fixed charges associated with such investments like depreciation, interest charges, return on equity etc. as may be approved by the Commission, shall be a pass through in the Annual Revenue Requirement of such distribution Licensee.

Procedures for Interconnectivity with the Grid

The SPD setting up solar PV power project shall apply to the distribution Licensee for connectivity with the distribution network system in the format/(s) as may be specified by the Commission.

The timelines for grant of connectivity shall be as under:

(a) Distribution Licensee shall within 30 days of receipt of application from the Petitioner, intimate (to Project Developer and the Commission) whether the Project can be connected to the grid without further system strengthening and take steps to allow connectivity within 30 days of such intimation.

(b) If system strengthening or grid augmentation is required, the Distribution Licensee shall intimate the same to the Petitioner and the Commission within 60 days of receipt of application of the Petitioner. In such a case, interconnection of the Petitioner to the grid shall be established within 4-6 months of such intimation.

(c) The Distribution Licensee shall not be liable to pay any compensation to the Petitioner for deemed generation benefits in case the Distribution Licensee is unable to absorb the power due to the reasons which are beyond his control.

18. Communication Facilities

All grid connected solar PV power projects shall have meters with features to record energy for 45 days data storage for injection into the grid through solar meter as provided under these Regulations. All projects with capacity 10 kWp and above shall have communication Port for exchanging real time information with the Distribution Licensee. For plant size of 1MWp and above the Communication will be with State Load Despatch Centre (SLDC) also in addition to the distribution licensee.

19. Power Quality & Protection and Controls

Power Quality & Protection and Controls shall conform to the standards specified in the CEA (Technical Standards for connectivity to the grid) Regulations, 2007 applicable to the distribution system as amended from time to time.

20. Third Party Sale

The Commission does not allow third party sale of the energy generated through the solar PV sources whose tariff is determined under this Tariff Order.

21. Power to Remove Difficulties

In case of any difficulty in giving effect to any of the provisions of this Tariff Order, the Commission may by general or special order, issue appropriate directions to the Petitioners, Distribution Licensee(s) etc., to take suitable action, not being inconsistent with the provisions of the Act, which appear to the Commission to be necessary or expedient for the purpose of removing the difficulty.

The SPD or/and the Distribution Licensee may make an application to the Commission and seek suitable orders to remove any difficulties that may arise in implementation of this Tariff Order.

22. Interpretation

If a question arises relating to the interpretation of any provision of this Tariff Order, the decision of the Commission shall be final.

Other Clauses to be suitably included in the PPA:

23. The SPD shall make adequate arrangements to connect the Solar Power Project switchyard with the Interconnection Facilities at the Delivery Point;

24. A provision for Evacuation of Power or utilisation elsewhere, in case the Grid is under maintenance or is not available for Technical reasons or a Force Majeure Condition to avoid financial liability of the Distribution Licensee.

25. The SPD shall sign a Transmission Agreement with STU (if required) for Solar Projects of 1Mwe and above confirming the evacuation and connectivity of the STU system up to the delivery point of SPD by the Scheduled Commissioning date;

26. The SPD shall produce the documentary evidence of the clear title and possession of the acquired land as required in the name of SPD;

27. For Solar Projects of 1Mwp and above the following clauses shall apply

28. The Performance Bank Guarantee to be furnished under this Agreement shall be for guaranteeing the commencement of the supply of power up to the Contracted Capacity within the time specified in this Agreement as per format (to be provided by the distribution licensee.

29. If the SPD fails to commence supply of power from the Scheduled Commissioning Date specified in this Agreement, subject to conditions mentioned in Article …..,the distribution licensee shall have the right to encash the Performance Bank Guarantee without prejudice to the other rights of the distribution licensee under this Agreement.
30. SPD's Scope : Designing, constructing, erecting, commissioning, completing and testing the Power Project in accordance with the applicable Law, the Grid Code, the terms and conditions of this Agreement and Prudent Utility Practices.

31. The SPD shall be required to obtain all information with regard to the Interconnection Facilities as is reasonably necessary to enable it to design, install and operate all interconnection plant and apparatus on the SPD's side of the Delivery Point to enable delivery of electricity at the Delivery Point.

32. The distribution licensee at any time during a Contract Year, shall not be obliged to purchase any additional energy from the SPG beyond …….. Million kWh (MU) [Insert value of energy generated corresponding to a CUF of ……%

33. If for any Contract Year, for Solar projects of 1Mwp and above it is found that the SPG has not been able to generate minimum energy of …...Million kWh (MU) [Insert value of energy generated corresponding to a CUF of …..% ,the noncompliance by SPG shall make SPG liable to pay the compensation provided in the Power Sales Agreement (PSA) as payable to the Distribution licensee and shall duly pay such compensation to the Distribution licensee to enable the Distribution Licensee to Compliance of Solar Power RPO . This compensation shall be applied to the amount of shortfall in generation during the Contract Year. The amount of compensation shall be computed at the rate equal to the compensation payable by the the Distribution licensee towards non-meeting of RPOs, subject to a minimum of 25% of the applicable tariff.

34. If the SPD is unable to commence supply of power to the Distribution licensee) by the Scheduled Commissioning Date other than for the reasons specified in Article ,,,,,,,,, the SPG shall pay to the Distribution licensee , Liquidated Damages for the delay in such commencement of supply of power and making the Contracted Capacity available for dispatch by the Scheduled Commissioning Date as per the following:

a. Delay up to one (1) month – Distribution licensee will encash 20% of total Performance Bank Guarantee.
b. Delay of more than one (1) month and up to two months the distribution licensee will encash 40% of the total Performance Bank Guarantee.
c. Delay of more than two and up to three months the distribution licensee will encash the remaining Performance Bank Guarantee.

35. The third party may carry out checks for testing the CUF of the Power Project. During a Contract Year, if the CUF of the Power Project is found to be below …….. [Insert value i.e. 5% less than CUF] or if it is found that the SPG has not been able to maintain a CUF of …… [Insert value i.e. 3% less than CUF] for a consecutive/non-consecutive period of three (3) months during a Contract Year on account of reasons solely attributable to SPG, the SPG shall be liable for non-fulfilment of its obligation.

36. The liability shall be equal to the amount levied by the the distribution licensee for non-compliance of Solar RPOs or any loss incurred by the distribution licensee due to the same , whichever is higher,

37. The Solar Power Project shall be required to maintain compliance to the applicable Grid Code requirements and directions, if any, as specified by concerned SLDC/RLDC from time to time.

38. For installation of Meters, Meter testing, Meter calibration and Meter reading and all matters incidental thereto, the SPG and Distribution licensee shall follow and be bound by the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006, the Grid Code, as amended and revised from time to time.

39. The SPG shall bear all costs pertaining to installation, testing, calibration, maintenance, renewal and repair of meters at SPG's side of Delivery Point. The grid connected solar PV plants will install necessary equipment for regular monitoring of solar irradiance (including DNI), ambient air temperature, wind speed and other weather parameters and simultaneously for monitoring of the electric power generated from the plant.

40. Online arrangement would have to be made by the solar power developer for submission of above data regularly for the entire period of this Power Purchase Agreement to the MNRE/ IREDA for up-dating of its records.

41. Reports on above parameters on quarterly basis shall be submitted by the solar power developer to JERC/ Distribution basis through the distribution licensee for entire period of PPA.

42. The SPG shall effect and maintain or cause to be affected and maintained, at its own cost and expense, throughout the Term of PPA, Insurances against such risks, with such deductibles and with such endorsements and co-insured(s), which the Prudent Utility Practices would ordinarily merit maintenance of and as required under the Financing Agreements.

43. In case of any Change in Law during the tenure of the PPA, the aggrieved Party shall be required to approach the Hon'ble JERC for seeking approval of Change in Law.

44. The decision of the Hon'ble JERC to acknowledge a Change in Law and the date from which it will become effective, provide relief for the same, shall be final and governing on both the Parties.

45. The occurrence and continuation of any of the following events, unless any such event occurs as a result of a Force Majeure Event or a breach by Distribution licensee of its obligations under this Agreement, shall constitute a SPG Event of Default:

(i) the failure to commence supply of power to Distribution licensee up to the Contracted Capacity, by the end of the period specified in Article ….., or

if

a) the SPG assigns, mortgages or charges or purports to assign, mortgage or charge any of its assets or rights related to the Power Project in contravention of the provisions of this Agreement; or

b) the SPG transfers or novates any of its rights and/ or obligations under this agreement, in a manner contrary to the provisions of this Agreement; except where such transfer · is in pursuance of a Law; and does not affect the ability of the transferee to perform, and such transferee has the financial capability to perform, its obligations under this Agreement or is to a transferee who assumes such obligations under this Agreement and the Agreement remains effective with respect to the transferee;

(ii) if (a) the SPG becomes voluntarily or involuntarily the subject of any bankruptcy or insolvency or winding up proceedings and such proceedings remain uncontested for a period of thirty (30) days, or (b) any winding up or bankruptcy or insolvency order is passed against the SPG, or (c) the SPG goes into liquidation or dissolution or has a receiver or any similar officer appointed over all or substantially all of its assets or official liquidator is appointed to manage its affairs, pursuant to Law,

Provided that a dissolution or liquidation of the SPG will not be a SPG Event of Default if such dissolution or liquidation is for the purpose of a merger, consolidation or reorganization and where the resulting company retains creditworthiness similar to the SPG and expressly assumes all obligations of the SPG under this Agreement and is in a position to perform them; o

(iii) the SPG repudiates this Agreement and does not rectify such breach within a period of thirty (30) days from a notice from the distribution licensee in this regard; or except where due to any the distribution licensee's failure to comply with its material obligations, the SPG is in breach of any of its material obligations pursuant to this Agreement, and such material breach is not rectified by the SPG within thirty (30) days of receipt of first notice in this regard given by the distribution licensee).

46. Occurrence of any other event which is specified in this Agreement to be a material breach/ default of the SPG.

47. Where any Dispute (a) arises from a claim made by any Party for any change in or determination of the Tariff or any matter related to Tariff or claims made by any Party which partly or wholly relate to any change in the Tariff or determination of any of such claims could result in change in the Tariff, or (b) relates to any matter agreed to be referred to the Hon'ble JERC,

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