Solar Rooftop Policy/ Guidelines

I. Eligible Developers

All registered companies, Government entities, partnership companies/ firms/ individuals and all consumers of AP Discom(s) will be eligible for setting up of Solar Rooftop Projects (SRP) for sale of electricity to Discom/captive use or for self-consumption, in accordance with the Electricity Act-2003, as amended from time to time.

Group of persons/societies will also be eligible for setting up Solar Rooftop Projects (SRP) with SPV Technology for sale of electricity to Discom/captive use or for self-consumption.

SRP with installed capacity lower than 56 kW shall be eligible to get connected to either LT/HT service at LT/HT distribution network. SRP with installed capacity of 56 kW and up to 1000 kW shall be get connected to HT service.

Requirements:-

- A Minimum vacant roof area of 10 Sq mtr or 100 Sq. ft is required for installation of 1 KWp system.
- The Consumer shall have 3 Phase/ 1 Phase supply, either LT/HT service connection.
- Mandatory safety precautions/features shall be installed as per the norms.
- 1No. bi-directional meter shall be installed for recording of export and import energy in the place of existing billing meter. For more than 56 KW capacity plant, 2Nos bi-directional meters shall be installed.
- The standard equipment as per the norms of MNRE/APTRANSCO/DISCOM shall only be installed.

II. General Information:

a) Eligible Developers are free to choose either Net or Gross metering option for sale of power to Discom. Applicable tariff shall be equal to the Average Pooled Power Purchase Cost as determined by APERC for the year during which the project is synchronized with the grid and the applicable tariff at the time of CoD will be paid for 25 years, for the projects executed under both Net metering and Gross metering basis.

The above tariffs shall be applicable for a period of 25 years for Eligible Developers who set up solar rooftop projects within the Operating Period of this policy.

b) The Obligated Entities as per the RPPO Regulations of APERC, are eligible for adjusting the power generated from rooftop projects towards their obligation to meet RPPO, provided necessary metering is arranged for measuring the solar power as per the regulations of APERC.

c) The metering facility will be extended for all Eligible Developers who intend to setup solar photovoltaic plants at their premises.

d) Eligible Developers who wish to avail the metering facility will have to apply through online mode to the Discoms – either on their websites and/or through designated mee seva centers

e) All approvals/clearances shall be disposed by the respective Discom within 14 days from the date of application

f) The projects of capacity upto 1000 KWp at a single location will be permitted.

g) The projects set up on the walls, roofs of the buildings and also in the open areas within the premises of the consumer are categorized as solar rooftop projects, as per the guidelines of MNRE.

h) In case of different rooftops belong to single owner in a city or town, the combined solar power generation will be adjusted against the combined consumption recorded in various energy meters.

i) Permission will be given to the group of persons/societies to set up Solar Power Projects and will be treated as collective generation for supply of power to the households of each society /group member. The DISCOMs will deduct the above energy from the consumed energy of individual service connections and balances (either excess or lower) can be billed on Net metering basis. No Distribution losses and charges will be collected from the Group/Society/ individuals by the DISCOMs.

j) Eligible Developers are allowed to avail the relevant subsidies and incentives from MNRE under JNNSM scheme. The eligible subsidy for net metering systems may be processed through NREDCAP (Nodal agency) or Channel Partners of MNRE, GOI. The sanction and release of the subsidy will be as per the guidelines issued by MNRE from time to time.

k) Eligible developer can install SPV plant under single-phase service is 3 kWp and maximum allowable SPV plant capacity under LT category is 56 kWp either at LT or HT potential. In respect of LT service, the SPV capacity is limited to the connected load of the service and in case of HT Service, the SPV plant capacity shall be limited to the CMD of that service.

l) No prior approval of Chief Electrical Inspectorate General (CEIG) is required in case of an SRP connected at LT level of distribution network up to 10 kW capacity.

m) All other charges shall be applicable as per the Tariff Order amended from time to time.

n) The applications as per the policy from Eligible Developers are to be registered in the prescribed format along with the Registration fees as shown below

Capacities upto 5Kwp is Rs 1000/-

Capacities above 5Kwp to 100 Kwp is Rs 5000/-

Capacities above 100Kwp to 1000Kwp is Rs 10000/-

o) The insurance coverage can be optional for the LT Consumers opting Solar Net metering scheme. However, the consumers/ Solar Power developer may be advised to take insurance coverage to avoid risks at the time of accidents.

p) The Solar rooftop developers/ MNRE channel partners may be allowed to attend the departmental procedures on behalf of applicant, except in case of signing the agreement.

q) Pre existing rooftop Solar PV Projects with or without battery support can be allowed to avail net metering facility. They will not get any subsidy under solar net metering policy/ guidelines issued.

III. Application

The Eligible Developer shall make an application to Discom for setting up a SRP along with the necessary information/ document on system size, inter-connection voltage, choice of either gross or net metering option, personal information etc., by paying requisite application fee either on AP Discoms websites and/or through designated mee seva centres or through USRTP web portal of Nodal Agency NREDCAP. From USRTP the Developer can monitor and track the application right from registration to extension of subsidy after completion of the project.

The Eligible Developer/ Societies/ Groups shall pay application fee through online or by cash. The Eligible Developer shall strictly adhere to the standards specified by CEA/MNRE.

IV. Technical Feasibility:

DISCOM personnel shall carry out the technical feasibility study based on the Application submitted by the Eligible Developer. An internal review to check if the proposed SRP satisfies the standards specified by the CEA, especially with respect to inverter specifications, penetration levels, safety aspects like anti-islanding and protection devices and etc shall be undertaken. Also, the area available to install the proposed SRP will be observed. This study shall be carried out within seven (7) working days from the date of submission of application. In absence of any intimation from the DISCOM within this time period, it shall be considered as deemed approval.

DISCOM shall accord feasibility approval to consumers on a first come first serve basis. The maximum penetration limits at the LT level of distribution network is 80% (*Ratio of aggregate installed SRP capacity under the DTR to the DTR capacity*)

Feasibility study and inspection shall be the responsibility of DISCOM/ ADE in case of LT services and DE (M & P) & DE (Operations) in case of HT services. Feasibility and Synchronization approvals for LT services to be given by ADE/Operation, Feasibility and synchronization approvals for HT services to be given by Superintending Engineer/Operation.

V. Agreement and SRP Installation

The Eligible Developer and the Discom shall enter into an agreement that specifies the technical information, commercial arrangement and the clear roles and responsibilities of all concerned stakeholders as specified in **Annexure-C.** within 14 days of issuing Technical feasibility if Agreement is not entered by the Developer, application is deemed to be cancelled.

The SRP shall be installed within three (3) months from the date of Agreement. In case of any delay beyond three months, one time extension of 14 days shall be provided after which the agreement shall be deemed to be terminated without any reason.

VI. Pre-commissioning check and commissioning of the PV system

Post installation of the SRP, the Eligible Developer shall make an online request for inspection. The DISCOM personnel shall inspect the system within 10 working days and provide approval based on checklist mentioned in **Annexure- A.** In absence of the response within the stipulated time, it shall be considered as deemed inspection approval.

VII. Metering and Synchronization:

1 No. bi-directional meter shall be installed for export and import. For more than 56 KW capacity plant, 2Nos bi-directional meters shall be installed.

All meters must be Smart Meters as per the standards specified by the CEA regulations as amended from time to time. AP Discoms shall provide net metering (net meter along with its connected CT's, PT's wherever applicable) on cost basis. Eligible Developers shall be free to procure Meters, Current Transformers (CT), and Power Transformer (PT) either from open market or from DISCOM. If the metering equipment is purchased by the Developer, the same is to be tested at standard laboratory at the cost of Consumer only.

Eligible Developer shall raise a request for metering infrastructure through online mode/ Mee seva by paying the requisite amount. DISCOM personnel shall deliver the metering infrastructure within **15 working days** and the Eligible Developer shall be responsible for its safe-keeping during the interim period until grid synchronization.

The SRP shall be synchronized within seven (7) working days of inspection approval. Upon synchronization of the SRP with the grid, the DISCOM personnel shall inspect, calibrate and seal the meter(s) and ensure installation of safety features/precautions. A commissioning certificate would be issued by the DISCOM/CEIG subject to the test results which should confirm to the CEA requirements.

Meter reading shall be done as per the prevailing Discom procedure. The applicable customer charges shall be payable to Discom.

Eligible Developer shall be assigned a unique service number for metering and billing purposes. All eligible developers have to submit their bank details where payments shall be made through electronic transfer by APDISCOMs. The Eligible Developer shall submit a cancelled cheque with bank a/c No. & IFSC Code along with Application form.

The DISCOM official (ADE/AE) shall send test reports of the SRP along with the agreement to the concerned ERO. Billing process shall start within one month/ next Billing cycle of synchronizing the SRP. In case of HT services ADE/DE operation will submit the Test Report to Senior Accounts Officer of the concerned circle.

VIII. Energy Settlement and Billing/Invoicing:

Energy settlement shall be done on a monthly basis. Group of persons/societies setting up SRP's will be treated as collective generation for supply of power to the households of each society /group member. In case of Apartments/Group Houses, common service meter may be used for net metering.

Net Metering: The energy generated from SRP shall be adjusted against the consumption of energy from the DISCOM by the Eligible Developer/ consumer every month. In case of Groups/Societies, the energy generated shall be prorated as per the installed capacity share indicated in the Agreement between the group/society and DISCOM. This computed energy share shall be adjusted against the consumption of energy for each consumer every month.

- In case of excess generation (after energy adjustment) in any month, payment shall be made by the Discom quaterly for the net energy computed at the average Pooled Power Purchase cost as determined by APERC for the year during which the project is synchronized with the grid and the applicable tariff at the time of COD will be paid for a period of 25years.
- In case of excess consumption in any month, payment shall be made by the Eligible Developer /Group /Society for the net energy at the applicable tariff as determined by APERC every year.
- **Gross Metering:** The payment for energy generated from SRP will be computed at the average Pooled Power Purchase cost as determined by APERC for the year during which the project is synchronized with the grid and the applicable tariff at the time of COD will be paid for a period of 25years.

This shall be adjusted against the total billing demand for consumption of energy for the Eligible Developer/ consumer from the DISCOM every month. The balance amount after adjustment for the month shall be made by the Discom.

A limit shall be defined for all Eligible Developers in terms of energy, beyond which no payment shall be made by APDISCOM. Please refer example in **Annexure-E.**

IX. Inspection:

a) DISCOM personnel reserve the right to inspect the SRP routinely at any time during the term of the Agreement. As part of the inspection, DISCOM officials have to ensure to check the following aspects
    - All protective equipment of the SPV system are functioning as per specifications.
    - The SPV system including the panels, inverters, etc continue to meet the requirements of Indian & IEC standards post installation till contract completion.

b) An Eligible Developer, found indulging in theft of electricity or unauthorized use of electricity, shall pay the additional charges as may be levied by the DISCOM as per provisions of Electricity Act 2003. DISCOM may levy additional charge besides disconnection of electricity supply.

Annexures

Annexure-A

I. Entire circuitry, including panels, inverter, bi-directional meters, cabling, manual switch, safety circuit breaker etc., should be installed by the vendor under a turnkey approach. The metering infrastructure can also be provided by APDISCOM.

II. Mandatory safety precautions/features which have to be installed as part of SPV system are:
   a. Certified Inverter controlled relays which can trip on grid failure and thus prevent any solar power injection to Grid when there is no power in Grid. The same is to be ensured by the consumer from time to time.
   b. Solar Circuit should be separately grounded/ earthed.
   c. Additional switchgear/relay (sensing phase-angle shift) required as a second rung of safety. It shall be positioned between interconnection point and the bi-directional meter.
   d. Harmonics suppression/Filtering feature in the inverter for local network's safety and for accurate measurement of energy.
   e. Additional manual relay / switch on the pole side to be installed at the cost of SRP developer.

III. Hybrid Islanding is permitted, whereby the consumer can use solar generation from rooftop SPV, even when the grid is not available. If the consumer desires, he may do so by installing appropriate protection systems before synchronization. The same has to be tested & permitted by DISCOM official(s) before synchronization.

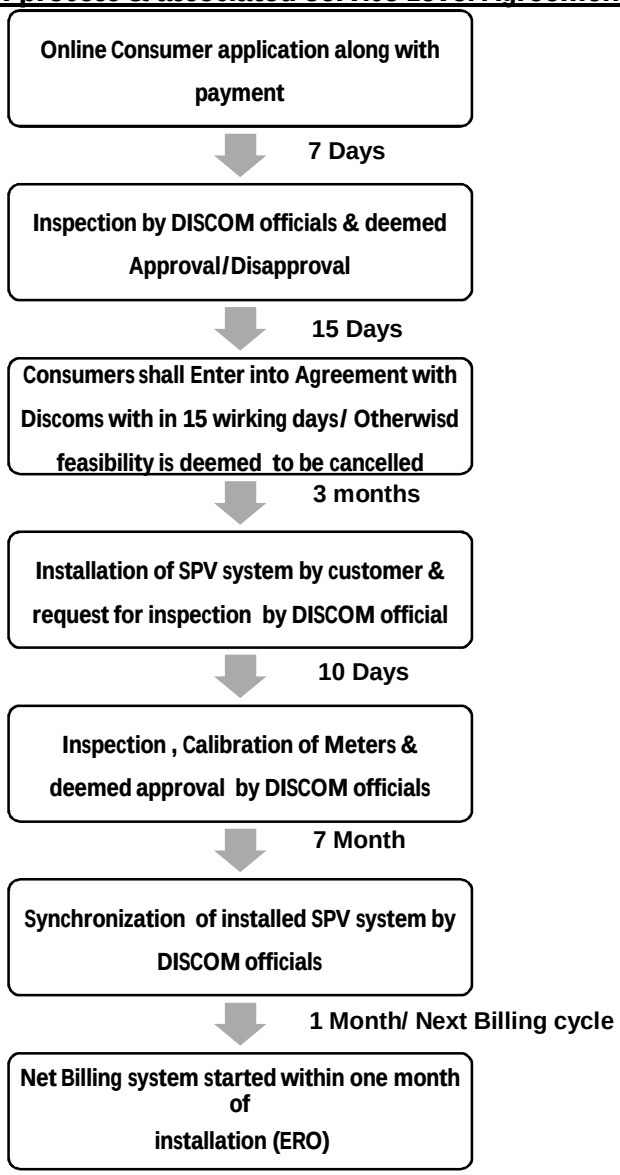
IV. 1No. bi-directional meter shall be installed for export and import energy recording in the place of existing billing meter. For more than 56 KW capacity plant, 2Nos bi-directional meters shall be installed This bi-directional meters should be a **smart meter** with the following characteristics:
   a. Separate registers for Export and Import with MRI downloading facility.
   b. kVAr, kWh, kVA measuring registers for Capacity above 1 KW.
   c. AMI facility with RS232 (or higher) communication port.
   d. Class 1 accuracy meters for PV systems up to 10 kWp, 0.5 accuracy class meters for PV systems above 10 kWp and 0.2 class accuracy meters for HT systems (56 kWp and above).
   e. Meters should be BIS/ISI Certified.
   f. CT functionality meters for PV systems above 15 kWp.

V. Vendor executing turnkey solution should be a channel partner of MNRE/NREDCAP.

VI. If on inspection, at the time of release of permission to install a net metering solution or on any periodic inspection thereafter, non-IEC/ISI/BIS certified equipment is found to be part of net metering solution on a consumer's premises, the vendor shall be blacklisted and the same shall be notified to MNRE/NREDCAP.

VII. A Check meter with import/export, MRI Compatible, tri-vector meter with provision to record 3-Line currents, 3-Phase voltage, V-THD & I-THD in load curve may be provided in case of Solar generation more than 56KW.

Annexure- B: Flow Chart of process & associated Service Level Agreements (SLAs)



ANNEXURE C 1 (Individual Consumer)

Solar Rooftop Net/Gross Metering Connection Agreement

(On Non-Judicial stamp paper worth Rs. 10/-)

This Agreement is executed and entered into at (location) _____ on this (date)___ day of ____(month) _____(Year)between the Eligible Consumer, M/s/Mr./Mrs. _____ S/o, D/o, W/o _____ residing at _____(address) _____which means their/his/its/ theirs, successors as first party AND _____Power Distribution Company Ltd. (herein after called as Discom) and having its registered office at _____(address) _____ as a DISCOM incorporated under the provisions of Companies Act 1956 consequent to the AP Electricity Reforms Act, 1998 (Which means its authorized representatives assigns, executors and its successors) as other party herein after called the 'Discom'.

Whereas, the eligible consumer has taken the responsibility to set up or facilitate the requisite Photovoltaic system and injection of Power into the Discom's grid

And whereas, the Discom agrees to benefit the eligible consumer for the electricity generated and as per conditions of this agreement and Solar rooftop guidelines.

Both the party hereby agrees to as follows:

1. Eligibility

1.1 Eligible consumer is required to be aware, in advance, of the standards and conditions his system has to meet for being integrated into grid/distribution system.

1.2 Eligible consumer agrees that connection of Photovoltaic system to Discom's distribution system shall be bound by requirements of state Distribution Code and/or Discom's conditions of service. The grid shall continue to perform with specified reliability, security and quality as per the Central Electricity Authority (Grid Standard) Regulations 2010 as amended from time to time.

1.3 All registered companies, Government entities, partnership companies/ firms, individuals and all consumers of APDiscom(s) will be eligible for setting up of Solar Power Projects within the State for sale of electricity/captive use, in accordance with the Electricity Act, 2003 and Andhra Pradesh Solar Power Policy, as amended from time to time.

1.4 Group of persons/societies will also be eligible for setting up Solar Rooftop Projects (SRP) for sale of electricity to Discom/captive use or for self-consumption.

2. Capacity of the SPV Plant and Maximum Contracted Load of the premises

2.1 The Eligible Developer/ consumer is proposing to install rooftop solar power plant of _____kWp capacity under Solar _____(Net/ Gross) metering facility at D.No. ____,Street____, ___(V), ____(M),_____(Dist) having electrical service Connection No.__ __,Category_____,Distribution_____ for a contracted load of ____kW/HP/KVA. The Eligible Developer have requested Discom to provide grid connectivity/ necessary permissions to connect rooftop solar power plant and supply solar energy into the distribution network of Discom at_____ voltage level which shall be extended for a period of 25 years.

3. Governing Provisions

The Eligible developer hereby undertake to comply with all the requirements of the Electricity Act, 2003, the Rules and Regulations framed under, provisions of the tariffs, applicable Charges and General Terms and Conditions of Supply prescribed by the Discom with the approval of the Andhra Pradesh Electricity Regulatory Commission herein after called as "Commission" from time to time and agree not to dispute the same.

4. Technical and Interconnection Requirements

4.1 Eligible consumer agrees that he will install, prior to connection of Photovoltaic system to Discom's distribution system, an isolation device and agrees for the Discom to have access to and operation of this, if required, for repair and maintenance of the distribution system.

4.2 Eligible consumer agrees that in case of a power outage on Discom's system, photovoltaic system will shut down, unless special transfer and isolating capabilities have been installed on photovoltaic system. The Discom shall not be obligated to accept and may require the Eligible

Developer to interrupt or reduce deliveries when necessary with a reasonable notice to the Eligible Developer.

4.3 The Eligible Developer shall strictly adhere to the standards specified by CEA/MNRE and installations of electrical equipment must comply with Indian Electricity rules, 1956.

4.4 The Eligible Developer can install SPV on building walls, roofs of the buildings and also in the open areas within the premises of the consumer.

4.5 Prior approval of Chief Electrical Inspectorate General (CEIG) is required in case of an SRP connected at LT level of distribution network with more than 10 kW capacity.

4.6 Eligible consumer agrees that Discom will specify the interface/inter-connection point and metering point.

4.7 Eligible consumer agrees to adhere to following power quality measures as per International or Indian standards and/or other such measures provided by Commission/Discom.

a. Harmonic current: Harmonic current injections from a generating station shall not exceed the limits specified in IEEE 519.

b. Synchronization: Photovoltaic system must be equipped with a grid frequency synchronization device.

c. Voltage: The voltage-operating window should minimise nuisance tripping and should be under operating range of 80% to 110% of the nominal connected voltage. Beyond a clearing time of 2 seconds, the Photovoltaic system must isolate itself from the grid.

d. Flicker: Operation of Photovoltaic system shouldn't cause voltage flicker in excess of the limits stated in the relevant sections of IEC standards or other equivalent Indian standards, if any.

e. Frequency: When the Distribution system frequency deviates outside the specified conditions (50.5 Hz on upper side and 47.5 Hz on lower side), the Photovoltaic system shouldn't energize the grid and should shift to island mode.

f. DC Injection: Photovoltaic 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.

g. Power Factor: While the output of the inverter is greater than 50%, a lagging power factor of greater than 0.9 should operate.

h. Islanding and Disconnection: The Photovoltaic system in the event of voltage or frequency variations must island/disconnect itself within IEC standard on stipulated period.

i. Overload and Overheat: The inverter should have the facility to automatically switch off in case of overload or overheating and should restart when normal conditions are restored.

j. Paralleling device: Paralleling device of Photovoltaic system shall be capable of withstanding 220% of the nominal voltage at the interconnection point

k. The maximum penetration limits at the LT level of distribution network is 80% (*Ratio of aggregate installed SRP capacity under the DTR to the DTR capacity*)

4.8 Eligible consumer agrees to furnish all the data such as voltage, frequency, and breaker, isolator position in his system, as and when required by the Discom.

4.9 Grid Connectivity and Evacuation facility:

The power generated from a Solar Power Project shall be injected at an appropriate voltage at the sub-station and/or interconnection point of the APTransco / Discom(s). The Eligible Developer shall bear the entire cost of construction of power evacuation facilities from the project up to the interconnection point and/or up to APTransco / Discom(s) substation.

The Eligible Developer shall abide by the orders, rules, regulations and terms and conditions as approved by the Commission from time to time for operation of Solar Power Projects, power evacuation, transmission and wheeling of energy. Solar Power Projects will be exempted from paying the Supervision charges to APTransco/Discom(s) towards the internal evacuation infrastructure within the project site and up to interconnection point. Any upstream system strengthening requirement shall be borne by APTransco/ Discom(s) on a priority basis.

4.10 It is imperative to seek the technical details of the installation infrastructure from the supplier at the time of system installation and retain with the Eligible developer/ consumer.

5. Implementation Process:

Implementation of solar rooftop net/ gross metering facility will be as per the following guidelines:

i) Under Net metering, Power is first sent to the appliances and lights in the house, and if excess remains, it is exported to the outside electricity network and its quantum recorded.

ii) Under Gross Metering, all solar electricity generated is exported to the outside electricity network through an independent meter.

iii) Eligible Developers are allowed to avail the relevant subsidies and incentives from MNRE and from other Departments.

iv) The eligible subsidy may be processed through NREDCAP (Nodal agency) or Channel Partners of MNRE, GOI. The sanction and release of the subsidy will be as per the guidelines issued by MNRE from time to time.

v) Incentives/ Other Charges/Administrative Fee - No Distribution losses and charges will be collected from the Eligible Developers /Group /Society /Individuals by the DISCOMs. All other charges shall be applicable as per the Tariff Order amended from time to time. The registration and facilitation fees shall be paid by Eligible Developer to Nodal agency as specified in the Policy.

5.1 Request for Connectivity

The Eligible Consumer will submit the required information in the prescribed format to the DISCOM and get the proper acknowledgement and shall also provide related interconnection equipment as per the DISCOM's technical requirements, including safety and performance standards. To prevent a net metering the Eligible Consumer from back-feeding a de-energized line, the Eligible Consumer shall install an isolator switch that is accessible to Company personnel at all hours. The Customer shall not commence parallel operation of the net metering facility until the Customer has received approval to operate from the competent authority of DISCOM. Modifications or changes made to a Generator shall be evaluated by the DISCOM prior to modifications/changes. The Eligible Consumer shall provide detailed information describing the modifications or changes to the DISCOM in writing prior to making the modification to the generating facility. The DISCOM shall review the proposed changes to the generating facility and provide the results of its evaluation to the Eligible Consumer within forty- five (45) calendar days of receipt of the Customer's proposal. Any items that would prevent parallel operation due to violation of applicable safety standards and/or power generation limits shall be explained along with a description of the modifications necessary to remedy the violations.

5.2 Metering and Synchronization:

All meters must be Smart Meters as per the standards specified by the CEA regulations as amended from time to time. Eligible Developers shall be free to procure Meters, Current Transformers (CT), and Potential Transformer (PT) either from open market or DISCOM. If the metering equipment is purchased by the Developer, the same is to be tested at standard laboratory with consumer's expenses.

Meter reading shall be done as per the prevailing Discom procedure. The applicable customer charges shall be payable to Discom.

Billing process shall start within one month/next billing cycle after synchronizing the SRP plant.

5.3 Energy Settlement and Billing/Invoicing:

Energy settlement shall be done on a monthly basis. Group of persons/societies setting up SRP's will be treated as collective generation for supply of power to the households of each

society /group member. In case of Apartments/Group Houses, common meter may be used for net metering

Net Metering: The energy generated from SRP shall be adjusted against the consumption of energy from the DISCOM by the Eligible Developer/ consumer every month. In case of Groups/Societies, the energy generated shall be prorated as per the installed capacity share indicated in the Agreement between the group/society and DISCOM. This computed energy share shall be adjusted against the consumption of energy for each consumer every month. In case of excess generation (after energy adjustment) in any month, payment shall be made by the Discom for the net energy computed at the Average pooled Power Purchase Cost as determined by APERC every year Pooled Power Purchase cost as determined by APERC for the year during which the project is synchronized with the grid and the applicable tariff at the time of COD will be paid for a period of 25years. In case of excess consumption in any month, payment shall be made by the Eligible Developer /Group /Society for the net energy at the applicable tariff as determined by APERC every year.

Gross Metering: The payment for energy generated from SRP will be computed at the Average pooled Power Purchase Cost of the Discom as determined by APERC every year Pooled Power Purchase cost as determined by APERC for the year during which the project is synchronized with the grid and the applicable tariff at the time of COD will be paid for a period of 25years. This shall be adjusted against the total billing demand for consumption of energy for the Eligible Developer/ consumer from the DISCOM every month. The balance amount after adjustment for the month shall be made by the Discom.

A limit shall be defined for all Eligible Developers in terms of energy, beyond which no payment shall be made by APDISCOM. Please refer example in Annexure-E.

6. Access and Inspection:

6.1 The DISCOM's personal may enter the Eligible consumer's premises to inspect the Eligible consumer's protective devices and read or test the meter.

6.2 DISCOM personnel reserve the right to inspect the SRP routinely at any time during the term of the Agreement. As part of the inspection, DISCOM officials have to ensure to check the following aspects

- All protective equipment of the SPV system is functioning as per specifications.
- The SPV system including the panels, inverters, etc continue to meet the requirements of Indian & IEC standards post installation till contract completion.

6.3 An Eligible Developer, found indulging in theft of electricity or unauthorized use of electricity, shall pay the additional charges as may be levied by the DISCOM as per provisions of Electricity Act 2003. DISCOM may levy additional charge besides disconnection of electricity supply.

7. Safety

7.1 Eligible consumer shall comply with the Central Electricity Authority (Measures Relating to Safety and Electricity Supply) Regulations 2010 as amended from time to time.

7.2 Eligible consumer agrees that the design, installation, maintenance and operation of the photovoltaic system are performed in a manner conducive to the safety of the photovoltaic system as well as the Discom's distribution system.

7.3 Due to Discom's obligation to maintain a safe and reliable distribution system, eligible consumer agrees that if it is determined by Discom that eligible consumer's photovoltaic system either causes damage to and/or produces adverse effects affecting other distribution systems' consumers or Discom's assets, eligible consumer will have to disconnect photovoltaic system immediately from the distribution system upon direction from the Discom and correct the problem at his own expense prior to a reconnection.

8. Clearances and Approvals

8.1 All the approvals/clearances required to avail the metering facility shall be disposed by the respective Discom within 14 days (7 working days) from the date of application

8.2 The eligible consumer agrees to attain all the necessary approvals and clearances before connecting the photovoltaic system to the distribution system.

8.3 Approvals shall be given only to those Eligible developer with maximum allowable capacity under single-phase service is 3 kWp and maximum allowable SPV plant capacity under LT category is 56 kWp either at LT or HT potential. For HT Service, consumer shall be responsible to match the SPV plant capacity with the DTR Capacity and shall be limited to the CMD of that service.

8.4 The SRP capacity should be up to 1000 KWp at a single location.

9. Injection of Solar Power

The Solar power produced shall be injected in to the DISCOM network only after obtaining prior approval from DISCOM and meeting all the requirements of departmental standards, viz., protection switchgear, metering, feasibility approval etc.

10. Liabilities

10.1 Eligible consumer and Discom will indemnify each other for damages or adverse effects from either party's negligence or intentional misconduct in the connection and operation of photovoltaic system or Discom's distribution system.

10.2 Discom and eligible consumer will not be liable to each other for any loss of profits or revenues, business interruption losses, loss of contract or loss of goodwill, or for indirect, consequential, incidental or special damages, including, but not limited to, punitive or

exemplary damages, whether any of the said liability, loss or damages arise in contract, or otherwise.

10.3 Discom shall not be liable for delivery or realization by eligible consumer for any fiscal or other incentive provided by the central /State government.

11. Commercial Settlement

11.1 All the commercial settlement under this agreement shall be made according to Solar rooftop guidelines and regulations of Electricity Regulatory Commission.

12. Connection Costs

12.1 The eligible consumer shall bare all costs related to setting up of photovoltaic system including metering and interconnection costs.

12.2 Cost for interconnection equipment including the isolators, meters etc. are also to be borne by the eligible consumer.

13. Date of enforceability of the Agreement

This agreement will be in a force for a period of 25 years or up to the tenure of the project whichever is earlier from the date of commencement of this agreement, until the Eligible consumer meet all the requirements, rules and conditions of this Agreement and the system and its operation is in accordance with the Andhra Pradesh Solar Power Policy – 2018, and its future amendments, if any.

14. Dispute Resolution

If at any time the Discom reasonably determines that either the Eligible consumer may endanger the Discom's personnel or other persons or property, or the continued operation of the consumer's generator may endanger the integrity or safety of the Discom's electric system, or the Consumer is not operating the system in compliance with the terms and conditions of this agreement the Discom shall have the right to disconnect and lock out the SPV Generator facility from the Company's electric system until the Discom is reasonably satisfied that the SPV Generator can operate in a safe and complain manner.

Any other disputes arising under/ out of this agreement shall be resolved promptly in good faith and in an equitable manner by both the parties. Failing resolution of the dispute, party may approach the commission under Section 86 (1) (f) of EA 2003.

15. Termination

15.1 The SRP shall be installed within three (3) months from the date of Agreement. In case of any delay beyond three months, one time extension of 15 days shall be provided after which the agreement shall be deemed terminated without any reason.

15.2 The eligible consumer can terminate agreement at any time by providing Discom with 90 days prior notice.

15.3 Discom has the right to terminate Agreement on 30 days prior written notice, if eligible consumer breaches a term of this Agreement and does not remedy the breach within 30 days of receiving written notice from Discom of the breach.

15.4 Eligible consumer agrees that upon termination of this Agreement, he must disconnect the photovoltaic system from Discom's distribution system in a timely manner and to Discom's satisfaction.

16. Re-Sale of Electric Power: The Eligible consumer shall not sell electricity generated under this agreement without the sanction in writing obtained from the DISCOM.

17. Obligation of Consumer to pay all charges levied by DISCOM The Eligible Consumer shall abide by the rules and shall pay the Maximum Demand Charges, energy charges, surcharges and other charges, if any, to the DISCOM in accordance with the notified Tariff besides the applicability of the General Terms and Conditions of Supply prescribed by the APERC from time to time.

18. Theft of electricity or unauthorized use of electricity

The Eligible consumer, found indulging in theft of electricity or unauthorized use of electricity shall pay the penal/additional charges as may be levied by the DISCOM besides disconnection of supply as per the provisions of IE Act 2003 and General Terms and Conditions of supply.

In the witness, where of Mr. _____ for an on behalf of _____ (Eligible consumer) and Mr. _____ for and on behalf of _____ (Discom) agree to this agreement.

Signature of the Eligible Developer/ Consumer Signature of the Discom Representative

Date: Date:

Witness 1: Witness 2:

Signature: Signature:

Name & Address: Name & Address:

Date: Date:

Annexure C 2 (Societies/Group of Consumers)

Solar Rooftop Net/Gross Metering Connection Agreement

(On Non-Judicial stamp paper worth Rs. 10/-)

This Agreement is made and entered into at (location) _____ on this (date) ___ day of _____(month) ____(Year) between The Group of persons/society (herein after called as Eligible Developer/Consumer),Represented by Sri/Smt _____S/o, _____ residing at _____(address)_____ as first party AND _____Power Distribution Company of Andhra Pradesh Ltd. (herein after called as Discom) and having its registered office at _____(address)_____ as a DISCOM incorporated under the provisions of Companies Act 1956 consequent to the AP Electricity Reforms Act,1998(Which means its authorized representatives assigns, executors and its successors) as other party here in after called the "DISCOM".

Whereas, the eligible consumer has taken the responsibility to set up or facilitate the requisite Solar Photovoltaic system and injection of Power into the Discom's grid

And whereas, the Discom agrees to benefit the eligible consumer for the electricity generated and as per conditions of this agreement and Solar rooftop guidelines.

Both the party hereby agrees to as follows:

1. Eligibility

1.1 Eligible consumer is required to be aware, in advance, of the standards and conditions his system has to meet for being integrated into grid/distribution system.

1.2 Eligible consumer agrees that connection of Photovoltaic system to Discom's distribution system shall be bound by requirements of state Distribution Code and/or Discom's conditions of service. The grid shall continue to perform with specified reliability, security and quality as per the Central Electricity Authority (Grid Standard) Regulations 2010 as amended from time to time.

1.3 All registered companies, Government entities, partnership companies/ firms, individuals and all consumers of APDiscom(s) will be eligible for setting up of Solar Power Projects within the State for sale of electricity/captive use, in accordance with the Electricity Act, 2003 and Andhra Pradesh Solar Power Policy, as amended from time to time.

1.4 Group of persons/societies will also be eligible for setting up Solar Rooftop Projects (SRP) for sale of electricity to Discom/captive use or for self-consumption.

2. Capacity of the SPV Plant and Maximum Contracted Load of the premises

2.1 The Group of persons/society is proposing to install rooftop solar power plant of _____kWp capacity under Solar _____(Net/ Gross) metering facility at D.No. ____,Street____, ___V, ____(M)_____(Dist) against Common Service Connection No_____,Category_____,Distribution_____ and having individual electrical service connections details furnished in the table below for a total contracted load of ____kW/HP/KVA and individual installed capacity share. The Eligible Developer has requested the Discom to provide grid connectivity/ necessary permissions to connect rooftop solar power plant and supply solar energy into the distribution network of Discom at_____ voltage level for the whole tenure of the project or 25 years whichever is earlier.

2.2 The installed capacity share of members of the Group of persons/societies are as follows:

Sl.No. Consumer Name Installed Capacity share Consumer Service number

3. Governing Provisions

The Eligible developer hereby undertake to comply with all the requirements of the Electricity Act, 2003, the Rules and Regulations framed under, provisions of the tariffs, applicable Charges and General Terms and Conditions of Supply prescribed by the Discom with the approval of the Andhra Pradesh Electricity Regulatory Commission herein after called as "Commission" from time to time and agree not to dispute the same.

4. Technical and Interconnection Requirements

4.1 Eligible consumer agrees that he will install, prior to connection of Photovoltaic system to Discom's distribution system, an isolation device and agrees for the Discom to have access to and operation of this, if required, for repair and maintenance of the distribution system.

4.2 Eligible consumer agrees that in case of a power outage on Discom's system, photovoltaic system will shut down, unless special transfer and isolating capabilities have been installed on photovoltaic system. The Discom shall not be obligated to accept and may require the Eligible Developer to interrupt or reduce deliveries when necessary with a reasonable notice to the Eligible Developer.

4.3 The Eligible Developer shall strictly adhere to the standards specified by CEA/MNRE and installations of electrical equipment must comply with Indian Electricity rules, 1956.

4.4 The Eligible Developer can install SPV on building walls also.

4.5 Prior approval of Chief Electrical Inspectorate General (CEIG) is required in case of an SRP connected at LT level of distribution network with more than 10 kWp capacity.

4.6 Eligible consumer agrees that Discom will specify the interface/inter-connection point and metering point.

4.7 Eligible consumer agrees to adhere to following power quality measures as per International or Indian standards and/or other such measures provided by Commission/Discom.

a. Harmonic current: Harmonic current injections from a generating station shall not exceed the limits specified in IEEE 519.

b. Synchronization: Photovoltaic system must be equipped with a grid frequency synchronization device.

c. Voltage: The voltage-operating window should minimise nuisance tripping and should be under operating range of 80% to 110% of the nominal connected voltage. Beyond a clearing time of 2 seconds, the Photovoltaic system must isolate itself from the grid.

d. Flicker: Operation of Photovoltaic system shouldn't cause voltage flicker in excess of the limits stated in the relevant sections of IEC standards or other equivalent Indian standards, if any.

e. Frequency: When the Distribution system frequency deviates outside the specified conditions (50.5 Hz on upper side and 47.5 Hz on lower side), the Photovoltaic system shouldn't energize the grid and should shift to island mode.

f. DC Injection: Photovoltaic 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.

g. Power Factor: While the output of the inverter is greater than 50%, a lagging power factor of greater than 0.9 should operate.

h. Islanding and Disconnection: The Photovoltaic system in the event of voltage or frequency variations must island/disconnect itself within IEC standard on stipulated period.

i. Overload and Overheat: The inverter should have the facility to automatically switch off in case of overload or overheating and should restart when normal conditions are restored.

j. Paralleling device: Paralleling device of Photovoltaic system shall be capable of withstanding 220% of the nominal voltage at the interconnection point

k. The maximum penetration limits at the LT level of distribution network is 80% (*Ratio of aggregate installed SRP capacity under the DTR to the DTR capacity*)

4.8 Eligible consumer agrees to furnish all the data such as voltage, frequency, and breaker, isolator position in his system, as and when required by the Discom.

4.9 Grid Connectivity and Evacuation facility:

The power generated from a Solar Power Project shall be injected at an appropriate voltage at the sub-station and/or interconnection point of the APTransco / Discom(s). The Eligible Developer shall bear the entire cost of construction of power evacuation facilities from the project up to the interconnection point and/or up to APTransco / Discom(s) substation.

The Eligible Developer shall abide by the orders, rules, regulations and terms and conditions as approved by the Commission from time to time for operation of Solar Power Projects, power evacuation, transmission and wheeling of energy. Solar Power Projects will be exempted from paying the Supervision charges to APTransco/Discom(s) only in case of transmission of power from State Transmission Utility (STU) to Central transmission utility (CTU). Any upstream system strengthening requirement shall be borne by APTransco/ Discom(s) on a priority basis.

4.10 It is imperative to seek the technical details of the installation infrastructure from the supplier at the time of system installation and retain with the Eligible developer/ consumer.

5. Implementation Process:

Implementation of solar rooftop net/ gross metering facility will be as per the following guidelines:

i) Under Net metering, Power is first sent to the appliances and lights in the house, and if excess remains, it is exported to the outside electricity network and its quantum recorded.

ii) Under Gross Metering, all solar electricity generated is considered as Export of Energy into Electricity Network. ii) Eligible Developers are allowed to avail the relevant subsidies and incentives from MNRE and from other Departments.

iii) The eligible subsidy may be processed through NREDCAP (Nodal agency) or Channel Partners of MNRE, GOI. The sanction and release of the subsidy will be as per the guidelines issued by MNRE from time to time.

iv) Incentives/ Other Charges/Administrative Fee Distribution losses and charges will be collected from the Eligible Developers /Group /Society /Individuals by the DISCOMs. All other charges shall be applicable as per the Tariff Order amended from time to time. The registration and facilitation fees shall be paid by Eligible Developer to Nodal agency as specified in the Policy.

5.1 Request for Connectivity

The Eligible Consumer will submit the required information in the prescribed format to the DISCOM and get the proper acknowledgement and shall also provide related interconnection equipment as per the DISCOM's technical requirements, including safety and performance standards. To prevent a net metering the Eligible Consumer from back-feeding a de-energized line, the Eligible Consumer shall install an isolator switch that is accessible to Company personnel at all hours. The Customer shall not commence parallel operation of the net metering facility until the Customer has received approval to operate from the competent authority of DISCOM. Modifications or changes made to a Generator shall be evaluated by the DISCOM prior to modifications/changes. The Eligible Consumer shall provide detailed information describing the modifications or changes to the DISCOM in writing prior to making the modification to the generating facility. The DISCOM shall review the proposed changes to the generating facility and provide the results of its evaluation to the Eligible Consumer within forty- five (45) calendar days of receipt of the Customer's proposal. Any items that would prevent parallel operation due to violation of applicable safety standards and/or power generation limits shall be explained along with a description of the modifications necessary to remedy the violations.

5.2 Metering and Synchronization:

All meters must be Smart Meters as per the standards specified by the CEA regulations as amended from time to time. Eligible Developers shall be free to procure Meters, Current Transformers (CT), and Potential Transformer (PT) either from open market or DISCOM. If the metering equipment is purchased by the Developer, the same is to be tested at standard laboratory.

Meter reading shall be done as per the prevailing Discom procedure. The applicable customer charges shall be payable to Discom.

Billing process shall start within one month of synchronizing the SRP.

5.3 Energy Settlement and Billing/Invoicing:

Energy settlement shall be done on a monthly basis. Group of persons/societies setting up SRP's will be treated as collective generation for supply of power to the households of each society /group member. In case of Apartments/Group Houses, common meter may be used for net metering

The projects set up on the roofs of the buildings and also in the open areas within the premises of the consumer are categorized as solar rooftop projects, as per the guidelines of MNRE. In case of different rooftops belong to single owner in a city or town, the combined solar power Generation will be adjusted against the combined consumption recorded in various energy meters.

The generation from the Solar Power Projects of the group of persons/societies will be treated as collective generation for supply of power to the households of each society/group member. The DISCOMs will deduct the above energy from the consumed energy of individual service connections and balances (either excess or lower) can be billed on net metering basis.

No Distribution losses and charges will be collected from the Group/Society/individuals by the DISCOMs.

Net Metering: The energy generated from SRP shall be adjusted against the consumption of energy from the DISCOM by the Eligible Developer/ consumer every month. In case of Groups/Societies, the energy generated shall be prorated as per the installed capacity share indicated in the Agreement between the group/society and DISCOM. This computed energy share shall be adjusted against the consumption of energy for each consumer every month.

In case of excess generation (after energy adjustment) in any month, payment shall be made by the Discom for the net energy computed at the Average pooled Power Purchase Cost of the Discom as determined by APERC every year Pooled Power Purchase cost as determined by APERC for the year during which the project is synchronized with the grid and the applicable tariff at the time of COD will be paid for a period of 25years.

In case of excess consumption in any month, payment shall be made by the Eligible Developer /Group /Society for the net energy at the applicable tariff as determined by APERC every year.

Gross Metering: The payment for energy generated from SRP will be computed at the Average pooled Power Purchase Cost of the Discom as determined by APERC every year Pooled Power Purchase cost as determined by APERC for the year during which the project is synchronized with the grid and the applicable tariff at the time of COD will be paid for a period of 25years. This shall be adjusted against the total billing demand for consumption of energy for the Eligible Developer/ consumer from the DISCOM every month. The balance amount after adjustment for the month shall be made by the Discom.

A limit shall be defined for all Eligible Developers in terms of energy, beyond which no payment shall be made by APDISCOM. Please refer example in Annexure-E.

6. Access and Inspection:

a) The DISCOM's personal may enter the Eligible consumer's premises to inspect the Eligible consumer's protective devices and read or test the meter.

b) DISCOM personnel reserve the right to inspect the SRP routinely at any time during the term of the Agreement. As part of the inspection, DISCOM officials have to ensure that check the following aspects All protective equipment of the SPV system are functioning as per

specifications. The SPV system including the panels, inverters, etc continue to meet the requirements of Indian & IEC standards post installation till contract completion.

c) An Eligible Developer, found indulging in theft of electricity or unauthorized use of electricity, shall pay the additional charges as may be levied by the DISCOM as per provisions of Electricity Act 2003. DISCOM may levy additional charge besides disconnection of electricity supply.

7. Safety

7.1 Eligible consumer shall comply with the Central Electricity Authority (Measures Relating to Safety and Electricity Supply) Regulations 2010 as amended from time to time.

7.2 Eligible consumer agrees that the design, installation, maintenance and operation of the photovoltaic system are performed in a manner conducive to the safety of the photovoltaic system as well as the Discom's distribution system.

7.3 Due to Discom's obligation to maintain a safe and reliable distribution system, eligible consumer agrees that if it is determined by Discom that eligible consumer's photovoltaic system either causes damage to and/or produces adverse effects affecting other distribution systems' consumers or Discom's assets, eligible consumer will have to disconnect photovoltaic system immediately from the distribution system upon direction from the Discom and correct the problem at his own expense prior to a reconnection.

8. Clearances and Approvals

8.1 All the approvals/clearances required to avail the metering facility shall be disposed by the respective Discom within 14 days (7 Working days)from the date of application

8.2 The eligible consumer agrees to attain all the necessary approvals and clearances before connecting the photovoltaic system to the distribution system.

8.3 Approvals shall be given only to those Eligible developer with maximum allowable capacity under single-phase service is 3 kWp and maximum allowable SPV plant capacity under LT category is 56 kWp either at LT or HT potential. For HT Service, consumer shall be responsible to match the SPV plant capacity with the DTR Capacity and shall be limited to the CMD of that service.

8.4 The SRP capacity should be up to 1000 KWp at a single location.

9. Injection of Solar Power

The Solar power produced shall be injected in to the DISCOM network only after obtaining prior approval from DISCOM and meeting all the requirements of departmental standards,viz., protection switchgear, metering, feasibility approval etc.

10. Liabilities

10.1 Eligible consumer and Discom will indemnify each other for damages or adverse effects from either party's negligence or intentional misconduct in the connection and operation of photovoltaic system or Discom's distribution system.

10.2 Discom and eligible consumer will not be liable to each other for any loss of profits or revenues, business interruption losses, loss of contract or loss of goodwill, or for indirect, consequential, incidental or special damages, including, but not limited to, punitive or exemplary damages, whether any of the said liability, loss or damages arise in contract, or otherwise.

10.3 Discom shall not be liable for delivery or realization by eligible consumer for any fiscal or other incentive provided by the central/State government.

11. Commercial Settlement

11.1 All the commercial settlement under this agreement shall be made according to Solar rooftop guidelines and regulations of Electricity Regulatory Commission.

12. Connection Costs

12.1 The eligible consumer shall bare all costs related to setting up of photovoltaic system including metering and interconnection costs.

12.2 Cost for interconnection equipment including the isolators, meters etc. are also to be borne by the eligible consumer.

13. Date of enforceability of the Agreement

This agreement will be in a force for a period of 25 years or up to the tenure of the project whichever is earlier from the date of commencement of this agreement, until the Eligible consumer meet all the requirements, rules and conditions of this Agreement and the system and its operation is in accordance with the Andhra Pradesh Solar Power Policy – 2015 and its future amendments, if any.

14. Dispute Resolution

If at any time the Discom reasonably determines that either the Eligible consumer may endanger the Discom's personnel or other persons or property, or the continued operation of the consumer's generator may endanger the integrity or safety of the Discom's electric system, or the Consumer is not operating the system in compliance with the terms and conditions of this agreement the Discom shall have the right to disconnect and lock out the SPV Generator facility from the Company's electric system until the Discom is reasonably satisfied that the SPV Generator can operate in a safe and complain manner.

Any other disputes arising under/ out of this agreement shall be resolved promptly in good faith and in an equitable manner by both the parties. Failing resolution of the dispute, party may approach the commission under Section 86 (1) (f) of EA 2003.

15. Termination

15.1 The SRP shall be installed within three (3) months from the date of Agreement. In case of any delay beyond three months, one time extension of 15 days shall be provided after which the agreement shall be deemed terminated without any reason.

15.2 The eligible consumer can terminate agreement at any time by providing Discom with 90 days prior notice.

15.3 Discom has the right to terminate Agreement on 30 days prior written notice, if eligible consumer breaches a term of this Agreement and does not remedy the breach within 30 days of receiving written notice from Discom of the breach.

15.4 Eligible consumer agrees that upon termination of this Agreement, he must disconnect the photovoltaic system from Discom's distribution system in a timely manner and to Discom's satisfaction.

16. Re-Sale of Electric Power

The Eligible consumer shall not sell electricity generated under this agreement without the sanction in writing obtained from the DISCOM.

17. Obligation of Consumer to pay all charges levied by DISCOM

The Eligible Consumer shall abide by the rules and shall pay the Maximum Demand Charges, energy charges, surcharges and other charges, if any, to the DISCOM in accordance with the notified Tariff besides the applicability of the General Terms and Conditions of Supply prescribed by the APERC from time to time.

18. Theft of electricity or unauthorized use of electricity

The Eligible consumer, found indulging in theft of electricity or unauthorized use of electricity shall pay the penal/additional charges as may be levied by the DISCOM besides disconnection of supply as per the provisions of IE Act 2003 and General Terms and Conditions of supply.

In the witness, where of Mr. _____ for an on behalf of _____ (Eligible consumer) and Mr. _____ for and on behalf of _____ (Discom) agree to this agreement.

Signature of the Office-bearer of Group/Society Signature of the Representative of Discom

Date: Date:

Witness 1: Witness 1:

Signature: Signature:

Name & Address:

Name & Address:

Date:

Date:

Annexure-E

This check is for ensuring that the SPV system is not misused. This energy limit may be computed by using 20% CUF/PLF of the installed SPV capacity

Case-1: Consumer installs a 1000 Wp SPV system and opts for Gross / Net Metering. The SPV system 144 units per month. Any surplus injection above 144 units shall be treated as inadvertent and no payment shall be made for it.

Case-2: Consumer installs a 5 kWp SPV system and opts for Gross / Net Metering. The SPV system generates 720 units per month. Any surplus injection above 720 units shall be inadvertent and no payment shall be made for it.

Annexure D: Example of Net & Gross Billing

Assumption-1: Applicable Retail Tariff is

Consumer Category	Unit	Fixed Charge (Rs./Month)	Energy Charge (Rs./kWh)
LT-I : Domestic (Telescopic)			
LT-I (A): Upto 50 Units / Month	kWh		1.45
LT-I (B): Above 50 Units/Month (Consumers above 200 units/month)			
First 50 units	kWh	0	2.60
51-100 units	kWh	0	3.25
101-150 units	kWh	0	4.88
151-200 units	kWh	0	5.63
201-250 units	kWh	0	6.38
251-300 units	kWh	0	6.88
301-400 units	kWh	0	7.38
401-500 units	kWh	0	7.88
Above 500 units	kWh	0	8.38

Assumption-2: Average Pooled power Purchase cost for that year is Rs. 6.00 / kWh

Domestic Consumer installs a 2 kWp SRP and the SRP generates 288 units per month.

Case -1: Net Metering

Month	Billed Demand/ Consumption from grid (Units) **A**	SRP Generation (Units) **B**	Net Energy (Rs.) **B-A =C**	Net Monthly Payment by DISCOM (Rs.) **C*APPPC**
Jan	250	288	38	228
Feb	350	288	(62)	0
Mar	400	288	(112)	0

Case -2: Gross Metering

Month	Billed Demand / Consumption from grid (Units) **A**	Billed Demand / Consumption from grid (Rs.) **(A * Applicable Tariff as per APERC) = B**	SRP Generation (Units) **C**	SRP Payment (Rs.) **(C* APPPC)=D**	Net Monthly Payment by DISCOM (Rs.) **(B-D)**
Jan	250	1,137	288	1,728	591
Feb	350	1,850	288	1,728	0
Mar	404	2,250	288	1,728	0

Net Metering for Group Consumers: (Total Generation of SRP in the month 1000 units.

APPPC for the current year Rs.6.00/KWH

Name of the Consumer	**% of Investment in SRP plant**	**Units to be allotted**	**Consumer Consumption in the Month**	**Net Payment**
Consumer A	50%	500	400	Amount to be credited for 100 Units
Consumer B	30%	300	350	Bill to be issued for 50 Units
Consumer C	20%	200	200	-

Gross metering for Group Consumers

Name of the Consumer	**% of Investment in SRP plant**	**Units to be allotted**	**Consumption in the Month**	**Generation Amount**	Bill Amount	Net effect
Consumer A	50%	500	400	Rs.3000	Rs.2289	To be credited Rs.711/-
Consumer B	30%	300	350	Rs.1800	Rs.1902	Bill to be issued Rs.102/-
Consumer C	20%	200	200	Rs.1200	Rs.818	To be credited Rs.382/-

ANNEXURE I: FORM 1(A)

DISCOM APPLICATION FORM FOR SOLAR GRID INTERACTIVE ROOF-TOP AND SMALL SPV POWER PLANTS

Application form for solar grid interactive roof-top and small SPV power plants

(in terms of G.O.Ms.22 Dt:25.03.2013)

Affix recent Passport Size Photo of the Applicant

For Office Use:
Reg. No.: ----------
Date: ----------
Application fee details:
DD No.: ----------

To,

The

(Designated Officer)

1	Name of the applicant	
2	Applicant full Address	H.No.:
		Street Name:
		Village Name
		Mandal name
		District Name
		Pin code
3	Phone/Mobile No	
4	Email ID	
5	Social Group	(SC/ST/BC/Others)
6	Applicant has to submit self-attested photo ID proof (Voter ID card/Passport/PAN card/Aadhar card/Driving licence & etc.,)	
	Type of ID card submitted	

	ID card No.	
Site details		
7	Address of the site for installation	H.No.:
		Street Name:
		Village Name
		Mandal name
		District Name
		Pin code
8	SCNo.	
9	Category	
10	Connected Load	
11	Distribution/Section	----- KW
12	If Non-Domestic, Specify type of building (Shop/Industry/Govt./Educational/others (specify))	
13	Pole No.	
14	DTR Code/Location	
15	a) Shade free area available for installation for solar panel (Minimum requirement is nearly 15 m^2)	---------- m^2
	b) Proposed Capacity under this policy	----------KW
16	Average monthly consumption of electricity	-------- Units

DECLARATION

I hereby declare that the information furnished above is true to the best of my knowledge and behalf. If false, APSPDCL has the right to reject/cancel the application. Further, I hereby agree with the specifications, terms and conditions stipulated by APSPDCL for the selection and installation of roof-top solar power plant.

Place: Signature:

Date: Name:

CHECK LIST :

1.Copy of photo ID card	(YES/NO)
2.Copy of electricity bill	(YES/NO)
3.Demand Draft	(YES/NO)
4.Self addressed Rs. Stamped envelope	(YES/NO)

ANNEXURE II: FORM 1(B)

DECLARATION FOR GROUPS/SOCIETIES

We hereby declare that the information furnished above is true to the best of my knowledge and belief. If found false, APSPDCL has the right to reject/cancel the application. Further, I hereby agree with the specifications, terms and conditions stipulated by APSPDCL for the selection and installation of roof-top solar power plant.

Place: Date:

S. No.	Consumer Name	Installation capacity share (%)	Consumer Service Number	Signature for consent

ANNEXURE III: FORM 1(C)

ACKNOWLEDGEMENT

Your application for setting up of solar grid interactive roof -top and small SPV power plant under policy on net metering in accordance with of G.O.Ms.No.22, Dt. 25.03.2013 has been received along with registration fee. The details of DD are as below:

The following Registration Number has been allotted to your application.

Registration Number	
Date of Registration	

(To be filled by Office)

Designated Officer/APSPDCL

ANNEXURE IV: FORM 2

INSPECTION FORMAT FOR RELEASING OF ROOF TOP SOLAR GENERATING UNIT

A	Name of the applicant	
1	S/C No	
2	Category	
3	Distribution	
4	Pole number	
5	Section	
6	Address	
7	Mobile No	
B	**Meter Details**	
1	Meter make	
2	Serial number	
3	Capacity	
4	Meter constant	
5	Initial reading (Tri vector parameters)	
6	i) Import	
7	ii) Export	
8	Name of the laboratory where the meter is tested (copy of test results to be enclosed)	
C	**Grid Tie Inverter / Connecter**	
1	Make	
2	Serial number	
3	Capacity	
4	Input voltage	
5	Output voltage	
6	If grid supply fails, status of contactor (on or off)	
D	**SPV Module**	
1	Make	
2	Serial number	
3	Type of module	

4	Capacity of each module	
5	Number of modules	
6	Total capacity of module	
E	**Details of protective system available** (feasibility shall be given only on availability of the above)	

Enclosure: 1) Single line diagram of SPV generator

2) Specification sheets of all equipment

Divisional Engineer
M&P, ----------

Divisional Engineer
Operation, ----------

TECHNICAL FEASIBILITY FORMAT FOR THE SOLAR ROOF TOP SPV UNIT

A	Name of the applicant	
1	S/C No	
2	Category	
3	Distribution	
4	Pole number	
5	Section	
6	Address	
7	Mobile No	
B	**Distribution Transformer Details**	
1	Name of the SS	
2	DTR capacity in KVA	
3	Voltage ratio	
4	Total Connected load on the DTR(in KVA)	
5	Addl. Loads sanctioned so far (in KVA)	
6	Already proposed loads (in KVA)	
7	Total Load on DTR : X=4+5+6 (in KVA)	
8	SPV Generators already connected capacity in KW	
9	Proposed SPV generators capacity in KW	
10	Total generation capacity Y=8+9 (in KW)	
11	Difference between load and generation capacity Z=X-Y	
12	Whether the transformer capacity is adequate to cater the proposed generator in addition to the existing loads and generators capacity with NPDCL and other sources (if any)	
C	**FEEDER DETAILS**	
1	Name of the 11KV feeder	
2	Name of 33/11 SS from which 11KV feeder is emanating	
3	Type and size of the conductor	
4	Current carrying capacity of the feeder	
5	Total connected DTR capacity on this 11KV feeder(KVA)	
6	SPV generators connected on this feeder, if any, and their Capacity	

7	Maximum load reached on the feeder in Amps & KVA	
8	Remarks	
D	**Whether technically feasible or not to export the power from proposed SPV generator (Yes or No)**	

Enclosure: LT Sketch

Divisional Engineer

Operation,

ANNEXURE V: FORM 3(A)

Intimation for Removal of Deficiency in the Application due to reasons including operational constraints

(To be filled by DISCOM)

To:

(Consumer applicant's name) M/S / Mr. / Mrs. _____

Date: _____

Ref: Your application No. _____ dated _____

Subject: Intimation for Removal of Deficiency

This is to inform you that we have received your above mentioned application and on scrutiny have found that:

The application is not complete and following are the lacunae observed:

- Adequate transformer capacity not available;
- _____ (others, if any)

Please complete the application formality by fulfilling the above lacunae within 30 days of receipt of this letter. In case you have not completed the formality within this period your application shall stand cancelled and paid fees, if any, shall not be refunded.

Furthermore, it is found that due to above mentioned constrains it is not feasible for the DISCOM to provide connectivity at all/ up to the applied capacity (tick appropriate). However, the connectivity is feasible for a reduced capacity of ____ KWp.

Based on this communication, the applicant can:

1. Either accept the connectivity at reduced capacity and approach the DISCOM (Division Office) to process the case;
2. Or, withdraw the application.

Signature of Officer:
Designation (AE/ADE):

ANNEXURE VI: FORM 3(B)

Intimation for Non-Feasibility and termination of the Application

(To be filled by DISCOM)

To:

(Consumer applicant's name) M/S / Mr. / Mrs. _____

Date: _____

Ref: Your application No. _____ dated _____

Subject: Intimation for Non feasibility and termination of Application

This is to inform you that we have received your above mentioned application and on Technical scrutiny have found that:

The application is not feasible at this stage due to the following reasons:

- _____
- _____ (others, if any)

The application hereby stands terminated. The application fee shall be refunded within 7 days from the date of issue of this letter.

Signature of Officer:

Designation (AE/ ADE):

ANNEXURE VII: FORM 4

Response of Applicant to Intimation for Removal of Deficiencies of the Application due to reasons including operational constraints

(To be filled by Applicant)

To:
The Divisional Engineer
_____ (Distribution Licensee Name)
_____(Name of the Division)
_____(Name / Address of office)

Date:

Subject: Intimation for Non-Feasibility of the Application due to reasons including operational constraints

The applicant will exercise the following option (tick the appropriate choice):

1. I accept the connectivity at reduced capacity as intimated by the DISCOM vide letter dated _____ and request the DISCOM to process the case;

2. Or I withdraw my application;

Name and Signature of Applicant:

Application Number:

ANNEXURE VIII: FORM 5

Approval Letter for Consumer with respect to
The Application for Net Metering and Grid Connectivity of Grid Connected Solar PV System
(To be filled by the DISCOM)

Date:

To:
(Applicant's name) M/s / Mr. / Mrs. _____
(Consumer No.)_____

Ref: Your application No. _____ dated _____

With reference to your above mentioned application number, approval is herewith accorded for installing RTSPV of_____ KWp in your premises as per following terms and conditions:

1. It is recommended that you select an empanelled system installer of your choice to install the RTSPV system. A list of empanelled installers of grid-connect PV systems by MNRE (Ministry of New and Renewable Energy, Government of India) / NREDCAP (New & Renewable Energy Development Corporation of Andhra Pradesh Ltd.) is available.

2. All components of RTSPV system must comply with applicable BIS/IEC standards. Please find attached a list of standards to be complied with attached with this approval letter.

3. Applicant must submit the copy of Manufacturers Test Certificates for all components for having complied with relevant BIS/IEC standards of the selected model along with work completion report.

4. In case of any changes required at the premises of proposed site due to this proposed installation, these shall be performed by the applicant at his /her own cost.

5. The grid connectivity of the system shall be in accordance with Solar Rooftop Policy/Guidelines and any amendments thereof from time to time

6. In case applicant desires to procure Net meter from DISCOM, he/she needs to intimate the same to DISCOM by filling Form 7 along with Net meter fee at least 30 days in prior to expected installation (fee details & technical specifications can be found on website of DISCOM)

7. In case the applicant desires to purchase the Net meter on its own (with prior permission from DISCOM), the same shall be purchased from DISCOM approved vendors (as per DISCOMs approved technical specifications). These meters shall be successfully tested from DISCOM or

their authorized laboratory.

8. The DISCOM shall install meter and synchronize the RSTPV system with the grid only on receiving NOC from CEI/EI[1]. For systems exempt from NOC from CEI/EI, consumer need to submit safety certificate issued by a concerned DISCOM engineer vide G.O.Ms 21.

9. Installed system must comply with safety requirements as stated in CEA/APERC Regulations and all standards referred to in those regulations.

10. Please submit the following documents after installation of RTSPV system:

    a. Inspection Report by Chief Electrical Inspector/ Electrical Inspector, Government of A.P., safety certificate issued by Chartered Engineer, as applicable;
    b. Work Completion report in provided format;
    c. Test Certificate of Net meter from DISCOM approved laboratory, if applicable;
    d. Copy of signed Net Metering Interconnection Agreement.

This approval is valid for 180 days from the date of this letter and the RTSPV system is to be commissioned within this period, failing which the approval will be treated as cancelled.

You may download all technical specifications, standards and other requirements of the solar rooftop system from _____ (link to website of documents download)

Signature of Officer:

Name and Designation (AE/ADE):

Date:Stamp:

[1]As per G.O. Order 36 and 38 dated 01.11.2016 & 20.12.2016 respectively government has exempted mandatory inspection by CEI up to 33 KV

ANNEXURE IX: FORM 6(A)

To be updated as per Annexure C1 of Solar Rooftop Policy Guidelines

ANNEXURE X: FORM 6(B)

To be updated as per Annexure C2 of Solar Rooftop Policy Guidelines

ANNEXURE XI: FORM 7(A)

Intimation of Meter Procurement

(To be filled by Applicant)

To,

_____ (Concerned Authority)

_____ (Name of the DISCOM)

_____ (Date)

Ref: Application No. _____ dated _____

Dear Sir,

With reference to above- mentioned Application number and receiving the Letter of Approval after the technical feasibility, I/we intend to install _____ KWp of RTSPV system vide letter No _____ dated _____. In this regards, I/we request DISCOM to provide a meter of class _____ for RTSPV installation. The meter shall be as per the Net/ Gross metering clause in Solar Rooftop Policy/Guidelines...

I/We agree to pay fee of INR _____ - as mentioned in DISCOM website via online mode/ DD_____/ cheque_____.

Name of Consumer/Sign

ANNEXURE XII: FORM 7(B)

Assigning Meter

(To be filled by the DISCOM)

_____ (Name of the Applicant)

_____ (Consumer No.)

Ref: Your Application No. _____ dated _____

1. Net meter of class _____ is available/ not available (tick (✓) appropriate) with DISCOM.
2. Appropriate meter will be sent by DISCOM test lab and shall be dispatched on the day of final check and synchronization of RTSPV system with the DISCOM's grid.
3. The DISCOM will issue test certificate to consumer prior to final checks and synchronization of the system. The Consumer has to submit test certificate along with Work Completion Report

Signature of Officer

Name and Designation of the Authorized Officer

Date

Stamp

Note: -

a) Applicant must bring a copy of Letter of Approval.
b) In case meter is not available with DISCOM it can be procured from external agency
c) If meter is procured from outside agency, a letter intimating Meter No., Class and other specifications described as per CEA regulations, - shall be submitted to the DISCOM.

ANNEXURE XIII: FORM 7(C)

Request for Meter Testing

(To be filled by Applicant)

Date:

To

_____ (Concerned Authority)

_____ (Name of the DISCOM)

Ref: Application No. _____ dated _____

Dear Sir,

With reference to above-mentioned Application number and receiving the Letter of Approval after the technical feasibility, I/we intend to install _____ KWp of RTSPV system vide letter No _____ dated _____. In this regards, I/we have procured the meter from ----------.

As per the clause _____ of meter testing of Solar Rooftop Policy/Guidelines, I request DISCOM to kindly test meter of specification ----------.

I/We agree to pay fee of INR _____ as mentioned by the DISCOM for testing of meter through online mode/ DD_____/ cheque_____.

Name of Consumer/Signature

Application number

ANNEXURE XIV: FORM 7(D)

Intimation regarding Completion of Testing ofMeter for Installation with RTSPV System

(To be filled by DISCOM)

_____ (Name of the Applicant)

_____ (Consumer No.)

Date

Ref: Application No. _____ dated _____

Dear Sir,

With reference to the above mentioned Application number and your letter dated _____, regarding testing of meter, hereby inform you that your meter with specification _____is tested. The same will be installed after the synchronization check of the system.

Signature of Officer

Name and Designation of the Authorized Officer

Date

Stamp

ANNEXURE XV: FORM 8

Work Completion Report

(To be submitted by the applicant for systems inspection)

To,

The Chief Electrical Inspector/ Electrical Inspector……..(Control Area)

Government of Andhra Pradesh *(if RTSPV to be inspected by CEI/EI)*

ADE/SE-Operation Officer…….. *(if RTSPV size is exempted from inspection by CEI/EI)*

CC: Office of (Concerned) ADE(In case of LV system), DISCOM (In case submitted to CEI/EI)

CC: To NREDCAP in case of subsidised consumers, if applicable

Sir/Madam,

Sub: Submission of work completion report (to be submitted by the applicant) for system documentation requirements.

Ref: Our Application No.: _____ dated: _____

With reference to the above, I hereby confirm to you that we have completed the work of installation of the renewable energy system and submit the following basic information for your perusal and request you to arrange to Inspect and Commission the system at the earliest:

A. Details of the Solar PV module

1.	Model No.	
2.	Name and address of manufacturer	
3.	Capacity of each Module (Wp)	
4.	No. of Modules	
5.	Total Capacity (kWp)	
6.	Date of Installation	
7.	Applicable Standard (BIS/IEC)	

B. Details of the Inverter

1.	Name and address of the inverter manufacturer	
2.	Brand Name of the inverter	
3.	Model No.	
4.	AC capacity of individual inverter (kW)	
5.	No. of inverters installed	
6.	Total AC capacity of inverter (kW)	
7.	Serial Nos.	
8.	Date of Installation	
9.	Applicable Standard (BIS/IEC)	
10.	Is anti-islanding protection provided?	Yes/No

C. Module Mounting Structure

1.	Does the Module Mounting Structure withstand wind capacity up to 150 kmph?	Yes/No
2.	Is total load of the structure +panel less than 60 kg/m^2 ?	Yes/No
3.	Applicable Standard (BIS/IEC)	

D. Details of the Cables: DC

1.	Make / Name of manufacturer	
2.	Size & Type	
3.	Applicable Standard (IEC)	

E. Details of the AC wiring

1.	Make / Name of manufacturer	
2.	Size & Type	
3.	Applicable Standard (IEC)	

F. Details of the DC distribution box

1.	Make / Name of manufacturer	
2.	Sl. No.	
3.	High quality suitable capacity MOVs/ SPDs along with suitable reverse blocking diodes	
4.	MCB /Isolator quantity & capacity	
5.	Size & Type	
6.	Applicable Standard (IEC)	

G. Details of the AC distribution box

1.	Make / Name of manufacturer	
2.	Sl. No.	
3.	AC Surge Protection Device	
4.	MCB /MCCB quantity &capacity	
5.	Size & Type	
6.	Applicable Standard (IEC)	

H. Details of the Earthing

1	Earth resistance (shall be less than 5 ohms)	
2	Size of the Earth wire / flat*	
3	Three separate Earthing points Modules,mounting structure &DC Surge protection device Inverter, AC Surge protection device Lightening Arrester	 Yes / No Yes / No Yes / No
4	Size & Type	
5	Applicable Standard (BIS/IEC)	

Note:* Earthing shall be done in accordance IS 3043-1986, provided that Earthing conductors shall have a minimum size of 4 mm^2 copper wire or 10 mm^2 aluminium wire or 3 mm^2 X 70 mm^2 hot dip galvanized iron flat strip.

I. Details of the Net meter details, if purchased by consumer (please enclose the test report of the net meter tested at the laboratory of the DISCOM/designated agency)

1.	Make	
2.	Serial No.	
3.	Procured from DISCOM/ Outside Agency	
4.	Manufacturer's Name	
5.	Capacity	
6.	Type / Model	
7.	Single ph./Three ph.	
8.	Rated Current & CT Ratio	
9.	Reference Voltage & PT Ratio	

10.	Date of Test by MT, DISCOM	
11.	Applicable Standard (BIS/IEC)	
12.	Month & Year of Manufacture	
13.	Class of meter	

J. Details of the Caution signage

K. Provision of manual and automatic switches: Yes / No

L. G.P.S. Co-ordinates of the RTSPV System Installation

(i) Latitude: (ii) Longitude:

M. Whether Operation and Maintenance Manual provided to the consumer: Yes/ No

Certified that the above said RTSPV system was installed and the equipment used comply with the Technical and Safety standards as specified by the MNRE/ CEA/ MERC/ DISCOM under net metering program.

Signature of the Applicant

Name and Signature of the System Installer

Name and Address with Seal

Name: _____

_____

Date: _____

Name of the firm and address:

_____

Date: _____

Enclosures:

1. Test report of net meter tested at the laboratory of the DISCOM.

2. Copy of the IEC/IS Test certificates of PV modules, Inverter, Cable etc.

3. Data sheets/Drawing for the array mounting System.

4. Staad Pro report – Module mounting structure. (If required)

5. Actual Single line wiring diagram (SLD) of the SPV System and estimated energy generation report. (PVsyst/ PVSol/ etc.)

6. Copy of Maintenance & Operation information manual provided by the System Installer

7. Copy of Interconnection Agreement

Certificate from CEI / EI, wherever applicable

ANNEXURE XVI: FORM 9

Intimation to the DISCOM for readiness of the system for System Checks, Synchronization with the DISCOM grid and Installation of Meters.

(To be submitted by the Applicant)

To,

The Executive Engineer

_____ (Name of the Division)

_____ (Name of the DISCOM)

_____ (Address of the Division Office)

Sir/Madam,

Sub: **1.**System Checks;

2. Synchronization with the DISCOM Grid;

3. Installation of Meter(s);

Ref: Our Application No.: _____

With reference to the above, I hereby confirm to you that the RTSPV system has been installed as per the technical and safety standards laid out by CEA/ APERC/ DISCOM.

The system is ready for synchronization with the DISCOMs grid and installation of meter(s).

Name of the Applicant:_____

Signature:_____

Enclosures:

1. NOC from CEI/EI, if applicable
2. A copy of Work Completion Report as submitted to the CEI/ EI/ DISCOM Engineer, as applicable.
3. Manufacturer's test certificate of all the components used in installation of the RTSPV system.

ANNEXURE XVII: FORM 10

Guidelines for pre-commissioning check before and after connecting the RTSPV system with DISCOM Network and steps for maintenance of network where such connectivity exists

(For DISCOMs internal purpose only)

1. Mandatory safety precautions / features:

The following are mandatory safety precautions which will be taken care before and after commissioning of grid connected Solar PV system.

(a) An inbuilt Inverter relay which trips on DISCOM supply failure and prevent any solar power injection to the DISCOM Network when there is no power from DISCOM. The anti-islanding protection shall be tested during the release of connection.

(b) The Solar PV system should be separately grounded / earthed. A minimum of two Separate dedicated and interconnected earth electrodes must be used for the earthing of the PV system support structure, with a total earth resistance not exceeding 5 ohms.

(c) Lightning Arrestor also must be provided for SPV.

(d) Manual isolator switch at an easily accessible location with locking facility shall be provided.

(e) Caution Stickers shall be used with the green back ground and the text “Solar PV Systems” written in white letters. The size of these stickers shall be 10 CM (width) x 7 CM (height) with the text clearly printed in the center of the sticker.(applicable to only 50 kW and above)

(f) All SPV consumers should have a mandatory sign board fitted near the existing meter reading terminal stating that ‘This service is fitted with a LT grid connected SPV plant”. The Solar PV system Caution Stickers shall be fixed at the following locations. (applicable to only 50 kW and above)

i. On or near to meter of service with grid connected solar PV system;

ii. On The Consumer main switch, of a service connected with a grid connected Solar PV System;

iii. On LT poles with grid connected Solar PV Systems at height of about 1.50 meter from the ground;

iv. On LT feeder pillars with grid connected Solar PV System on the street-facing door of the feeder pillar.

v. On each of the LT take off poles of a Distribution Transformer to which Solar PV Systems are connected.

vi. On substation end of HT feeder having Solar PV System.

vii. A List of serviced connections of grid connected Solar PV Systems shall be available at the Division office and 33/11 KV S/S.

viii. A record may be maintained at the Division office of each SPV plant commissioning date and other details.

ix. The SPV connected details of pole / pillar box /DT/ SS feeder end wise may be maintained at Division office.

(f) During planned / forced maintenance work on DISCOMs network, before taking up the work in hand, besides ensuring all other provisions such as line earthing, de-energizationof the line section where the work is to carried out as per prevailing norms further it should be ensured that supply from such small solar roof-top PV power plants are not back feed and supply should also be disconnected by manual isolating switch with locking facility installed in the premises of such consumers and ensuring proper earthing.

2. The Check List before release of connection.

A. Component Inspection Checklist:

Sr. No.	Item type	Yes	No
1	Installation Lay-out – is it as per drawing? (Applicable only for 50 kW above)		
2	Inverter IS/ IEC standards qualified		
3	PV panel IS / IES standards qualified		
4	PV isolators / PV cables IS / IES standards qualified		
5	AC disconnect manual switch provided with locking arrangement		

B. Grid connected Functional Safety Checklist:

Sr. No.	Item type	Yes	No
1	Check whether solar generation stops automatically when DISCOM supply made off (inverter/PCU cut off)		
2	Bi-directional flow recorded on Net meter		
3	Solar Generation meter Ok?		
4	Check all Earthing points as per standard		
5	Solar and Bi-directional meter tested & sealed by DISCOM meter testing lab		
6	Check whether manual Isolating switch is installed at accessible location		
7	Check whether manual Isolating switch stops feeding supply in DISCOM network when in OFF position		

ANNEXURE XVIII: FORM 11

Synchronization with the DISCOM grid, Installation of Meter(s) and COD.

(To be filled by the DISCOM)

To,

(Applicant's name) M/s / Mr. / Mrs. _____
(Consumer No.)_____

Ref: Your application No. _____ dated _____

Sir/Madam,

Sub:

1. Synchronization with the DISCOM Grid;
2. Installation of Meter(s);
3. Commercial Operation Date.

Ref: Our Application No.: _____

Synchronization test of Solar Rooftop PV system of ……. kWp, installed on the roof of your installation bearing Application No.: …….. has been conducted and your RTSPV system found satisfactory and successfully synchronized with the DISCOMs grid. Meter with no ……. has been installed and sealed.

Yours faithfully,

Signature of Officer:

Name and Designation (ADE/DE):

Date:

Stamp:

ANNEXURE XIX: FORM 12

Intimation for Removal of Deficiency in the system installed

(To be filled by the DISCOM)

To:

(Consumer applicant's name) M/S / Mr. / Mrs. _____

Date: _____

Ref: Your application No. _____ dated _____

Subject: Intimation for Removal of Deficiency found during inspection

As requested on _____ (Date on which Form 9 was filled and submitted) to carry out inspection & synchronization of your _____ KWp system we have found out that the system does not adhere to :

a) E.g.: Earthing standards are not followed
b) _____
c) _____

We request you to rectify the mistakes within 15 days and submit Form-9 again along with Xerox copy of this letter

Signature of Officer:

Designation (AE/ADE):

Annexure-A

VIII. Entire circuitry, including panels, inverter, bidirectional meters, cabling, manual switch, safety circuit breaker etc., should be installed by the vendor under a turnkey approach. The metering infrastructure can also be provided by APDISCOM.

IX. Mandatory safety precautions/features which have to be installed as part of SPV system are:

f. Certified Inverter controlled relays which can trip on grid failure and thus prevent any solar power injection to Grid when there is no power in Grid. The same is to be ensured by the consumer from time to time.

g. Solar Circuit should be separately grounded/ earthed.

h. Additional switchgear/relay (sensing phase-angle shift) required as a second rung of safety. It shall be positioned between interconnection point and the bi-directional meter.

i. Harmonics suppression/Filtering feature in the inverter for local network's safety and for accurate measurement of energy.

j. Additional manual relay / switch on the pole side to be installed at the cost of SRP developer.

X. Hybrid Islanding is permitted, whereby the consumer can use solar generation from rooftop SPV, even when the grid is not available. If the consumer desires, he may do so by installing appropriate protection systems before synchronization. The same has to be tested & permitted by DISCOM official(s) before synchronization.

XI. A single bi-directional meter shall be installed for export and import. This bi-directional meter should be a **smart meter** with the following characteristics:

g. Separate registers for Export and Import with MRI downloading facility.

h. kVAr, kWh, kVA measuring registers for Capacity above 1 KW.

i. AMI facility with RS232 (or higher) communication port.

j. Class 1 accuracy meters for PV systems up to 10 kWp, 0.5 accuracy class meters for PV systems above 10 kWp and 0.2 class accuracy meters for HT systems (56 kWp and above).

k. Meters should be BIS/ISI Certified.

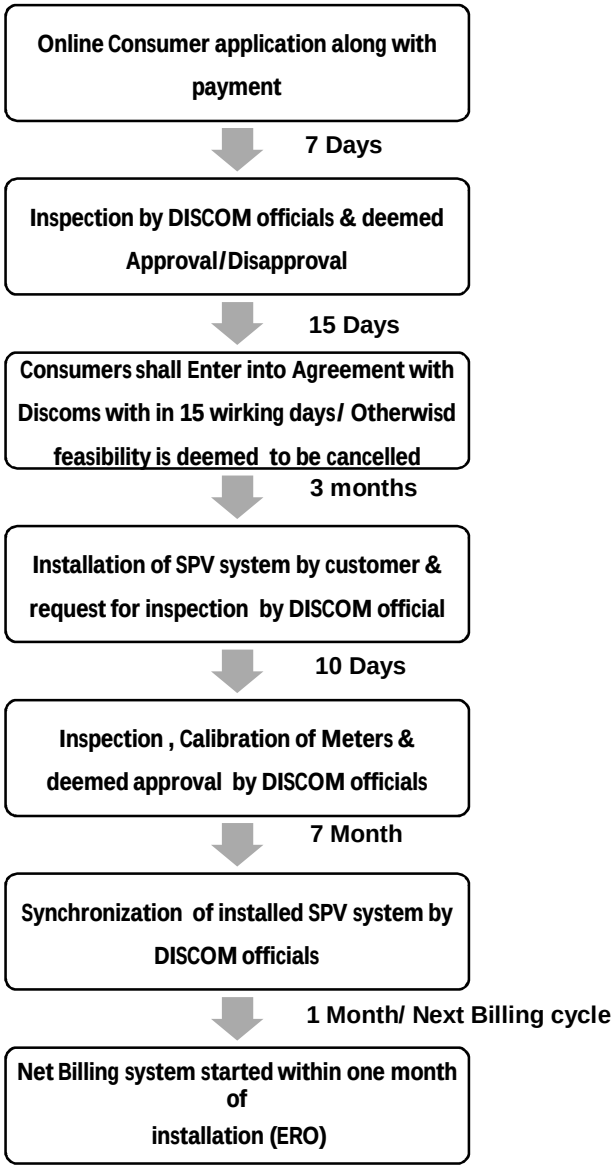
l. CT functionality meters for PV systems above 15 kWp.

XII. Vendor executing turnkey solution should be a channel partner of MNRE.

XIII. If on inspection, at the time of release of permission to install a net metering solution or on any periodic inspection thereafter, non-IEC/ISI/BIS certified equipment is found to be part of net metering solution on a consumer's premises, the vendor shall be blacklisted and the same shall be notified to MNRE.

XIV. A Check meter with import/export, MRI Compatible, tri-vector meter with provision to record 3-Line currents, 3-Phase voltage, V-THD & I-THD in load curve may be provided in case of Solar generation more than 56KW.

Annexure- B: Flow Chart of process & associated Service Level Agreements (SLAs)



Annexure D: Example of Net & Gross Billing

Assumption-1: Applicable Retail Tariff is

Consumer Category	Unit	Fixed Charge (Rs./Month)	Energy Charge (Rs./kWh)
LT-I : Domestic (Telescopic)			
LT-I (A): Upto 50 Units / Month	kWh		1.45
LT-I (B): Above 50 Units/Month (Consumers above 200 units/month)			
First 50 units	kWh	0	2.60
51-100 units	kWh	0	3.25
101-150 units	kWh	0	4.88
151-200 units	kWh	0	5.63
201-250 units	kWh	0	6.38
251-300 units	kWh	0	6.88
301-400 units	kWh	0	7.38
401-500 units	kWh	0	7.88
Above 500 units	kWh	0	8.38

Assumption-2: Average Pooled power Purchase cost for that year is Rs. 6.00 / kWh

Domestic Consumer installs a 2 kWp SRP and the SRP generates 288 units per month.

Case -1: Net Metering

Month	Billed Demand/ Consumption from grid (Units) **A**	SRP Generation (Units) **B**	Net Energy (Rs.) **B-A =C**	Net Monthly Payment by DISCOM (Rs.) **C*APPPC**
Jan	250	288	38	228
Feb	350	288	(62)	0
Mar	400	288	(112)	0

Case -2: Gross Metering

Month	Billed Demand / Consumption from grid (Units) **A**	Billed Demand / Consumption from grid (Rs.) **(A * Applicable Tariff as per APERC) = B**	SRP Generation (Units) **C**	SRP Payment (Rs.) **(C* APPPC)=D**	Net Monthly Payment by DISCOM (Rs.) **(B-D)**
Jan	250	1,137	288	1,728	591
Feb	350	1,850	288	1,728	0
Mar	404	2,250	288	1,728	0

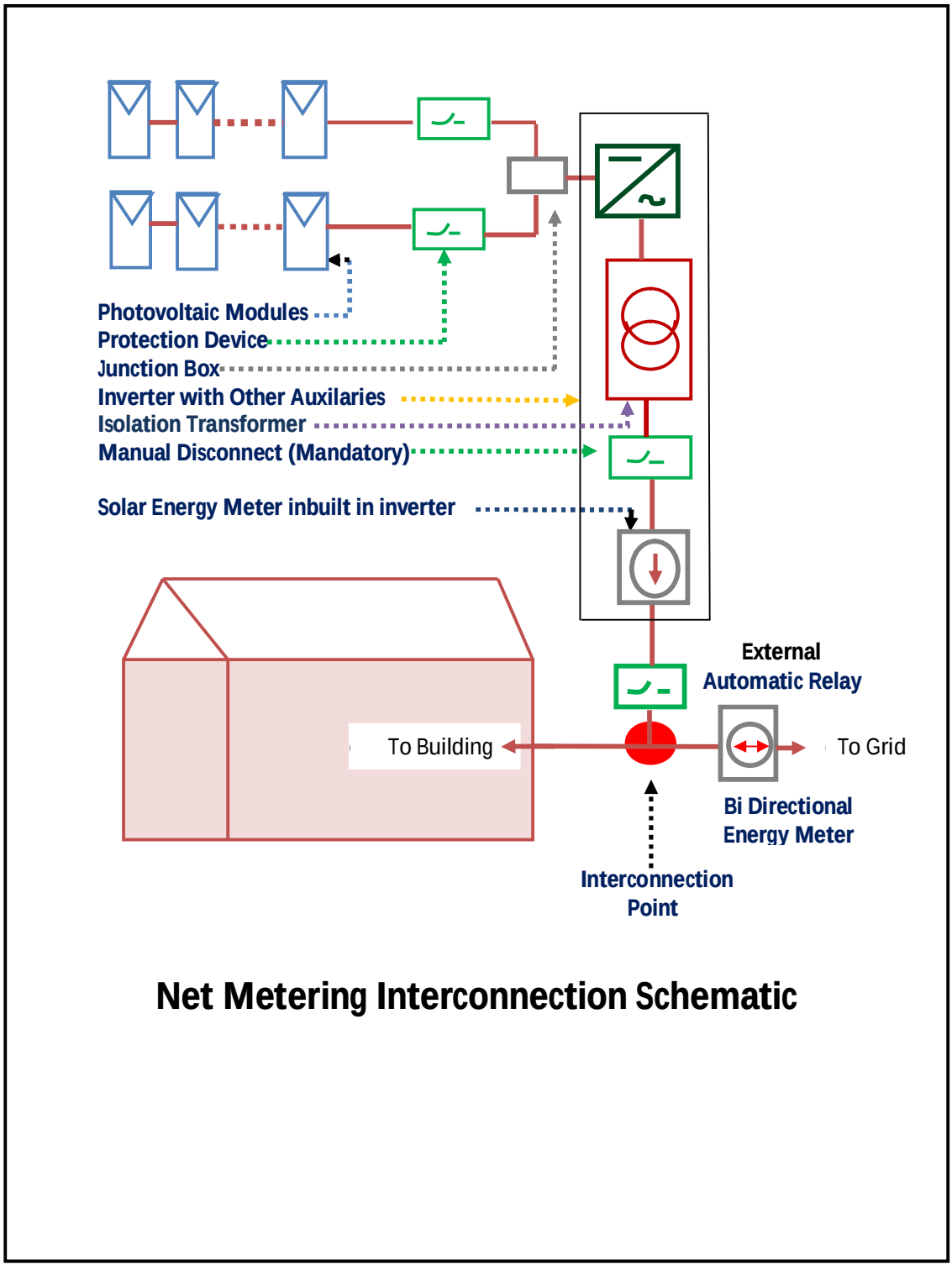
Annexure-E

This check is for ensuring that the SPV system is not misused. This energy limit may be computed by using 20% CUF/PLF of the installed SPV capacity

Case-1: Consumer installs a 500 Wp SPV system and opts for Gross / Net Metering. The SPV system generates 72 units per month. Any surplus injection above 72 units shall be treated as inadvertent and no payment shall be made for it.

Case-2: Consumer installs a 5 kWp SPV system and opts for Gross / Net Metering. The SPV system generates 720 units per month. Any surplus injection above 720 units shall be treated as inadvertent and no payment shall be made for it.

Annexure-F: Schematic



Net Metering Interconnection Schematic