

**GOVERNMENT OF PUNJAB**

**(DEPARTMENT OF NON CONVENTIONAL ENERGY SOURCES)**

**O.M. No. 10/174/2013/STE(3)/-----.**

**The --th AUGUST, 2013**

Government of Punjab has already notified NRSE Policy 2012 which, interalia, provides for encouraging solar power generation to harness vast solar potential in the State and to promote Stand Alone, Rooftop and IPP projects to achieve installed capacity of 1000 MW by the year 2022.. Solar energy offers clean, climate-friendly abundant and inexhaustible energy resource to mankind. The Policy also designated PEDDA to undertake a solar rooftop programme in the state for the domestic, industrial and commercial sectors through Grid interconnectivity by deploying net metering / sale of power to PSPCL/LICENSEE. To achieve the objectives of NRSE policy 2012 and after carefully examining the policies and schemes in this regard The Governor of Punjab is pleased to formulate '**Guidelines on net metering for Grid Interactive Roof-Top SPV Power Plants**' which shall be effective from the date of its notification.

**1. Eligibility**

Net metering facility will be implemented for the consumers of PSPCL who intend to encourage solar green energy and set up solar PV plants at available places on roof-tops. Individual households, industries, offices, commercial establishments, institutions, residential complexes etc. will be eligible with project capacity from minimum 1 KW upto 500 KW with/ without battery back-up support. Consumers will generate solar power for self consumption and can feed excess power into the grid.

**2. Installed Capacity**

The maximum capacity of the Roof Top Solar PV system shall not be more than 80% of the Sanctioned Connected Load/Contract Demand (in KVA converted to KW at normative Power Factor of 0.95) of the consumer on AC side at the output of inverter

based on rated inverter capacity and the minimum capacity shall not be less than 1 KW. Existing consumers should assess their rooftop solar PV plant capacity based on the actual annual energy consumption patterns.

### **3. SPV Plant and Metering**

All the equipment to be installed like solar PV panels, inverters; synchronizer, MPPT, batteries, transformers, cables, junction boxes etc shall be as per specified Indian/IEC standards. Bidirectional energy meter with CTs and PT having the feature of recording both the import and export of energy, besides other parameters shall be as per CEA metering regulations/ State Grid code as applicable and of the make & specifications as approved by PSPCL shall be installed at the cost of the SPV plant owner at the point where interconnection is made between Consumer system and PSPCL system. If metering system is procured by Plant owner, then the testing and installation of meters including CTs & PT shall be got carried out from PSPCL as per the latest departmental instructions and no meter rentals shall be charged. PSPCL shall supply and install/seal tested bidirectional energy meters for small and domestic Solar PV projects of 20 KW cap. Details of Energy Meters is given at Annexure-I.

### **4. Connectivity and Protection**

Solar Photo Voltaic rooftop systems will be allowed interconnection with distribution system of the licensee at applicable supply voltage level and will operate in synchronization with PSPCL system provided that such injection of power from the rooftop solar PV system shall not be more than 90% of the consumption from the licensee's supply by the consumer in a year. It will be mandatory for the solar rooftop generator to provide an appropriate protection system on their incoming side/ consumer premises with the feature of "Islanding the SPV generator" when grid fails including protection from voltage / lightning surges. The Power Conditioning Unit of the SPV plant shall have features to filter out harmonics and other distortions before injecting the energy into PSPCL system. The harmonics & inverter standards are given at Annexure-II & III.

#### **4. Banking mechanism and Billing**

i) After commissioning of the solar roof top system, PSPCL will take energy meter readings for import/drawl and export/injection of power at the end of the billing cycle and work out the net energy flow quantum from or to the consumer. In case the net flow is towards the PSPCL i.e. the consumer has injected/exported the net surplus energy to the PSPCL system, such quantum will be treated as energy banked by the consumer with PSPCL in the current billing cycle. In such scenario, the consumer will be issued Energy Account Statement and banked energy will be carried forward for accounting in the next billing cycle. If the net energy flow is from the PSPCL, then the consumer will be issued the Energy Account Statement and Energy Bill for the net power drawn in the billing cycle.

ii) The Energy Account Statement to be issued to consumer by PSPCL for each billing cycle shall show the quantum of export/injected energy from roof-top Solar PV System, import/drawl of energy from PSPCL in the billing period, banked energy of the previous billing cycle, net billed energy for payment by the consumer for that billing period or net banked energy carried forward to the next billing period separately. The Energy Bill for both import and export will be prepared as per the retail supply tariff as approved by the PSERC for the category to which the consumer belongs. The energy exported to PSPCL from the rooftop Solar PV system shall be set-off against the energy imported from the PSPCL grid at the PSERC approved retail supply tariff applicable to the particular consumer category.

iii) At the end of the next and subsequent billing cycles, PSPCL will take the energy meter reading and work out the net flow taking into consideration the energy banked in the previous billing cycle if any, along with the readings of import and export of power for current quarter and work out the net flow after considering the banked, import/drawl and export/injection quantum's and either issue the energy bill or banked energy account bill, as the case may be. The procedure will be repeated at the end of every billing cycle. The settlement of net energy including any banked energy shall be done at

the end of each financial year based on 90% of the consumption. At the beginning of each financial year, cumulative carried over injected energy shall be reset to zero.

iv) Any delay in payment shall attract surcharge at the agreed rate. The MOU / PPA to be signed between the licensee and seller of such roof-top Solar PV sources shall include necessary terms and conditions of meter reading, meter-rent, billing, payment, payment security arrangements, rate of delayed payment surcharge etc. However, meter-rent applicable for each meter shall not be higher than the meter-rent as applied for the seller as consumer.

v) All the instructions, rules and regulations applicable to the consumers of the PSPCL for the applicable class/category including but not limited to the Tariff rates, Monthly Minimum Charges, Payment Schedule, Late payment surcharge, connected load/contract demand, Load Surcharge, peak load restrictions, Advance Consumption Deposit etc., shall also be applicable to the Roof Top Solar plant owner as a consumer of PSPCL. Electricity duty shall be levied as per regulations on the net power drawn by the Consumer from PSPCL.

#### **4. Procedure**

The consumer intending to set up the Roof top PV system shall submit an application to the designated officer of PSPCL for grant of permission to set up the plant. After checking the feasibility, the applicant shall be issued Letter of Approval by PSPCL within 30 days of receipt of application. The consumer shall set up the plant and submit the work completion report of the plant supplier/EPC contractor duly verified by PEDDA that the plant has been installed as per approved standards and specifications. After site verification, PSPCL shall install and seal the Bidirectional energy Meter within 10 days of the submission of report and plant will be treated as commissioned for net-metering commercial operations from that date.

## **5. Parallel Operation Charges**

As per PSERC orders, all plant developers shall have to deposit one time parallel operation charges of Rs 50 per KVA (Capacity of project on AC side divided by 0.9 as power factor) rounded off to next whole number.

## **6. Subsidy**

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

Sd/-  
Secretary,  
Department of Non-Conventional Energy Sources  
Govt. Of Punjab

**ANNEXURE-I****Energy Meter(s) Detail**

S.No.	Meter Description	Accuracy	Load of Consumer	Voltage Level
1	Single Phase 10-60 A, whole current	Class-I	7 KW	Single Phase LT 230 V
2	3 Phase 10-60 A, whole current	Class-I	More than 7KW & up to 25 KW	Three Phase LT 400 V
3	LT AC 3-Phase 4-Wires CT operated static DLMC compliant energy meter	Class- 0.5s	More than 25 KW & up to 100 KW	Three Phase LT 400 V
4	HT TPT Meter, DLMS Compliant & AMR Compatible	Class- 0.5s	More than 100 KW	Three Phase HT (11 KV)

**Harmonics Standard**

As per the standard of IEEE 519, the permissible individual harmonics level shall be less than 3% (for both voltage and current harmonics) and Total Harmonics Distortion (THD) for both voltage and current harmonics of the system shall be less than 5%.

**Inverter Standards**

Inverter should comply with IEC 61683/IS 61683 for efficiency and Measurements and should comply IEC 60068-2 (1,2,14,30) / Equivalent BIS Standard for environmental testing.

Inverter should supervise the grid condition continuously and in the event of grid failure (or) under voltage (or) over voltage, Solar System should be disconnected by the circuit Breaker / Auto switch provided in the inverter