

TAMIL NADU GENERATION AND DISTRIBUTION CORPORATION LTD.
(Technical Branch)

O/o. Chief Engineer/Commercial.

Memo.No.CE/Comml/EE/R&C/AEE1/F.Solar NM/D. 023/14,dt.17.02.2014

Sub: Elec. – Tamil Nadu Solar Energy Policy-2012 – Order on LT connectivity and Net-metering issued by the TNERC – Working instruction for the implementation of LT connectivity/Net-Metering – Reg.

Ref: 1. Tamil Nadu Solar Energy Policy-2012.
2. G.O (Ms) No. 121/Energy (C2)/dated 19-10-2012 Government of Tamil Nadu.
3. Hon'ble TNERC's Order No.3 of 2013 dt.13.11.2013.
4. CE/NCES U.O.No.CE/NCES/EE/SCB/AEE3/F.LT Connectivity – TNERC order/D.858/2013, dt.21.11.2013.

Pursuant to the Solar roof-top net metering policy announced by GoTN vide reference(4) cited, TNERC issued an order dated 13.11.2013 vide ref (2) for implementing Solar roof-top net metering policy to encourage large scale generation in the sector and speedy implementation in the state. In this regard the following working instructions are hereby issued to the field for effective implementation.

1. At present Solar Net Metering arrangement is permitted for the categories of consumers covered under HT tariff II-A, HT tariff III, LT tariff I-A, LT tariff I-C, LT tariff II-A, LT tariff II-B (1) and LT tariff – V as per TNERC orders.

2. Consumers can avail Government of Tamil Nadu subsidy and MNRE (Ministry of New and Renewable Energy) subsidy, as applicable, for solar power Photo Voltaic(PV) Systems through TEDA(Tamil Nadu Energy Development Agency).

3. The nodal point of contact for solar net metering programme shall be the local Executive Engineer(O&M)/TANGEDCO (Nodal Officer). The consumer can download solar net metering rooftop application from the TANGEDCO website and submit the application to the Nodal officer along with the Registration fee of Rs.100/-.

4. The approved formats for the Solar Net Metering application, agreement, approval letter, technical feasibility and inspection are herewith enclosed.

5. The nodal officer shall complete the feasibility analysis of the Distribution Transformer capacity within **10** working days from the date of receipt of completed Application Form and shall ensure that the solar net metering application are processed expeditiously so that the solar energy targets set by the Govt. of Tamil Nadu will be realised.

6. The Nodal officer shall accord solar net metering approvals on a first come first served basis until the grid connected Solar PV installed Capacity reaches 30% of the closest upstream Distribution Transformer rated capacity based on the verification by the Assistant Executive Engineer/O&M concerned. The priority for such applications shall be maintained at division level for which a separate register shall be maintained.

7. The solar PV capacity shall not exceed the service connection capacity / sanctioned load. If a consumer proposes to install a solar PV system with the capacity that exceeds the service connection sanctioned load, a service connection enhancement application shall be submitted by the consumer in addition to the solar net metering application. Service connection enhancement applications shall be processed as per the existing standard procedures.

8.If the application for solar net metering is feasible, approval shall be granted to the Consumer for grid connectivity of the Solar PV System. This approval shall contain the minimum permissible capacity of the Solar PV System.The consumer shall install a Solar PV System (within permitted Capacity limits) and request the TANGEDCO authorities for inspection within 6 months on receipt of approval otherwise the application will be liable for cancellation. An extension of this time limit may be considered by the nodal officer for a maximum period of another 3 months, if he finds that the Solar System has been procured and under installation. The time limit for Government Organisations shall be 12 months.

9. When the Consumer has installed the Solar PV System, he shall intimate his readiness by post/by e-mail or in person at the Section Office. The Section Officer shall acknowledge the readiness intimation immediately. Readiness intimation shall be followed by safety inspection and commissioning of Solar Net-metering to be carried out as outlined in this working instructions.

10. The interconnection schematic diagram approved by the TNERC is attached in Annexure-I. The consumer shall install the components as shown in this schematic diagram as applicable. The bi-directional service connection meters shall be installed by TANGEDCO or under the supervision of TANGEDCO.

11. Safety inspection for grid connected Solar PV installation should be obtained from the appropriate authorities (the inspection authority). For Solar PV Systems upto 10 KW the AEE/O&M, TANGEDCO shall be the inspecting authority. For Solar PV System of above 10 KW, the Electrical Inspectorate of Tamil Nadu Government shall be the inspection authority. Safety inspections shall be carried out by the inspection authority within **10** (Ten) working days from the date of readiness intimation by the Consumer. Safety certificates shall be issued within **5** (five) working days from the date of safety inspection or rectification of defects, if any. The nodal officer shall ensure that the safety inspection of Solar PV System of 10 KW and above by the Electrical Inspectorate takes place as per the above mentioned time schedule through close co-ordination with the Electrical Inspectorate.

“

12. Mandatory safety precautions/features which have to be taken into consideration as part of the grid connected solar PV system installations are:-

(a) An inbuilt Inverter relay which trips on grid failure and thus prevents any solar power injection to the Grid when there is no power in Grid (anti islanding protection shall be tested by the respective section officer during routine service connection inspections), and necessary protection arrangements shall be made when there is no grid supply on single/two/three phases. The Section Officer shall ensure the protection before commissioning. The consumer's installation shall be disconnected in the event of such exigencies to prevent accident or damage to men and material.

(b) The Solar PV system should be separately grounded/ earthed. Lightning Arrestor also to be provided for SPV. Manual isolator switch with locking facility shall be provided at 'Ground Floor'.

13. A single bi-directional service connection meter shall be installed to measure import and export (Kwh) separately. For existing service connections, the uni-directional service connection meter shall be replaced with a bi-directional

service connection meter. Bi-directional service connection meter accuracy and facilities shall be the same as applicable to the standard uni-directional meters for the relevant type of service connection and tariff.

14. Solar generation meter to measure gross solar PV energy generation is mandatory for consumers who are availing GBI (Generation Based Incentive) and is optional for other consumers. The installation of solar generation check meter in addition to the solar generation meter shall be mandatory for solar PV systems of more than 20 KW for which GBI is proposed to be availed. The GBI meter shall be properly sealed. Solar Generation meters shall be located at Ground floor adjacent to the bidirectional meter. Solar Generation meter shall be calibrated periodically(annually).

15. Upon receiving the consumer's request for effecting Solar net metering along with the copy of the Safety Certificate and the signed net metering agreement, the Solar PV System shall be connected to the grid by the section officer within 10 (Ten) working days and the bidirectional service connection meter shall be sealed. The closing meter reading of the old service connection meter and opening meter reading of the new bidirectional service connection meter should be properly recorded.

16. 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 centre of the sticker. All SPV owning 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 under the supervision of the Section Officer in the following locations.

(a) On or near to, the service connection meter of service with grid connected Solar PV System;

(b) On the Consumer main switch, of a service connection with a grid connected Solar PV System;

(c) On LT poles with grid connected Solar PV Systems at height of about 1.50 metre from the ground;

(d) On LT feeder pillars with grid connected Solar PV System on the street – facing door of the feeder pillar.

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

(f) On substation end of HT feeder having Solar PV system.

17. A List of service connections with grid connected Solar PV Systems shall be available at the Section Office, office of the nodal officer and the H.T. substations.

(a) The Section Officer shall verify periodically the expected generation with the Solar Generation Meter and also compare the inverter meter reading with Solar Generation Meter reading to avoid malpractices.

(b) A record may be maintained at the Section Office level of each SPV plant commissioning date and other details including whether the inverter is a sine wave inverter and comply with Harmonic requirements as seen in the test certificate.

(c) The SPV connection details of pole/pillar box/DT/SS feeder end wise may be maintained at Section level as these information are vital.

18. TANGEDCO personnel reserve the right to inspect the solar PV system plant and grid connection routinely in accordance with the provision of Electricity Act, 2003.

19. Meter Reading & Billing

(a) The service connection meter readings of solar service connections can be taken along with the readings of other service connections as per the standard meter reading schedule. The settlement period for final settlement of net-metered energy shall be 12 months. The settlement period in respect of 'even cycle' consumer and generator is during the period of August – June (6 bi-monthly billing/12-monthly billing) as the case may be (i.e. 8, 10, 12, 2, 4&6). The settlement period in respect of 'odd cycle' consumer and generator is during the period of September – July (6 bi-monthly billing/12-monthly billing) as the case may be (i.e. 9, 11, 1, 3, 5&7).

(b) In case of a net import bill, the Consumer shall settle the same as per existing norms and the applicable service connections tariff. If in any billing cycle energy exported exceeds energy imported, the surplus of export Kwh over import

Kwh shall be carried over to the next billing cycle for adjustment against the import Kwh of that billing cycle. A meter card to record separately the service connection 'import' Kwh and export Kwh and the readings of the Solar Generation Meter and Solar Generation Check meter (where ever applicable) with a facility to incorporate both the assessors and Consumers initials shall be provided by TANGEDCO.

(c) Electricity generated from a Solar P.V. System and injected into the TANGEDCO grid shall be capped commercially at 90% of the electricity consumption (Import Kwh) by the eligible Consumer at the end of each settlement period . Excess energy exported to the grid beyond the 90% Cap during a particular settlement year shall be treated as lapsed.

(d) If solar net metering has been commissioned during the settlement period, the 90% capping shall be on the energy drawn by the consumer from the date of effecting Solar net-metering to the end of the respective settlement period.

(e) The Net-metering injection is not eligible for REC (Renewable Energy Certificate). The energy adjusted against Net-metering arrangement shall qualify as deemed RPO (Renewable Purchase Obligation) for the distribution licensee.

20(a) For SPGs(Solar Power Generator) above 112 KW shall be connected at HT/EHT level through ABT meters of 0.2 class accuracy along with 0.2s metering system subject to connectivity norms.

(b) In case of Hybrid generators separate sets of meters have to be installed and readings of each generator have to be taken.

21. The eligible consumers may supply the meter at their option as per specifications available in the TANGEDCO website.

All the Chief Engineers and Superintending Engineers Distribution are requested to follow these working instructions and make solar net metering a success in Tamil Nadu.

Sl.No	ANNEXURE	DETAILS
1.	Annexure – I	Net Metering Configuration.
2	Annexure – II	Declaration.
3.	Annexure – III	Format for Solar Net-metering Technical Feasibility Report
4.	Annexure – IV	Format for Feasibility intimation Letter to Consumer.
5.	Annexure – V	Inspection Report Format
6.	Form – 1	Net Metering Connection Application along with Net Metering Application Acknowledgement.
7.	Form – 2	Net – metering connection agreement.