

May 14, 2013

Member

Tamil Nadu Electricity Regulatory Commission

Chennai

Sub: Recommendations on Net Metering Policy

Dear Sir:

ISGF compliment TNERC for advising TANGEDCO to formulate a process for the implementation on solar energy Net Metering, which forms part of the Tamil Nadu Solar Policy 2012. As we all know this is a new area where all stakeholders need to be consulted and taken in confidence to formulate appropriate processes so that rooftop PV penetration rate is accelerated. With this objective, India Smart Grid Forum (ISGF), with Hindel Power, conducted a one day workshop on Net Metering at Chennai on 23rd April 2013 which was attended by ISGF Members, Engineers from TANGEDCO and TNERC, representatives from other utilities, CEA, members from consumer groups, academia and research etc.

This workshop discussed issues relating to Net Metering, Feed in Tariff (FIT) and Generation Based Incentives (GBI) in detail and evaluated the pros and cons of each options. Majority of the participants felt that with the present consumption tariffs in India, net-metering is not yet a viable option and argued for FIT or GBI. The key points emerged from the deliberations are summarized below:

Relevance of Net Metering/FIT/GBI:

- Rooftop solar is more expensive than large-scale grid-connected (feeder level) power systems for the below reasons
 - Missing economies of scale compared to MW class installations
 - Additional costs of protection/monitoring on LT systems
 - Lower net capacity utilization of the PV units owing to grid availability
- Consumers pay for electricity at different rates based on the tariff applicable to their usage and consumption levels. Even the highest tariff slabs today do not cost as much as the cost of small scale generation of PV power. Hence, consumers would need an incentive that covers the



difference between the avoided consumption cost and the cost of solar energy. These incentives can also be justified for the following reasons:

- The green technologies/energy need support for not only their environmental benefits but to help improve the technology and lower costs in the near future to grid parity
- Reducing the burden on the grid can reduce power outages and load shedding which can have a very high societal value. Other alternatives such as back-up power (inverters, DG set etc), peaking power and additional power from the grid through UI or exchange are much costlier than rooftop PV with a small incentive

Policy:

- With traditional net-metering the Government of Tamil Nadu may not be able to achieve policy targets for rooftop solar PV since the cost of solar generation is higher than the consumption tariff
 - With a feed-in tariff (FIT) mechanism for grid-connected systems and a generation-based incentive (GBI) for stand-alone systems, the solar policy targets are more likely to be achieved
 - When grid parity is reached, and also dynamic tariff structure is deployed, the FIT / GBI can be converted to net-metering to further drive rooftop solar PV
- Therefore: start with FIT and GBI mechanisms and transit to net-metering when solar energy costs reach grid parity*

Meters:

- Solar Generation Meters
 - Dedicated generation meters to measure total power generated by the SPV producer
 - These meters should be bi-directional to detect unauthorized import of grid power
 - This meter shall also be used for GBI (Generation-based Incentive) implementation as applicable
- Gross Feed-in Meters (if a gross Feed-in tariff mechanism is implemented)
 - These meters will record the gross energy delivered to the grid
 - These meters should be bi-directional to detect unauthorized import of grid power
 - Safety and protection features as applicable to standard service connection meters as specified by Discoms
- Meters for Net-metering (if net-metering is implemented)
 - Bi-directional meters with separate registers for import and export kWh



- Safety and protection features as applicable to standard service connection meters as specified by Discoms

Interconnection:

- The policy guideline should include broad policies/grid code for interconnection, which may be further refined by each Discom
- Grid inverters to have islanding protection to achieve isolation of consumer power-system from the utility power-system, during grid failure, under abnormal conditions or during maintenance. Also additional breaker/switch to cutoff power being fed to system as extra precaution
- Maximum limit of connected DER per feeder may be defined depending on the DT rating and connected load
- Voltage levels for interconnection as per article 22.1 of the Tamil Nadu Solar Policy 2012 may be followed

Tariff and Subsidies:

- FIT and GBI mechanisms will help achieve solar generation targets
- A feed-in tariff (FIT) or generation-based incentive (GBI) of Rs. 10.00 per kWh
- These tariffs may be reviewed and fixed in the September-December quarter of each year for projects to be commissioned in the following financial year based on actual capital costs, various subsidy schemes and interest rates
- All solar generation by all types of consumers shall be eligible (whether captive or grid-interactive)
- For FIT schemes (gross or net), the tariff shall be consumption tariff slab independent (e.g., a small residential consumer would get the same FIT tariff as a large residential consumer)

The above suggestions from the workshop were further deliberated by ISGF experts and **ISGF have the following final recommendations:**

1. Adopt Generation Based Incentives (GBI) scheme and it may be made applicable for all categories of consumers who have Rooftop PV connected at LT voltage.
2. Broad interconnection and metering policies to be issued along with GBI Policy
3. Incentive may be fixed based on the formula below:
$$\text{GBI} = \text{highest slab of tariff amongst all categories of consumers} + X\%$$

where X may be equivalent or higher than the AT&C loss (%) in the Discom subject to a maximum of 25%



A tariff computed as above will be attractive to consumers while the Discom will not incur any losses as the same power is sold at the highest tariff to another category of consumer without incurring the network losses.

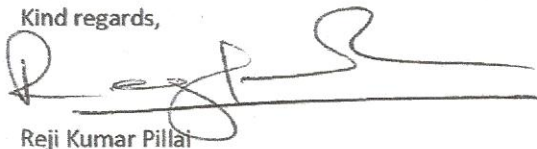
Further we would advocate for immediate policies for:

- a) Mandatory rooftop PV for all new buildings with a certain built-up area and above; and existing buildings of such built-up area to install rooftop PV with a period of 2-3 years
- b) Mandatory solar water heaters in all new residential buildings/flats with certain built-up area and above
- c) At present, the residential rooftop PV subsidy is limited to 1kW, this is too low and could be increased to 3kW (~20Sqm roof space which is generally available) and above, which will bring down the cost of generation per unit, and thus make it viable.

We trust that TNERC and other stakeholders will find these recommendations fair and reasonable and conducive to make the vision of the Tamil Nadu Solar Policy 2012 a reality.

ISGF will be happy to provide further details if any required.

Kind regards,



Reji Kumar Pillai

President

Also submitted for kind consideration of:

1. Chairman – TANGEDCO
2. Chairman – CERC
3. Chairman – CEA
4. Joint Secretary, Ministry of New and Renewable Energy
5. Joint Secretary – Distribution, Ministry of Power
6. Advisor – Energy, Planning Commission
7. Energy Secretaries in All States
8. SERC Chairperson in All States
9. India Smart Grid Task Force
10. Hindel Power Company Pvt Ltd

