

Background note  
on  
**Accelerating 'Behind-the-Meter': Solar Energy Penetration through  
Market Transformation and Enabling Policies**

The recurrent shortage of electricity supply from the grid poses a problem for not just the economic growth, but also for the effective functioning of commercial and residential establishments. Commercial consumers use generator sets while residential consumers employing back-up equipment pay varying premium over grid power cost across different cities depending upon the level of reliability needed and their paying capacity. This premium varies from 17% to 79% over the cost of grid power.

In light of these power-shortages and ensuing power cuts and with an objective to promote renewable energy alternatives, TERI (The Energy & Resources Institute) & IMRB International with the support from Shakti Sustainable Energy Foundation are conducting a study for developing a white paper on **Accelerating "Behind-the-Meter" Solar Energy Penetration through Market Transformation and Enabling Policies**.

The main objective of this exercise is to evaluate the preparedness and policy status in India for commoditizing solar energy based solutions (mainly rooftop solar PV) for various categories of consumers (household, commercial & industrial).

In the past couple of years, the cost of supply of power from solar PV has reduced significantly from an average of about Rs. 12 per unit at the end 2010 to just around Rs. 8 per unit in 2012. This makes solar PV cost competitive as well as environmentally benign option to replace the existing power back-up systems in both urban as well as rural areas.

Therefore, with increasing cost of grid supply, frequent disruptions in conventional fuel-supply and rapidly improving performance of distributed alternatives (decreasing cost and increasing quality) – the trend towards distributed technologies that meet reliability criteria as well is accelerating. Moreover, this shift from central to distributed generation has been (in case of inverters/diesel backups) driven by the market and there is no reason for this not to happen for solar PV based solutions also.

Specific efforts that further facilitate/accelerate this shift, beginning with grid-tied rooftop solar PV systems in urban settlements, may have an enormous impact in terms of transforming the market for clean energy.

Additionally, given the acute power shortage situation across India, if the consumer is further able to "sell" surplus energy generated (or provide "grid support" services) on its side of the meter to the utility for appropriate compensation, there could be a possibility to substantially reduce the power shortage.

The Ministry of New & Renewable Energy (MNRE) also plans to focus on rooftop solar, under Phase II of the Jawaharlal Nehru National Solar Mission besides many States that have announced pilot programmes to promote solar rooftop systems. Such initiatives for deployment of solar PV can get further push if:

- Market is prepared to take on deployment and services;
- Solar technology solutions are easily available and accessible as complete products;
- Well-established solar service networks exist;
- Consumers are fully aware of the service levels and there are actual economic benefits to the adoption of Rooftop SPV.

However, for this to happen, some barriers to the effective implementation of rooftop solar PV must be overcome. These include identification of appropriate metering schemes; introduction of relevant subsidies & economic models that can generate consumer interest for investing in solar PV; and various regulatory and policy constraints like electricity duties and taxes and wheeling charges in various states.

= O =