

Turning your rooftop into a power plant

Development of storage tech will be a game-changer since storage and leakage are the biggest hurdles towards rooftop solar generation

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India has immense potential to generate solar energy from roof-mounted solar panels, considering that we have approximately 300 sunny days in a year. Compare this with the current installed capacity of only 285 MW. No small wonder that the country is going ecstatic over rooftop solar. Of the 100 GW solar target proposed by the Jawaharlal Nehru Solar Mission, rooftop is expected to generate 40 GW. Despite rosy projections, why then is rooftop not taking off in a big way in India?

Solar enthusiasts paint a positive picture of rooftop solar and the benefits it brings. For consumers, it reduces their dependence on grid power and, importantly, on diesel, which is extremely high. It is also a long-term and reliable power source. For power distribution companies (discoms), rooftop solar will reduce the demand for power that consumers would otherwise place on the grid, especially during peak hours. And because power is consumed at the point of transmission, losses due to dissipation and conversion are kept to a minimum. It is most suitable for commercial establishments for two reasons. One, maximum power generation happens during the peak usage hours. Two, solar power tariff is close to that of commercial power and is expected to fall further. For the nation, it helps add solar capacity while minimising land use.

Rooftop solar brings a host of other benefits as well. Compared to bigger installations, the time to set up and operate solar equipment is the lowest for rooftop solar. The investment in distribution infrastructure is significantly lower, so it helps improve distribution grid capacity. Photovoltaic rooftop installations are at the tail-end of the power grid. They can enhance the stability of the grid by reducing voltage drop. It also creates value out of the otherwise underused or unused rooftops.

Despite huge positives, solar rooftop power generation is still to see momentum. What policy change can possibly rouse this market from its slumber? Will making rooftop solar mandatory for

every upcoming real estate project help energise the sector? Or else should we stay content with merely installing solar cells on existing rooftops?

Some of the reasons for the lack of enthusiasm for rooftop solar lie elsewhere. Many roofs are expensive and quite often reserved for roof-mounted air-conditioners. In addition, rains can make rooftop installations impractical. How much load can average roofs take is another thing to bear in mind. Also, there is a need for the latest technologies to store the power generated.

From the government side, there has to be more clarity around policies for rooftop solar. People have concerns about this approach. The chief among them is the absence of subsidies, which is making rooftop generation far too ex-

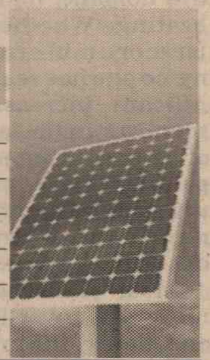
targets the government is looking at.

States such as Haryana have moved ahead in rooftop solar generation, with the government making it mandatory for any building with a 500 sq yd plot size or more to install such systems by September 2015. Gujarat is looking to create entire solar cities that have rooftop generation as the focal point. Madhya Pradesh, Karnataka and Rajasthan are also taking initiatives. Rooftop solar is set to gain momentum in the next 4-5 years. Development of storage technology is going to be a game-changer since storage and leakage represent some of the biggest hurdles in the journey towards solar rooftops.

Further, our mindset also needs to change. It is important that we see clean energy as the pressing need. We need to

Harnessing the sun

State	Rooftop solar policy/regulation	Net-metering policy	Capacity (MW)	Fraction
Tamil Nadu	Yes	Yes	50.1	18%
Gujarat	Yes	No	36.9	13%
Delhi	No	Yes	17.5	6%
Karnataka	Yes	Yes	16.3	6%
Rajasthan	Yes	No	15.1	5%
Rest of India	-	-	149.1	52%
TOTAL	-	-	285	100%



pensive. Besides, increasing labour and land cost are proving the dampeners.

Another important factor is net metering policy, which might go on to play a major role in pushing rooftop power generation forward. There can be two types of net metering: Self-owned, in which the rooftop owner also owns the PV system; and third-party owned, in which a developer owns the PV system and enters into a lease or commercial arrangement with the rooftop owner. Both these models are considered relevant in the Indian context.

The opportunity is great. Many malls are installing rooftop solar. Mobile tower companies are also setting up rooftop solar power generators. Gujarat's handloom industry is bullish about it. Even so, the industry is nowhere close to the

be more sensitive towards climate change, environmental degradation and health issues resulting from conventional power generation. The government could also help by providing incentives for rooftop solar schemes, so that more people feel encouraged to adopt it. While initiatives taken by Delhi and Haryana governments are significant, the provision that power utilities will buy surplus energy generated by consumers has still not earned the popularity it deserves. The central and state governments have to work together. Short-term profits might need to be sacrificed at the altar of long-term stability.

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