Why does the 2022 target for rooftop solar seem ambitious?

The government has set itself a target of 100 GW of solar power by 2022, of which 60 GW is to come from utilities and 40 GW from rooftop solar installations. While the 60 GW target seems achievable, the country is lagging behind on the target set for rooftop solar.

What is rooftop solar?

Rooftop solar installations — as opposed to large-scale solar power generation plants — can be installed on the roofs of buildings. As such, they fall under two brackets: commercial and residential. This simply has to do with whether the solar panels are being installed on top of commercial buildings or residential complexes.

What are the benefits?

Rooftop solar provides companies and residential areas the option of an alternative source of electricity to that provided by the grid. While the main benefit of this is to the environment, since it reduces the dependence on fossil-fuel generated electricity, solar power can also augment the grid supply in places where it is erratic.

Rooftop solar also has the great benefit of being able to provide electricity to those areas that are not yet connected to the grid — remote locations and areas where the terrain makes it difficult to set up power stations and lay power lines.

What is the potential for rooftop solar in India?

The Ministry of New and Renewable Energy has pegged the market potential for rooftop solar at 124 GW. However, only 1,247 MW of capacity had been installed as of December 31, 2016. That is a little more than 3% of the target for 2022, and 1% of the potential.

Why is it not being adopted widely?

One of the major problems with rooftop solar — and what affects solar energy generation in general — is the variability in supply. Not only can the efficiency of the solar panels vary on any given day depending on how bright the sunlight is, but the solar panels also produce no electricity during the night. Arguably, night is when off-grid locations most need alternative sources of electricity.

The solution to this is storage. Storage technology for electricity, however, is still underdeveloped and storage solutions are expensive. So, while some companies will be able to afford storage solutions for the solar energy they produce, most residential customers will find the cost of installing both rooftop solar panels and storage facilities prohibitive. Residential areas also come with the associated issues of use restrictions of the roof — if the roof is being used for solar generation, then it cannot be used for anything else.

Another major reason why rooftop solar is not becoming popular is that the current electricity tariff structure renders it an unviable option.

Many states have adopted a net metering policy, which allows disaggregated power producers to sell excess electricity to the grid. However, the subsidised tariffs charged to residential customers undermine the economic viability of installing rooftop solar panels. The potential profit simply does not outweigh the costs.

That said, imports of cheap solar panels are continuously placing a downward pressure on prices and so this scenario could change in the future. Commercial applications of rooftop solar are already viable in most states.

END