Draft mission to kick-start renewable energy storage

The draft National Energy Storage Mission expects to kick-start grid-connected energy storage in India, set up a regulatory framework, and encourage indigenous manufacture of batteries, according to a member of the expert committee set up by the Ministry of New and Renewable Energy (MNRE) last month.

The draft sets a “realistic target” of 15-20 gigawatt hours (GWh) of grid-connected storage within the next five years, according to Debi Prasad Dash, director, India Energy Storage Alliance (IESA), an industry body that is a part of the committee. Power grids do not currently use storage options that would help in smoothly integrating renewable energy sources.

The draft has been submitted to the Ministry, and will be released for public feedback in the next few months, said Mr. Dash. He added that the mission will focus on seven verticals: indigenous manufacturing; an assessment of technology and cost trends; a policy and regulatory framework; financing, business models and market creation; research and development; standards and testing; and grid planning for energy storage.

Inherently intermittent

Renewable energy sources now make up almost one-fifth of India’s total installed power capacity. However, as power grids increase their share of solar and wind energy, the problem remains that the peak supply of renewable sources does not always meet peak demand, explained P.C. Pant, a senior scientist with the MNRE. For instance, solar energy generation may be at its peak at noon, but unless stored, it will not be available when needed to light up homes at night. Moreover, renewable sources are inherently intermittent: there are days when the wind doesn’t blow or the sky is cloudy.

Batteries could help store surplus energy during peak generation times, but are more immediately needed to stabilise the grid when shifting between renewables and the baseload thermal capacity. “Once the installed capacity of renewables reaches 100 GW [from the current 65 GW], it will become critical to incorporate storage options,” said Mr. Pant.

The Solar Energy Corporation of India (SECI) expects to issue tenders for grid-connected storage by the end of the year, said its managing director Jatindra Nath Swain. For its own 160 MW plant in Andhra Pradesh, the SECI will issue tenders for a storage option by the end of July, he added. “Up to 10% of [solar] power can be injected into the grid without storage,” he said. “After that, storage will become a necessity.”

Cancelled tenders

However, industry players complain that the SECI as well as the NTPC and the NLC cancelled at least nine earlier tenders for grid storage in 2017. “This sends a negative signal both to global manufacturers and Indian companies who are looking to diversify into lithium ion battery manufacturing,” said Mr. Dash. He added that the Central Electricity Authority is considering regulation to make storage mandatory for large scale solar projects ranging between 100 MW and 200 MW.

SECI’s Mr. Swain indicated that price concerns were the reason for the cancellation of bids. Adding storage options could result in solar power spiking Rs. 3-4 per unit above its current low price of Rs. 2.44 per unit, making it unattractive to distributors.

Ït is important to look beyond mere capex costs, and also consider life cycle costs, and the distributor’s costs due to grid instability and transmission and distribution losses, emphasised Rashi Gupta, director, Vision Mechatronics, one of several players assembling lithium ion cells into battery packs in India. Currently, the lithium ion cells needed for battery storage are not manufactured in India, although major players, including Indian Oil Corporation and Exide, are working to develop indigenous manufacturing capacity.

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