

Buenos aires grid-scale energy storage

Energy storage, in the form of large arrays of batteries, is still in the early stages of deployment in Latin America. However, the role of electricity storage promises to become much more significant as the region diversifies its sources of power generation, and looks to batteries to help smooth out intermittent energy generation and mitigate the costs of peak demand.

Some policymakers and private companies in the region are already preparing for the rise of battery storage with test projects and new policies. In Mexico, General Electric has announced plans to develop five energy storage projects that will help integrate solar and wind projects into the grid. And in the Dominican Republic, two 10MW arrays of batteries, installed by AES Dominicana in August 2017, were credited with helping that country's grid remain operational when Hurricane Irma struck a few weeks later.

Energy storage will affect the entire electricity value chain across Latin America as it replaces peaking plants, alters future transmission and distribution (T& D) investments, reduces intermittency of renewables, restructures power markets and helps to digitize the electricity ecosystem.

For utilities, battery storage will become an integral tool for managing peak loads, regulating voltage and frequency, ensuring reliability from renewable generation, and creating a more flexible transmission and distribution system. For their customers, storage can be a tool for reducing costs related to peak energy demand.

Driving all of this opportunity is the decreasing cost of battery storage, a result of the rapid increase in the development and manufacture of batteries for electric vehicles. Research by Bain & Company estimates that by 2025 large-scale battery storage could be cost competitive with peaking power plants, which run when there is a high demand for electricity--and that is based only on cost, without any of the added value we expect companies and utilities to generate from storage. In some markets, renewables combined with battery storage already cost less than coal generation.

Utilities and their large commercial customers are also looking at ways to create more value around their investments in storage, to make deployments more feasible. In addition to using batteries to store electricity during periods of low demand and then releasing those stored electrons during peak periods to shave peak loads, stored electricity can provide services like voltage and frequency modulation. And it can ensure greater reliability from intermittent renewable generation.

To take advantage of some of these opportunities, utilities will have to adjust their operating models. For example, as energy storage shaves peaks and flattens the load curve, utilities may forgo some investments in peaking capacity and defer investments in transmission and distribution infrastructure.

Also, because energy storage can come in much smaller increments and can be mobile, the investment comes at a lower cost. In this way, storage not only becomes a tool to meet system needs but can also reduce system costs as it pushes unnecessary capacity and waste out of the system.

Central to all of these efforts will be enhancing utilities' IT capabilities, particularly in the area of advanced data analytics. Utilities will need better visibility of supply, demand, and voltage and frequency needs, sometimes down to the circuit level, as customers and regulators demand more from them.

While few utilities currently have the capabilities necessary to manage such large volumes of data and to draw valuable, real-time insights, many utility executives say they are beginning to build up such capabilities internally. They may find that it's more cost-efficient and effective to partner with a third-party analytics vendor. By pairing the utility's deep industry experience and troves of data with the vendor's analytic expertise, such partnerships are often the faster, more economic pathway to gain deep insights.

As with renewable generation, much of the momentum behind the adoption of energy storage will come from new companies that can move nimbly to take advantage of these burgeoning opportunities for commercial and industrial businesses. Customers are becoming increasingly sophisticated as they look to reduce costs, improve their reliability and resiliency, and in general take greater control over their energy use. Increasingly, they are looking beyond their utility providers to energy service companies to meet those needs.

While the role of energy service companies is not new, storage is a new addition to their toolkit. These companies can provide a wide range of services on top of energy storage, shaving peaks in demand (and thus reducing fixed demand charges based on those peaks), firming up the flow from distributed generation of solar power, and providing back-up capabilities that allow customers to operate independently off the grid. Sophisticated developers and software players can help create new value for customers by successfully adding these revenue streams based on data analytics capabilities.

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