Three Ways Energy Storage Can Generate Revenue in America's Organized Power Markets*

Energy storage can collect revenue in America's organized power markets three ways: platorms, products, and paydays. However, different projects will tap these potential revenue streams in different ways, and investors should seek nimble developers who can navigate a complex and evolving regulatory and market landscape.

Platforms: The Best Laid Plans…

Independent system operators (ISOs) go through a planning process where they identify opportunities for new transmission to improve reliability or market efficiency. Similarly, it's normal to think about energy storage as a reliability asset, and it can become integrated as a lower-cost, non-transmission alternative to boost reliability.

Here's an example: A relatively isolated area on the grid must plan for losing a transmission line or local generator during peak demand. Rather than adding new transmission or local generation, building a storage project can carry a local grid through an emergency. If the economics add up, the project will then be built, and paid on a cost-of-service basis financed through transmissions charges.

Products: Fee for Services

While ISOs are uncomfortable paying for storage services through transmission access charges that passively incorporate storage into the grid, they have been receptive to storage competing to provide fixed services like fast frequency response, capacity, or regulation that projects can compete to provide on a "technology-neutral" basis. But keep in mind these services were defined by markets before batteries and other clean technologies like renewables changed the game.

Theoretically, fitting energy storage into these technology-neutral products should be simple. But storage resources are energy limited (they can't just convert fuel to electricity ad infinitum), they must be charged, they take more energy to charge then they provide back, and they may be entirely driven by power electronics (no spinning inertia).

Pay-days: Profiteer or Just an Independent Businessman?

One way for storage resources to avoid being shoehorned into the wrong glass slipper is to compete directly in energy markets. What could be simpler than arbitrage: buy low, sell high? Even if energy arbitrage revenues become sufficient to support storage investments, today's markets still maintain some barriers. Not all ISOs offer the right kind of market "participation model" to offer efficiently in the markets.

* "Three Ways Energy Storage Can Generate Revenue in America's Organized Power Market", Forbes

Still, markets must contend with the fact that storage resources are energy limited, which begs the question: how should they play in markets? Most storage today bids on an opportunity cost basis, and will buy or sell from the market based on its state of charge: If the battery is low, its bids may not be structured to buy right away in case prices go lower, and if the battery is high and could provide power, its bids might make it more likely to wait for higher prices to discharge.

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