Standalone storage vs solar storage

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These differences add up fast: With solar and storage your annual TOU bill savings could be over $1,000, double the bill savings with just standalone storage. Final verdict: Both standalone storage and solar-plus-storage can help you save on electricity bills with demand charges or TOU rates, but solar-plus-storage should save you more on TOU ...

Standalone storage may be able to help provide backup power but with one important caveat: if you install storage without solar, you"ll have no way to recharge your battery while the grid is still down.

Most people rely on electricity from the power grid to supplement their solar-generated power. But residential solar energy systems paired with battery storage--generally called solar-plus-storage systems--provide power regardless of the weather or the time of day without having to rely on backup power from the grid.

A standalone 60 MW storage system will decrease in cost per megawatt-hour (MWh) as duration increases. Meaning, the longer your storage lasts, the lower the cost per MWh. That"s because the cost of inverters and other hardware account for more of the system"s costs over a shorter period.

Standalone battery energy storage can potentially offer better value to the US electricity system than pairing batteries directly with solar or wind generation, but the pros and cons of each approach vary greatly from project to project.

This is largely because siting the resources separately means the optimum location where batteries in particular offer most value to the electricity network can be chosen, according to a new study from Lawrence Berkely National Laboratory (Berkeley Lab).

Battery storage is useful for mitigating the volatility that increased renewable energy penetration brings to electricity networks, but it does not necessarily need to be interconnected to the grid at the same point in order to do so. Batteries can also mitigate other problems that the grid experiences, such as transmission congestion, where demand for electricity is growing greater than the network infrastructure that can deliver it.

Adding four hours of battery storage sized at half the nameplate capacity of a renewable power plant adds, on average, US$10/MWh of electricity market value across the service territories of the US’ seven main independent system operators (ISOs). On the other hand, independently siting renewable power and battery storage can enable each to be located at the grid node where it offers most locational value, adding an estimated US$12.5/MWh of value.

There is a growing appetite for hybrid resources from renewable developers, the study notes. In the West of the US, around 70% to 90% of proposed new solar plants at the end of 2020 would be paired with energy

storage, with a national average of about 34% of solar and 6% of wind project proposals including co-located batteries.

There are many reasons for this trend to have emerged, especially in California, where 89% of large-scale solar waiting in network operator CAISO’s interconnection queues is hybridised with storage. One of the factors is that interconnection to the grid is an expensive process which can take a lot of time, while available interconnection capacity is limited. Connecting generation and storage to the grid at the same point can therefore significantly lower the cost of a battery project.

Another factor is that there is currently an investment tax credit (ITC) in the US which offers a reduction on the tax burden for building renewable energy projects and for batteries if paired with renewable energy. That can be worth as much as US$10/MWh, the study finds. There currently isn’t an ITC for standalone energy storage and the authors noted that while the federal ITC is an economic driver for hybridisation, it does not reflect “true system-level economic advantages”.

The study’s authors acknowledged that the question of whether to build standalone storage or hybrid resources is a complex one and the optimal siting choice can vary greatly from location to location. For instance, in areas with high renewable penetration, coupling with batteries can reduce the amount of “value deflation” that occurs when more and more renewables come on stream.

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