

MEETING ENERGY STORAGE GOALS



New York Is On Track

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New York State continues to accelerate its efforts to curb greenhouse gas emissions and promote increased reliance on renewable energy resources for electric generation. Energy storage is an essential piece of the power puzzle, as the Empire State aims to drastically increase renewable electric generation and have a zero-carbon emission electrical system by 2040.

The Climate Leadership and Community Protection Act, or CLCPA, passed by the New York State Legislature on June 20, 2019, expands on New York's Reforming the Energy Vision, or REV. The CLCPA establishes an energy storage capacity requirement of 3 GW by 2030, and requires the state's Public Service Commission, or PSC, to establish a program by June 30, 2021. The CLCPA further requires 70% of New York's electric generation to come from renewable energy sources by 2030, an increase from the state's current Clean Energy Standard of

50% renewable generation by 2030, and 100% greenhouse gas free electrical system by 2040. In order to meet the targets established by the CLCPA, New York must transform its electrical grid to make it able to store greater amounts of energy produced from renewables and cleaner traditional generation, so that it can meet electric demand during peak periods and high energy demand days, and make carbon-free resources viable as reliable baseload energy producers.

New York State's fiscal year 2021 state budget includes another renewable energy related bill—the Accelerated Renewable Energy Growth and Community Benefit Act—which directs the New York Energy Research and Development Authority, or NYSERDA, to find underutilized sites that have the potential for the development of energy storage facilities in an effort to further its energy storage and renewable generation goals.

ENERGY STORAGE DEVELOPMENT IN NEW YORK

The PSC and NYSERDA have already taken many actions to increase energy storage capacity in New York. To implement the state's energy storage capacity goals established prior to the CLCPA, on June 21, 2018, the PSC established a separate docket (PSC Case No. 18-E-0130) for an energy storage program. NYSERDA developed an energy storage roadmap, and in December 2018, the PSC issued an Order Establishing Energy Storage Goal and Development Policy, which includes several requirements and incentives to increase energy storage capacity in New York.

On April 1, 2020, the New York Department of Public Service (DPS) issued its first "State of Storage" annual report detailing the progress in reaching New York's statewide energy storage goal, which is 3 GW by 2030 with an interim objective of deploying 1,500 MW by 2025. Although there

is currently only about 39 MW of energy storage capacity in the New York electrical system, the report stated the total deployed or awarded/contracted projects at the end of 2019 resulted in 706 MW in capacity, or about 47% of the 2025 target and 24% of the 2030 target. The number of energy storage projects in various interconnection queues, which reflects some of these reported projects as well as potential projects in the pipeline, also indicates robust activity in the industry. These results suggest the PSC's portfolio of programs coupled with the declining costs of storage technology, as well as the ability to pair energy storage with solar photovoltaic to capture additional revenue streams, have been effective in building a market for the development and installation of qualified energy storage systems in New York.

Moreover, the combination of energy storage with utility-scale wind or solar projects has become increasingly popular among the state legislature, regulators, and developers as a way to enhance the ability of renewable energy resources to provide power to the electric grid, even when the wind is not blowing and the sun is not shining.

FUTURE OUTLOOK FOR ENERGY STORAGE IN NEW YORK

For New York to meet the ambitious renewable and greenhouse gas requirements of the REV and the CLCPA, a drastic increase in New York's energy storage capacity is essential. To meet the CLCPA target of 3 GW of installed energy storage capacity by 2030, and create a self-sustaining energy storage market in New York, the state needs to continue to provide financial incentives for energy storage development, increase investor owned utilities' (IOUs) energy storage requirements, and set in place a framework for valuation of energy storage that makes it competitive with traditional energy resources. While a market for energy storage development exists, the amount of storage capacity in the system is far from the target.

Both standalone storage and storage directly connected to renewables is necessary to allow for more renewable generation capacity on the electric system. To increase energy storage to 3 GW by 2030, New York will need to continue to increase incentives for energy storage systems paired with both large and small existing renewable generation, such as wind and solar projects that are generally located in upstate New York, which in return creates valuable opportunities for investment in energy storage in New York.

The current state of energy storage technology, and the associated costs of installing such technology, means the largest near-term opportunities for energy storage deployment are from stand-alone battery systems and battery systems paired with existing traditional electric generation resources in the most congested parts of the state, mainly in the downstate area, where peak energy use and energy prices are the highest, and the impact of these resources on meeting New York's goals will be the largest.

In order to make energy storage systems competitive with more traditional energy generation resources to meet base-load and peak electric demand, especially in the upstate area, direct state funding and a system of valuing energy storage resources that compensates them for more than just the energy they provide, will be necessary. The PSC is currently grappling with the appropriate method of compensating smaller distributed resources, including energy storage battery systems, in its VDER docket (PSC Case No. 15-E-0751). The PSC system being developed for valuing energy storage resources seeks to compensate for the ability to export their stored energy to the grid, shave peak electric demand and provide relief in certain congested areas, support renewable generation additions to the electrical grid, and provide environmental benefits. By sending these dynamic price signals to the marketplace, the PSC hopes to increase energy storage penetration in the electric grid.

CHALLENGES FOR ENERGY STORAGE

Despite the momentum for energy storage development seen in New York, there are challenges ahead. One such challenge is increasing energy storage capacity in the upstate New York region. Without significant incentives or direct IOU requirements, the current cost of installing battery systems, or other energy storage systems, makes them largely uneconomical in upstate New York, where the cost of energy during peak demand is much lower than in the downstate area.

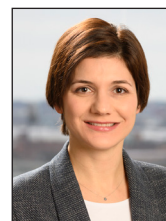
Another challenge is having enough energy storage resources to meet most or all of the peak electrical demand in New York City. The downstate region cannot obtain the power it needs from upstate generating facilities due to transmission constraints. So, the capacity needed, including during periods of peak demand, must be generated and stored in the downstate area. As noted in a May 2020 draft report issued by NYISO, titled "Reliability and Market Considerations for a Grid in Transition,"

as more storage and renewables are added to the New York City electrical system, the amount (and duration) of storage needed to meet the reliability needs of the electrical system increases. Therefore, a significant increase in the amount of energy storage would be needed to meet the capacity needs of New York City currently provided by fossil-fueled peaking units during periods of high demand.

COVID-19 has also posed a huge challenge for the development of energy storage projects. Although it is too early to determine the full effects of the pandemic, the energy sector as a whole has taken a hit. There are many project delays due to New York's "PAUSE" order, which caused all non-essential businesses to close. The development of new energy storage projects is not considered essential, so construction has stalled, and for some projects financing is now uncertain. It is not clear whether the pre-PAUSE level of momentum in energy storage development will return once the order is lifted. Only time will tell.



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