FLEXIBLE INTERCONNECTION IN NEW YORK STATE

Technical Potential, Cost-Benefit Analysis and Policy Implementation Considerations

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Summary

Flexible interconnection (Flex IX) is the use of smart grid controls to actively manage distributed energy resources and to increase utilization of existing electric infrastructure. This NYSERDA-funded statewide study finds that Flex IX can enable up to **97% more community solar capacity to the electric grid in Upstate New York** *without* cost-prohibitive substation expansion projects. The study also finds that Flex IX can **increase community-scale battery energy storage system (BESS) integration in Con Edison territory by up to 274%** with optimized utilization of system hosting capacity. In addition to quantifying the technical potential to unlock solar and energy storage hosting capacity with Flex IX, this study quantifies the costs and economic benefits of Flex IX and outlines key implementation considerations.



Key Findings: Upstate Community Solar

- Flex IX can increase solar hosting capacity in Upstate New York by up to 71% by allowing up to 5% curtailment to annual solar production, and increase solar hosting capacity by up to 97% with up to 10% curtailment.
- The net revenue generated by incremental solar capacity enabled by Flex IX is up to $3.1B without the federal Investment Tax Credit (ITC), or up to $8.2B with the ITC. Flex IX unlocks more net revenue when curtailment is limited to 5% than 10%.
- Deploying the same amount of solar capacity enabled by Flex IX with traditional methods would require $7.4-7.9B for substation expansion.
- **Even without the ITC, NYSEIA estimates that Flex IX with 5% curtailment could enable up to 3.3 gigawatts of incremental cost-effective distributed solar capacity in New York.**

Key Findings: BESS in Con Edison Territory

- Flex IX can increase BESS hosting capacity by up to 174% when charging is managed within defined charging windows. By applying smart operational controls, BESS charging and discharging can be deferred or curtailed as needed, maximizing utilization of feeder hosting capacity while maintaining reliable and efficient system performance.
- When BESS charging is not restricted to defined charging windows, and is instead optimized for revenue maximization, Flex IX can increase battery hosting capacity by up to 274%, demonstrating the additional capacity gains potentially achievable through economically optimized, flexible BESS operation.



Implementation Considerations

- Developing a framework to manage the financial risk of excessive curtailment will be important to secure robust participation from financiers and independent power producers.
- Wholesale adoption of Flex IX will unlock more hosting capacity than partial adoption; however, utilities, as well as solar and BESS developers, have varying levels of readiness and risk appetite, suggesting a measured approach may be needed.
- Several New York utilities are seeking to expand their successful NY flexible interconnection pilot programs in 2026, creating opportunities for additional learning that can apply statewide.

Study Methodology

This project evaluated the potential of Flex IX to enable additional solar PV and BESS capacity on New York utility substations. The study modeled PV and BESS under Flex IX operation and assessed how much additional installed capacity could be accommodated before substation hosting capacity limits are reached. To support a statewide assessment, publicly available utility hosting capacity data were used to group New York substations into representative categories. PV and BESS operation under Flex IX was modeled and analyzed for each category using representative load and PV/BESS profiles, enabling generalized insights into Flex IX opportunities across the state. The study also evaluated the economics of solar and BESS, quantifying the net present value of project cash flows based on revenues generated through the Value of Distributed Energy Resource (VDER) tariff and realistic cost assumptions.

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