



National Grid Embraces Solar-Plus-Storage Solution as Non-Wires Alternative to Meeting Central NY Capacity Crunch, Sustainability Needs

CONVERGENT

THE CHALLENGE

A Non-Wires Alternative to Increase Capacity, Reliability, Sustainability, and Affordability



Like many investor-owned utilities (IOUs), National Grid, which serves 20 million customers in New York and New England, must handle many competing priorities in order to grow while meeting the demands of customers, regulators, and shareholders.

Simply put, the IOU needs to satisfy intensifying electrification demand reliably, and do so affordably in an increasingly environmentally-friendly way.

But National Grid had an additional needle to thread when energy demand began outstripping capacity at its Pine Grove substation in Cicero, NY. National Grid's Pine

Grove substation was fighting a capacity challenge and reliability battle on many fronts: growing demand, singly hot summers, and the adoption of electric vehicles across the country. Add the threat to reliability posed by increasingly powerful storms, a ramification of climate change, and National Grid knew it must act. 10-year projections showed Pine Grove vulnerable to distribution system reliability concerns without reliable added capacity (by 2022). National Grid's decision to address this potential capacity shortfall before it became an issue for its customers reflects a best-in-class example of strategic planning.

To address this challenge ahead of time and ensure their transformer was not overloaded—which leads to blackouts, brownouts, and interruptions in power supply—National Grid turned to a non-wires alternative (NWA) to solve the problem. An NWA removes or defers the need to construct or upgrade components of a distribution and/or transmission system.

While the situation at the Pine Grove substation could have called for building a new substation altogether, National Grid, in accordance with New York State Department of Public Service policies, sought effective NWA solutions. It sought an NWA that would not only remove or defer the need to construct or upgrade components of its distribution or transmission system but would also help increase the amount of renewable energy on the grid and be cost-effective for its customers. Through a competitive bidding process, Convergent Power and Energy (Convergent), a leading developer of energy storage solutions in North America, stepped to the front of the line with a trailblazing, multi-use, solar-plus-storage solution. Convergent offered National Grid its solar-plus-storage system as a service, along with the ability to alleviate National Grid's load and voltage constraints.



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THE SOLUTION

Solar-Plus-Storage for a Future-Ready Grid



Solar-plus-storage, which pairs a battery energy storage system (BESS) with solar energy, is gaining momentum across the country as a way to address the “intermittent” nature of solar energy.

SOLAR-PLUS-STORAGE IS GROWING IN POPULARITY BECAUSE THESE SOLUTIONS CHECK SEVERAL BOXES:

1. It is are sustainable—100% solar-powered, the systems are reliable, resilient, and emissions-free.
2. It is an “always on” energy resource—ready to be dispatched when needed.
3. It is affordable—owned and operated by Convergent, the solar-plus-storage system for National Grid is cost-effectively increasing capacity at the Pine Grove substation while also delivering community solar to residents, further reducing costs for the community. This is example of what the industry refers to as “value-stacking.”

Convergent, which has over a decade of expertise developing energy storage and solar-plus-storage solutions, offered the right solution at the right time: a first-of-its-kind approach optimized for transitioning the grid to a more sustainable, reliable, and resilient future. After working closely with National Grid to crunch the data and analyze the need for a proactive solution, Convergent financed, designed, and constructed a 10 MW/40 MWh of energy storage system connected to 15 MWdc of solar power, one of the first solar-plus-storage solutions ever to provide an NWA.

To Convergent’s knowledge, the solution it offered to National Grid is one of the first (if not the first!) examples of a solar-plus-storage system providing an NWA (versus a standalone battery storage system).

The resulting solar-plus-storage solution—delivered in time for the 2022 summer season owned and operated by Convergent

for National Grid—is now operational and available for dispatch with sub-second response. Using an advanced satellite communications system connected directly to National Grid’s operations center, Convergent has pushed the envelope to make solar-plus-storage a seamless, near real-time asset for the utility, enabling the IOU to control the asset as they see fit—no phone calls or email dispatch requests required.

And the timing could not have been better. With the summer of 2022 pushing temperatures into the high 90s, the heat was literally on National Grid to respond. With its new solar-plus-storage solution from Convergent, it was ready.

“National Grid is committed to reducing greenhouse gas emissions by increasing the amount of renewable energy on the grid while improving reliability and affordability for customers,” said Brian Gemmell, National Grid’s Chief Clean Energy Development Officer. “Our recently released Clean Energy Vision plan outlines a pathway to achieve a fossil-free future to our energy systems that incorporates renewable sources of energy and storage solutions such as this NWA at Pine Grove.”



Convergent solar-plus-storage system offers a footprint big enough and flexible enough to help the substation reliably address current peaks, the growing popularity of community solar, and the “moving target” of future demand.

“We are thrilled to collaborate with National Grid, a leader in implementing technologies that benefit customers, the electric grid, and the planet,” said Frank Genova, Convergent’s Chief Operating and Financial Officer. “Convergent Energy + Power continues to move the energy storage sector—and clean energy transition—forward to address the increasing needs of our customers.”

Intentionally developed to meet present and future needs, the Convergent solar-plus-storage system offers a footprint big enough and flexible enough to help the substation reliably address current peaks, the growing popularity of community solar, and the “moving target” of future demand.

THE TECHNOLOGY

Solar-Plus-Storage Providing a Non-Wires- Alternative for National Grid

MW INTERCONNECTION

- 10 MW / 40 MWh battery energy storage system
- 15.3 MW DC/10MW AC Solar PV
- 13.2 kV Interconnection

PV SYSTEM

- Terrasmart Fixed-Tilt Racking System with Ground Screw Foundations
- (37,341) Hanwha Q Cell 410W Bifacial PV Modules
- (4) GE RIU2500U-MV Inverters
- PV System DC Coupled to BESS

BATTERY INTEGRATOR

- GE Renewable Hybrids

BATTERY TECHNOLOGY

- Lithium-Ion NMC



The Financing



Convergent has over a decade of expertise financing energy storage and solar-plus-storage systems.

For this system, [**NY Green Bank**](#), a division of the New York State Energy Research and Development Authority ([**NYSERDA**](#)), which invests in clean energy and sustainable infrastructure in New York State, provided the construction-to-term financing for the project. NYSERDA also provided a total of nearly \$2.3 million for the project through its [**NY-Sun Program**](#), the state's \$1.8 billion initiative to advance the scale-up of solar while driving costs down and making solar energy more accessible to homes, businesses, and communities.

KEY TAKEAWAYS



1

Utilities are adopting battery storage and solar-plus-storage as a “resiliency as a service” application in growing numbers. The combination of solar arrays and utility-scale batteries provides a flexible, proven, multi-use solution to meet the grid’s 21st-century challenges, accelerating the clean-energy transition.

2

Third-party owned solar-plus-storage solutions put utilities in control of always-on clean power resources while providing a reliable partner for the day-to-day operations and maintenance, enabling utilities to keep their focus on what they do best.

3

Solar-plus-storage solutions provide utilities an invaluable one-two punch: a resilient and reliable asset to increase capacity and green power to meet peak demand and community solar needs.

4

Solar-plus-storage solutions reflect the next generation of non-wires alternatives—AI and data-driven resources that provide outsized capacity, reliability, and resiliency gains affordably, enabling utilities to keep rates in check.

5

Collaboration and a solutions-oriented mindset create great outcomes, whether you’re a utility, a developer, an investor, or a supplier. The right people and partners are unstoppable.

Why Partner with Convergent

- ✓ One of the **first developers of battery storage nationwide** and among the first non-wires-alternatives for utility infrastructure
- ✓ **24/7/365** Control Center and on-site response teams to maintain critical infrastructure assets
- ✓ **Over a decade of expertise** delivering innovative applications for energy storage and solar-plus-storage assets
- ✓ **Over 500 MW / 800 MWh** of storage and solar-plus-storage capacity operating or under construction
- ✓ **Over \$500M** invested in projects in operation or allocated to projects under development
- ✓ A thoughtful and experienced approach to contracting structures
- ✓ **100%** of utility permitted projects completed
- ✓ Demonstrated knowledge of best-in-class storage technologies and relationships with “Tier 1” suppliers
- ✓ A long-term partner (versus a project flipper) with a track record of optimizing asset performance with proprietary energy storage intelligence **PEAK IQ®**
- ✓ Convergent understands the obligations that utilities have to their customers and their PUCs. Over the past decade Convergent has been able to craft and execute NWA contracts that provide similar coverage and safeguards to traditional wires solutions.

Convergent Energy and Power (Convergent) is a leading provider of energy storage solutions in North America. Convergent has over a decade of experience financing and managing all aspects of the energy storage development cycle to help customers reduce electricity costs and increase reliability. The company's commercial, industrial, and utility-scale assets can yield seven-figure savings while advancing the clean energy transition. Convergent's proprietary asset management platform, PEAK IQ® leverages machine learning and deep market knowledge to optimize asset performance and maximize value. With over \$500M invested in projects in operation or allocated to projects under development, Convergent is a leading independent owner and operator of energy storage and solar-plus-storage solutions. For more information, visit convergentep.com or follow us on [LinkedIn](#) or [Twitter](#).