



NEW YORK BATTERY  
AND ENERGY STORAGE  
TECHNOLOGY CONSORTIUM

# NEWSLETTER

June 21, 2019

Dear NY-BEST Members and Colleagues,

This week, Governor Andrew Cuomo and the New York State Legislature worked together to pass the [New York State Climate Leadership and Protection Act](#), the most comprehensive climate bill in the nation, requiring the State to achieve net zero greenhouse gas emissions economy-wide by 2050. The legislation creates the New York State Climate Action Council to identify multi-sector measures and actions necessary to reduce emissions by 85 percent below 1990 levels by 2050 and offset the remaining emissions with carbon offset measures. The legislation specifically requires that the state's GHG reduction measures include: achieving three GW of energy storage capacity by 2030; six GW of distributed solar and nine GW of off-shore wind. This sweeping legislation marks a significant and historic step for New York State and we are especially heartened that energy storage is specifically recognized as a key enabling technology to address climate change. We look forward to working with the State, our members and many partners on its implementation.

## Upcoming Events

The *NYSERDA Onsite Resilient Power Conference* will be held on June 27, 2019 at the Brooklyn Bridge Marriott. The conference will feature discussions about how solar, storage, and other DERs can contribute to resiliency projects. Registration is available [here](#). NY-BEST will have a booth at the event, so be sure to stop by and see us.

For our upcoming [Technology and Innovation Conference](#), taking place October 2<sup>nd</sup> in Rochester, NY, abstract submissions are due by the end of the day today.

### **Need help understanding New York Markets for Energy Storage?**

NY-BEST offers technical assistance for any companies looking at developing energy storage projects in the state. Whether you are considering customer sited, distribution-level, or wholesale energy storage projects; our experts can provide expertise to help simplify the path forward. Reach out to the NY-BEST Team for more information.

### **New Members**

We would like to welcome the newest members of NY-BEST:

**Summit Ridge Energy** (Arlington, VA) - is a leader in the development and acquisition of US community solar projects. SRE's management team includes seasoned solar industry professionals, each with years of experience developing and financing commercial solar projects. The team has been a leader in the commercial and industrial solar industry for years, and was instrumental in the creation of "virtual" power purchase agreements and associated financing structures.

Best Regards,



William Acker  
Executive Director



## **Upcoming Events**

### **NY-BEST Energy Storage Innovation Conference**

Oct 2 8:00 am - 6:30 pm

Clean Energy and Energy Storage Technologies: Growing a Clean Energy Economy

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## **NY-BEST Capture the Energy 2020**

Apr 1 7:45 am - Apr 2 1:30 pm

Save the date for NY-BEST's Annual Conference Capture the Energy, April 1-2, 2020

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### **Member Spotlight: ForeFront Power**



ForeFront Power is a solar and energy storage project developer based out of San Francisco, CA with satellite offices in New York, Colorado, and Mexico. ForeFront was established in January 2017, after the successful acquisition of SunEdison's Commercial and Industrial division by Mitsui & Co....

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### **Latest News**

*The Latest News From The Battery And Energy Storage Industry*

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### **Funding Opportunities**

NY-BEST members received information in this newsletter about upcoming funding opportunities. Becoming a member is easy and economical. Visit <http://www.ny->

[best.org/Join](https://best.org/Join) for more information.

If your organization is a NY-BEST member, [simply login](#) to access all funding opportunities.

No account? Click "Create New Account" from the [login page](#).



## NY-BEST Member News

### [Eos Energy Storage Deploys Aurora 2.0 Battery System Coast to Coast with Duke Energy and University of California, San Diego](#)

Today, Eos Energy Storage (Eos) announced two new projects deploying the Company's Aurora 2.0 battery system in major markets on both coasts of the United States. The next generation solution integrates the company's aqueous, zinc Znyth® battery technology—built on ten years of relentless testing and learning—as a safe, sustainable, and scalable alternative to Lithium Ion. The Eos Aurora® 2.0 has been installed by Duke Energy as part of a DC-coupled solar + storage system in North Carolina while Eos concurrently deploys its battery as a behind-the-meter solution at the University of California, San Diego in a project funded by the California Energy Commission. “These two projects represent an important step in our journey to help accelerate clean energy while ensuring that it is competitive and reliable. With over ten years of testing and refinement, these deployments demonstrate that our system is ready to scale in two of the fastest growing renewable energy markets in the world,” said Philippe Bouchard, Eos' SVP of Business Development.

### [New York to Approve One of the World's Most Ambitious Climate Plan](#)

New York lawmakers have agreed to pass a sweeping climate plan that calls for the state to all but eliminate its greenhouse gas emissions by 2050, envisioning an era when gas-guzzling cars, oil-burning heaters and furnaces would be phased out, and all of the state's electricity would come from carbon-free sources. Under an agreement reached this week between legislative leaders and Gov. Andrew M. Cuomo, the Climate Leadership and Community Protection Act would require the state to slash its planet-warming pollution 85 percent below 1990 levels by 2050, and offset the remaining 15 percent, possibly through measures to remove carbon dioxide from the atmosphere. If the state manages to hit those targets, it would effectively create a so-called net-zero

economy, the ultimate goal of environmentalists and others seeking to slow the pace of global warming.

#### [GlidePath Builds Merchant Battery Plant in ERCOT, Bucking Industry Wisdom](#)

Renewables developer GlidePath has begun construction on a rare standalone storage project in the tricky Texas market. The 10-megawatt/10-megawatt-hour Prospect Storage plant will bid into the ERCOT markets for energy and ancillary services. Though small by the standards of today's utility-scale market, the project, located 50 miles south of Houston, is notable for making the economics work in an inhospitable market for storage. Texas law forbids distribution utilities from owning storage for any number of useful purposes, because this technology, which does not generate electricity, is deemed "generation." Without utility contracts to guarantee revenue, storage must compete with conventional gas generators in the wide-open wholesale markets, a challenge that has scared off even the most bullish storage boosters.

#### [Energy Storage Company SAFT Buys Go Electric](#)

Saft has acquired all shares of Go Electric, a US-based developer of distributed energy resiliency solutions for microgrids and commercial and industrial customers. Go Electric's microgrid power controller technology, combined with energy storage, helps customer sites to keep the lights on by islanding them from the grid should a power outage occur. The technology also helps to integrate high levels of distributed renewable energy and reduce energy costs. Go Electric's solution has been deployed in military microgrids and commercial sites across the US and Canada. "This acquisition is an important step in Saft's strategy to accelerate the growth of its energy storage systems business: Saft is now able to expand its scope of expertise from battery design and manufacture to the deployment of integrated turnkey distributed renewable energy storage solutions that connect customer sites to the grid," said Philippe Sauquet, President Gas, Renewables & Power at Total.

#### [A Californian Business is Using AI to Change the Way We Think About Energy Storage](#)

While sources such as solar and wind may be good for the planet, they do not promise a constant and predictable stream of power in the way that fossil fuels do. Given this fact, if renewables are to become a crucial part of the planet's energy mix, they will need to rely on smart and intuitive energy storage systems. In the U.S., California-based Stem is using artificial intelligence to help businesses store energy on a large scale. The idea is to pair artificial intelligence (AI) with energy storage so that businesses and organizations can, according to Stem, "automate energy cost savings and protect against changing

rates.” Customers include major firms like Adobe Systems, Bed Bath & Beyond and Whole Foods Market.

### *NEC Introduces Unique, Adaptive Energy Warranty to Optimize Value for Energy Storage Customers*

NEC Corporation has announced that NEC Energy Solutions (NEC ES) introduced a unique, Adaptive Energy Warranty which uses energy storage system usage data to adapt a system's energy capacity warranty to fit a customer's use profile. NEC's proprietary, advanced AEROS software platform provides real time usage data to predict energy storage capacity degradation based on different use profiles. The result allows energy storage customers to maximize the value of their power with the knowledge and flexibility to use their system any way they want, without worrying about the warranty. The warranty will adapt depending on the use profile they choose. The energy storage capacity of any battery decreases with time and use. Some of the more important factors that impact energy storage capacity include energy throughput, cell temperature, average state of charge (SOC), depth of discharge (DOD), resting time and charge/discharge rate. Customers need to understand how a system's energy storage capacity degrades or fades so that they can predict the life and performance of the system. However, due to changing market rules, customers often do not know exactly how they will use their system. NEC's Adaptive Energy Warranty and its advanced AEROS software platform allows a customer to change their use profile to optimize the system while the warranty adapts accordingly.

### *NYPA To Develop Solar Arrays and Battery Storage at County Owned Facilities*

The New York Power Authority (NYPA) is partnering with Westchester County to develop and implement solar photovoltaic and energy storage systems at seven county-owned properties, including bus garages, the Westchester County Courthouse and Hilltop Hanover Farm. The new systems are expected to offset more than 2,800 tons of greenhouse gases each year, which is equivalent to removing more than 600 cars from the road. These projects were highlighted at a Westchester County and NYPA-hosted Clean Energy Forum at NYPA's White Plains, New York, headquarters where local municipalities and school districts learned about available energy services and clean energy alternatives. The innovative new solar projects and renewable energy and financing services for municipalities offered at the forum support Governor Andrew M. Cuomo's Green New Deal, a clean energy and jobs agenda that strives to achieve 100 percent clean electricity by 2040.

### [Fire Protection Guidelines Catch Up With C&I Renewable Energy Systems](#)

The ever-declining cost of Lithium-ion batteries has seen application of systems for energy storage in the United States burgeon from 1 MW to almost 700 MW over the past decade, but little research has been conducted to guide effective fire protection strategies for this addition to commercial operations, according to a report just released by FM Global commercial property insurer and risk-management consultancy. “These systems hold enormous promise for clean energy while raising new protection challenges,” said Benjamin Ditch, senior lead research engineer at FM Global, in a statement accompanying the report on real-to-life testing that was conducted in stages at the company’s Research Campus, which houses the world’s largest fire technology lab.

### [2019 Green Chemistry Challenge Awards Announced](#)

There is no single answer to the question of how to make chemistry greener. People and companies working on a variety of solutions are winners of the 2019 Green Chemistry Challenge Awards. Tonight, at a ceremony in Washington, DC, the US Environmental Protection Agency (EPA) honored groups that developed rechargeable batteries using abundant materials, a biobased process to make a chemical found in a variety of products, a more efficient manufacturing process for an antibiotic, and a more environmentally friendly laundry process. The event was held on the eve of the combined Green Chemistry and Engineering Conference and International Conference on Green and Sustainable Chemistry, meeting this week in Reston, Virginia. Rechargeable batteries power everything from phones to electric cars, but the metals used to make them, including lithium, nickel, and cadmium, can be expensive and are less abundant than some other elements. Sanjoy Banerjee of the City College of New York was recognized for his efforts developing rechargeable batteries that use more abundant zinc and manganese. Also recognized were the CUNY Energy Institute of which he’s director, Sandia National Laboratories, Brookhaven National Laboratory, and Urban Energy Power, a company Banerjee founded to market these batteries. Zinc and manganese dioxide are already used in typical AA alkaline batteries. But they cannot be recharged because structures that form during discharge would short out the batteries. Banerjee and collaborators modified zinc-manganese dioxide batteries with additives that prevent this problem. He and his cohorts have commercialized the technology for use in grid stabilization, renewable energy storage, and household use.

### [Newly Opened, JFK's TWA Hotel is Always Grid Independent](#)

The irony could not be any more conspicuous: the vintage Trans World Airline, known as

TWA, ceased to exist nearly two decades ago. But a new hotel and conference center has formed around what had been the TWA terminal at New York's JFK Airport — one that focuses on ultra modern energy technologies: a microgrid, on site electric generation and battery storage. Indeed, the 512-room, 6-story hotel is particularly noteworthy from an energy perspective because it operates off grid — independent of local utility Consolidated Edison. This is unusual because most microgrids in the United States are grid-connected, especially if they are situated in an urban area. They typically disconnect only when a power outage occurs.

#### [Cuomo Announces Electric Grid Project Funds Available](#)

Gov. Andrew Cuomo announced \$5 million is available for projects intended to help New York integrate renewable energy resources in ways that will improve the resiliency of the electric grid. Project proposals will be evaluated based on how they improve overall grid performance, reduce energy costs and support the state's nation-leading clean energy goals to combat climate change. This announcement supports Cuomo's Green New Deal proposal to achieve 70 percent renewable energy by 2030 and transition the state to a carbon-free power grid by 2040. "New York is leading by example in the fight against climate change, and modernizing our electric grid is a critical component of our path to clean energy and carbon neutrality," Cuomo said. "These smart investments in New York's electric grid will enable the integration of renewable resources that improve resiliency, ensuring a secure, reliable system for years to come."

#### [Integrated Storage Technologies Enters Energy Storage Services Market](#)

Integrated Storage Technologies recently installed and commissioned a 30kW / 64kWh battery energy storage system in Ossining, NY. This project is the closest indoor commercial lithium-ion installation to New York City. Because of limitations in the local grid, this battery system allows the PV system to produce more energy when the sun is bright and high. Solar and energy storage systems save money for building owners and serve as terrific examples of how clean, renewable energy can provide resiliency to help our community during blackouts or extreme weather conditions. "We take buildings that are considered smart, and make them genius. Our proprietary controls monitor electricity costs and usage and make decisions when to charge and discharge the batteries, maximizing energy savings for our customers. In some cases, we can save customers 50% or more on their monthly peak demand charges," said CEO Cory Mourer. "We can string up batteries in our energy storage systems to power just about any building in New York City for hours, and in some cases a day or more. There's an option to back-up

critical loads, dedicated outlets, an elevator shaft, and emergency lights in case of blackouts. We're quickly moving into the future with our technology."

#### [National Grid Installs Its First-Ever Battery System on NY Grid](#)

National Grid has installed its first-ever battery storage system on its electrical grid in New York state. The 2-megawatt battery storage system was installed at a National Grid substation in Pulaski, north of Syracuse. The system can provide power to 1,600 homes for two hours and allows the utility to save power for when it's needed most. Such systems could be more widespread in the future as additional variable renewable energy sources are added to the grid.

#### [US Bills to Accelerate Storage 'Well Designed' but Delays Still Expected](#)

Two bills that have been introduced in the US to support and accelerate the development and deployment of energy storage are enjoying cross-party support and look likely to pass unopposed, an analyst has said. The Better Energy Storage Technology (BEST) Act and accompanying Promoting Grid Storage Act of 2019 were introduced just over a week ago by two groups of US Senators, on both Republican and Democrat sides of the Senate. BEST would "support grid-scale energy storage research and development and improve the efficiency of the nation's electric grid, while helping to align research efforts on energy storage technologies," a release from the office of Susan Collins, the Republican Senator of Maine who authored the bill along with six others, said.

#### [Congress Charges Ahead on Energy Storage](#)

The cost of energy storage is plummeting as performance is improving, and Congress is moving to help storage technologies continue to advance. Spurring innovation is far from all we need to do to address the climate crisis facing us, but it's a necessary component and a start to development of comprehensive solutions. After years in which many in Congress have done all they can to deny the science of climate change or avoid taking steps to address it, it's reassuring to see lawmakers of both political parties acknowledging the facts and taking the first steps to grapple with it. Deploying technologies to save the surge in solar power on a sunny afternoon or wind power from a blustery night is one part of making our electric grid cleaner and greener. Energy storage is increasingly recognized by both Republicans and Democrats as a necessary tool to unlock more clean energy like wind and solar, increase flexibility to meet changing patterns of electricity demand, provide essential grid services, and provide emergency power in times of disaster.



## News From Beyond New York

### [\*With Power Outages, Why Is Texas Waiting to Write the Rules on Battery Storage?\*](#)

There is one fundamentally frustrating characteristic of electricity that we modern people struggle to understand, an issue we cry over every time the power goes out, that we shake our heads over when we talk about renewables. That is, electricity cannot be stored. Sure, you can store a little in your iPhone battery, and larger battery storage technology is in development. But batteries that would store solar energy during the day and release it back onto the grid at night, or batteries that could hold enough juice to keep the lights on in Dallas for a couple of days while Oncor repairs the lines damaged by the storm, that kind of storage isn't our reality. Not yet. Until recently, the reason was that battery technology was just too pricey for utilities and power companies to buy. But as the cost comes down, one of the holdups in Texas is a lack of regulatory rules and procedures to incorporate batteries into the grid. The Texas Legislature endeavored to address battery storage rules last session, but fell short. But the Public Utility Commission doesn't have to wait on the Legislature. It can write the rules itself now.

### [\*Report Details Increasing Presence of Utility-Scale Battery Storage Systems\*](#)

A shift toward utility-scale battery storage systems is gaining momentum nationally, finds a report published by the Institute for Energy Economics and Financial Analysis (IEEFA). The report — *Advances in Electricity Storage Suggest Rapid Disruption of U.S. Electricity Sector* — details upstart storage and storage-expansion projects in Arizona, California, Hawaii, Florida, Massachusetts, New Hampshire, Nevada, Texas and Vermont. Dennis Wamsted, an IEEFA editor/analyst and lead author of the report, said recent evidence of utility-scale storage adoption is most likely the beginning of a trend that will take hold broadly across the industry, benefitting renewables at the expense of gas- and coal-fired plants.

### [\*PPL Electric Utilities Earns Award for its Distributed Energy Resource Management System\*](#)

PPL Electric Utilities was named Investor-Owned Utility of the Year by the Smart Electric Power Alliance (SEPA) this week, owing to the success of its Distributed Energy Resource Management System (DERMS) for renewable power. The system is

responsible for managing distributed energy resources (DER), such as micro-grids, solar, and battery storage. Those resources are connected to PPL's grid to optimize power quality. DERMS allows greater hosting of such connections by using its resources to offset the negative impacts of DER in high penetrations, such as high-line voltage or over-operation of connected capacitor banks. "Our current state-of-the-art distribution management system comprises centrally managed control and modelling systems and is informed and operated by more than 4,500 distribution automation smart devices across our 10,000-square-mile service territory in central and eastern Pennsylvania," Joe Nixon, strategic communications manager for PPL, told Daily Energy Insider.

#### [Rivian's Used Batteries Will Help Support Energy Independence in Puerto Rico](#)

Rivian has only showed off early versions of its R1S SUV and R1T pickup, but the company has not been shy about dishing deets regarding what's under the hood. We already know its battery pack is pretty darn advanced, and its tech is clearly appealing enough to pull in some major investors like Ford and Amazon. Now, we have an idea of what Rivian wants to do with its batteries once they're no longer usable in its vehicles. Rivian announced this week that it has teamed up with the Honnold Foundation, which funds solar power initiatives, for a future project that will use Rivian's "second-life" batteries, also known as a used EV battery that's already done its time in an electric vehicle. The project will see these batteries as gateways to energy independence and renewable power generation, and it'll kick off in Adjuntas, Puerto Rico.

#### [State Department Issues Strategy on Diversifying Clean Energy, Storage Supply Chains](#)

The Trump Administration is in a strange position. Given its strong nationalism and specifically anti-Chinese sentiment, it wants to diversify sources of imports away from China and preferably bring back some manufacturing and other operations to the United States. But this same administration also strongly backs the fossil fuel and nuclear industries and appears to be in denial of the unstoppable momentum of the energy transition. When one of the main promises of your campaign was to "bring back coal", you are inherently not in a good position to even grasp the significance of China's growing dominance of solar, wind, energy storage and electric vehicle supply chains.

#### [Natron Energy Awarded \\$3M by California Energy Commission to Pair Energy Storage with EV Fast Charging](#)

Natron Energy, a developer of new battery cell technology based on Prussian Blue analogue electrodes and a sodium-ion electrolyte, has (earlier post), has been awarded a \$3-million grant by the California Energy Commission (CEC) for "Advanced Energy

Storage for Electric Vehicle Charging Support.” Natron will utilize the funds to manufacture and install a high powered, long cycle life energy storage system at an EV Fast Charging station. The project will result in a cost-competitive, at-scale alternative to Li-ion batteries, and offer superior performance for the high-power/short-duration dispatch and long cycle life requirements of the EV Fast Charging market. Natron’s patented technology uses Prussian Blue pigment which stores and releases energy in the form of sodium ions. Unlike electrode materials found in most Lithium-ion batteries, Prussian blue enjoys widespread availability and low cost that make batteries using Prussian blue electrodes economical, safe, and environmentally friendly.

#### [Volkswagen Follows Tesla Into Battery Business](#)

Volkswagen is following Tesla’s lead into the heart of the battery industry. The move carries huge risk, but the German auto giant has no other choice. VW announced a roughly \$1 billion investment in battery production Thursday. Part of the sum will go into forming a new joint venture with Swedish battery startup Northvolt to make cells - the core component of electric vehicle batteries. The approach echoes Tesla’s partnership with Panasonic at the so called gigafactory in Nevada, which makes batteries for the Model 3.

#### [World Bank Approves China Loan for US \\$750M Energy Storage Accelerator Programme](#)

After approving investment for the acceleration of energy storage deployment in developing countries to the tune of US\$1 billion a few months ago, the World Bank has now approved a US\$300 million loan to do the same in China. China is the world’s most prolific installer of renewable energy and by the end of 2018 had about 1,038MW of batteries performing power system applications and is in line to build some of the world’s biggest planned energy storage facilities. Nonetheless, according to a World Bank document outlining the aims of its US\$750 million China Renewable Energy and Battery Storage Promotion Project, several big gaps still exist between early pilot stage and private or sponsor-funded development and a sustainable commercial industry.

#### [Billionaire Pledges USD\\$500 Million To Help End U.S. Coal Power](#)

Entrepreneur, philanthropist and three-term Mayor of New York City Michael Bloomberg is coughing up a big chunk of change to fund an effort to end coal power in the USA. Coal power in the United States is in its demise, but still accounted for 27.4% of electricity production in 2018. Last year, the amount of operating coal power capacity in the U.S. was 261GW, quite a drop from 2011 when it reached a whisker of 340GW.

Domestic coal consumption fell to 687 million short tons in 2018, the lowest level since 1978. 50 coal power station closures along with 51 announcements of closures have occurred since U.S. President Donald Trump was sworn into office in January 2017. President Trump may have declared last year that the war had ended on “beautiful, clean coal”, but when it comes to domestic electricity generation it appears to be bobsledding all the way the graveyard.

#### [Viking Cold Solutions Installs 1.3 MW of Thermal Energy Storage in Industrial Cold Storage Facilities as Part of a Massachusetts Utility Demand Management Program](#)

Viking Cold Solutions, the leading thermal energy storage provider for low-temperature cold storage industries, has completed the installation of eight Thermal Energy Storage (TES) systems as part of a utility-backed demand management program in Massachusetts. These eight behind-the-meter TES systems store and facilitate management of approximately 1.3 megawatts (MW) of energy onsite, and do not require any additional real estate for the system components. The average size of the cold storage facilities in the program is approximately 50,000 square feet, with the largest being 157,000 square feet. Installation time averaged 127 days from agreement to commissioning and removal of demand from the grid. The Greater Boston Food Bank was the first TES installation of the demand management program, which also includes industrial facilities owned by the world’s largest third-party cold storage company, the world’s largest foodservice distributor, and numerous frozen food processing companies.

#### [How Compressing Air in Underground Salt Caverns Could Help the Planet's Shift to Renewable Energy](#)

You may not have heard of it, but compressed air energy storage (CAES) has been around for decades. A CAES plant was built in Huntorf, Germany, in 1978, while another facility was developed in McIntosh, Alabama, in 1991. Both these developments use underground salt caverns to store air. The Alabama project is operated by the PowerSouth Energy Cooperative. According to PowerSouth, the McIntosh facility can generate up to 110 megawatts of electrical power “within 14 minutes of startup during periods of peak demand.” The thinking behind CAES is relatively simple. U.K. based firm Storelectric, which is looking to develop CAES projects, breaks the process down into several parts.

#### [In Quest for Bigger Batteries, California Mulls Century-Old Idea](#)

As the sun sets on California’s solar farms, a backup energy source deep in the Sierra Nevada Mountains springs to life. The huge system of reservoirs and turbines can store



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