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Critical Facilities Would Be Protected From Power Outages by New Jersey Bank

By Andrea Vittorio, Bloomberg Climate Blog

New Jersey Energy Resilience Bank

Key Development: New Jersey creates a state-sponsored bank to give grants and loans for making its critical infrastructure more resilient to power outages from extreme weather events.

Potential Impact: The resilient energy projects that the bank wants to fund could help save lives and protect the water supply.

What's Next: The bank is expected to open for business soon after its draft project eligibility and funding guide are finalized in September.

Sept. 4 (BNA) -- A new state-sponsored bank in New Jersey soon will provide grants and loans for making the state's critical infrastructure more resilient to power outages from extreme weather events.

The Energy Resilience Bank, the first of its kind in the country, will support distributed energy resources and other technologies that can generate and store power near facilities that need it. That way, critical facilities such as hospitals could run even if the rest of the power grid goes down, potentially saving lives and money.

The bank, which has been in the works for several months, moved one step closer to operation when it released Aug. 22 a draft program eligibility guide and a draft funding guide for its first set of resilient energy projects at water and wastewater treatment plants. The bank expects to open for business soon after those guides are finalized in September.

It is being funded in part by a \$200 million federal disaster recovery grant allocated to New Jersey after Superstorm Sandy, which caused widespread electrical outages in the state and others in the Northeast. The bank will stretch those federal dollars by also tapping private sector capital.

'Islands of Power.'

An estimated one-third of New Jersey residents lacked power for at least six days after the storm hit in 2012. Many critical facilities, including hospitals and nursing homes, were forced to consider evacuation due to prolonged power outages.

“As we surveyed potential solutions, various ‘success stories’ stood out—critical infrastructure that continued to operate, even when the electrical grid around it failed,” Mitch Carpen, the new bank’s executive director, told Bloomberg BNA.

For example, Princeton University’s combined heat and power (CHP) micro-grid operated for a week while the larger grid was down post-Sandy, saving the university millions of dollars in losses on research projects, he said. Another biogas-powered CHP system at the Bergen County Utilities Authority in Little Ferry, N.J., kept sewage treatment facilities working during and after the storm.

“These ‘islands of power’ all included distributed generation units, which allowed them to operate as micro-grids, independent of the distribution grid,” Carpen said in an e-mail.

New Jersey wants to replicate those successes using the Energy Resilience Bank.

Early Focus on Water

The bank plans to finance new and retrofitted distributed energy resources, including combined heat and power, fuel cells, and solar with storage, according to the draft program guide.

These distributed energy resources must be able to “island,” or operate independently of the larger electrical grid, to maintain critical operations. Technologies financed by the bank also must be capable of “black start,” meaning they can power up without connection to the electric grid.

The Energy Resilience Bank initially will focus on water and wastewater treatment plants that are public, not-for-profit or small businesses, with up to \$65 million in grants and loans available in its first funding round.

During Sandy, power outages meant pumping stations and other equipment at water and wastewater utilities failed, which compromised the state’s water supply in some areas and resulted in the discharge of between 3 billion and 5 billion gallons of raw sewage into local waterways (43 ER 2785, 11/2/12).

The bank plans to roll out financing opportunities for more sectors in the future. Regulators expect to start drafting funding guides for hospitals and long-term care facilities in September, followed by other sectors such as colleges and universities, multifamily housing units, and transportation and transit infrastructure.

Weighing Costs, Benefits

Resilient energy systems can have high initial costs. Adding “islanding” capabilities for a distributed generation project can add 10–30 percent to its price tag, according to an amendment to the action plan for how New Jersey will use its federal disaster recovery grant.

Meanwhile, benefits can be difficult to quantify without knowing when and how extreme weather events will affect power systems, according to a recent paper on utility investments in resiliency published in the *Electricity Journal*.

Analyzing the costs and benefits of proposed projects could be a challenge for the Energy Resilience Bank, Peter Fox-Penner, one of the paper's authors and principal of the Brattle Group, told Bloomberg BNA.

But the bank “should not hesitate to use its judgment as an agent for the best interests of the citizens of New Jersey,” said Fox-Penner, who previously was a senior official in the Energy Department and the White House Office of Science and Technology Policy.

He urged policy makers to consider the full range of benefits—including the possibility of saving lives, reducing danger to first responders and protecting the water supply—rather than just comparing quantitative measures, such as hours of power outages prevented.

High Demand for Resilience

Energy resilience is in high demand in New Jersey.

In the aftermath of Superstorm Sandy, resilient energy projects were the single most requested type of resilience or mitigation project among New Jersey municipalities and counties, according to the action plan amendment.

When New Jersey Gov. Chris Christie's (R) administration announced in 2013 that it would use \$25 million in Federal Emergency Management Agency assistance to support resilient energy projects across the state, the response from local governments was overwhelming, with more than \$469 million in requests.

“This is a huge challenge if we're going to create resilient power applications in many, many critical facilities—fire, police, hospitals, food banks, housing—that's going to require a lot of money,” said Lew Milford, president of the Clean Energy Group, a renewable energy advocacy organization.

Investing in Advance

To help fill the gap between funding demand and available resources, New Jersey's Energy Resilience Bank wants to leverage private-sector capital.

“What's interesting and important about something like the New Jersey bank is that if we can begin to tap capital markets to finance resilient power projects, then we might be able to really begin to meet the challenge,” Milford told Bloomberg BNA. “That's what this is really all about.”

Developing a pool of capital for energy resilience also could help New Jersey move away from the tendency to deal with disasters after the fact.

“We can't continue to have a situation where a disaster happens and then communities are scrambling to find capital,” Milford said. “It takes a long time to get disaster relief funding.”

The Energy Resilience Bank is one way the state can prepare in advance of a future disaster, he said. "That's what we need all around the country," Milford said.

Green Bank Trend

New Jersey's Energy Resilience Bank has been compared to government-created financial institutions in other states, called green banks, which are focused on driving private investment toward creating cheaper, cleaner and more reliable energy.

The nation's first green bank, the Clean Energy Finance and Investment Authority (CEFIA), was established in Connecticut in 2011. Since then, similar banks have been set up in Hawaii and New York, and more banks are on the way in other states.

The New Jersey bank looks similar to these green banks, but it has a narrower focus for its project financing.

"A green bank could finance an energy efficiency project that wasn't strongly tied to resilience," Fox-Penner said. "It certainly doesn't hurt resilience, but it's not strongly tied, whereas a resilience bank probably would view that as a little far afield."

"The resilience bank, to me, is a special variation of [a green bank] that's a little more specific and narrow but is still cut largely from the same cloth," he said.

'One-Stop Shop.'

One of the main goals of green banks is to help shift clean energy away from its reliance on government subsidies and incentives to more private-sector support, according to a recent working paper from Energy Innovation, an energy and environmental policy consulting firm.

So, rather than offering just grants or rebates, these banks use a combination of financing tools—including bonds, loans and credit enhancements—that can generate returns, the paper said.

The New Jersey bank's first set of financial products will include grants and long-term, low-interest loans with a portion of the principal forgiven for projects that meet performance expectations, according to the draft financing guide for water and wastewater treatment plants.

That first sector financing guide and the general program guide were the subject of dozens of questions from representatives of water and wastewater utilities, hospitals and other sectors on Aug. 27 at a webcasted workshop in Trenton, N.J. Many of the questions focused on the specifics of eligibility and how the bank's financing program will fit in with existing clean energy programs and regulatory requirements.

New Jersey regulators called the bank a "one-stop shop," saying even if applicants aren't eligible for bank financing, the Energy Resilience Bank still will help them find other sources of funding. Regulators also pledged to help applicants navigate regulatory requirements, such as air permitting and environmental reviews.

Reducing Risk

The New Jersey bank is expected to attract a high level of interest from private lenders, which could include commercial banks, endowments, foundations, hedge funds or pension funds, and other institutional investors.

For the private sector, the ability “to come in and be a first mover” in an emerging market without as much risk may be part of the bank’s lure, said Jeffrey Schub, vice president of the Coalition for Green Capital.

“Private banks are given the opportunity to create a whole new line of business but do it with a little bit of security and support from the state,” he told Bloomberg BNA.

State banks can help reduce the risk to private investors by offering tools such as loan loss reserves and loan guarantees.

Courting Private Lenders

As the Energy Resilience Bank looks to court private lenders, it could learn a lesson from Connecticut’s green bank.

The Connecticut bank—which started with \$48 million from repurposed utility surcharges, the Connecticut Green Loan Guaranty Fund and Regional Greenhouse Gas Initiative (RGGI) auction proceeds—has generated about \$10 in private-sector funds for every \$1 of public funds it invests.

Mackey Dykes, CEFA’s chief of staff, said explaining the bank’s role was key to attracting so much private-sector support.

“A lot of who we hoped were going to be private capital partners were very wary of what they initially thought would be another government-sponsored bank that would come out with cheap capital and compete with them,” Dykes told Bloomberg BNA.

“We explained that we’re not trying to compete with them, but to bring them into the clean energy finance business, to help support risks that they weren’t really prepared to take,” he said. As the portfolios became more established, “we could step back and let the private market take over,” Dykes said.

Green Bank Cooperation

Green banks also can bring clean energy projects to scale, Reed Hundt, a former chairman of the Federal Communications Commission who later founded the Coalition for Green Capital, told Bloomberg BNA.

The coalition, which provides consulting services for green banks at state, federal and international levels, is helping to set up a new bank in California and has ongoing projects in Vermont, Maryland and Minnesota.

“Commercial lenders don't like clean energy projects typically because they are too small,” Hundt said. “One big job for state green banks is to do the lending to a large number of small projects, then end up with a big portfolio of projects and say to a lender, ‘You may not want to lend to one roof, but what about a whole portfolio?’”

That's why “it's in the interest of New Jersey” and other states to coordinate and offer similar lending instruments, he said.

“The right answer economically is to have mid-Atlantic and Northeast cooperation for green banks,” Hundt said. “It will attract more capital and lower the cost of clean energy.”

Avoiding Green Label

But so far, the New Jersey bank has not shown a willingness to work with other states' green banks or the Coalition for Green Capital, Hundt said.

New Jersey also has avoided the green bank label, likely because of the politics behind it for the state's Republican governor.

Christie “personally might like the idea of green,” said the Coalition for Green Capital's Schub. But given Christie's presidential ambitions, he might think he needs to avoid words like “green” or “climate change,” he said.

“The reality for us is it's not critical that it's called a green bank,” Schub said.

“It's much more important that they implement the principles that align with other states in the region, especially New York and Connecticut: supporting clean energy and doing it in a way that's fiscally sustainable for the state and makes consumers better off,” he said.

Resilience and Being ‘Green.’

When asked about New Jersey's decision to establish an energy resilience bank instead of a green bank, Carpen, the Energy Resilience Bank's executive director, said, “energy resilience and being ‘green,’ are not necessarily mutually exclusive.”

The energy resilience projects the New Jersey bank funds could end up being similar to those financed by other states' green banks.

The recently launched New York Green Bank, for example, will finance a range of renewable energy, energy efficiency and other clean energy technologies—many of which contribute to energy resiliency goals.

But one thing that could set New Jersey's bank apart is just how “green” it is compared to other more renewables-focused green banks.

‘Cleaner’ Energy Technologies

While the New Jersey bank may not support as many clean energy technologies as the green banks, Carpen said the distributed energy technologies that the bank will finance “are typically cleaner and more efficient than traditional energy generation technologies.”

Combined heat and power systems, which can be fueled by natural gas or biogas methane from landfills, are cleaner than diesel-fueled backup generators that are often used for emergency power, Robert Sanders, senior finance adviser for the Clean Energy Group, told Bloomberg BNA. The same goes for fuel cells, which are usually a natural gas technology, he said.

“Although not as clean as solar plus storage, these are proven, highly efficient technologies, and they’re much cleaner than coal or diesel generation,” Sanders said. “What the application is should determine what technology to use.

“New Jersey’s bank and other green banks have a very important role in financing a wide range of clean technologies,” he added.

‘A Great Start.’

Schub pointed out that there are limits on the Energy Resilience Bank’s renewables financing.

The bank won’t cover the cost of solar panels or their installation; only the cost of batteries or inverters for making solar a potential backup power source are eligible for financing.

Solar panels are excluded from bank funding because financing mechanisms are already available through New Jersey’s Clean Energy Program or other programs, state regulators have said.

“More money for cleaner technologies is always a great start,” Schub said. “We’ll see if over time the policies and approaches of the Energy Resilience Bank move toward those used by Connecticut or those the New York Green Bank is about to execute on.”

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For More Information

More information on New Jersey’s Energy Resilience Bank is available at <http://www.state.nj.us/bpu/commercial/erb/>.

Environment Reporter