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New York's Climate Act, Five Years In: Updates on Grid Reliability

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No one said it would be easy. When New York state passed the Climate Leadership and Community Protection Act (CLCPA) in 2019, one of the most sweeping climate change laws in the nation, its proponents knew transitioning to a zero-emissions electric system by 2040 would be a challenge.

As the state approaches the act's five-year anniversary, about 50% of the state's annual energy supply comes from zero emissions sources—progress to be sure, but still a long way to 100%. Large-scale renewable energy and major transmissions projects currently in development will help close that gap. But as the transition advances, grid reliability concerns have emerged.

We devote today's column to highlighting some crucial but under-the-radar legal initiatives to preserve grid reliability.

The CLCPA Requires a Transition to a Zero Emission Electric Grid

The CLCPA mandates a 40% reduction from 1990 levels in emissions of carbon dioxide and its equivalents from all New York sources (e.g., cars, buildings, industry, etc.) by 2030 and an 85% reduction by 2050, with the remaining 2050 emissions to be offset through reforestation and other carbon capture means.

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The act also specifically requires electric utilities to secure 70% of their electric supply from "renewable" sources (a defined term) by 2030, and 100% from "zero emissions" sources (not defined) by 2040. Other key power sector requirements include development of 6,000 megawatts (MW) of distributed solar capacity by 2025, 3,000 MW of energy storage by 2030, and 9,000 MW of offshore wind capacity by 2035.

Federal and State Law Requires Grid Reliability

Development of dispatchable emissions-free resources is a key part of the transition to a zero-emissions electric grid. "Dispatchable" refers to

resources that can generate power at a moment's notice, and regardless of whether the sun is shining or the wind is blowing, to meet peak demand.

Currently New York's grid depends on older, fossil fuel "peaker" plants—generating facilities that are used very intermittently—to meet "peak" summer demand. Many of these plants are scheduled for retirement within the next five years pursuant to New York State Department of Environmental Conservation (DEC) regulations and the 2023 State Budget law.

Efforts are underway to replace their specialized capacity, including via Transmission Developers Inc.'s construction of the Champlain Hudson Power Express (CHPE), which will bring 1,250 MW of Canadian hydropower to New York City. But even with CHPE, and other projects in development, there is a still a dispatchable capacity shortfall in coming years.

Those skeptical that New York can timely address this shortfall likely do not realize there is an alphabet soup of regulatory agencies and layers of regulatory safeguards ensuring reliability throughout the transition. For example, pursuant to the federal Energy Policy Act of 2005—passed in the wake of the blackout of 2003—the North American Electric Reliability Corporation sets and enforces mandatory reliability standards for the bulk power system, subject to oversight by the Federal Energy Regulatory Commission (FERC).

New York state has its own additional layers of protection; the New York State Reliability Council adopts enforceable state-specific reliability rules, and the New York State Public Service Commission (PSC) is statutorily required to ensure "safe and adequate electric service" when implementing its programs. Within this framework, the New York Independent System Operator (NYISO; the bulk grid operator regulated primarily by FERC) and PSC periodically assess future system reliability to flag issues early and allow for intervention. Nongovernment researchers have also been tracking reliability trends.

When these early warning systems identify risks, state law provides the tools for protective action. For example, the DEC regulations that require peaker retirements by May 1, 2025, also authorize NYISO (or the local utility) to designate select peakers as temporary "reliability sources," that can continue operating (for limited timeframes) if needed to meet peak demand. See 6 NYCRR Part 227.

Similarly, legislation codifying the New York Power Authority's plan to retire 517 MW of peaker capacity in New York City and Long Island by 2030 includes exceptions to preserve electric system reliability. *See* Pub. Auth. L. 1005(27-c).

Finally, the CLCPA itself has a safety valve: the PSC may suspend or modify compliance with the 2030 and 2040 goals if it determines compliance would "impede the provision of safe and adequate electric service." And if these three provisions serve as safety valves for near term risks, other provisions in the CLCPA give PSC tools to incentivize development of new resources that may be needed to preserve reliability in the long term.

In Near Term, Retirement of Peaker Units Would Create Brief Power Shortfall

Recent assessments have identified both short- and longer-term reliability risks. In the near-term, NYISO identified a potential 446 MW power shortfall for peak summer days in New York City for summer 2025 resulting from the expected May 1, 2025 retirement of 590 MW of capacity from fossil-fuel powered plants under DEC rules. The shortfall would be temporary, as the CHPE project is expected to add 1,250 MW to the city's capacity in spring 2026.

However, there is no need to stock up on flashlights. NYISO used its periodic assessment process as intended; it explored alternative solutions to fill the gap via a formal solicitation, and when proposals fell short, it exercised its last resort regulatory authority under DEC rules to designate four peaker plants to remain open through summer 2025 in New York City: Gowanus 2 & 3 and Narrows 1 & 2 barges.

As soon as CHPE comes online, the temporary peakers must cease operations, assuming no new short-term reliability needs are identified in the interim.

Long-Term Reliability Requires New Resources

In the longer term, NYISO projects that "reliability margins are narrowing and could be eliminated over the next ten years." *See* NYISO, "2023-2032 Comprehensive Reliability Plan" (Nov. 28, 2023). That narrowing is caused by multiple factors: the intermittent nature of solar and wind power, the limits of current battery technology, the rapid growth of data centers creating higher than expected demand, and transmission constraints, to name a few. But perhaps the single biggest factor is the lack of dispatchable emissions-free resources (batteries included) that can replace fossil fuel powered peaker units.

And with the transition to electrified building heating, winter demand is expected to exceed summer demand within the next decade. Studies project that, although New York will have sufficient electric supply the equivalent of 354 days a year, by 2040 it will need anywhere from 17-23 gigawatts (GW) to 27-45 GW of backstop or dispatchable capacity during the roughly 11 days per year when peak demand is expected to outpace supply. *See* PSC Order Initiating Process Regarding Zero Emissions Target at 10-11, Case 15-E-0302 (May 18, 2023) (the "May 2023 Order").

PSC Explores Solutions for Long-Term Reliability

Last May, PSC initiated a nearly year-long process soliciting input on how the state should, as part of its efforts to achieve the CLCPA's 2040 zero-emissions requirement, address the future reliability risk identified by NYISO and others (the Zero by Forty Process). *See* May 2023 Order. PSC invited stakeholders to weigh in on technological solutions for filling the reliability gap and on what further policy steps might be required to achieve zero emissions by 2040.

In addition, PSC sought comment on specific questions, including how various undefined terms in the CLCPA like "zero emissions" should be interpreted, and whether a new incentive "tier" is needed under the commission's Clean Energy Standard (CES) to spur creative market solutions.

Public comments indicate there are several contested legal and technological issues and some areas of agreement. Most commenters urged a broad and flexible definition of zero emissions, focused on system attributes rather than specific technologies, to ensure that new technologies meeting desired attributes (e.g. dispatchable, carbon free, quick start, etc.) could qualify. However, most also stopped short of embracing too much flexibility, urging the PSC to reject requests to interpret "zero emissions" to mean "net zero," which would allow fossil-fuel power plants to continue operating with offsets.

Commenters disagreed on whether air pollutants other than greenhouse gasses (GHGs) should be included in the zero-emissions mandate. They also disagreed on the extent to which life-cycle emissions should be considered in characterizing energy resources. Notably, the act already defines renewable resources like wind and solar as "zero emissions," notwithstanding their supply chain emissions.

Commenters generally embraced the development of new and enhanced technologies like pumped storage, green hydrogen, next generation batteries, flywheel storage, virtual power plants and demand response solutions (incentivizing customers to shift power usage to non-peak times) to name a few. They diverged in this support to the extent these solutions and others would generate GHG emissions in their charging or operation.

Finally, a number of commenters recommended creating a new tier of state financial incentives for utility-scale technology development.

While we cannot predict next steps, at a minimum PSC will need to issue some decisive rulings on disputed terms to give the market clear signals on what will and will not qualify under the act as "zero-emissions" technologies that can solve New York's future grid reliability concerns.

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