

BEFORE THE STATE OF NEW YORK PUBLIC SERVICE COMMISSION

Proceeding on the Motion of the Commission to Implement a
Large-Scale Renewable Program and Clean Energy Standard
CASE 15-E-0302

By Parties:

Glen Families Allied for the Responsible Management of Land (GlenFARMLand)

Protect Columbia

Farmersville United

Freedom United

Litchfield United

Flyway Defense

No Big Wind

Centerville's Concerned Citizens

Concerned Citizens of Rushford

Save Sauquoit Valley Views

StopCricketValley

Protect Orange County

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With additional support of the following organizations:

Duanesburg Neighbors

Crawford/Rynex/Sandborn Neighbors United

Introduction

We write the Public Service Commission (PSC) as true stakeholders in any process concerning energy. As New Yorkers, we are impacted by increasing energy costs and high taxes to support irresponsible policy mandates. We also represent upstate communities abused by an extreme state energy plan that seeks to cover hundreds of thousands of acres with solar panels, wind turbines, extensive transmission lines, battery storage systems, and other infrastructure—all to support the reckless buildout of intermittent generators of electricity, involving components manufactured mostly outside of the United States. At risk is public health and quality of life, wildlife and ecosystems, natural carbon sinks, upstate agriculture that will become increasingly important as climate change hinders crop production elsewhere, and a state economy that depends on access to abundant energy.

New Yorkers have been sold a bill of goods. We have been told that solar and wind are the answer to climate change; that they would usher in affordable, reliable electricity; and that fossil-fuel power plants would be shut down. Instead, new fossil fuel power plants have been built and existing ones, including within environmental justice communities, are running more than before the Climate Leadership and Community Protection Act (CLCPA) became law. Greenhouse gas emissions from the electricity sector have increased by millions of tons annually since passage of the CLCPA as the state moved from a 60% carbon-free grid in 2019 to one that is only 50% carbon-free today. Meanwhile energy costs—for both natural gas and electricity—continue to rise. Upstate communities have been robbed of home rule, robust environmental review, and fair tax revenue from underperforming industrial solar and wind projects which they are forced to host.

Poor energy planning will ultimately prove embarrassing for legislators, agencies, and the governor. However, the consequence to New Yorkers could be catastrophic. When the lights go out, or when heat and air-conditioning are lost, people can die. When electricity is neither reliable nor affordable, the economy suffers and residents are impoverished. As parties to this proceeding, we implore the PSC to avert disaster. Instead of allowing itself to be driven by the politics and ideology that have hijacked energy discussions for several years, we urge the Commission to engage in rational energy planning based on an understanding and appreciation of technology, economics, the environment, and a respect for both urban and rural communities.

Infeasibility of Current Plans

The state's scoping plan brazenly asserts that "wind, water, and sunlight will power most of New York's economy in 2050." While this may align with the ideology of "green" NGOs that wish to throw even more public money at solar and wind development, it does not align with credible planning necessary to ensure affordable, reliable energy for the future.

Today, renewable energy in New York is reliable for one reason: Most of it is hydropower. However, that will change if the state pursues a decarbonization plan that is overly dependent on intermittent solar and wind. Both the New York Independent System Operator (NYISO) and New York State Energy Research and Development Authority (NYSERDA) predict that electricity demand could double in the future with the electrification of transportation, heating, and industry. Thus, with little potential for in-state expansion, hydro's contribution will drop from 24% of generation serving demand today to about 16% in 2050.¹ Today, only about 7% of in-state generation comes from solar and wind (including behind-the-meter solar). Yet in its integration analysis for the state's Climate Action Council, NYSERDA claims that by 2030—less than 7 years from now—solar and wind will be able to generate almost 50% of all electricity consumed in New York. By 2040, NYSERDA claims this figure could be 70%; and by 2050, NYSERDA claims it could be 80%, even as statewide demand for electricity doubles. This is a drastic change from today when New York receives 95% of its electricity from "firm," meaning baseload or dispatchable, sources.²

By the state's own estimates, the amount of solar and wind capacity needed to support a strategy focused predominantly on intermittent generation is astronomical. Just deploying the amount of large-scale solar contemplated by NYSERDA—about 55 GW—could require sacrificing over 600 square miles of land. This amounts to converting an area roughly the size of Albany to glass, copper, and steel every year for the next three decades.³ Based on NYSERDA

¹ This includes additional imported hydropower from CHPE.

² Percentages are based on illustrative Scenario 3 of Integration Analysis prepared by NYSERDA for the Climate Action Council, Integration Analysis Technical Supplement Annex 2 Key Drivers Outputs, December 2022. <https://climate.ny.gov/resources/scoping-plan/-/media/project/climate/files/IA-Tech-Supplement-Annex-2-Key-Drivers-Outputs-2022-1.xlsx> . (Note that percent of hydropower includes addition of CHPE from Canada.)

³ NYSERDA Scenario 3 in 2050: 55 GW = 48,497 MW utility-scale + 6,824 MW community solar (assuming half of distributed generation is ground-mount community solar). At 5-7 acres/MW_{AC}, this corresponds to 277,000 to 387,000 acres = 432 to 605 square miles. Over 27 years, this corresponds to 16 to 22 square miles annually.

estimates, the state would also need to deploy more than 17 GW of offshore wind (approximately 1,700 turbines), install 10 GW of onshore wind corresponding to thousands of land-based wind turbines throughout upstate New York, and import over 6 GW of electricity from wind resources outside the state. Achieving such a buildout would require erecting a new wind turbine the size of the Statue of Liberty somewhere upstate every 4 or 5 days for the next 27 years.⁴

But the absurdity does not end there. Since intermittent solar and wind cannot deliver energy when needed, NYSERDA estimates that the state will additionally require 85 GWh to 170 GWh of battery storage (21 GW of capacity lasting 4-8 hours).⁵ This is about a hundred times more storage than in Moss Land, California, home to the largest lithium-ion battery complex in the world. Yet while costing upwards of 50 billion dollars, such an investment would not even power the Big Apple for a day. Season-to-season storage to carry energy from summer sunlight into the winter does not exist, and winter wind lulls can last weeks at a time. That is not a good combination, especially considering that electrification of heating systems will shift peak demand to the winter.

NYISO warns, and NYSERDA admits, that solar, wind, and batteries cannot guarantee reliable electricity. Thus, a carbon-free grid that relies heavily on intermittent resources also requires “firm” generation, referred to as Dispatchable Emission-Free Resources (DEFRs) to back up the state grid when the sun is not shining, the wind is not blowing, and batteries are depleted: dispatchable generators that may be used infrequently, yet can deliver very high-capacity power when needed. NYISO admits that scalable technology serving this magical fudge-factor role might not exist. Nonetheless, taking the renewable narrative to an even higher tier of absurdity, NYSERDA has proposed using “green hydrogen” produced by electrolysis from solar and wind, consumed in giant fuel-cell power plants, stored in massive underground caverns, and pumped around the state through 400 hundred miles of new hydrogen-grade pipeline made of ultra-thick steel.⁶ Needless to say, no one has attempted to calculate the greenhouse gas impact of building this additional level of duplicative energy infrastructure.

⁴ NYSERDA Integration Analysis, Scenario 3, December 2022.

⁵ NYSERDA Integration Analysis, Scenario 3, December 2022.

⁶ Scoping Plan, Appendix G, December 2022. <https://climate.ny.gov/resources/scoping-plan/-/media/project/climate/files/Appendix-G.pdf>

Perhaps most shocking is that the amount of redundant “backup” capacity required for such an endeavor rivals the state’s existing fleet of fossil-fuel power plants, at least 20 GW according to NYSERDA.⁷ Throwing efficiency, cost, and any attention to feasibility out the window, NYSERDA’s concept would not only require building insane amounts of underutilized generation capacity and support infrastructure, half of the hydrogen needed would still need to be imported from sources outside New York.

Given the seriousness of the task at hand and potential impact to the state, the lack of credible analysis to date is astonishing. Driven by activist ideology rather than economics or engineering, NYSERDA has failed to consider practical aspects of implementation, supply chain constraints, or real-world cost to consumers. The agency also seriously underestimates the magnitude of infrastructure required to pursue such a strategy.

In New York, solar operates at a DC capacity factor of 14%, rivaling Alaska as one of the worst places in the country to receive energy from the sun. Likewise, average land-based wind in the state runs at a capacity factor of 25%, significantly less than suggested by NYSERDA’s numbers.⁸ Unlike open plains in the Midwest, the capacity factor of wind in New York is also extremely site-dependent. As buildout occurs, the best wind sites (mostly along ridges) will likely be taken first, resulting in poorer average performance as additional turbines are deployed. According to NYISO, a grid dominated by intermittent generation could need more intermittent capacity (solar + wind) and more backup capacity by 2040 than NYSERDA estimates for 2050.⁹ NYISO has also predicted in more recent analysis that such a system could require up to 45 GW of DEFR capacity—twice as much as predicted by NYSERDA.¹⁰ Furthermore, NYISO warns that to maintain reliability in the greater metropolitan area, peaker plants will need to remain in operation, to say nothing of the very large fossil fuel power plants that actually produce most of

⁷ NYSERDA Integration Analysis, Scenario 3, December 2022.

⁸ NYISO Power Trends 2020, page 18. <https://www.nyiso.com/documents/20142/2223020/2020-Power-Trends-Report.pdf/dd91ce25-11fe-a14f-52c8-fla9bd9085c2>

⁹ According to NYSERDA’s Integration Analysis Scenario 3, the state would need to deploy 96,119 MW of solar and wind, plus 19,994 MW of DEFR capacity by 2050. According to the NYISO’s Climate Change Impact and Resiliency Study Phase II, the state could need 106,402.8 MW of solar and wind by 2040, plus 32,136.6 MW of DEFR capacity by 2040 (Executive Summary, CCP2-CLCPA case). Significantly, unlike NYSERDA’s analysis, since NYISO does not presume a particular DEFR solution, this also does not include additional solar and wind that would be required to produce hydrogen.

Hibbard, et al., *Climate Change Impact and Resilience Study – Phase II: An Assessment of Climate Change Impacts on Power System Reliability in New York State*, Final Report, prepared by Analysis Group for NYISO, September 2020. <https://www.nyiso.com/documents/20142/16884550/NYISO-Climate-Impact-Study-Phase-2-Report.pdf>

¹⁰ NYISO, *2021-2040 System & Resource Outlook (The Outlook)*, September 22, 2022. <https://www.nyiso.com/documents/20142/33395392/2021-2040-Outlook-Data-Catalog.pdf>

downstate New York's electricity. As capacity margins shrink, NYISO predicts that at least 70% of the state's existing fossil-fuel capacity (17 GW) will need to remain operational after 2030.¹¹

The huge transmission impacts of intermittent buildout have also been glossed over. The notion of distributed renewables encouraging locally-produced electricity is an ideological myth. In reality, solar and wind in New York require far more transmission to move energy long distances from where it is produced to where it is needed (plus storage to move energy from when it is produced to when it is needed). Moreover, the myriad power lines connected to sprawling low-capacity-factor solar and wind farms must be sized to support the nameplate capacity of those projects, even though full nameplate capacity is rarely produced.

While press releases from state agencies celebrate Clean Path New York (CPNY) and Champlain-Hudson Power Express (CHPE), the fact remains that those two projects pale in comparison to all of the additional intrastate and interstate transmission actually needed to support a grid dominated by intermittent generators. Together, CPNY and CHPE are expected to supply New York City with about 18 TWh of carbon-free electricity annually.¹² This is only slightly more than the amount of carbon-free energy lost by the premature closure of Indian Point (though unlike baseload power from Indian Point, the electricity from CPNY and CHPE is not guaranteed when needed).¹³ Thus, after spending at least 17 billion dollars on both projects, New York will find itself no better off with respect to grid decarbonization than before the CLCPA was adopted.¹⁴

Severe transmission constraints across the Southern Tier and Long Island may persist for decades. Yet the Office of Renewable Energy Siting (ORES) continues to approve the siting of large-scale renewables upstate. Unless the state builds new high-capacity-factor, carbon-free generation downstate like nuclear power, decreasing greenhouse gas emissions from the electric sector will require constructing tens of thousands of megawatts of transmission in addition to CPNY and CHPE so that reliable carbon-free electricity can be brought into the metropolitan

¹¹ NYISO, Power Trends 2023, page 17. <https://www.nyiso.com/documents/20142/2223020/2023-Power-Trends.pdf/7f7111e6-8883-7b10-f313-d11418f12fbf>

¹² CPNY is advertised as providing up to 7.5 TWh of renewable electricity annually. <https://www.cleanpathny.com/> Assuming continuous delivery of Canadian hydropower (though not guaranteed), the 1200MW CHPE line would provide up to 10.5 TWh of electricity annually.

¹³ According to contracted agreements, CHPE is not obligated to deliver electricity to New York if that electricity is needed in Quebec.

¹⁴ CPNY: \$11billion <https://www.cleanpathny.com/about-project/faqs> ; CHPE: \$ 6 billion <https://chpexpress.com/project-overview/economics/> (Note that this does not include potential price increases that both CPNY and CHPE have requested.)

region from elsewhere. Notably, this includes transmission capacity to provide backup electricity for offshore wind turbines that will be located downstate, but which only operate when the wind blows.

Another aspect of reliability which has been neglected is that designing a robust grid requires that we maintain reliability margins over and above what is calculated to simply get by. In this way the system is reasonably prepared for equipment failures and other unforeseen events. For today's existing grid that relies predominantly on firm baseload and dispatchable sources, NYISO sets this additional capacity buffer, known as an Installed Reserve Margin (IRM), at about 20%.¹⁵ NYSERDA does not account for this margin, nor does it consider how this margin may need to change in a network dominated by intermittent weather-dependent generators that are also more vulnerable to damage by the weather.¹⁶

Astonishingly, plans focusing on intermittent generation presume that New York will achieve results that have not been realized anywhere else on Earth, and will do so without suffering the devastating consequences that have resulted in places where those same strategies have been attempted. After thirty years, California and Germany have only managed to achieve 30% to 40% penetration from solar and wind. Both continue to rely heavily on fossil fuels to support their grids.¹⁷ California residents pay 80% more for electricity than its neighbors.¹⁸ Germans pay almost double what is spent in France, which has a much cleaner grid thanks to carbon-free nuclear power.

Finally, New York will likely find that increasing penetration of intermittent solar and wind does not translate to a proportional reduction in fossil-fuels. To avoid blackouts, California has had to build new gas-fired power plants and must import significant amounts of electricity from dirty sources beyond its borders. If New York follows in California's footsteps, relying on

¹⁵ NYISO, Installed Capacity Market (ICAP) <https://www.nyiso.com/installed-capacity-market> ; <https://www.nyiso.com/documents/20142/34827341/Installed-Capacity-ICAP-Market.pdf> ; NYSIO, *How the Installed Reserve Margin Supports Reliability in New York*, April 27, 2023. <https://www.nyiso.com/-/how-the-installed-reserve-margin-supports-reliability-in-new-york>

¹⁶ In supplemental comments dated July 8, 2016 regarding implementation of a Clean Energy Standard, NYISO determined that to maintain reliability and a 1-day-in-10-year "loss of load expectation" as additional intermittent renewables are deployed, the IRM would need to increase to between 40% and 45%. Furthermore, this was prior to passage of the CLCPA when the CES requirements was electricity generation was 50%, not 70%. <https://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={039DE249-C6D9-4A80-8183-349261546F1B}>

¹⁷ Following the premature closure of its nuclear plants, Germany has had to mine more coal within its borders, even demolishing wind turbines to do so. California has become increasingly reliant on imported electricity, including coal-based sources, to compensate for intermittency in-state.

¹⁸ <https://calmatters.org/california-divide/2021/03/california-high-electricity-prices/>

inefficient simple-cycle “peakers” as fast-ramping backup for intermittent generation, running existing gas-fired power plants in “hot standby” (burning gas when not making electricity), and importing more dirty electricity from its neighbors, fossil-fuel consumption may decline little even if the percentage of “renewable” energy increases in New York’s electricity portfolio.¹⁹

It can only be hubris, ignorance, or both, that has brought New York to this unfortunate place. A first semester class in physics would have enabled members of the Climate Action Council and Governor’s office to know the difference between nameplate capacity and energy, or to understand the necessity of matching generation with supply in real-time. Coherent decarbonization policy must be based on science and engineering, not slogans.

New York will either achieve or not achieve the CLCPA’s quota of “renewables” in 2030. However, the goal of the CLCPA by 2040 and thereafter is zero-emission electricity—notably, without regard to technology, be it be “renewable” or not. Climate leadership requires reducing greenhouse gas emissions, so focusing on decarbonization rather than on an arbitrary technology quota would be wise.

Assault on Local Communities and the Environment

Contrary to the CLCPA’s title which purports to uphold “community protection,” communities across New York are being victimized by an ideologically-driven energy agenda that neither protects nor respects them. Through creation of the Office of Renewable Energy Siting (ORES), the state has eliminated the review of renewable energy projects under the State Environmental Quality Review Act (SEQRA) and allowed industrial-scale solar and wind projects, regardless of size or impact, to avoid prudent environmental analysis, including the potential preparation of Environmental Impact Statements. Moreover, the state has instructed ORES to usurp local government for all but the smallest of projects, making a mockery of public participation and depriving communities of the right to determine their own future.

¹⁹ Mark Chediak, Naureen S. Malik, *California to Build Temporary Gas Plants to Avoid Blackouts*, Bloomberg, August 19, 2021. <https://www.bloomberg.com/news/articles/2021-08-19/california-to-build-temporary-gas-plants-to-avoid-blackouts> ; Rob Nikolewski, *A lesson from the blackouts: California may be too reliant on out-of-state energy imports*, San Diego Union-Tribune, August 25, 2020. <https://www.sandiegouniontribune.com/business/energy-green/story/2020-08-25/a-lesson-from-the-blackouts-california-is-too-reliant-on-out-of-state-energy-imports-and-the-problem-will-get-worse>

Despite legislative lip-service about giving priority to developed areas and brownfields, the vast majority of new large-scale renewable projects are being built on rural land, displacing farmland, forest, and wildlife habitat. As noted by the New York State Bar Association:

...the burden of hosting renewables facilities, especially solar farms, will not be distributed evenly throughout the state. Rather, they will be concentrated in those areas where it is easiest and least expensive for energy companies to build. This means that developers will choose sites where population density and land prices are low, the ground is level, the soil contains no rocks or roots, and transmission lines are close – typically within two miles. These also happen to be the very places where New York’s prime agricultural soils are located. In other words, the necessary solar and wind farms might well end up on New York’s most valuable farmland... ORES, as well as the energy companies themselves, would be well advised to respect rural communities’ legitimate land use concerns, regardless of the local law preemption provision of Section 94-c. Past failures to protect politically powerless communities from having to host a disproportionate share of New York’s fossil fuel-driven power plants led belatedly to a recognition that those communities were victims of a grave environmental injustice. ORES should therefore muster the political will to respect local zoning codes that provide ample opportunity for the siting of utility-scale solar and wind facilities...

Land use regulation belongs to those powers that New York municipalities have long considered to be theirs under “home rule.” Eliminating it entirely to promote green energy could exacerbate New York’s ever-present upstate-downstate, rural-urban divides. Indeed, some upstaters who may otherwise be well-disposed to green energy appear to be already turning against what they view as a renewables infrastructure that serves mainly downstate energy demands but burdens mainly upstate communities and their local foodsheds. As one town supervisor in Schoharie County stated, “This ‘streamlining’ of green energy siting has toxified the political middle.”²⁰

Sprawling large-scale “renewable” projects can also threaten ecosystems, wildlife, and habitat connectivity. In a study of 160 utility-scale solar energy (USSE) projects in California, researchers with the Carnegie Institute for Science at Stanford and the University of California in Berkley found that most were installed in natural areas, on agricultural land, and near protected areas with potentially deleterious impacts:

²⁰ Fredrick M. Mauhs, *Preempting Local Zoning Codes Fuels Opposition to Renewable Energy in New York*, New York State Bar Association, February 2, 2022. <https://nysba.org/preempting-local-zoning-codes-fuels-opposition-to-renewable-energy-in-new-york/#>

Our study of California reveals that USSE development is a source of land cover change and, based on its proximity to protected areas, may exacerbate habitat fragmentation resulting in direct and indirect ecological consequences. These impacts may include increased isolation and nonnative species invasions, and compromised movement potential of species tracking habitat shifts in response to environmental disturbances, such as climate change. Furthermore, we have shown that USSE development within California comprises siting decisions that lead to the alteration of natural ecosystems within and close to protected areas in lieu of land already impacted by humans.²¹

“We see that ‘big solar’ is competing for space with natural areas,” according to the lead author. “We were surprised to find that solar energy development is a potential driver of the loss of California’s natural ecosystems and reductions in the integrity of our state and national park system.” Notably, unlike the desert landscape of California where fewer people live, upstate New York is also blessed with green landscapes and vistas that residents there cherish. Similarly, large-scale wind projects can be devastating to wildlife. “Renewable” proponents often assert that domestic cats kill more birds than wind turbines. However, domestic cats do not kill eagles. Nor do mortality rates today account for the bird deaths that can be expected to grow exponentially if wind turbine installations proliferate across the countryside.

According to the American Bird Conservancy, almost 700,000 birds die annually as the result wind turbine collisions, a number that is expected to double by 2030, with a potential to reach 5 million.²² Raptors and nighttime migratory birds are most vulnerable. ABS also acknowledges that these figures do not include collision and electrocution mortality associated with expanded transmission lines and related infrastructure. As discussed in a report published in *Applied Biodiversity Science* by Columbia University:

As wind energy grows in popularity, its environmental impacts are becoming more apparent. Recent studies indicate that wind power has negative effects on proximate wildlife. These impacts can be direct—collision fatalities—and indirect—habitat loss. Negative impacts associated with operational wind farms include collision mortalities from towers or transmission lines and barotrauma for bats. Habitat loss and fragmentation, as well as avoidance behavior, are also consequences resulting from wind farm construction and related infrastructure.

²¹ Hernandez, et al, *Solar Energy Development Impacts on Land Cover Change and Protected Areas*, PNAS, Volume 122, No. 44, October 15, 2015. <https://www.pnas.org/doi/full/10.1073/pnas.1517656112>

²² American Bird Conservancy: Wind Energy, <https://abcbirds.org/program/wind-energy-and-birds/challenges/>

The potential harm towards protected and migratory bird species are an urgent concern, especially for wind farms located along migratory flyways.²³

According to the former National Coordinator with the American Bird Conservancy, “Wind turbines may now be among the fastest growing human-caused threats to our nation’s birds. ... Wind developers are siting turbines in areas of vital importance to birds and other wildlife, and new data shows the current voluntary systems needs radical improvement.” For humans, too, wind turbines built near households can have significant negative effect on residential well-being due to noise, shadow flicker, and visual blight.²⁴

Notably, the New York State Department of Environmental Conservation (DEC) conducted an exhaustive evaluation of impacts in preparing a Generic Environmental Impact Statement on high-volume hydraulic fracking. Yet, no such evaluation has been performed by DEC for solar and wind development which could have even greater ecological impact due to its extremely low energy density and permanence of extensive infrastructure. Absent such an evaluation, there is no assurance that the environment will not be significantly harmed.

Energy sprawl resulting from industrial solar and wind development will demand unprecedented amounts of land, damage ecosystems, and diminish quality of life. It also creates few permanent jobs. For a typical wind farm in Steuben County, Howard Wind LLC, the county Industrial Development Authority reports that two “full time equivalent” jobs were created.²⁵ The Alle-Catt project, if built, might generate a dozen permanent jobs, about one for every 2,000 acres occupied.²⁶ Mill Point Solar 1 in Glen, New York is now expected to occupy 3,000 acres, yet generate merely two to four permanent jobs according to the developer.²⁷ Likewise, temporary jobs installing solar panels made overseas will do little for New York’s economy or its workforce. Most global solar-panel production is in China, some by forced Uyghur labor or child

²³ Lauren Naylor, *Gone with the Wind: Implications of wind development for raptor populations*, Applied Biodiversity Science, Perspectives Series, No. 7.

https://oaktrust.library.tamu.edu/bitstream/handle/1969.1/166247/ABSPS7_Naylor.pdf

²⁴ Christian Krekel, Alexander Zerrahn, *Does the presence of wind turbines have negative externalities for people in their surroundings?* Evidence from well-being data, July 2016.

https://www.researchgate.net/publication/305385664_Does_the_Presence_of_Wind_Turbines_Have_Negative_Externalities_for_People_in_Their_Surroundings_Evidence_from_Well-Being_Data

²⁵ Steuben County IDA, Public Authorities Reporting Information System (PARIS) Report on Howard Wind, 2016 calendar year, on file with G. Abraham, Esq (obtained by FOIL request).

²⁶ Alle-Catt Wind Farm, “11-13 permanent jobs”. <https://allecattwind.invenenergy.com/>

²⁷ *Public information meeting Questions and Answers, Mill Point Solar Project*, Town of Glen, Montgomery County, NY, April 2021.

labor.²⁸ Only by ignoring glaring supply-chain issues, and human rights elsewhere, can we pretend this makes fiscal sense or moves us toward environmental justice.

Adding insult to injury, in the 2023 approved budget, fair tax compensation for solar and wind projects has also been taken from communities forced to host them, reducing assessments by up to 80%. This robs local communities, including fire departments and school districts, of beneficial revenue to offset impacts. It even threatens to unravel existing Payment-In-Kind Tax (PILOT) agreements previously developed in good faith.

At a 2017 meeting of the Independent Power Producers of New York, then Chairman of the PSC John Rhodes promised that the state would not “force” renewable energy projects on “unwilling” rural communities.²⁹ He stated that Article 10 is “not a stacked process” against host communities, and further committed that “not under this governor are we going to force people in a police state mode to do anything.” However, Alle-Catt, Mill Point, Stonewall Solar, Columbia Solar and Storage, and dozens of other proposals all represent the withdrawal of this assurance—a broken promise to New Yorkers. As parties here attest, Article 10 and its successor 94-C are, in fact, stacked processes that favor corporate interests and ignore local law, the environment, and citizen voices.

Given the blatant disregard shown by state government to these concerns, it should come as no surprise that rural New York has become increasingly resistant to large-scale solar and wind projects, and increasingly resentful of the political strongarming used to force those projects upon upstate communities.

A plan that does not work will still be costly

15-E-0302 Proceeding filings now feature requests for more money from the companies contracted to build solar and wind projects. Developers want a higher strike price which will increase costs to rate payers and taxpayers, including those least able to afford it.

²⁸ Niccola Conte, *Visualizing China's Dependence in the Solar Panel Supply Chain*, Visual Capitalist, August 30, 2022. <https://www.visualcapitalist.com/visualizing-chinas-dominance-in-the-solar-panel-supply-chain/> ; *China uses Uyghur forced labour to make solar panels, says report*, BBC News, May 14, 2021.

<https://www.bbc.com/news/world-asia-china-57124636>

²⁹ Robert Bryce, *Wind power hits headwinds in New York*, Albany Times Union, September 27, 2017.

<https://www.timesunion.com/opinion/article/Wind-power-hits-headwinds-in-New-York-12232876.php>

Politico examines Multiple Intervenors' and Municipal Electric Utilities Association's filing on this proceeding regarding the cost of the increases requested.³⁰

CLEAN ENERGY INFLATION ADJUSTMENT COSTS ESTIMATED:

Dissatisfied with NYSERDA's evaluation of the potential costs of an increased subsidy for clean energy projects, the state's large energy users say the price tag of the asks is more than \$48 billion. Multiple Intervenors, a group that includes manufacturers, retailers and colleges, and the Municipal Electric Utilities Association of New York State filed the estimate in supplemental comments on Wednesday. They oppose increasing the subsidies. "The Commission should not lose sight of the primary issue before it, which is not how much incremental compensation would appease the numerous petitioning developers but, rather, whether the competitive solicitation process should be abandoned, and what is fair, just, and reasonable for customers (who, at the end of the day, are left footing the bill for each of these long-term contracts)," the groups wrote.

The figure includes the total value, not discounted to the present, for the increases requested by the offshore wind developers (\$37.7 billion) and the onshore renewables (\$10.69 billion). The offshore wind estimate is based on NYSERDA contracts and information the authority filed about the requested increases last week.

The commission should provide detailed information about the impact of any increase on all customers ... simply offering alternative formulas with lower costs is not enough, the energy users argue. "While it may seem administratively-efficient to pick a formula that seems to yield the lowest number presented, the Commission should require much more before deciding whether to impose tens of billions of incremental costs on customers and the public interest requires more protection than would be accorded by the use of a single, generic formula that is devoid of any factual linkage to specific contracts or projects," they write.

The Empire Center for Public Policy also analyzes the cost issues in the context of these filings before the Commission.³¹

The myth that New York can replace fossil fuel power plants with cheap renewable energy has begun to crumble under renewable developers' demands for higher prices to offset inflation and supply chain challenges.

³⁰Maria French, *Spotlight on Labor Ahead of Big Climate Week*, Politico, September 11, 2023. <https://www.politico.com/newsletters/weekly-new-york-new-jersey-energy/2023/09/11/spotlight-on-labor-ahead-of-big-climate-week-00114916>

³¹ James E. Hanley, *New York Energy Costs Blow the Doors Off Projects*, Empire Center for Public Policy, September 8, 2023. <https://www.empirecenter.org/publications/new-wind-energy-blows-doors-off-projections/>

Multiple offshore wind projects that are not even built yet have asked the state's Public Service Commission (PSC) to renegotiate their strike prices—the amount they will be paid per megawatt hour (MWh) of electricity produced. ...Ørsted and Eversource have asked for a 27 percent increase for their Sunrise Wind project, which would raise their strike-price from around \$110 to nearly \$140 per MWh. ...[T]he joint venture of Equinor and BP has asked for increases on all three of the projects it is developing. For Empire Wind 1, they want a 35 percent increase that would raise its strike-price from \$118 to almost \$160, for Empire Wind 2 a 66 percent increase that would bring its strike-price from \$107.50 to almost \$178, and for Beacon Wind a 62 percent increase to lift its strike-price from \$118 to over \$190. This is despite a leading analyst's recent prediction that offshore wind should only cost \$72 to \$140 per MWh. ...The Alliance for Clean Energy New York (ACE), a renewable energy industry group, has filed a petition to increase the prices paid to as many as 86 of 117 onshore wind and solar projects awarded by NYSERDA between 2016 and 2021. NYSERDA estimates the requested changes would increase strike prices an average of 63 percent for solar projects and 71 percent for onshore wind projects.

Like the offshore wind projects, these facilities are not yet built but already the prices developers agreed to are allegedly no longer financially viable. If the Public Service Commission does not agree to their request, ACE says, these projects “cannot proceed economically on existing contract terms.”

As if increases in prices for uncompleted solar and wind projects aren't enough, an unfinished hydropower project—the Champlain Hudson Power Express, a high-voltage direct current line transmitting hydroelectric power from Quebec to New York City—has also asked for a price increase.

All these cost increases will fall on a state that already has over 1 million utility customers who are collectively in arrears on their bills for nearly \$2 billion.

All of these projects face the same challenges—inflation and supply chain limitations that constrain the availability of needed materials and increase their costs. ...The rapidly increasing demand is causing challenges at multiple points in the supply chains. Among these are mining and refining enough of the critical minerals needed for renewable energy sources, building new manufacturing facilities for offshore wind turbines in the U.S., and ensuring a sufficient number of wind turbine installation vessels, or jack-up ships, needed for building offshore wind towers...The increased costs are rocking the renewables industry, and particularly the offshore wind industry.

On October 12, 2023, the Commission wisely issued an order stating that renewable energy developers will be held to their contracted pricing. However, it now appears that developers will either seek relief outside of the regulatory process, such as tax abatements and

government loan guarantees, or will simply cancel and rebid. Unfortunately, as long as the state continues to pursue a strategy of favoritism that dictates specific technology quotas (like 9000 GW offshore wind), the cost to New Yorkers will continue to grow even as reliability suffers.

New Yorkers Deserve a Rational Decarbonization Plan Based on an Understanding of Energy Systems, not Ideology—A Plan that Works

Although the parties to this filing can support a modest development of solar, wind, and battery projects when permitted by local laws and supported by the affected communities, an energy strategy that places overwhelming emphasis on intermittent, underperforming generation and rejects local government stakeholders is untenable. It not only abuses communities. It will fail to meet state climate goals; it will harm the environment; it will weaken New York's economy; and it will break the backs of ratepayers or taxpayers. The buildout proposed has been driven by political activists and ideologues who lack a basic understanding of how energy or energy markets work. Without a course correction, it will become a train wreck for New York and make grid decarbonization impossible.

Perhaps most ironic is that activists who claim renewables and “efficiency” can meet all of New York's energy needs are demanding a “solution” that, from a system-level standpoint, is the *least* efficient imaginable: a wasteful Rube Goldberg menagerie of underperforming, low-capacity-factor resources that (1) produce little electricity for all of the land and materials they consume, that (2) require massive amounts of battery storage because they are unable to make electricity when it is needed, and that (3) must still be “backed-up” by yet another level of carbon-free but underutilized “firm” generation. As the technical, logistical, and financial infeasibility of such an approach become apparent, New York will find itself burning fossil fuels for electricity far into the future. Indeed, escape-clause language within the CLCPA even permits this.³²

In actuality, activists trying to dominate state energy policy are not demanding a “solution.” They are demanding that New York pursue an agenda that will make industrial solar

³² § 66-p (4) states: “The commission may temporarily suspend or modify the obligations under such program provided that the commission, after conducting a hearing as provided in section twenty of this chapter, makes a finding that the program impedes the provision of safe and adequate electric service; the program is likely to impair existing obligations and agreements; and/or that there is a significant increase in arrears or service disconnections that the commission determines is related to the program”.

and wind developers a lot of money, but which will fail to meet our climate goals and which will guarantee that the state remains tied to fossil fuels. It is our hope that by calling this proposed unrealistic strategy out for what it is—a plan that is designed to fail—corrective action will be taken before it is too late.

We respectfully urge the Commission to exercise its authority to avoid this tragedy by conducting substantive engineering, economic, and logistical analyses that should have occurred long before now. As previously discussed, New York ought to learn from mistakes in California and Germany, places which have pursued renewable energy for decades yet remain inextricably tied to fossil fuels and now suffer from unreliable and/or unaffordable electricity. New York should also learn from places that successfully decarbonized. Throughout the world, large economies that have achieved very low-carbon grids did so not by relying on underperforming intermittent generation, but instead by using high-capacity-factor firm resources—namely hydropower and nuclear—which are capable of producing abundant, reliable energy. Among these are France and Ontario with nuclear, Quebec with hydro, and Sweden with both. Ironically, the same is true for upstate New York which already benefits from a very low-carbon grid thanks to hydropower and nuclear.³³

Rather than rejecting reliable firm carbon-free energy or relegating it to a role of “backing-up” intermittent sources, the Commission should encourage the development of firm carbon-free baseload and dispatchable energy that operates at a high-capacity-factor. Viable hydroelectric projects, including those with completed engineering designs, exist on paper and could be built today—yet, for lack of state support, have languished.³⁴ While we understand that the total capacity for additional hydropower in the state is limited, it is nevertheless a source of reliable electricity that can help reduce the state’s carbon footprint and should be pursued.

With the ability to generate gigawatts of reliable electricity 24/7 from a single facility, advanced nuclear power should be on the table as well. Operating independent of the weather at

³³ NYISO Power Trends 2023, page 38.

³⁴ An example of this is proposed Green Island hydropower expansion project on the Hudson River, north of Albany. In 2009, engineering work was completed on a design to replace the four 1.5 MW turbines at the existing hydro plant with eight 6 MW turbines, increasing total capacity of the facility to 48 MW. The project would be able to provide reliable renewable energy resource within the Capitol region. The design even includes modern fish-exclusion technology, making it more ecologically friendly, as well as a park to benefit the community. The fact that, despite passage of the CLCPA, such a project has not received the level of state support necessary to move forward while intermittent solar and wind projects that exacerbate reliability are being accelerated is a clear example of poor policy and misguided priorities. Village of Green Island, *Expansion Plans, Project Renderings, Modernizing Hudson River Hydropower*: <https://villageofgreenisland.com/gipa/expansion-plans/>

a capacity factor in excess of 90%, nuclear power generates five times more energy per megawatt of nameplate capacity than solar and almost four times more than land-based wind. Furthermore, nuclear power requires far less land per megawatt of capacity. This means that the physical footprint and resulting environmental impact of nuclear power is a tiny fraction of the footprint and impact of solar or wind. According to the United Nations Economic Commission for Europe, nuclear power has the lowest land and material requirements of any energy source. It also has the lowest lifecycle greenhouse gas emissions of any source.³⁵

As an example, Indian Point occupied 240 acres and generated 2100 MW of power from two reactors. This corresponds to about 0.1 acre per megawatt of capacity, whereas solar typically requires 5 to 7 acres per megawatt. Taking into account capacity factor, nearly 60,000 acres of solar panels would be required to produce the same amount of energy that was generated by Indian Point every year.³⁶ Similarly, the Alle-Catt wind farm occupies over 33,000 acres within three counties, yet produces only 340 MW of power (if the wind is blowing). Solar and wind also require infrastructure for storage, additional generation to overcome storage losses, backup power, and transmission.

Significantly, hydropower and nuclear do not require battery storage or fossil-fuel backup. Nor do they require the vast amount of sprawling transmission infrastructure needed by solar and wind. Although additional transmission will be necessary in New York as demand grows, the state's existing grid was designed around large baseload generating facilities. Therefore, optimizing the use of high-capacity-factor firm generation can help to minimize those impacts. Importantly, hydropower and nuclear facilities are also made to last. New York's large hydro projects are still making reliable energy after decades of use. Likewise, nuclear reactors can operate 80 years or longer, whereas solar panels and wind turbines last only about 20 years. Nuclear power creates hundreds of high-wage jobs at every facility, with the highest level of unionization of any energy source. With a 60-year track record of experience and advancements,

³⁵ *Carbon Neutrality in the UNECE Region: Integrated Lifecycle Assessment of Electricity Sources*, UN Economic Commission for Europe, March 2022. https://unece.org/sites/default/files/2022-04/LCA_3_FINAL%20March%202022.pdf; UNECE technology brief: Nuclear Power https://unece.org/sites/default/files/2021-08/Nuclear%20power%20brief_EN_0.pdf; *Global Climate Objectives Fall Short Without Nuclear Power in the Mix: UNECE*, United Nations—UN News, August 11, 2021. <https://news.un.org/en/story/2021/08/1097572>

³⁶ In 2019, its last full year in operation, Indian Point produced 16,695 GWh of electricity (2020 NYISO Gold Book). Applying an AC capacity factor of 20%, 9529 MW of solar would be required to produce this same amount of annual energy. At 6 acres/MW, this corresponds to 57,174 acres.

nuclear has also proven itself to be among the safest sources of energy.³⁷ Unlike battery facilities to support intermittent generation, New York’s nuclear power plants have never prompted a shelter-in-place order from the governor.³⁸

New York has choices. We could cover a million acres of New York farmland and forest with sprawling solar panels, wind turbines, batteries, and power lines—and still fail to shut down fossil fuel power plants. Or we could build a handful of large reactors occupying a few hundred acres in total, decarbonize our electric grid, and produce reliable energy that can meet the long-term energy needs of a robust economy. When the cost of over-built solar and wind, storage, new transmission, and backup generation are added up, New York may find that nuclear power is not only the most reliable and ecologically-friendly choice, but also the most feasible fiscally responsible. A plan that would seek to expand solar and wind production by several orders of magnitude but invest only minimally in hydropower and fail to invest at all in additional nuclear is not a plan driven by science or reason.

The Governor, state agencies, and other decision-makers should realize that a blind rush to build industrial solar and wind without attention to feasibility, economics, or upstate communities will cause political upheaval in New York. Very similar circumstances existed a few years ago in Ontario, Canada when a divisive “Green Energy Act” like the CLCPA was pushed through the legislature by southern representatives of the province. A rural backlash ensued that resulted in the cancellation of expensive wind contracts and eventually the Act was repealed altogether.³⁹ Fortunately, however, Ontario learned from prior mistakes and with a genuine commitment to deep decarbonization, now plans to build six new large nuclear plants. Ontario is also integrating small modular reactors into its grid.⁴⁰ Elsewhere, support is growing for expanding nuclear power as part of a rational solution to the climate crisis as well. France and Sweden decarbonized their grids in only 15 years with nuclear power, and both are now

³⁷ Hannah Ritchie, *What are the Safest and Cleanest Sources of Energy?*, Our World in Data, Oxford. February 10, 2020. <https://ourworldindata.org/safest-sources-of-energy>

³⁸ Cosmo Sanderson, *After three fires and a solar plant toxic fumes scare, New York launches safety probe into batter energy storage*, Recharge, July 31, 2023. <https://www.rechargenews.com/energy-transition/after-three-fires-and-a-solar-plant-toxic-fumes-scare-new-york-launches-safety-probe-into-battery-energy-storage/2-1-1493418>

³⁹ Ontario Newsroom, *Ontario Scraps the Green Energy Act*, News Release, December 7, 2018. <https://news.ontario.ca/en/release/50684/ontario-scraps-the-green-energy-act>

⁴⁰ Curtis Heinzl, *Canada Turns to Nuclear After 30-Year Pause to Meet Demand Surge*, Bloomberg Law. July 31, 2023. <https://news.bloomberglaw.com/environment-and-energy/canada-turns-to-nuclear-after-30-year-pause-to-meet-demand-surg>

committed to growing their nuclear fleet.⁴¹ Even California in the past year has determined that it needs to retain its reactors at Diablo Canyon for reliability.⁴²

Importantly, nuclear power enjoys broad bipartisan support in Congress. Designed to support nuclear power, the Inflation Reduction Act extends production tax credits and investment tax credits to nuclear that were previously reserved for solar and wind. Moreover, in March 2023, the Department of Energy published an “advanced nuclear liftoff” report which calls for at least 200 GW of addition nuclear power nationwide.⁴³ And at the recent 2023 United Nations Science Summit in New York City, climate envoy John Kerry voiced support for a “net-zero nuclear” initiative that seeks “unprecedented collaboration between government, industry leaders, and civil society.”⁴⁴ According to a recent survey by the Pew Research Center, a majority of Americans favor building more nuclear plants as well.⁴⁵ Today, a number of states—Wyoming, Idaho, Tennessee, Washington, Texas, Maryland, Wisconsin, Missouri, Ohio, Georgia, and Virginia—are already pursuing or actively exploring the potential for advanced nuclear.⁴⁶ If New York wants to be a real climate leader and garner its share of federal dollars and good jobs, it will join them.

⁴¹ Niklas Pollard and Anna Ringstrom, *Sweden makes regulatory push to allow new nuclear reactors*, Reuters, January 11, 2023 <https://www.reuters.com/world/europe/sweden-makes-regulatory-push-allow-new-nuclear-reactors-2023-01-11/>

⁴² *California Energy Commission Analysis Determines Diablo Canyon Extension “Prudent” to Ensure Reliability – Carbon Free CA* <https://carbonfreeca.org/california-energy-commission-analysis-determines-diablo-canyon-extension-prudent-to-ensure-reliability/>

⁴³ U.S. Department of Energy, *Pathways to Commercial Liftoff: Advanced Nuclear*, March 2023. <https://liftoff.energy.gov/wp-content/uploads/2023/03/20230320-Liftoff-Advanced-Nuclear-vPUB.pdf>

⁴⁴ Net-Zero Nuclear: <https://netzeronuclear.org/> ; *Net-Zero Nuclear Campaign Launched, seeking to triple capacity by 2050*, World Nuclear News, September 7, 2023. <https://www.world-nuclear-news.org/Articles/Net-Zero-Nuclear-campaign-launched.-seeking-to-tri>

⁴⁵ Recca Leppert, Brian Kennedy, *Growing share of American favor more nuclear power*, Pew Research Center, August 18, 2023. <https://www.pewresearch.org/short-reads/2023/08/18/growing-share-of-americans-favor-more-nuclear-power/>

⁴⁶ *Fuel Loading Begins at Vogtle 4*, World Nuclear News, August 18, 2023. <https://world-nuclear-news.org/Articles/Fuel-loading-begins-at-Vogtle-4> ; *Next-gen Nuclear Plant and Jobs Are Coming to Wyoming*, U.S. Department of Energy-Office of Nuclear, November 16, 2021. <https://www.energy.gov/ne/articles/next-gen-nuclear-plant-and-jobs-are-coming-wyoming> ; Sarah Vogelsong, *Nuclear will be major for Virginia electric grid as utilities decarbonize, regulators say*, *Virginia Mercury*, May 27, 2022. <https://www.virginiamercury.com/2022/05/27/regulator-says-nuclear-will-be-more-important-to-virginias-grid-as-utilities-decarbonize/>

Conclusion

Parties to this filing believe the Commission must critically examine the reckless Rube-Goldberg energy strategy that it has been asked to implement.

As detailed by NYISO and others, New York is on a path that puts its decarbonization commitments, its reliability commitments, or both, in jeopardy. With diminishing capacity margins in the metro region, the state risks dangerous and costly power outages as early as 2025.⁴⁷ Whopping solar and wind capacity will gobble up farmland and forest, displacing wildlife and reducing crop production; it may bankrupt New Yorkers even as it destroys their quality of life; but it does not guarantee even a single watt-hour of dispatchable electricity.

An energy strategy that overwhelmingly relies on sprawling solar and wind projects will create new environmental-justice and disadvantaged communities. It will perpetuate fossil fuel dependence like in California and Germany, and it will hurt inner-city neighborhoods. Already, myopic energy policy has increased emissions from the electricity sector, and according to NYISO, has rendered the timely closure of peaker plants impossible. New York's proposed energy strategy will fail both urban and rural communities. Our sympathy is with environmental justice communities experiencing prolonged exposure to pollution following the politically-driven closure of Indian Point. It is also with upstate towns and villages victimized by ORES, by the state's discriminatory land use and taxing policy, and by planning efforts that have been hijacked by special interests.

The only way for the Governor, legislature, and state agencies like the PSC to achieve the outrageous buildout of solar and wind projects proposed is by stomping on the rights of communities across New York and violating the CLCPA's pledge of "community protection."

⁴⁷ In its second quarter 2023 reliability assessment, NYISO states: "Under the baseline forecast for coincident summer peak demand, the New York City transmission security margin would be deficient by 306 MW in 2025 for a duration of 7 hours. However, accounting for uncertainties in key demand forecast assumptions, the higher bound of expected demand under baseline weather conditions (95 degrees Fahrenheit) in 2025 results in a deficiency of 446 MW over 9 hours. The deficiency would be significantly greater if New York City experiences a heatwave (98 degrees Fahrenheit) or an extreme heatwave (102 degrees Fahrenheit)."

Short Term Assessment of Reliability: 2023 Quarter 2, NYISO, July 14, 2023.

<https://www.nyiso.com/documents/20142/16004172/2023-Q2-STAR-Report-Final.pdf/5671e9f7-e996-653a-6a0e-9e12d2e41740> ;

Further, in its 2023 Power Trends report, NYISO describes finding of its Reliability Needs Assessment, stating: "The recent report emphasizes that already-thinning reliability margins could deteriorate further based on identified risk factors, including the potential for delays in planned infrastructure investments, more extreme weather, or unexpected generator outages or retirements." NYISO Power Trends 2023, page 16.

Most tragic, however, is that doing so will not achieve the Act’s climate goals. “Climate leadership” requires understanding the hard science and engineering of energy production and delivery, and it requires action that can deliver on promises made. As seen in all major economies with low-carbon grids, firm energy-dense sources—hydropower, nuclear, or both—provide the backbone of electricity generation. If the Commission fails to support additional firm generation that can deliver reliable carbon-free energy in abundant quantities, it will signal to the public that New York is not serious about climate change or slashing fossil fuel consumption. It will reveal a willingness to sacrifice farmland, natural ecosystems, wildlife, and communities for the benefit of foreign-owned solar and wind developers. And it will shackle residents and business with unbridled rate hikes and the squandering of tax revenue for the fiscally irresponsible pursuit of a plan that cannot work.

Political activists with a distorted view of environmental protection would like to cover a million acres of New York farmland and forest with Chinese solar panels and wind turbines bigger than the Statue of Liberty. Such action will not decarbonize our electric grid, but will enrage communities, invite litigation, amplify opposition to renewables generally, and lead to growing disapproval of an administration that is unable or unwilling to listen to reason. On the other hand, by respecting communities and embracing a balanced energy plan that supports the expansion of all carbon-free resources—including those capable of generating reliable electricity within an energy-dense footprint—the state can meet its climate goals, protect the environment and natural beauty of New York, and meet the needs of a vibrant economy. We urge the Commission to exercise its authority to help New York chart a course that accomplishes the latter.

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