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Comments on New York Power Authority's Renewables Conferral on behalf of Gary A. Abraham, Esq.; Benjamin E. Wisniewski, Esq.; and Ginger D. Schroder, Esq.

The undersigned are attorneys who, among us, have over 30 years of experience representing municipalities and community groups in siting or permitting large-scale renewable energy projects under SEQRA, and before the PSL Article 10 Siting Board and the state Office of Renewable Energy Siting (ORES). Please accept the following comments solicited by NYPA regarding the following questions:

1. Please share your thoughts on the State's progress toward CLCPA goals.
2. Please share your thoughts on how NYPA can or should support CLCPA.
3. Please share your thoughts on what NYPA is already doing to support CLCPA.
4. Do you have anything else you would like to share for the record?

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1. THE STATE'S PROGRESS TOWARDS CLCPA GOALS

New York State has not made meaningful progress towards CLCPA goals. This is well documented in credible public agency reports. The State's irrational pursuit of excessive wind and solar energy generation has led to disastrous environmental consequences, public unrest, and only increased its reliance on fossil fuels. Continued investment in wind and solar to the exclusion of reliable baseload, load-following and dispatchable low-carbon sources (such as nuclear, hydropower, geo-thermal) will not change this trend. An all renewables electrical grid is inherently unstable, cannot provide reliable power and will substantially increase the cost of power for both taxpayers and ratepayers.

Recent reports by the state Department of Public Service (DPS), the State Comptroller, and NYISO acknowledge that the 2030 CLCPA goal to achieve 70% of New York's grid-provided electricity with renewable energy cannot be met.¹ Based on these reports, over 50 business, energy and labor organizations have called on the State to undertake "a realistic assessment of the GHG [greenhouse gas]

1 NYS Dep't Public Service, "Draft Clean Energy Standard Biennial Review" (July 1, 2024), filed in PSC Case No. 15-E-0302, *Clean Energy Standard*; NYS Comptroller, Report 2022-S4, "Climate Act Goals—Planning, Procurement and Progress Tracking (July 2024), <<https://www.osc.ny.gov/state-agencies/audits/2024/07/16/climate-act-goals-planning-procurements-and-progress-tracking>>; NYS Comptroller, "Economic and Policy Insights New York State's Clean Energy Fund" (July 2024), <<https://www.osc.ny.gov/files/reports/pdf/clean-energy-fund.pdf>>; NYISO, "Zero Emissions by 2040 Technical Conference" (December 11-12, 2023) (presentation on currently unavailable "dispatchable emissions-free source" necessary to achieve CLCPA goals), filed in PSC Case No. 15-E-0302.

emission reduction impacts of existing state initiatives”.² The reasons the State cannot achieve the CLCPA goals are structural and indicate that large-scale renewables (wind + solar + batteries) are approaching their maximum ability to contribute to the state’s decarbonization goals. After more than two decades of aggressive incentives, New York currently provides less than seven percent of its electricity from wind, solar and batteries.³ DPS optimistically projects that New York can achieve 45% of its electricity generation with renewables, but most that will be from hydropower.⁴

These recent reports also show that the CLCPA goals are aspirational goals and policy objectives rather than legal mandates. The state Public Service Commission “has not started to address all current and emerging issues that could significantly increase electricity demand and lower projected generation.”⁵ A Scoping Plan to achieve the CLCPA goals has been developed, but no credible fiscal or engineering analysis was ever presented to support the plan. No cost/benefit analysis was performed, and none is planned. As discussed below, the structural obstacles to achieving the CLCPA goals principally with renewable energy cannot be overcome, and they mean that continued efforts to achieve those goals will progressively damage the grid and make energy unaffordable,⁶ with potentially existential consequences for some.⁷

France, Sweden and Ontario managed to decarbonize their grids in two decades while maintaining affordable reliable electricity and growing their economies by utilizing the same resources New York has: hydropower and nuclear power.⁸ The CLCPA’s emphasis on wind⁹, solar and batteries is an outlier,

2 See The Business Council of New York State, “Final CLCPA sign on letter” (July 30, 2024), <<https://www.bcnys.org/news/statement-regarding-clcpa-letter-calling-answers-key-policy-concerns>>.

3 NYISO, *Power Trends 2024*, 49, <<https://www.nyiso.com/power-trends>>.

4 NYS Dep’t Public Service, “Draft Clean Energy Standard Biennial Review”, 56; NYISO, *Power Trends 2024*, 49.

5 NYS Comptroller, “Climate Act Goals—Planning”, 1.

6 For example, in 2018 the lowest-earning 10% of all U.S. households spent 36.3% of their income on energy, according to a U.S. Bureau of Labor Statistics’ Consumer Expenditure Survey. U.S. Bureau of Labor Statistics, “Consumer Expenditures in 2018”, (May 2020), <<https://www.bls.gov/opub/reports/consumer-expenditures/2018/home.htm>>. Transitioning to intermittent resources exacerbates inequity as it results in a significant burden being placed on the most economically challenged households. Rising energy costs, as seen for more than a decade in California, are an inescapable burden upon the poor. R. Bryce, “The High Cost of California Electricity Is Increasing Poverty”, The Foundation for Research on Equal Opportunity (July 2020), <<https://freopp.org/the-high-cost-of-california-electricity-is-increasing-povertyd7bc4021b705>>.

7 A recent report from Cornell University confirms that there will be an energy shortfall of between 59% and 89% in Zones J (New York City) and J (lower Westchester) if the CLCPA is implemented as planned. These two zones contain approximately 60% of New York State’s population. V. Liu, et al., “Heterogeneous Vulnerability of Zero-Carbon Power Grids under Climate-Technological Changes”, *arXiv: Physics and Society* (July 2023) (v2), <<https://doi.org/10.48550/arXiv.2307.15079>>.

8 Indeed, the Province of Ontario is canceling wind projects and embracing an aggressive build-out of nuclear power. Mike Crawley, “Doug Ford government spent \$231M to scrap green energy projects”, *CBC News* (November 19, 2019); Matthew McClearn, “What the death of Ontario’s green energy dream can teach other provinces about the challenges ahead”, *The Globe & Mail* (June 1, 2020). China has 55 nuclear reactors in operation, and 26 nuclear power units under construction. Darrell Proctor, “China Starts Construction of More Reactors as Part of Rapid Nuclear Buildout”, *Power magazine* (July 29, 2024), <<https://www.powermag.com/china-starts-construction-of-more-reactors-as-part-of-rapid-nuclear-buildout/>>.

9 Robert Bryce, a well-known energy commentator, notes that a recent study, published in *Environmental Research Letters* and coauthored by a post-doctoral fellow (Lee Miller) and a physics professor (T. David Keith) at Harvard

followed only by California and Germany, where the program has been a clear failure.

The grid was built for large, centralized generating plants, including nuclear power plants that operate almost around the clock. Adding weather-dependent, unreliable renewables that lack fuel (wind and sunlight) half the time and operate at a fraction of their design capacity requires unprecedented levels of grid management, including fossil-fueled backup power¹⁰ and new local, regional and long-distance transmission capacity. It should be axiomatic that hardening the grid to extreme weather by relying principally on weather-dependent renewables is a technological challenge. Simply changing New York's date for doing so to 2033, is a prescription for repeated failure.

2. HOW NYPA CAN OR SHOULD SUPPORT CLCPA.

NYPA cannot fulfill its mission if it supports CLCPA's focus on intermittent and unreliable renewables—wind and solar. NYPA must lead the way on nuclear, now.

NYPA's mission, to provide inexpensive public power, is obstructed by New York's "two grids" problem. Siting a handful of new nuclear power stations can solve the two grids problem by bringing power generation closest to where it is needed. Siting large-scale renewables only exacerbates the two grids problem, since land and water in the amount needed for wind and solar is scattered throughout New York and far offshore,¹¹ requiring substantial and prohibitively expensive new transmission capacity.¹²

Current climate modeling, as reported by the Intergovernmental Panel on Climate Change and the International Energy Agency, refutes the false premise that climate change is an "existential" threat requiring immediate action without regard to cost benefit analysis. Global average temperatures are likely to increase to between 2 and 3 degrees Centigrade by 2100,¹³ affording NYPA adequate time to

University, demonstrates that wind energy's "Achilles Heel" is its paltry power density. The Harvard University authors found that the average power density—meaning the rate of energy generation divided by the encompassing area of the wind plant—was up to 100 times lower than estimates by some leading energy experts. Miller and Keith concluded that solar panels produce about 10 times more energy per unit of land as wind turbines—a significant finding—but, as Bryce notes, their work deserves attention for two other reasons—it uses real world data, rather than models, to support its conclusions and it conclusively shows that wind energy's power density is far lower than the Department of Energy, IPCC and numerous academics have touted. "The ongoing push for 100-percent renewables, and, in particular, the idea that wind energy is going to be a major contributor to that goal, is not just wrongheaded—it's an energy dead end." Bryce, "Why Wind Power Isn't the Answer" City Journal, Manhattan Institute for Policy Research (January 29, 2019).

10 NYISO has determined that four dual-fuel backup ("peaking") generators in New York City must remain in operation for at least two years beyond their scheduled deactivation date of May 1, 2025, finding that energy storage alternatives are insufficient to keep the lights on. NYISO, "Short-Term Reliability Process Report: 2025 Near-Term Reliability Need", <<https://www.nyiso.com/documents/20142/39103148/2023-Q2-Short-Term-Reliability-Process-Report.pdf>>; *Power Trends 2024*, 20.

11 Offshore wind (which also requires substantial new transmission capacity) is unlikely to obviate the need for new low-emissions generation provided by nuclear power. No offshore renewable energy credits have been generated, and the future of offshore wind in New York is questionable. See NYS Comptroller, "Climate Act Goals", 15.

12 See PSC, CES Modification Order (October 15, 2020), 78 (finding that "absent new transmission capacity, the addition of new upstate renewable developments will fail on its own to increase the penetration of renewable energy consumed in New York City to a level that enables statewide compliance with the 70 by 30 Target.").

13 Intergovernmental Panel on Climate Change (IPCC), Sixth Assessment Report, Vol. WG1, *The Physical Science*

adapt to potential changes while developing an effective strategy for achieving the state’s emissions goals with an all-of-the-above strategy, primarily hydro- and nuclear power, with limited support from wind and solar resources in appropriate locations.

NYPA should focus on the CLCPA’s technology-neutral zero-emissions electricity 2040 climate goal and the 2050 “net zero” goal for the state economy as a whole. Multiplying the state’s nuclear capacity may substantially advance the 2040 and 2050 goals (but cannot contribute to the 2030 goal). A technology-neutral energy policy to reduce emissions will result in less renewables and more nuclear because neither NYPA nor the state’s private utilities are able to effectively deliver renewable energy to an existing grid that has been designed and built to operate under the large centralized generating plant model. Indeed, a program to achieve the State’s emissions goals primarily with hydro- and nuclear power would make it unnecessary to re-make the grid to accommodate renewables.

NYPA should renew the licenses of its existing operating reactors and plan for the deployment of additional modern nuclear power plants throughout the state. It is the fastest way to decarbonize New York. Just as statewide carbon emissions climbed overnight when Indian Point closed,¹⁴ reviving plant operations would decrease New York’s emissions as soon they come online. The premature and ill-advised shuttering of Indian Point, which provided 25% of the region’s electricity, has had a disastrous impact on the State’s goal of achieving zero-emissions and is another example of public officials pandering to activists who are more concerned with the optics of clean energy than a reduction in carbon emissions. NYPA’s advocacy for nuclear could help change the State’s current focus on wind and solar projects.

A shift in focus to nuclear and hydropower would also significantly reduce the amount of land devoted to energy generation, and avoid the substantial adverse environmental impacts created by excessive wind and solar generation capacity. Large-scale renewables are expected to provide up to “half of the renewable energy procured to meet the 70% Climate Act goal.”¹⁵ To achieve that requires the destruction of about a million acres of carbon-sequestering forest and farmland, to be replaced with wind turbines, solar panels and their infrastructure. These lands must be sacrificed for 55 gigawatts of solar panels (all made in China) and 10 GW of mostly foreign-made onshore wind.

In addition to environmental impacts, over-reliance on wind and solar technologies are likely to adversely impact the larger economy, as they rely heavily on substantial direct subsidies and massive investments in batteries, transmission and backup generation. Direct subsidies include federal tax credits and state Renewable Energy Credits (RECs). Under the federal Inflation Reduction Act (IRA), Renewable Electricity Production Tax Credits (PTC), “receive an inflation-adjusted credit of 2.6 cents

Basis (2021), 238-239, <<https://www.ipcc.ch/report/ar6/wg1>>; International Energy Agency (IEA), “Net Zero Roadmap: A Global Pathway to Keep the 1.5° C Goal in Reach: 2023 Update”, Figure 2.3, <<https://www.iea.org/reports/net-zero-roadmap-a-global-pathway-to-keep-the-1-5-0c-goal-in-reach>>. Cf. Roger Pielke Jr., Matthew G. Burgess and Justin Ritchie, “Plausible 2005–2050 emissions scenarios project between 2 °C and 3 °C of warming by 2100”, 17 *Environ. Res. Lett.* 024027 (2022) (discussing the above-referenced IPCC and IEA reports). See also IPCC, Sixth Assessment Report, Vol. WG1, *The Physical Science Basis*, 1856, Table 12.12 (indicating that no signal has emerged from the natural variability of climate change for most extreme weather events).

14 Oliver Milman, “A nuclear plant’s closure was hailed as a green win. Then emissions went up”, *The Guardian* (March 20, 2024), <<https://www.theguardian.com/environment/2024/mar/20/nuclear-plant-closure-carbon-emissions-new-york>>.

15 NYS Comptroller, “Climate Act Goals”, 14.

per kWh [\$26 for each MWh generated] for the first 10 years of electricity generation.”¹⁶ The PTC thus allows electricity from wind turbine projects to be sold into the market at a price of *negative \$25 per MWh* and still be profitable. The IRA made the 10-year PTC permanent after decades of reauthorizations which had already resulted in wind energy projects bidding negative numbers into the wholesale market for electricity. The PTC is the single most expensive energy-related tax expenditure in the federal code, expected to cost \$276.6 billion between 2024 and 2033.¹⁷

New York can be expected to follow the trend across the nation, where the most negative pricing for electricity occurs where wind and solar penetration are greatest.¹⁸ The PTC incentivizes waste (since the subsidy is available even when the electricity generated isn’t needed) and the premature closure of reliable generators of electricity (who can’t compete). The cost to taxpayers is roughly the cost of renewable energy without the PTC, or about \$32 per MWh.¹⁹ After 10 years, a wind or solar project can requalify for another 10 years of PTC support by replacing major components—well before the end of their useful life. The tax incentive has driven such “repowering” projects, which occur when wind projects are 9 to 16 years old, with a median age of 10 years.²⁰ These market dynamics shift the cost of generation from wind and solar generators and ratepayers to federal taxpayers, and progressively destabilize the grid. This is a perfect example of privatizing profits while socializing losses.

New York adds a substantial layer of subsidies with RECs, the cost of which are paid by ratepayers. Each REC represents one MWh of electricity generated by a wind or solar facility. RECs are awarded by NYSEERDA to large-scale renewables in return for a promise to generate. There are no costs for RECs borne by the sponsor of a renewable energy facility. New York’s projected annual electricity demand is at least 200 million MWh by 2040.²¹ Since one REC represents one MWh, 200 million RECs will be required each year. If RECs cost \$20 each,²² the amount New Yorkers must provide in order to subsidize 100% of electricity demand with RECs is \$4 trillion in 2040.²³ Since the cost of RECs has not been

16 U.S. Dep’t of Energy, “Advancing the Growth of the U.S. Wind Industry: Federal Incentives, Funding, and Partnership Opportunities”, 2, <<https://www.energy.gov/sites/default/files/2023-02/weto-funding-fact-sheet-feb-23.pdf>>.

17 U.S. Dep’t of the Treasury, “Tax Expenditures”, <<https://home.treasury.gov/policy-issues/tax-policy/tax-expenditures>>.

18 See Lawrence Berkeley National Laboratory, “Exploring Wholesale Energy Price Trends” (May 20, 2021), <<https://emp.lbl.gov/news/new-data-tool-explores-trends>>.

19 U.S. Dep’t of Energy, “Land-Based Wind Market Report: 2022 Edition”, 50, <<https://www.energy.gov/eere/wind/articles/land-based-wind-market-report-2022-edition>>.

20 *Id.*, 31.

21 NYISO, “2023-2042 System & Resource Outlook” (July 23, 2024), 30, <<https://www.nyiso.com/documents/20142/46037414/2023-2042-System-Resource-Outlook.pdf>>.

22 The most recent RGGI auction (June 5, 2024) sold RECs for \$21.03. See <<https://www.rggi.org/auctions/auction-results/prices-volumes>>.

23 This excludes the cost of new transmission capacity, the roughly 75% discount on local sales and property taxes for renewables (provided under typical PILOT agreements), and subsidies for residential solar energy. For the latter, see Norman Rogers, “Useless Residential Solar Electricity”, *RealClearEnergy* (July 30, 2024), <https://www.realclearenergy.org/articles/2024/07/30/useless_residential_solar_electricity_1048193.html>.

procured by the State,²⁴ the entire cost of the program will fall on ratepayers and taxpayers. Many New Yorkers will pay twice, once as a ratepayer and again as a taxpayer.

In addition to the cost of RECs and other subsidies, renewables are likely to face increasing interconnection costs imposed by utilities to ensure “grid reliability and safety to prevent arc flashes, wildfires or injuries to line workers.” In Virginia, for mid- and large-scale solar projects, Dominion Energy requires costly upgrades for a “direct transfer trip” which automatically disconnects a system. The upgrades “include[] laying a dark fiber optic transmission line to a substation at a cost of \$150,000 to \$250,000 per mile and in some cases adding a relay panel that runs \$250,000 for projects exceeding 250 kilowatts, raising costs by 20 to 40 percent.”²⁵

The cost of needed transmission upgrades also includes expected steep increases in the cost of copper, driven by the CLCPA’s policy to increase end-use electrification.²⁶

New York’s grid is expected to become winter peaking as a result of increasing electrification, and this will add further costs. Eventually, ratepayers will need to subsidize baseload and backup power in order to keep a high-renewables grid stable. Wind and solar cannot ensure their performance will achieve planned capacity factors.²⁷ Wind and solar droughts are certain, and solar provides very little energy during the winter. These resources are therefore unable to keep up with demand growth, particularly in the winter. As other jurisdictions have found, demand growth requires more, not less dispatchable generation.²⁸ None of these costs would occur but for the cost of firming the grid to make up for wind and solar intermittency.

Achieving New York’s emission reductions goals with renewables also requires yet-to-be-

24 NYS Comptroller, “Climate Act Goals”, 14.

25 Jim Morrison, “Va. went all in on solar. Then its powerful utility changed the rules”, *Washington Post* (May 27, 2024), <<https://wapo.st/4dT2bzB>>.

26 *Cf.* International Energy Forum, “Copper Mining and Vehicle Electrification” (May 2024), <<https://www.ief.org/focus/ief-reports/copper-mining-and-vehicle-electrification>>. Note that the Climate Action Council’s *Final Scoping Plan* (December 2022), at 123, 179-180, calls for approximately 1 to 2 million homes electrified with heat pumps by 2030 and approximately 3 million zero-emission vehicles (predominantly battery electric) sold by 2030. Available at <<https://climate.ny.gov/resources/scoping-plan/>>.

27 Annual capacity factors relied on for planning purposes by NYISO are 12.89% for land-based wind, 15.64% for solar, and 31.56% for offshore wind. NYISO, “Final Capacity Accreditation Factors for the 2024/2025 Capability Year”, <<https://www.nyiso.com/documents/20142/41593818/Final-CAFs-for-the-2024-2025-capability-year.pdf>>. Today, actual annual generation of electricity in New York by wind is 4,110.4 GWh, while nuclear generates 13,285,581.9 GWh and hydropower generates 28,674.7 GWh. NYISO, *2022 Goldbook*, Table III-3c, <<https://www.nyiso.com/documents/20142/2226333/2022-Gold-Book-Final-Public.pdf>>. For illustration, the 6.4 square mile Palo Verde Nuclear Generating Station in Phoenix, Arizona, generates 244 times as much electricity—reliably—than a 1,600 square mile wind energy facility. Ken Braun, “The biggest wind energy project on this side of the Earth and its tiny power output”, *Substack* (April 6, 2024).

28 In 2023 Texas mandated baseload and backup power subsidies to address grid instability caused by increased penetration of wind and solar power. Texas Senate Bill No. 2627. The same function is served by ZECs for nuclear power in New York; and California’s Civil Nuclear Credit Program, which awarded \$1.1 billion to extend the life of the Diablo Canyon Power Plant. S.B. No 846 (September 2, 2022). “Despite California adding more renewable energy, it is still having issues during peak demand times, which has led the state to ask residents not to charge their cars or lower the temperature on their air conditioning.” NYS Comptroller, “Climate Act Goals—Planning”, 16.

demonstrated “dispatchable emissions-free technologies” (DEFR),²⁹ including long-term energy storage technology.³⁰ However, PSC has yet to seriously address this problem.³¹ Examples of DEFR (none of which are commercially available) include “long-duration batteries, small modular nuclear reactors, hydrogen-powered generators, and fuel cells.”³² Without these sources, NYISO suggests that the limit for renewables in New York has been reached: further penetration of renewables without substantial DEFR (assuming that fossil-fueled backup will continue to be deactivated)³³ is projected to cause reliability crises.³⁴

Nuclear power can be developed in New York as fast or faster than DEFR. China is building 30 new nuclear plants and may be “10 to 15 years ahead of the US in its ability to deploy fourth-generation nuclear reactors at scale”, demonstrating that “it’s possible to make large strides toward clean, around-the-clock energy using existing nuclear technology—if accompanied by generous financial terms, consistent state support and rigorous safety standards.”³⁵ Government efforts to accelerate the deployment of nuclear power have emerged around the world in the last two years.³⁶ NYSERDA Chair Doreen Harris stated recently that nuclear power is an “advanced area of commercial viability, as opposed to some of the other resources that we see on the technical horizon at this point”.³⁷

29 NYISO, *Power Trends 2022* (in addition to local and long-distance transmission capacity additions, and in addition to long-term electricity storage—neither of which is projected to exist in time—significant amounts of yet-to-be-invented on-demand, zero-emission flexible generation that can back up the weather-related intermittency of renewables will be needed to achieve the 2030 and 2040 Climate Act goals).

30 See PSC Case 18-E-0130, *In the Matter of Energy Storage Deployment Program* (June 20, 2024), 28-30 (adopting a goal of 6 GW of electricity storage capacity, including 3 GW of “bulk level” (*i.e.*, utility-scale) storage by 2030, and over 4 GWs of 8-hour storage by 2035. NYPA is building two 12-hour storage demonstration projects expected to be operational in 2028. American Public Power Association, “NYPA to Participate in Energy Storage Demonstration Using Fire-Safe Battery Technology” (July 25, 2024), <<https://www.publicpower.org/periodical/article/ny-pa-participate-energy-storage-demonstration-using-fire-safe-battery-technology>>.

31 NYS Comptroller, “Climate Act Goals”, 14.

32 NYISO, “2023-2042 System & Resource Outlook” (July 23, 2024), 8-9, <https://www.nyiso.com/documents/20142/44646498/03b_Draft%2520Report_2023-2042_System_Resource_Outlook.pdf>

33 For example, the proposed NY-HEAT Act would eliminate existing gas services for end-users. Section 7 of the Act acknowledges gas service may be limited or discontinued to facilitate achievement of the CLCPA climate justice and emission reduction goals; Section 8 grants PSC the authority to order the curtailment or discontinuance of the use gas for any customer or section of the gas distribution system in order to implement state energy policy; and Section 11 removes the entitlement to continuation of gas service following the demolition and reconstruction of any structure owned by a customer. See Senate Bill S2016A, <<https://www.nysenate.gov/legislation/bills/2023/S2016/amendment/A>>.

34 NYISO, “2023-2042 System & Resource Outlook”, 47-48.

35 Bloomberg News, “China Is Rapidly Building Nuclear Power Plants as the Rest of the World Stalls” (August 7, 2024), <<https://www.bloomberg.com/news/articles/2024-08-07/what-china-can-teach-the-world-about-nuclear-power?srnd=markets-magazine-v2>>.

36 Sama Bilbao y León, Director General, World Nuclear Association, “Nuclear energy in 24/7 carbon-free energy systems: meeting the moment”, *Energy Connects* (July 18, 2024), <<https://www.energyconnects.com/opinion/thought-leadership/2024/july/nuclear-energy-in-24-7-carbon-free-energy-systems-meeting-the-moment/>>.

37 Tim Knauss, “New nuclear power will be on the agenda when NY officials hold energy summit in Syracuse”, *Syracuse.com* (August 8, 2024), <<https://www.msn.com/en-us/weather/topstories/new-nuclear-power-will-be-on-the-agenda-when-ny-officials-hold-energy-summit-in-syracuse/ar-AA1ojP5h>>.

Developing nuclear power is substantially less expensive than developing wind and solar power. As noted, renewables require large system costs to reliably serve electricity demand (including DEFER). This requirement flows directly from renewables' unreliability. Nuclear power does not require such system costs. This makes nuclear power less expensive than using wind, solar, battery storage, gas-fired backup power, and substantial transmission upgrades. In addition, nuclear does not require load balancing using battery or alternative emissions-free technologies. When the fact that renewables last only 30 years and must be repowered one or more times during that period, while nuclear reactors are permitted for 40 years and can be renewed for another 40 years, the cost difference between renewables and nuclear widens even further. While the upfront capital costs of a nuclear plant are high, once the capital costs are paid, the only costs are fuel and operating expenses. As a result, nuclear provides reliable service at a substantially lower cost than wind, solar, and battery storage.³⁸

Nuclear plants' small footprint, compared to large scale renewables, has a far less damaging effect on the State's natural resources and environment. One only need consider the impact of a single blade failure in Nantucket, to understand the significant adverse impacts that such projects can have on the environment.³⁹

NYPA should focus on bulk transmission that connects upstate power sources to the downstate grid, and transmission support for converting shuttered power plants (e.g., Jamestown, Somerset) to nuclear. For example, Constellation Energy and Pennsylvania officials are considering state funding to restart of part of Constellation's Three Mile Island power facility, the site of a nuclear meltdown in the 1970.⁴⁰ A cryptomining company has signed a memorandum of understanding to replace hydroelectric energy with a portable nuclear microreactor at a decommissioned coal power plant in the City of Niagara Falls.⁴¹ Micron Technology is building a chip factory in the Syracuse area because the proposed site has access to Oswego County nuclear energy.⁴²

The CLCPA emissions reduction goals can be achieved with a handful of new nuclear power plants. Unlike renewables, new transmission needed for new nuclear plants should be minimal.

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- 38 Cf. Matthew L. Wald, "Dollars, Sense, and Kilowatt-Hours", *Breakthrough Institute* (May 2, 2023), <<https://thebreakthrough.org/issues/energy/lcoe-lazard-misleading-nuclear>>; Isaac Orr and Mitch Rolling, "Why Nuclear is Cheaper than Wind and Solar", *Cornwall Alliance* (July 17, 2024), <<https://cornwallalliance.org/2024/07/why-nuclear-is-cheaper-than-wind-and-solar/>>. Backup power for renewables cannot be avoided regardless of how much renewables penetrate the grid because unpredictable renewables cannot energize the grid with baseload power.
- 39 Owen Klinsky, "'Bunch Of Suits Trying To Cover Their Tracks': Beach Town Locals Slam Offshore Wind Developer For Polluting Shores", *Daily Caller* (July 18, 2024), <<https://dailycaller.com/2024/07/18/nantucket-locals-slam-offshore-wind-developer/>>.
- 40 Laila Kearney and Jarrett Renshaw, "Constellation talking to Pennsylvania on Three Mile Island restart, sources say", *Reuters* (July 2, 2024), <<https://www.reuters.com/business/energy/constellation-talking-pennsylvania-three-mile-island-restart-sources-say-2024-07-02/>>.
- 41 Dan Swinhoe, "Nano and Blockfusion hope to deploy nuclear microreactors at Niagara Falls data center", *The Critical Power Channel*, <<https://www.datacenterdynamics.com/en/news/nano-and-blockfusion-to-deploy-nuclear-microreactors-at-niagara-falls-data-center/>>. See also Steve Buchiere, "Wayne County Board of Supervisors push for new nuclear facility", *Finger Lakes Times* (July 19, 2024), <https://www.fltimes.com/news/wayne-county-board-of-supervisors-push-for-new-nuclear-facility/article_283b3a2a-443f-11ef-8f49-c760c57e9372.html>.
- 42 Nuclear Newswire, "Senate committee discusses growing energy demands, nuclear's role" (May 22, 2024), <<https://www.ans.org/news/article-6066/senate-committee-discusses-growing-energy-demands-nuclears-role/>>.

Decommissioned power plants already have the needed transmission capacity. Additional nuclear plant sites can be selected based on their proximity to existing or upgraded transmission capacity. Moreover, nuclear power plants provide high-paying jobs. In contrast, virtually no new permanent positions are created by industrial solar or wind projects. Maintenance is generally provided by out-of-area specialists. The small footprint of a nuclear power plant, the ability to utilize existing transmission infrastructure, and the local employment nuclear power plants provide should avoid most of the opposition to siting new generation and transmission capacity. Such opposition has and will continue to make the siting of large-scale renewables and the transmission infrastructure they require, at least at the scale projected to meet the CLCPA's 2030 renewables goal, increasingly challenging.⁴³

In summary, NYPA should reject entrenched ideological bounds limiting acceptable decarbonization technologies. Neglecting to consider nuclear power leaves the potential for effective pathways to decarbonization unexplored. The undersigned have all been heavily involved in the State's efforts to site new wind and solar generation and transmission capacity. It is painfully obvious that wind and solar have already reached their maximum positive potential. The favored sites for new renewable generation have mostly been taken, diminishing the potential for contributing to the CLCPA goals by this pathway. We therefore urge NYPA to support the CLPCA by pursuing new nuclear and hydropower generating capacity, rather than continuing to pursue the fantasy of an electric grid powered primarily by intermittent and unreliable wind and solar energy.

3. HOW NYPA IS ALREADY SUPPORTING THE CLCPA.

For the reasons set forth above, NYPA's current focus on increasing wind and solar generation capacity, and creating associated new transmission lines and substations, should be abandoned for technical, environmental, and economic reasons. Furthermore, detailed system modeling for the benefits of Clean Path NY should be developed, focusing on how much upstate electricity the originating substation at Delhi can provide, and where among the NYISO regions that electricity is generated.

4. CONCLUDING REMARKS.

There are compelling reasons to undertake feasible programs to decarbonize New York. Intensive oil and gas drilling causes environmental degradation (*e.g.*, land drainage, landscape alteration, tectonic movements, and oil spills on land and at sea). The burning of petroleum products often emits toxic substances that can degrade both interior and exterior environments. It may even be reasonable for the state government to conclude that New York has a moral obligation to reduce carbon emissions in light of New York's vanishingly small contribution to anthropogenic global climate change. The undersigned therefore support New York's efforts to prioritize low emission energy sources.

However, there is growing evidence that New York's over-emphasis on wind and solar generation is damaging the grid, the environment and the economy. The state's heavy handed energy siting programs administered by the Public Service Commission, the Siting Board, and ORES, have also led to

43 *Cf.* Mary Katherine Wildeman and Melina Walling, "Wind farms' benefits to communities can be slow or complex, leading to opposition and misinformation", *AP News* (July 25, 2024), <<https://apnews.com/article/wind-turbines-farms-power-taxes-misinformation-rural-ed60fdf6e0e6577797035b1f1fd2f20>> (opponents complain that "people's taxes don't go down, and wind farms take away from an area's natural beauty").

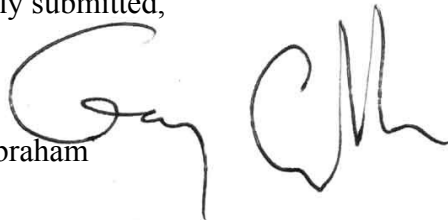
significant public unrest and loss of faith in whether such agencies are serving the public interest, or something else. We therefore implore NYPA to reject unsubstantiated arguments about the benefits of politically favored energy technologies like wind and solar energy. The reality is that wind and solar energy, when pursued to excess, hinder economic development, waste public resources, and degrade large amounts of land. This makes the impact of renewables virtually indistinguishable from the fossil fuels they are replacing.

The global energy crisis precipitated by the invasion of Ukraine, Covid, and supply chain constraints have little to do with the constraints on New York's ability to implement the CLCPA. The physical reality of how the grid works predated these events and will remain with us for the foreseeable future. It was true before the global energy crisis, and it will remain the case that an electric system that relies primarily on weather-dependent resources will not be more resilient and will not be able to better withstand extreme weather events than a grid that is built around reliable sources of energy.

Electricity demand in New York and neighboring jurisdictions will only grow for the foreseeable future, and carbon emissions worldwide are climbing.⁴⁴ If we want to substantially reduce the need for fossil-fuel infrastructure, we will need to maintain our current fleet of nuclear reactors and vigorously and quickly support new nuclear power development. We therefore urge NYPA to support the CLPCA by pursuing new nuclear and hydro generating capacity, rather than continuing to pursue the fantasy of an electric grid powered by excessive amounts of intermittent and unreliable wind and solar energy.

Respectfully submitted,

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44 Energy Institute, "2024 Statistical Review of World Energy", 16, <<https://www.energyinst.org/statistical-review>>.