



## NEW YORK STATE LEGISLATURE

July 17, 2023

Hon. Michelle L. Phillips  
Secretary to the Commission  
New York State Public Service Commission  
Empire State Plaza  
Agency Building 3  
Albany, NY 12223-1350

**Re: Case 15-E-0302 - Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard – Zero Emissions Target**

Dear Commissioners Christian, Burman, Alesi, Edwards, Howard, Valesky, and Maggiore,

We write to provide comments with regard to the Public Service Commission's May 18, 2023 Order Initiating Process Regarding Zero Emissions Target.

The Climate Leadership and Community Preservation Act (CLCPA) includes two significant mandates with regard to the electricity sector: (1) by 2030, at least 70% of electric load shall be served by renewable energy systems; and (2) by 2040, there shall be zero emissions associated with electrical demand in the State.

As a Conference, we have advocated for a comprehensive reliability study to ensure the State's electric grid can handle the mandates under the CLCPA and recommendations made in the Climate Action Council's Scoping Plan for transitioning to a zero emissions electrical grid by

2040. We have also advocated for an approach that includes any source of energy that reduces emissions.

It is our belief the State cannot meet its energy goals mandated in the CLCPA without including additional technologies such as hydrogen, nuclear, renewable natural gas, carbon capture and sequestration, bioenergy, long-duration storage and sewer heat recovery system in the definition of “zero emissions sources” in Section 66-p of the Public Services Law. The New York Independent System Operator (NYISO) estimated New York State must have 111 to 124 gigawatts of electrical capacity by 2040, 95 gigawatts of which must be new to maintain grid reliability. This is a 300% increase in capacity from the electric grid’s current capacity of 37 gigawatts. In order to reach this 300% increase while reducing emissions, the State needs an all-hands-on-deck approach to energy generation beyond the existing renewable sources of hydropower, wind and solar.

Reliability concerns are not limited to 2040. According to the NYISO, New York City will face a deficit as large as 446 MW by the summer of 2025.<sup>1</sup> Weather events such as a heatwave or cold snap would result in deficiencies to serve demand statewide, especially in New York City. Beyond 2025, reliability concerns become a reality if there is a delay in the Champlain Hudson Power Express (CHPE) project, which will bring power from Quebec to New York City. The CHPE is expected to be completed by 2026 and any delay could result in risks to reliability by 2028.<sup>2</sup>

Hydrogen, nuclear, renewable natural gas, bioenergy and sewer heat recovery provide more reliable sources of energy than wind and solar, as they would not be intermittent. To be clear,

---

<sup>1</sup> <https://www.nyiso.com/documents/20142/16004172/2023-Q2-STAR-Report-Final.pdf/5671e9f7-e996-653a-6a0e-9e12d2e41740>

<sup>2</sup> *Id.*

New York State cannot meet the mandates in the CLCPA by solely focusing on wind and solar energy generation.

Solar energy in upstate New York, especially in the winter months, is not a reliable source of energy. Upstate cities have limited sunny days: Buffalo has 54 days of sun a year; Rochester has 61 such days; Syracuse has 63, and Albany has 69. By comparison, Los Angeles has 284 days of sun a year and Phoenix has 300 such days.

Wind energy is not reliable because there can be extended lulls in wind during the coldest days of winter and the hottest days of summer, at precisely the time when energy demand is the highest.

The head of the Office of Renewable Energy Siting stated in a Senate Energy and Telecommunications Committee meeting, on March 28, 2023, that solar panels generate about 14% of their capacity, while land-based wind turbines generate about 20% to 26% of their capacity.

A major benefit of hydrogen, nuclear, renewable natural gas, bioenergy and sewer heat recovery energy generation is that they require less land development than wind and solar farms, which can require the development of hundreds of acres of land per project, resulting in less hostility between locals and energy companies and less destruction of natural habitats around the State.

While these new technologies have not been perfected, advancements are being made every day to make them more efficient and financially viable. The energy sector has a history of transformational changes due to new advancements in technology, whether it was advancements in renewable energy, such as wind and solar, or through hydraulic fracturing.

We strongly encourage the Commission to consider, but not be limited to, the following sources of energy in the definition of “zero emissions sources”:

### Hydrogen

The United States Department of Energy recently released their Clean Hydrogen Production Standard (CHPS) Guidance.<sup>3</sup> The Guidance was developed to meet the requirements of the Infrastructure Investment and Jobs Act. The Department claims, “Hydrogen plays a critical role in a comprehensive energy portfolio for the United States and the use of hydrogen resources promotes energy security and resilience as well as provides economic value and environmental benefits for diverse applications across multiple sectors in the economy.”<sup>4</sup>

There are several types of hydrogen, classified by colors – green hydrogen, blue hydrogen, brown hydrogen, pink hydrogen, yellow hydrogen, grey hydrogen and white hydrogen. We believe all of these types of hydrogen should be considered as sources of energy depending on their carbon intensity.

In 2021, former Governor Andrew M. Cuomo announced New York State’s plans to explore the potential role of green hydrogen as part of the State’s comprehensive decarbonization strategy.<sup>5</sup> The former governor directed the New York Power Authority (NYPA) to collaborate with the Electric Power Research Institute, General Electric and Airgas to undertake a green hydrogen demonstration project at NYPA’s natural gas plant on Long Island to evaluate the resource’s potential role in displacing fossil fuels from power generation.

---

<sup>3</sup> [www.hydrogen.energy.gov/pdfs/clean-hydrogen-production-standard-guidance.pdf](http://www.hydrogen.energy.gov/pdfs/clean-hydrogen-production-standard-guidance.pdf)

<sup>4</sup> *Id.*

<sup>5</sup> <https://www.nyserda.ny.gov/About/Newsroom/2021-Announcements/2021-07-08-Governor-Cuomo-Announces-New-York-Will-Explore-Potential-Role-of-Green-Hydrogen>

Additionally, green hydrogen was featured in a number of emissions reduction pledges at the United Nation's Climate Conference, COP26, as a means to decarbonize heavy industry, long haul freight, shipping and aviation.<sup>6</sup>

Hydrogen has the potential to power electrical grids, run factories, heat homes and propel vehicles when combined with a fuel cell.<sup>7</sup> Siemens Energy expects 100% hydrogen-powered turbines to be viable by 2030 and General Electric received Department of Energy funding last year to test hydrogen in its turbine, which the company predicts could reach 100% hydrogen by 2030.<sup>8</sup>

National Grid is currently exploring ways to repurpose its grid using hydrogen. National Grid and the Town of Hempstead announced a joint project to build one of the first and largest clean hydrogen projects in the United States. The Hygrid Project will blend green hydrogen into the existing distribution system and is expected to heat 800 homes and fuel 10 municipal vehicles.<sup>9</sup> There are several advantages of blending hydrogen with natural gas, including:

- Hydrogen is zero carbon when it is produced using renewable power;
- Hydrogen is very flexible and is the least disruptive zero-carbon energy; and
- Hydrogen blending can include no extra cost to its users, as it can use existing equipment and still be part of the transition to net zero.<sup>10</sup>

---

<sup>6</sup><https://www.weforum.org/agenda/2021/12/what-is-green-hydrogen-expert-explains-benefits/>

<sup>7</sup>[https://www.wsj.com/articles/underground-hydrogen-could-supercharge-green-energy-first-scientists-have-to-find-it-19036ec6?mod=hp\\_featst\\_pos4](https://www.wsj.com/articles/underground-hydrogen-could-supercharge-green-energy-first-scientists-have-to-find-it-19036ec6?mod=hp_featst_pos4)

<sup>8</sup><https://news.bloomberglaw.com/environment-and-energy/power-plant-rule-critics-aim-at-its-core-technology-strategies>

<sup>9</sup><https://www.nationalgrid.com/stories/journey-to-net-zero-stories/hygrid-green-hydrogen-blending-project-launches>

<sup>10</sup> *Id.*

Currently, green hydrogen is costly but, as it is scaled up, the capital costs should come down considerably.

There is also the promise of another type of hydrogen, underground hydrogen. Geologists predict that a subterranean energy boom is only a few years away.<sup>11</sup> Underground hydrogen occurs by natural processes and can be extracted by traditional drilling methods. Underground hydrogen has the potential to be a cheap, clean and abundant resource.<sup>12</sup> The Department of Energy is currently examining underground hydrogen's potential.

We believe hydrogen will play an important role as the State continues to reduce its emissions.

### Nuclear

According to the Department of Energy, advanced Small Modular Reactors (SMRs) offer advantages, such as small physical footprints, reduced capital investment and ability to site in locations not possible for larger nuclear plants. In 2019, the Department of Energy initiated the Advanced SMR Research and Development program to “support research, development and deployment activities to accelerate the availability of U.S. based SMR technologies into domestic and international markets.”<sup>13</sup>

A major benefit of SMRs is that they are much smaller than the legacy nuclear power plants and can fit in a large backyard. Old fossil fuel plants can be repurposed, and their infrastructure

---

<sup>11</sup> [https://www.wsj.com/articles/underground-hydrogen-could-supercharge-green-energy-first-scientists-have-to-find-it-19036ec6?mod=hp\\_featst\\_pos4](https://www.wsj.com/articles/underground-hydrogen-could-supercharge-green-energy-first-scientists-have-to-find-it-19036ec6?mod=hp_featst_pos4)

<sup>12</sup> *Id.*

<sup>13</sup> <https://www.energy.gov/ne/advanced-small-modular-reactors-smrs>

and workforce can be used to build and operate SMRs.<sup>14</sup> There are currently a number of companies pursuing a variety of designs hoping for a breakthrough. Designs range from light water reactor technology to fast reactors using sodium to cool the reactors instead of water.<sup>15</sup> The growing interest from the private sector in SMRs is due to the recognition that nuclear technology will be an integral part of the country's clean energy future.

Nuclear power plants can run all day long and generate baseload energy at 90% of capacity. This makes them more efficient than wind turbines or solar panels, whose capacity ranges from 14% to 26%. A nuclear power plant only needs a couple hundred acres of land to produce thousands of megawatts of sustainable energy. Comparatively, solar and wind farms need thousands of acres to produce hundreds of megawatts of intermittent energy.

The closure of the Indian Point Energy Center in 2021 resulted in the downstate energy grid relying more on natural-gas powered plants. As a result of the closure of Indian Point, in 2021 89% of downstate energy came from natural gas and oil, up from 77% the previous year when Indian Point was still running.<sup>16</sup> A 2017 NYISO study predicted that three natural gas power plants would pick up the 2,000 megawatts of power generation lost with the closure of Indian Point.<sup>17</sup> The decision to close Indian Point has been the biggest setback for New York State in reducing its emissions in a generation. The State can right this mistake by embracing nuclear energy as part of its energy future.

---

<sup>14</sup> <https://www.washingtonpost.com/climate-solutions/2023/02/19/coal-nuclear-smr-modular/>

<sup>15</sup> *Id.*

<sup>16</sup> <https://www.lohud.com/story/news/2022/07/22/new-york-fossil-fuels-increase-after-indian-point-nuclear-plant-shutdown/65379172007/>

<sup>17</sup> *Id.*



## Renewable Natural Gas (RNG)

As NYSERDA outlined in a recent report titled *Potential of Renewable Natural Gas in New York State*, RNG is a “drop-in” replacement for natural gas.<sup>18</sup> Abstract from the Report:

*RNG can be safely employed in any end use typically fueled by natural gas, including electricity production, heating and cooling, industrial applications and transportation. Today, about 50 trillion Btu per year (tBtu/yr.) of RNG from landfills, dairy digesters, and water resource recovery facilities (WRRFs) around the United States are injected into pipelines, with production growing from year to year. New York State has significant potential RNG feedstock resources from food waste, manure, agricultural residues, landfills, WRRF's as well as woody biomass and municipal solid waste. Based on three production scenarios, ICF estimates a total RNG potential for New York State of between 47 tBtu/yr. and 147 tBtu/yr.*

Another benefit of RNG is that it can use existing natural gas transmission or distribution pipelines. Unlike other sources of renewable energy, the State already has in place an infrastructure for RNG.

---

<sup>18</sup><https://mail.google.com/mail/u/0/#search/kracker/FMfcgzGtvsbNBZGzwGlvSwQBcpXhVBkC?projector=1&messagePartId=0.1>



## Carbon Capture and Sequestration

The Biden Administration recently embraced the concept of carbon capture and sequestration through proposed Environmental Protection Agency regulations.<sup>19</sup> The Inflation Reduction Act provides \$12 billion for carbon capture and hydrogen technologies.

Carbon capture and sequestration allows gas powered plants to remain in operation while reducing their carbon footprint, this approach could be necessary to maintain reliability.

Carbon capture and sequestration technology is costly but we believe the costs will decrease significantly, as it is scaled up. Additionally, the Inflation Reduction Act provides billions of dollars in incentives for companies that implement carbon capture and sequestration technology.

## Bioenergy

Bioenergy, specifically biomass, is an effective source of renewable energy. Unfortunately, biomass is not recognized by the State as a renewable energy system and the ReEnergy plant, which powers Fort Drum, was forced to close at the end of April. We believe this is a grave mistake and bioenergy can be an important part of the State's energy future.

---

<sup>19</sup> <https://www.epa.gov/newsreleases/epa-proposes-new-carbon-pollution-standards-fossil-fuel-fired-power-plants-tackle>

## Long-Duration Storage

Long-duration storage is a key technology that will help the State reach its mandates under the CLCPA. Long-duration storage allows for flexibility within the electric grid as the grid transitions to zero-emissions.

The Department of Energy held a Long-Duration Storage Shot Summit (“The Summit”) in 2021, which aimed to reduce the cost of energy storage systems by 90% within the next decade. The Summit establishes a target to deliver 10-plus hours of duration within the decade. The goal being that in the future, long-duration storage will be able to store energy for days, weeks or even seasons.

Long-duration storage is a necessity for a grid powered by zero emissions energy, as it will allow energy to be captured and stored for use when energy generation is unavailable or lower than demand. For instance, it will allow for solar power that is generated during the day to be used at night or for nuclear energy generated during times of low demand to be used during high demand.<sup>20</sup>

As technology advances in energy storage, we believe long-term storage will help the State advance towards its 2040 goal.

## Sewer Heat Recover System

Sewer Heat Recovery Systems pull thermal energy from wastewater. The system uses wastewater instead of natural gas as a source of energy. Heat pumps are used to capture the warmth

---

<sup>20</sup> <https://www.energy.gov/eere/long-duration-storage-shot>

of wastewater and transfers it to clean water distribution pipes that then enter individual buildings to heat and cool the buildings.<sup>21</sup>

### Conclusion

We believe it would be in the best interest of the Commission and the people of this State for the Commission to establish a competitive program to attract private sector investment in a minimum of one gigawatt of zero emissions sources by 2030.

However, if the Commission does not believe it is appropriate to create a new Clean Energy Standard tier as requested in the Zero Emissions Petition<sup>22</sup>, we respectfully request the Public Service Commission include hydrogen, nuclear, renewable natural gas, carbon capture and sequestration, bioenergy, long-duration storage and sewer heat recovery system in the definition of “zero emissions sources” in Section 66-p of the Public Services Law. We also respectfully request the Commission revisit this definition periodically as new technologies hit the market.

Finally, we support the Commission’s intention to convene a technical conference, as recommended by the Independent Power Producers of New York, Inc., the Joint Utilities and the NYISO, to explore the needs identified by the petition of the Independent Power Producers of New York, Inc., the New York State Building and Construction Trades Council, and the New York State AFL-CIO to determine which resources may qualify as zero-emissions under the CLCPA.

---

<sup>21</sup> <https://nationalwesterncenter.com/about/what-is-the-nwc/sustainability-regen/energy/#:~:text=In%20a%20sewer%20heat%20recovery,never%20touches%20the%20clean%20water>.

<sup>22</sup> Case 15-E-0302 - Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard - August 18, 2021 Petition of Independent Power Producers of New York, Inc., New York State Building and Construction Trades Council and New York State AFL-CIO for the Establishment of a Zero Emissions Energy Systems Program Under the Clean Energy Standard

We strongly encourage the Commission to include all stakeholders at the technical conference, including power producers, utilities, and representatives of ratepayers and heads of state agencies

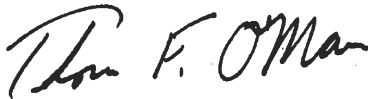
Sincerely,



Senator Robert G. Ort  
Senate Minority Leader  
62<sup>nd</sup> District



Senator Mario Mattera  
Ranker, Energy & Telecommunications Committee  
2<sup>nd</sup> District



Senator Tom O'Mara  
Member, Energy & Telecommunications Committee  
58<sup>th</sup> District



Senator Mark Walczyk  
Member, Energy & Telecommunications Committee  
49<sup>th</sup> District