

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

Proceeding on Motion of the Commission to
Implement a Large-Scale Renewable Program and a
Clean Energy Standard.

Case 15-E-0302

**COMMENTS OF NATIONAL FUEL GAS DISTRIBUTION
CORPORATION ON NEW YORK STATE ENERGY RESEARCH AND
DEVELOPMENT AUTHORITY AND DEPARTMENT OF PUBLIC
SERVICE STAFF'S WHITE PAPER ON CLEAN ENERGY STANDARD
PROCUREMENTS TO IMPLEMENT NEW YORK'S CLIMATE
LEADERSHIP AND COMMUNITY PROTECTION ACT**

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Dated: August 31, 2020

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On June 18, 2020, the New York State Energy Research and Development Authority (“NYSERDA”) and Department of Public Service Staff (“Staff”) filed a *White Paper on Clean Energy Standard Procurements to Implement New York’s Climate Leadership and Community Protection Act* (the “White Paper”) in the above-referenced proceeding (the “Proceeding”) to identify a proposed regulatory structure to address the Climate Leadership and Community Protection Act’s (the “CLCPA”) requirements for a renewable energy program.¹ To that end, the White Paper proposes to: (1) use the existing regulatory and procurement structure established under the Public Service Commission’s (the “Commission”) Clean Energy Standard (the “CES”) to meet the 70 by 30 Target and set the State on a path to achieve the 2040 Zero Emission Target,

¹ Case 15-E-0302, *Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard*, CES White Paper (Filed June 18, 2020), at 2. Among other requirements, the CLCPA tasks the Commission with establishing a renewable energy program, which is now codified in the Public Service Law (the “PSL”), to require that (1) a minimum of 70% of the State’s electricity must be generated by “renewable energy systems” by 2030 (the “70 by 30 Target”), and (2) 100% of the State’s electrical demand system will be “zero emissions” by 2040 (the “2040 Zero Emission Target”) (PSL § 66-p [2]). In addition, the CLCPA establishes comprehensive industry-wide greenhouse gas emission (“GHG”) goals requiring aggregate GHG emissions to be 60% of 1990 levels by 2030 and 15% of 1990 levels by 2050, as now codified in the Environmental Conservation Law (the “ECL”) (*see* ECL, Article 75).

and (2) adopt policy changes and other modifications to the CES in order to align it with the CLCPA and achieve the CLCPA's targets.²

On June 30, 2020, the Secretary to the Commission issued a *Notice Scheduling Technical Conference and Soliciting Comments* in the Proceeding, which required: (1) NYSERDA and Staff to host a technical conference on July 14, 2020 to review the White Paper, (2) interested parties to file preliminary comments on the White Paper and the discussion at the technical conference by July 24, 2020, and (3) the submission of final comments on the White Paper by August 31, 2020.³

I. National Fuel Gas Distribution Corporation

Headquartered in Williamsville, New York, National Fuel Gas Distribution Corporation ("NFGDC") is the State's largest natural gas-only utility. Since 1902, NFGDC has provided safe and reliable natural gas service at affordable rates, currently to approximately 495,000 residential customers, 35,000 commercial/public authority customers, 425 industrial customers, and 3 electric generating facilities in New York. NFGDC supports the State's energy and environmental goals through its many emissions reduction initiatives. For example, NFGDC's Conservation Incentive Program ("CIP") has eliminated approximately 1.17 million metric tons of carbon dioxide ("CO₂") equivalent emissions in the State since 2008.⁴

With its long-standing involvement in the State's energy economy, supporting the needs of residents and businesses alike, and building on its earlier comments in this Proceeding, NFGDC submits these comments on the White Paper to convey its conviction that implementing the

² *Id.*

³ Case 15-E-0302, *supra*, Notice Scheduling Technical Conference and Soliciting Comments (Issued June 30, 2020), at 2.

⁴ NFGDC's CIP offers residential customers in the Western New York service area several money-saving rebates for replacing specified appliances with new, energy-efficient models. For more information, please visit NFGDC's website at: <https://www.nationalfuelforthought.com/>.

CLCPA’s mandates will require a holistic and practical perspective as the necessary regulatory structure is developed.

II. A Broad Energy Vision

Accomplishing the CLCPA’s targets will require the State to undergo a broad energy and environmental evolution. This evolution will necessarily involve individuals and commercial entities—not just in the energy sector—across the State. Specifically, as the White Paper recognizes, the CLCPA includes production targets for the electric sector in addition to GHG emission reduction targets for the overall economy, which includes the transportation, building, industrial, commercial, and agricultural sectors.⁵ Embedded within the electric sector targets is the 70 by 30 Target and the 2040 Zero Emission Target,⁶ which are in addition to the CLCPA’s procurement targets.⁷

Successful execution of this energy and environmental evolution will require mobilizing all levels of industry, deploying new technologies, utilizing existing assets in new ways, and applying a holistic and practical regulatory perspective that properly considers and balances safety, reliability, cost-effectiveness, and efficiency, among other competing goals. To those ends, this evolution should not, for example, rely exclusively on an approach that involves procuring only traditional renewable resources to meet the CLCPA’s requirements. While such an approach could help achieve the 70 by 30 Target, it might inadvertently imperil the reliability of an electric system

⁵ See White Paper, at 1; see also ECL § 75-0103 (13) (a) (requiring that the CLCPA’s Climate Action Council [the “CAC”] develop a scoping plan that identifies and makes recommendations on regulatory measures and other State actions that will ensure the attainment of Statewide GHG emissions limits including performance-based standards for sources of GHG emissions in the transportation, building, industrial, commercial, and agricultural sectors).

⁶ PSL § 66-p (2) provides: “[T]he [C]ommission shall establish a program to require that: (a) a minimum of seventy percent of the state wide electric generation secured by jurisdictional load serving entities to meet the electrical energy requirements of all end-use customers in New York state in [2030] shall be generated by renewable energy systems; and (b) that by the year [2040] . . . the statewide electrical demand system will be zero emissions.”

⁷ PSL § 66-p (5) provides: “[T]he [C]ommission shall establish programs to require the procurement by the state’s load serving entities of at least nine gigawatts of offshore wind electricity generation by [2035] and six gigawatts of photovoltaic solar generation by [2025], and to support three gigawatts of statewide energy storage capacity by [2030].”

that would be increasingly reliant on intermittent resources.⁸ Further, such an approach would not be consistent with NYSERDA’s and Staff’s proposal in the White Paper to utilize existing utility assets and resources to cost-effectively and efficiently meet CLCPA targets.⁹

NFGDC encourages the Commission to take a broad perspective in crafting a regulatory structure to address the CLCPA’s requirements for renewable energy programs. For example, diverse, new technologies should be encouraged to be developed and deployed into the State’s overall energy mix, particularly if they provide resource adequacy and take advantage of opportunities to leverage existing utility infrastructure. Such new technologies should include new dispatchable electric generation facilities that utilize renewable natural gas (“RNG”), renewable hydrogen gas (sometimes just referred to as “hydrogen” or “hydrogen gas” throughout these comments), and carbon capture and sequestration (“CCS”), among other technologies, and storage resources.¹⁰ More specifically and as discussed in more detail below, not only can RNG be used

⁸ See Case 19-E-0530, *Proceeding on Motion of the Commission to Consider Resource Adequacy Matters*, NFGDC Comments in the Resource Adequacy Proceeding (Filed Aug. 19, 2020). Consider, for example, the recent rolling blackouts the California Independent System Operator Corporation (the “CAISO”) ordered, which demonstrate the importance of *dispatchable* resources to meet peak demand during extreme weather events where intermittent resources are unavailable. See Greentech Media, *California’s Shift From Natural Gas to Solar Is Playing a Role in Rolling Blackouts* (Aug. 17, 2020). Available at: <https://www.greentechmedia.com/articles/read/how-californias-shift-from-natural-gas-to-solar-is-playing-a-role-in-rolling-blackouts> (last accessed Aug. 25, 2020) (reporting that “the blackouts were also a side effect of the state’s increasing shift to solar power and away from natural-gas-fired generators, according to state grid operator CAISO and Wood Mackenzie analysts. This shift pushed back the moment of ‘net peak’ demand on the state’s grid — a measure of total demand minus renewable energy’s contribution — into later in the evening, leaving CAISO with less dispatchable generation to fill in shortfalls between supply and demand”).

⁹ See White Paper, at 4 (“With respect to generation, New York State should actively pursue programs and policies that accelerate the development and adoption of advanced technologies that improve the functionality and economics of clean resources, including novel flexibility resources and new zero-emission solutions that may take advantage of the repurposing of existing facilities”) (emphasis added).

¹⁰ See The Brattle Group, *New York’s Evolution to a Zero Emission Power System—Modeling Operations and Investment through 2040 Including Alternative Scenarios* (June 22, 2020), at 15 (the “NYISO Report”). Available at: <https://www.nyiso.com/documents/20142/13245925/Brattle%20New%20York%20Electric%20Grid%20Evolution%20Study%20-%20June%202020.pdf/69397029-ffed-6fa9-cff8-c49240eb6f9d> (last accessed Aug. 25, 2020). Meeting the challenge presented from increased penetration of intermittent resources could become more difficult if electric loads grow with economy-wide electrification, which could result in increasing electric loads in all periods, a shift to winter peaking, and more variable load hour-to-hour, thus requiring more flexibility across all timescales (*i.e.*, hourly, multi-day, seasonal) to balance intermittent renewables and volatile load (*id.* at 12-13).

to generate electricity, it will be critical to reducing GHG emissions from the State’s landfills, waste treatment facilities, and agricultural operations in furtherance of the CLCPA’s GHG emission reduction goals. Moreover, ongoing technological developments are revealing that hydrogen can be utilized in advanced dual-fuel combined cycle turbines in hydrogen/power-to-gas (“P2G”) applications, which is in addition to new fuel-cell technologies that may be utilized in the transportation, industrial, or commercial sectors. Building on this concept, the value proposition of hydrogen is clear: it can be produced and stored during periods of excess output from intermittent renewable resources and has multiple uses, in addition to its use in new combustion technology under development. Incentivizing the development of hydrogen technologies, such as P2G, can assist in meeting many of the CLCPA’s targets, particularly those discussed in these comments.

Further and as the White Paper recognizes, storage resources¹¹ will also be critical to address the issue of intermittency moving forward. As a result, the Commission should consider storage in the form of hydrogen gas and RNG, in addition to traditional storage resources that could be generated from excess electric output.¹² Doing so may help address resource adequacy issues that will be inevitably confronted, add valuable resource diversity to the grid, and efficiently attain the CLCPA’s objectives.

Consistent with this type of broad perspective in crafting a regulatory structure to address the CLCPA’s requirements for a renewable energy program, the CAC was recently presented with

¹¹ As codified in the PSL, the CLCPA requires the State to procure 3,000 MW of energy storage by 2030 (PSL § 66-p [5]).

¹² See e.g. Case 15-E-0302, *supra*, NFGDC Comments DSGEIS (Filed July 24, 2020) (describing the expansion of RNG technologies and the incorporation of RNG into NFGDC’s service offerings as a means to reduce the emissions profile of energy deliveries to customers, simultaneously capturing naturally occurring GHG emissions, and also researching the development of P2G that can serve as a link between the power grid and the inherent flexibility of the natural gas system, helping to unlock new options for energy conversion, delivery and storage, discussed *infra*).

a report from Energy + Environmental Economics (“E3”)¹³ that similarly emphasized the importance of diverse technologies to the State’s overall energy mix. Specifically, E3 observed that “[a]s the share of intermittent resources like wind and solar grows substantially, some studies suggest that complementing with firm, zero-emission resources, such as bioenergy, synthesized fuels such as hydrogen, hydropower, carbon capture and sequestration, and nuclear generation could provide a number of benefits.”¹⁴

Finally, NFGDC supports the White Paper’s advocacy for the use and repurposing of existing facilities, which should include natural gas transmission and distribution infrastructure. Significant elements of this infrastructure could, for example, be utilized in the transportation and storage of RNG or hydrogen gas from production sites to consumers. In sum, a broad but cohesive and integrated energy vision from the Commission and ensuing renewable energy program can safely, reliably, cost-effectively, and efficiently shape the State’s energy and environmental future as the State charts a path to timely meeting the CLCPA’s targets.

III. White Paper Comments

- a. In order for the State to meet the CLCPA’s targets, ensure the provision of safe and adequate electric service, and realize deep, economy-wide emissions reductions, RNG should be incorporated into State energy policy

The White Paper interprets the CLCPA to exclude RNG as a “renewable energy system”¹⁵ eligible to satisfy the 70 by 30 Target.¹⁶ Simply adopting this interpretation without critical review

¹³ E3 had been engaged by NYSERDA to conduct a strategic analysis of New York’s decarbonization opportunities. The CAC indicated that E3’s report is intended to serve as a starting point to inform the CAC’s work and its advisory panels in their deliberations as they develop the strategies and pathways that will be needed to achieve the CLCPA’s goals.

¹⁴ E3, *New York State Decarbonization Pathways Analysis, Summary of Draft Findings* (June 24, 2020), at 16. Available at: <https://climate.ny.gov/Meetings-and-Materials> (last accessed Aug. 24, 2020).

¹⁵ PSL § 66-p (1) (b) defines “renewable energy systems” as “systems that generate electricity or thermal energy through use of the following technologies: solar thermal, photovoltaics, on land and offshore wind, hydroelectric, geothermal electric, geothermal ground source heat, tidal energy, wave energy, ocean thermal, and fuel cells which do not utilize a fossil fuel resource in the process of generating electricity.”

¹⁶ The White Paper states: “[T]he CLCPA’s definition of ‘renewable energy systems’ does not include biomass or biogas, which are currently eligible under the RES. Therefore, it is recommended that the Commission align future

would result in the State failing to take advantage of a resource that has been embraced and adopted by numerous other states and countries as a viable emissions reduction technology with undisputed benefits,¹⁷ including its ability to be produced from fugitive GHG emissions industry-wide and to be used as a potential zero-emission technology in the electric generation sector.

Even if RNG is not included in the definition of a “renewable energy system” under the CLCPA at this time, the Commission retains the discretion under the CLCPA in designing a renewable energy program to “modify . . . the targets [*i.e.*, the 70 by 30 Target and/or the 2040 Zero Emission Target] upon consideration of the factors described in this subdivision.”¹⁸ Such factors include formulating the program in consideration of its impacts “on safe and adequate electric service in the state under reasonably foreseeable conditions.”¹⁹ Here, the Commission should exercise its statutory authority and obligation to ensure safe and adequate electric service by encouraging the utilization of RNG in attaining the CLCPA’s targets while ensuring a sufficient supply of dispatchable generation as intermittent resources begin to become more pervasive.²⁰

procurements conducted by NYSEDA with the eligible technologies defined under the CLCPA” (White Paper, at 10).

¹⁷ See e.g. Biomass Magazine, *California governor signs RNG procurement bill into law* (Sep. 25, 2019). Available at: <http://biomassmagazine.com/articles/15627/california-governor-signs-rng-procurement-bill-into-law> (last accessed Aug. 28, 2020) (California’s Governor signed SB 1440 into law on Sept. 23, 2018, authorizing a state procurement program for RNG and further authorizing the California Public Utilities Commission to adopt a biomethane procurement program); see also Gas for Climate, *10% binding target for renewable gas and future-proof gas infrastructure crucial to achieve cost efficient decarbonization* (April 22, 2020). Available at: <https://gasforclimate2050.eu/news-item/10-binding-target-for-renewable-gas-and-future-proof-gas-infrastructure-crucial-to-achieve-cost-efficient-decarbonisation/> (last accessed Aug. 27, 2020) (noting that the large scale production of RNG in combination with other technologies, which is transported, stored, and distributed through existing transmission and distribution infrastructure, can help the European Union achieve 55% emission reduction by 2030 in a smart combination with renewable electricity).

¹⁸ PSL § 66-p (2).

¹⁹ *Id.*

²⁰ In addition to the express authority within PSL § 66-p (2) for such action, the Commission is generally tasked with regulating every gas and electric corporation to ensure the safe and adequate provision of service (see PSL § 65 [1]). As the New York Court of Appeals has noted, the Commission possesses those powers expressly delegated to it by the Legislature, or incidental to its expressed powers, “together with those required by necessary implication to enable the Commission to fulfill its statutory mandate” (*Niagara Mohawk Power Corp. v Pub. Serv. Commn. of State of N.Y.*, 69 NY2d 365, 368-69 [1987]).

As noted in the E3 report presented to the CAC, as well as other comments filed in this Proceeding, emissions from landfills, agricultural operations, and solid/liquid wastes present a significant source of GHG emissions comprising up to 10% of the State’s overall GHG emissions.²¹ This presents an opportunity for the State to utilize an existential source of GHG emissions in the production of RNG that can, in turn, be effectively used to generate electricity, thus helping eliminate a potent source of GHG emissions while providing a dispatchable source of electricity that can be an important piece to a future zero-carbon system.²²

NFGDC and other New York LDCs are evaluating the expansion of RNG technologies and the incorporation of RNG into their service offerings.²³ By some estimates New York has an estimated RNG technical production capacity of 271 Bcf.²⁴ The increasing demand for natural gas combined with the State’s abundant potential for RNG development puts the State in a strong position to utilize RNG in a fashion that captures fugitive methane emissions from landfill and agricultural operations, among other sources. Harnessing RNG, including as an option for electric

²¹ See E3, *Pathways to Deep Decarbonization in New York State* (June 24, 2020), at 6. Available at: <https://climate.ny.gov/Meetings-and-Materials> (last accessed Aug. 24, 2020); see also Case 15-E-0302, *supra*, City of New York Preliminary Comments on CLCPA White Paper (Filed July 27, 2020), at 18-20.

²² RNG can help reduce the emissions profile of energy deliveries to customers and capture methane, such as that released from decomposing wastes, which is particularly damaging to the environment. According to NYSERDA’s Greenhouse Gas Inventory, which was released in July 2019, 9% of the State’s greenhouse gas emissions (in the form of methane) in 2016 was from landfills and agricultural waste (NYSERDA, *New York State Greenhouse Gas Inventory: 1990–2016* [July 2019], at S-3. Available at: <https://www.nyserdera.ny.gov/-/media/Files/EDPPP/Energy-Prices/Energy-Statistics/greenhouse-gas-inventory.pdf> [last accessed Aug. 25, 2020]).

²³ See e.g. Case 20-G-0131, *Proceeding on Motion of the Commission in Regard to Gas Planning Procedures*, JU Modernized Gas Planning Process (Filed July 17, 2020), at 4 (“There is a need for further study of [RNG] and hydrogen to reduce emissions across the natural gas LDC network. How these programs and pilots expand and contribute to achievement of emissions targets must be evaluated and considered across all demand and supply planning efforts”); see also Case 19-G-0066, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Gas Service*, Order Adopting Terms of Joint Proposal and Establishing Electric and Gas Rate Plan (Issued Jan. 16, 2020), at 79 (noting that the Joint Proposal allows Consolidated Edison Company of New York, Inc. [“Con Edison”] to implement a standard interconnection agreement for operators and developers of RNG and also allowing Con Edison to contract for and purchase RNG from providers within its service territory).

²⁴ American Gas Foundation, *Renewable Sources of Natural Gas: Supply and Emissions Reduction Assessment* (December 2019). Available at: <https://gasfoundation.org/wp-content/uploads/2019/12/AGF-2019-RNG-Study-Full-Report-FINAL-12-18-19.pdf> (last accessed Aug. 27, 2020).

generation, will advance the likelihood of the State achieving its energy and environmental targets while allowing for the continued adequate, reliable, and affordable energy supply the Commission is attempting to preserve.²⁵ Further, as discussed in more detail below, existing natural gas pipeline infrastructure will be useful and cost-effective in collecting and delivering RNG throughout New York.

In addition to and in conjunction with RNG, NFGDC is interested in the development of other new technologies such as CCS for existing or new natural gas-fired electric generation facilities and P2G applications. Importantly, however, these industry-changing and environmentally-beneficial technologies will not be developed without funding from investors, which will likely only continue if investors are assured of supportive State policies that would welcome their use if commercialized. By promoting the future of RNG (and the role of hydrogen gas discussed *infra*) and committing to the continued success of this industry, the Commission will not only spur investment in emissions-reducing green-gas technology, it is also likely to encourage economic development activity and create jobs.²⁶

Implementing RNG in the State’s energy future, such as in the electric sector, is a viable option already being considered within the industry and should be encouraged by the Commission. For example, in its NYISO Report, The Brattle Group evaluated implementing RNG under the State’s zero-emission requirement (*i.e.*, the 2040 Zero Emission Target).²⁷ Although modeled as a proxy for potential future zero-emission technology in the NYISO Report, RNG can be utilized as a potential future zero emissions technology since “burning RNG emits no net carbon emissions”

²⁵ See *e.g.* Case 19-E-0530, *supra*, Order Instituting Proceeding and Soliciting Comments (Issued Aug. 8, 2019).

²⁶ Bates White Economic Consulting, *Renewable Natural Gas Supply and Demand for Transportation* (dated April 5, 2019), at 32. Available at: <http://www.rngcoalition.com/data-resources-2> (last accessed Aug. 25, 2020).

²⁷ The Brattle Group, *New York’s Evolution to a Zero Emission Power System—Modeling Operations and Investment through 2040 Including Alternative Scenarios* (June 22, 2020), at 15. Available at: <https://www.nyiso.com/documents/20142/13245925/Brattle%20New%20York%20Electric%20Grid%20Evolution%20Study%20-%20June%202020.pdf/69397029-ffed-6fa9-cff8-c49240eb6f9d> (last accessed Aug. 25, 2020)..

and is “[i]ncreasingly viewed as an important part of [a] future zero-carbon system.”²⁸ In its base case modeling of the electric fleet composition and operations in the year 2040, which incorporates RNG into the resource mix, The Brattle Group’s results reveal that RNG would play a critical role in meeting peak load (*i.e.*, during winter and summer hours). Specifically, “[z]ero-emission fuels (RNG) [is] consumed in many winter and summer hours to meet peak load.”²⁹

The Brattle Group also studied alternative cases, including an “Existing Technologies” scenario, where only existing technologies (wind, solar, and storage) can be built while RNG production and consumption are disallowed³⁰—which is analogous to the proposals contained in the White Paper that seek to incentivize only wind and solar at the exclusion of RNG. According to The Brattle Group, such a wind and solar-heavy approach will (1) contribute to a large overbuild of renewables (by approximately 80,000 MW) and storage (by approximately 27,000 MW) to meet load in all hours, (2) lead to large curtailments in the amount of approximately 221 TWh (221,000 GWh or 50% of generation), (3) cause unforced capacity (“UCAP”)³¹ reserve margins to fall below planning reserve margins as gas plants retire by 2040, and (4) lead to the decrease in load by approximately 50 TWh without in-State RNG production.³²

Underscoring the importance of RNG, the E3 report presented to the CAC notes that “[f]lexibility along multiple dimensions is key to maintaining reliability and reducing cost of a

²⁸ *Id.* at 114.

²⁹ *Id.* at 33.

³⁰ *Id.* at 39.

³¹ In general, the NYISO defines UCAP as the amount of capacity that suppliers are qualified to offer considering maximum demonstrated output, deliverability limits, and derating factors based on historic availability, among other factors (*see e.g.* NYISO, *Amount of Capacity Qualified to Offer* [June 18-19, 2019]. Available at: https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKewj7gsCsn7nrAhXF13IEHTt dDh8QFjACegQIAhAB&url=https%3A%2F%2Fwww.nyiso.com%2Fdocuments%2F20142%2F3036383%2F4_Amt%2Bof%2BCapacity%2BQualified%2Bto%2BOffer.pdf%2F57f56a99-3293-d795-858421a70c495a5a%3Fversion%3D1.1%26t%3D1560190469564%26download%3Dtrue&usg=AOvVaw03TfeHoc5nW5iY-rxsCY9S (last accessed Aug. 26, 2020).

³² *See* The Brattle Group NYISO Report, at 41.

100% zero-emission electricity system.”³³ Echoing The Brattle Group’s findings, “[t]he more difficult challenge is during winter periods with high heating loads and very low renewable energy production, which can occur over several days. The long-duration (interday) challenge can be solved through a combination of large-scale hydro resources, renewable natural gas (RNG) or synthetic fuels such as hydrogen, carbon capture and storage (CCS), and nuclear power.”³⁴

The Commission should not interpret the current exclusion of RNG from the definition of “renewable energy systems” under the CLCPA as a basis to exclude RNG-based technologies going-forward. Rather, the Commission should, consistent with its obligation to ensure safe and adequate electric service,³⁵ encourage these types of technologies to help meet the CLCPA’s 70 by 30 Target, 2040 Zero Emission Target, and GHG emission reduction targets while also providing a form of dispatchable generation needed to ensure the safe and adequate provision of electric service.³⁶

³³ E3, *New York State Decarbonization Pathways Analysis, Summary of Draft Findings* (June 24, 2020), at 16. Available at: <https://climate.ny.gov/Meetings-and-Materials> (last accessed Aug. 24, 2020).

³⁴ *Id.*

³⁵ See PSL § 66-p (2).

³⁶ See e.g. Case 15-E-0302, *supra*, City of New York Preliminary Comments on CLCPA White Paper (Filed July 27, 2020), at 20 (“[I]t is reasonable and appropriate to treat energy generated by biogas as a renewable energy system. Notably, such treatment is consistent with State’s analysis, which concludes that biogas would be a part of the resource mix that would achieve the CLCPA’s 100x40 target while preserving system reliability. The Commission has broad discretion in interpreting the Public Service Law. It should exercise that discretion in this matter to further facilitate achievement of the CLCPA’s targets and avoid unnecessary and easily preventable direct methane emissions into the atmosphere. Moreover, the Commission and NYSERDA should work with others to encourage the State Legislature to revisit this omission and amend Public Service Law 66-p(1)(b) to expressly include biogas”); Case 15-E-0302, *supra*, EEANY comments on CES white paper (Filed July 24, 2020), at 2 (“[W]e believe the omission is an oversight as there is no explicit language in the CLCPA that omits biomass and biogas”); Case 15-E-0302, *supra*, Clarkson University request for party status (Filed Aug. 29, 2020) (“We respectfully request that this exclusion [of RNG from ‘renewable energy systems’] be reconsidered and that pipeline-directed RNG be allowed in New York. Both California and Massachusetts currently value biogas and pipeline directed RNG as integral components of their clean energy future. Although our use of RNG will be for heating, not electricity generation, we believe that it needs to be considered a renewable fuel for all purposes (electricity, heat, transportation) as our State seeks to reduce its overall GHG emissions from all of our energy systems”).

- b. Renewable hydrogen gas should be eligible for the State's 70 by 30 Target in addition to the 2040 Zero Emission Target

Although the White Paper is generally supportive of incorporating renewable hydrogen gas into the State's broader energy mix, the Commission should further extend this support. The White Paper states:

[H]ydrogen produced from an electrolyzer that demonstrates it is powered by renewable generation through a behind-the-meter facility, bilateral agreement, or other verifiable arrangement and that is ultimately used as a fuel to produce electricity (either through a fuel cell *or via direct combustion*) would be eligible to generate RECs. RECs generated in that manner should carry the environmental attributes of the electricity used to produce the hydrogen in the first instance, whether that is Tier 1, Tier 2, etc.³⁷

In developing a renewable energy program the Commission should include renewable hydrogen and electricity generated therefrom, which produces virtually no GHG emissions, as a resource eligible to meet both the 70 by 30 Target as well as the 2040 Zero Emission Target. Doing so early-on will send the proper market signals to businesses and provide the certainty needed to spur investment and development now to attain the CLCPA's future objectives.

In the first instance, renewable hydrogen and its use in combustion turbines should be an eligible "renewable energy system" under the CLCPA.³⁸ The White Paper implies that hydrogen combustion would be eligible under the CES to generate renewable energy credits, which should equally apply toward meeting CLCPA objectives. Even if that is not the case, as the White Paper observes, the CLCPA provides the Commission with authority in establishing a program to meet the 70 by 30 Target and 2040 Zero Emission Target to "consider and where applicable formulate the program to address impacts of the program on safe and adequate electric service in the state under reasonably foreseeable conditions. The Commission may, in designing the program, *modify*

³⁷ White Paper, at 12 (emphasis added).

³⁸ See fn. 18.

the obligations of jurisdictional load serving entities and/or the *targets upon consideration of the factors described in this subdivision.*”³⁹ Lastly, the Commission should confirm that renewable hydrogen gas, which produces virtually no GHG emissions when combusted, is eligible to fulfil the 2040 Zero Emission Target.

As intermittent renewables drive excess generation that might otherwise be subject to curtailment, the generation and storage of renewable hydrogen gas and its use in electric and other economy-wide sectors presents a multi-faceted opportunity to “help meet GHG reduction goals and address the problematic curtailments and depressed power prices that can arise due to overproduction of renewables.”⁴⁰ Hydrogen can be produced and stored; when needed, it has multiple economy-wide uses, in addition to new combined cycle combustion turbine technology under development.⁴¹ Additionally, hydrogen has the potential to utilize existing natural gas transmission and distribution infrastructure and thus serve the dual purpose of accelerating development and adoption of advanced technologies that, as the White Paper states, “improve the functionality and economics of clean resources, including novel flexibility resources and new zero-emission solutions that may take advantage of the repurposing of existing facilities.”⁴²

Renewable hydrogen is already the subject of interest and development across the globe, and the State’s early support could, like it has done with offshore wind,⁴³ place its energy economy

³⁹ PSL § 66-p (2) (emphasis added); *see also* White Paper, at 7.

⁴⁰ Utility Dive, *Propelling the transition: Green hydrogen could be the final piece in a zero-emissions future* (Aug. 17, 2020). Available at: <https://www.utilitydive.com/news/propelling-the-transition-green-hydrogen-could-be-the-final-piece-in-a-zero-emissions-future/581025/> (last accessed Aug. 25, 2020).

⁴¹ *See* Power, *High-Volume Hydrogen Gas Turbines Take Shape* (May 1, 2019). Available at: <https://www.powermag.com/high-volume-hydrogen-gas-turbines-take-shape/> (noting how hydrogen is being considered as the “missing link” in the energy transition as key technologies to produce it using renewable electricity, such as proton exchange membrane electrolyzers and fuel cells, reach technical maturity and economies of scale for use in large-scale gas turbines that can operate on a high-hydrogen-volume fuel).

⁴² White Paper, at 4.

⁴³ *See e.g.* NYSEERDA, *Launching New York’s Offshore Wind Industry: Phase 1 Report* (October 2019) (describing the successful completion of New York’s first-ever offshore wind solicitation culminating in the execution of contracts for Offshore Wind Renewable Energy Certificates with Equinor Wind US LLC for its 816 MW Empire Wind Project and with Sunrise Wind LLC [joint venture of Ørsted A/S and Eversource Energy] for its 880 MW Sunrise Wind

at the forefront of a promising, global economic market. For example, on July 8, 2020, the European Commission announced its adoption of a hydrogen strategy seeking to install at least 6 GW of renewable hydrogen electrolyzers in the European Union by 2024, 40 GW of renewable hydrogen electrolyzers by 2030, and the implementation of renewable hydrogen technologies at large scale to reach all hard-to-decarbonize sectors where other alternatives might not be feasible or have higher costs from 2030 to 2050.⁴⁴

Similarly, domestically, renewable hydrogen is gaining traction in commercial projects across the Nation. At the forefront, Utah’s Intermountain Power Agency (the “IPA”), a consortium of 23 Utah municipal utilities and a separate legal entity and political subdivision of the state of Utah, owns the Intermountain Power Project (the “IPP”), which is operated, in part, by the Los Angeles Department of Water and Power (“LADWP”).⁴⁵ IPA is in the process of replacing the IPP’s existing 1,800 MW coal facility with a 2-unit 840 MW combined cycle natural gas plant capable of burning a 30% green hydrogen-70% natural gas blend by 2025 and that will provide power through an existing 2,400 MW high voltage direct-current transmission line serving LADWP, among other off-takers in Utah and California.⁴⁶ LADWP contracted with Mitsubishi Hitachi Power Systems (“MHPS”) for 2 advanced, combined cycle combustion turbines that must

Project). Available at: <https://www.nyserda.ny.gov/About/Newsroom/2019-Announcements/2019-10-23-Governor-Cuomo-Announces-Finalized-Contracts-for-Empire-Wind-and-Sunrise-Wind-Offshore-Wind-Projects> (last accessed Aug. 26, 2020); Case 18-E-0071, *In the Matter of Offshore Wind Energy*, Order Authorizing Offshore Wind Solicitation in 2020 (Issued April 23, 2020) (authorizing NYSEDA to issue an additional offshore wind solicitation in 2020 for 1,000 MW or more).

⁴⁴ See European Commission, *Communication From the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, A hydrogen strategy for a climate-neutral Europe* (July 8, 2020). Available at: https://ec.europa.eu/energy/sites/ener/files/hydrogen_strategy.pdf (last accessed Aug. 25, 2020).

⁴⁵ IPA, *Project*. Available at: <https://www.ipautah.com/about-ipa/project-history-and-location/> (last accessed Aug. 25, 2020).

⁴⁶ Utility Dive, *Propelling the transition: Green hydrogen could be the final piece in a zero-emissions future* (Aug. 17, 2020). Available at: <https://www.utilitydive.com/news/propelling-the-transition-green-hydrogen-could-be-the-final-piece-in-a-zero/581025/> (last accessed Aug. 25, 2020).

be modified to accept 100% renewable hydrogen no later than 2045.⁴⁷ The overall initiative will be supported by an adjacent storage project known as the Advanced Clean Energy Storage (“ACES”) project, led by MHPS and Magnum Development, the owner of a large underground storage facility in Utah.⁴⁸ The ACES project will “use renewable power to produce hydrogen through electrolysis. The hydrogen will be stored in an underground salt dome at the site, using technology that has been in operation for the past 30 years to supply hydrogen to U.S. refineries in the Gulf Coast of the United States. Stored renewable hydrogen can provide power when wind and solar availability are limited due to prevailing weather conditions and time of day, as well as provide seasonal energy storage from renewable energy sources.”⁴⁹

In short, the Commission should encourage the potential of renewable hydrogen in meeting the various CLCPA targets, providing a highly-efficient form of energy storage, and yielding dispatchable electricity power.

- c. The CLCPA’s mandate to procure “storage” should be interpreted to include the storage of RNG, hydrogen gas, and related technologies

As discussed above, the CLCPA requires the State to procure “three gigawatts of statewide energy storage capacity by [2030].” However, “storage” is not further defined, thus giving the

⁴⁷ *Id.*; see also Power, *MHPS Secures First Order for Hydrogen-Capable J-Series Gas Turbines* (March 10, 2020). Available at: <https://www.powermag.com/mhps-secures-first-order-for-hydrogen-capable-j-series-gas-turbines/> (last accessed Aug. 25, 2020) (attributing the following quote to LADWP’s general manager and chief engineer, Martin L. Adams: “Our goal for IPP is to transition to 100% renewable power no later than 2045, while continuing to provide our customers with safe, sustainable, affordable and reliable electricity. [As envisioned, the new IPP facility] will provide renewable power capacity when we need it, and will also provide critical spinning inertia to maintain the reliability of the HVDC transmission line [, which has a 2.4-GW capacity and currently also connects with about 400 MW of wind power]. We believe renewable hydrogen is an essential technology for LADWP to achieve a 100% renewable power grid”).

⁴⁸ Power, *MHPS, Magnum Will Build 1-GW Renewable Energy Storage Facility in Utah* (May 30, 2019). Available at: <https://www.powermag.com/mhps-magnum-to-build-1-gw-renewable-energy-storage-facility-in-utah/> (last accessed Aug. 25, 2020).

⁴⁹ MHPS, *Intermountain Power Agency Orders MHPS JAC Gas Turbine Technology for Renewable-Hydrogen Energy Hub: Utility-scale project shows a path to 100% renewable power no later than 2045* (March 10, 2020). Available at: <https://amer.mhps.com/intermountain-power-agency-orders-mhps-jac-gas-turbine-technology-for-renewable-hydrogen-energy-hub.html> (last accessed Aug. 20, 2020).

Commission broad authority to include procurements of RNG and renewable hydrogen gas storage, which can be subsequently used to generate electricity, within these procurements. Therefore, in order to achieve this challenging goal, the Commission should explicitly determine that storage for RNG and renewable hydrogen gas will be counted toward satisfying the CLCPA's storage goals.⁵⁰

d. The State's existing natural gas distribution infrastructure (transmission and distribution) should be utilized to meet the CLCPA's targets

Lastly, and as NYSERDA and Staff propose in the White Paper,⁵¹ the Commission should encourage utilizing the State LDC's existing utility infrastructure, including natural gas transmission and distribution facilities, in the development of solutions in furtherance of CLCPA objectives. As noted throughout these comments, the existing natural gas transmission and distribution infrastructure can be readily utilized to transport and deliver RNG across the State, which was highlighted by E3 and The Brattle Group as a potential, viable technological option in furtherance of the State's energy policy.⁵² Components of existing transmission and distribution infrastructure may also be used to transport and/or store hydrogen gas across the State in support of developing hydrogen-based technologies. Of course, leveraging existing infrastructure will minimize environmental impacts associated with new development projects,⁵³ and the utilization of underground facilities such as the natural gas distribution network will offer greater resilience and storm-hardening benefits in the face of extreme weather events like the recent storm Isaias. Therefore, the Commission should encourage programs and technologies that utilize the State's

⁵⁰ See White Paper, at 12.

⁵¹ See *id.* at 4.

⁵² See The Brattle Group NYISO Report, at 114 (observing that RNG can be utilized as a potential future zero emissions technology since "burning RNG emits no net carbon emissions" and is "[i]ncreasingly viewed as an important part of future zero-carbon system").

⁵³ Case 15-E-0302, *supra*, NFGDC Comments DSGEIS (Filed July 24, 2020).

existing natural gas transmission and distribution infrastructure, such as those presented throughout these comments and also presented in NFGDC's July 24, 2020 comments in this Proceeding.

IV. Conclusion

NFGDC encourages the Commission to take a broad perspective in crafting a regulatory structure to address the CLCPA's requirements for a renewable energy program as part of the larger energy and environmental evolution that the State will need to undergo in order to meet the CLCPA's sweeping goals. As demonstrated above, this evolution will require all levels of industry, the encouragement of new technologies, the utilization of existing assets in new ways, and application of a holistic and practical regulatory perspective that properly considers and balances safety, reliability, cost-effectiveness, and efficiency, among other competing goals.

Further, NFGDC thanks the Commission for the opportunity to provide these comments and recognizes that these are only the starting point for a discussion on how the State can meet the CLCPA's objectives. Accordingly, NFGDC encourages continued discussion of these matters, including the initiation of technical conferences, and looks forward to its continued involvement in this Proceeding and more broadly before the Commission on these critical issues.

If you have any questions about this filing, please do not hesitate to contact me directly
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Dated: August 31, 2020

Respectfully Submitted,

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cc: Active Party List (*via DMM electronic notification*)