

Response to NYISO Solicitation  
of Transmission Needs Driven by Public Policy Requirements

1. Introduction

The New York Power Authority (“NYPA”), Niagara Mohawk Power Corporation d/b/a National Grid (“National Grid”) and Central Hudson Gas & Electric Corporation (“Central Hudson”) (NYPA, National Grid and Central Hudson are hereafter referred to jointly as “Respondents”) submit this filing in response to NYISO’s August 1, 2016 solicitation of transmission needs driven by Public Policy Requirements (“PPRs”).<sup>1</sup> Respondents identify a number of PPRs driving the need for one or more groups of transmission upgrades (“Transmission Needs”). Respondents request that NYISO forward to the New York State Public Service Commission (“PSC”) the Transmission Needs identified below.

2. Executive Summary

Transmission Needs are being driven by a combination of PPRs, including: 1) the PSC’s recent order establishing the Clean Energy Standard (“CES”)<sup>2</sup> and 2) its REV Order;<sup>3</sup> 3) the New York Department of Environmental Conservation’s (“DEC”) implementation of the Regional Greenhouse Gas Initiative (“RGGI”);<sup>4</sup> and 4) the federal Clean Power Plan (“CPP”).<sup>5</sup> All these

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<sup>1</sup> Capitalized terms used and not otherwise defined herein shall have the meaning ascribed to those terms in NYISO’s Open Access Transmission Tariff (“OATT”) or NYISO’s Market Administration and Control Area Services Tariff (“Services Tariff”), as context requires. The reference to “Transmission” in the context of this submission shall mean “Bulk Power Transmission Facilities” (BPTF) as defined in the NYISO tariffs.

<sup>2</sup> Case 15-E-0302, Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard, Order Adopting a Clean Energy Standard (issued August 1, 2016) (the “CES Order”).

<sup>3</sup> Case 14-M-0101, Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision, Order Instituting Proceeding (issued April 25, 2014)(“REV Order”)

<sup>4</sup> See 21 NYCRR Part 507 (2014) and 6 NYCRR Part 242 (2014).

<sup>5</sup> 40 CFR Part 60, Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units; Final Rule, available at: <https://www.gpo.gov/fdsys/pkg/FR-2015-10-23/pdf/2015-22842.pdf>

PPRs drive the Transmission Needs identified below. In addition, the Power Authority Act<sup>6</sup> drives the Northern Transmission Need, as defined below.

The first Transmission Need is to upgrade the transmission system to mitigate transmission constraints affecting, and increase transmission capacity into and through, Northern New York, in order to position the bulk transmission system to: (1) afford full access to clean, renewable generation resources located in Northern New York, including existing wind generation, NYPA's Saint Lawrence – Franklin D. Roosevelt Power Project ("St. Lawrence Facility"), and imports from the Provinces of Quebec and Ontario, Canada, and (2) accommodate incremental in-State and regional renewable resources, as well as load shifts (including possible loss of industrial load in Northern New York), without bottling renewable generation, while facilitating delivery of these resources to the downstate load centers (the "Northern Transmission Need"). All these PPRs, with the exception of the Power Authority Act, may drive one or more similar Transmission Needs to enhance the transmission system in one or more regions of New York to accommodate renewable generation that can be expected to be developed in these regions and facilitate the delivery of its output to the downstate load centers.

### 3. PPRs

#### a. The Clean Energy Standard

The CES mandates "that 50% of electricity consumed in New York by 2030 will be generated from renewable resources."<sup>7</sup> In addition, among other objectives, the CES Order endorses the following mechanism of relevance to Respondents' proffered Transmission Needs:

- Jurisdictional obligations on load serving entities to ensure the procurement of renewable credits generated in New York or delivered into New York;
- Jurisdictional maintenance obligations on distribution utilities to maintain the contributions of older, small, renewable facilities; and
- Continued participation and leadership in [RGGI] and support of universal complementary federal action under the Clean Power Plan.<sup>8</sup>

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<sup>6</sup> Chapter 772 Laws of New York Section 1, 1931

<sup>7</sup> CES Order at 12.

<sup>8</sup> Id. at 13.

In particular, the CES Order requires all New York load-serving entities (“LSEs”) “to serve their retail customers by procuring new renewable resources, evidenced by the procurement of qualifying [Renewable Energy Credits].”<sup>9</sup>

Staff of the New York State Department of Public Service (“DPS Staff”) has determined that “slightly more than 33,700 GWh of incremental renewable generation must be added to the State’s fuel mix” in order to achieve the CES goal of 50% renewable by 2030.<sup>10</sup> It is worth noting that the NYISO estimates that in order to meet this target, the CES will require: 1) approximately 25,000 MW of solar capacity, to meet the targets solely with solar resources; 2) approximately 15,000 MW of wind capacity, to meet the targets solely with wind resources; or 3) approximately 4,000 MW of hydroelectric capacity, to meet the targets solely with high availability hydroelectric resources.<sup>11</sup> This expected proliferation of renewable resources throughout the State is virtually certain to require increased transmission capacity throughout certain regions of the State.

Historically, New York has relied on large-scale hydropower as the backbone of the State’s renewable supply portfolio, with hydro representing over 86% of the State’s renewable baseline.<sup>12</sup> In order to effectively leverage the use of this existing hydroelectric power in conjunction with incremental non-hydro renewable resources to meet these targets, new transmission connecting these resources to load centers will be required.

The targets outlined in the CES Order will require significant quantities of incremental renewable energy to be delivered to all the load centers in New York, supplied from resources within the State and imported from external control areas. While near-term goals may be met

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<sup>9</sup> Id. at 14.

<sup>10</sup> Staff White Paper on Clean Energy Standard, Department of Public Service, Case 15-E-0302, Jan. 25, 2016 (“CES White Paper”), p. 7.

<sup>11</sup> These estimates of new renewable megawatts in New York are calculated based on the historic demonstrated capacity factors for these categories of generators. From NYISO Comments on Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard, April 22, 2016.

<sup>12</sup> CES White Paper, Appendix B.

with existing infrastructure, existing intrastate transmission and interties between New York and adjacent regions likely will not be sufficient to physically deliver cost competitive renewable energy supplies needed to meet more aggressive goals in future years. Indeed, the PSC has directed DPS Staff to work with stakeholders “to ensure that the bulk transmission system is sufficiently modernized such that it can fully support the State’s renewable goals.”<sup>13</sup>

b. Reforming the Energy Vision

The PSC has identified six policy objectives for REV: 1) fuel and resource diversity; 2) system reliability and resiliency 3) reduction of carbon emissions 4) system wide efficiency 5) enhanced customer engagement, and 6) market animation.<sup>14</sup> Transmission expansion in Northern New York and other parts of the State will result in increased bulk electric system flexibility and reliability, and will enable a more efficient dispatch of bulk electric system renewable resources. These outcomes complement the PSC’s efforts under the CES and at the distribution level, and support achieving the REV objectives of carbon emission reduction, fuel diversity, system reliability and system efficiency.

c. The Regional Greenhouse Gas Initiative

RGGI is a cooperative effort among nine states – Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont – which seeks to “stabilize and then reduce anthropogenic emissions of CO<sub>2</sub>, a greenhouse gas, from CO<sub>2</sub> budget sources in an economically efficient manner.”<sup>15</sup> When renewable assets such as NYPA’s St. Lawrence Facility, upstate wind, or HQ hydropower are constrained and their output is limited, fossil fuel generation must be dispatched, which not only increases carbon and other air emissions, but also drives up the price of RGGI allowances and consumer costs.

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<sup>13</sup> CES Order at p.75.

<sup>14</sup> REV Order at p. 2.

<sup>15</sup> 6 NYCRR § 242-1.1.

d. The Clean Power Plan

When the U.S. Environmental Protection Agency adopted the Clean Power Plan, on December 22, 2015, it took an historic and important step toward reducing carbon pollution from power plants. The CPP requires states to implement carbon emission reduction plans. The carbon reduction achieved by RGGI served as a model for many elements of the CPP. New York State is committed to cutting harmful carbon pollution by 40% by 2030, in part by increasing the penetration of renewable resources.

e. The Power Authority Act

Relieving transmission constraints in Northern New York will effectuate the objective of the Power Authority Act.<sup>16</sup> The Power Authority Act directs NYPA, among other things, to develop, maintain, manage and operate the St. Lawrence Facility “for the creation and development of hydro-electric power in the interest of the people of this state.” Expanded transmission in Northern New York will allow NYPA to more fully utilize the St. Lawrence Facility to generate clean and low cost power in the interest of the people of New York.

4. The Northern Transmission Need

During certain system conditions there is currently a bottling of renewable generation resources at the Bulk Power Transmission Facility level in Northern New York due to the combined impact of the development of wind resources over the past decade and a reduction in industrial load in the region. This situation will be exacerbated by increased penetration of renewable resources, including renewable imports, needed to satisfy the CES and other PPRs. Unfortunately, the transmission system in Northern New York is currently constrained under certain system configurations and cannot fully support the deliverability of renewable imports from Canada and the full output of NYPA’s St. Lawrence Facility, or additional wind generation from projects across the St. Lawrence valley.

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<sup>16</sup> Chapter 772 Laws of New York Section 1, 1931

The deliverability of renewable power throughout New York State, but especially to southeastern New York, will be important to ensure that all regions of the State receive the benefits of cleaner generation and reduced air pollution resulting from the CES and the REV initiatives. Expanding the transmission system will be essential to increasing the deliverability of new and existing renewable resources, both within and outside of New York State.

Recent events have increased the likelihood of bottled renewable generation and inefficient market outcomes in the North Country. Factors that have played a role in this congestion include the closure of a large manufacturing facility in the region in early 2015 (Alcoa Reynolds East plant in Massena, NY), as well as the presence of local wind and/or imports in the market in amounts that exceed the transmission system's delivery capability. Internal NYPA analysis using a production costing tool shows that under current system conditions, minor renewable generation bottling occurs in Zone D. Under a scenario in which the industrial load in the region is significantly decreased, bottling of as much as 500 GWh of renewable energy occurs. In an alternate scenario in which load is decreased and CES compliance is modelled along with 500 MW of additional wind, as much as 1,000 GWh of renewable generation in Zone D would be bottled.

Even the current level of renewable penetration in the region is beginning to create inefficiencies and system conditions that limit renewable output. At times the constrained transmission system in the region necessitates the spilling of water at the St. Lawrence Facility and other inefficiencies, including market prices that have reached negative values. That market signal runs counter to the renewable goals and discourages renewable energy development. The possible addition of over 1,000 MW of new wind projects in Northern New York, as reflected in the NYISO interconnection queue, potential increased renewable imports from Canada, and possible additional load reductions could exacerbate transmission constraints in delivering clean, renewable energy and its environmental benefits to the State's load centers.

## 5. Transmission Need(s) in Potentially Constrained Regions

The circumstances facing new and existing renewable resources in certain other parts of the State (“Potentially Constrained Regions”) are likely to be similar to the conditions existing in Northern New York. Wind generation may face curtailment due to transmission constraints in certain Potentially Constrained Regions as additional renewable resources are developed. Limited capacity to accommodate incremental wind power additions represents a possible impediment to future development in these Potentially Constrained Regions.

The NYISO’s Growing Wind report<sup>17</sup> modelled all of the existing and proposed wind projects at the time, totaling approximately 6,000 MW from land-based wind farms, and concluded that with no upgrades to the existing transmission system, nearly 9% of the energy from wind resources would be constrained across the State. The report also identified areas where local transmission facilities limit wind plant output.

Two such areas were identified as Northern New York and the southern tier region of the State (the “Southern Tier”). Other areas of the State may well be similarly affected. For example, the NYISO interconnection queue reflects nearly 1,000 MW of planned wind resource additions slated for the Southern Tier, with at least four applications pending under Article 10 of the New York Public Service Law related to wind facilities representing over 820 MW under development in this region. The NYISO interconnection queue shows over 1,350 MW of wind resources slated for development in northern New York, 750 MW in western New York, and more than 625 MW in central New York. Each of these Potentially Constrained Regions represents an area in which transmission constraints on the Bulk Power Transmission Facilities (as defined in the NYISO OATT), or transmission issues on the local system that can potentially be ameliorated with new Bulk Power Transmission Facilities, may bottle new or existing

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<sup>17</sup> Growing Wind: Final Report of the NYISO 2010 Wind Generation Study, September 2010.

renewable resources or prevent those resources from being able to serve load throughout the State and warrant designation of a Transmission Need.

The deliverability of renewable power from these Potentially Constrained Regions throughout New York State, but especially to southeastern New York, will be important to ensure that all regions of the State receive the benefits of cleaner generation and reduced air pollution resulting from the CES<sup>18</sup> and REV initiatives. Expanding the transmission system will be essential to increasing the deliverability of new and existing renewable resources in one or more of these Potentially Constrained Regions. In addition to the previously mentioned wind study, there are a number of ongoing studies, including the State Resource Plan, which can inform the PSC's independent analysis and determination as to which, if any, Potentially Constrained Regions will warrant transmission upgrades.

Given the time required to design, permit and construct transmission enhancements, and the aggressive schedule driven by the Clean Energy Standard and other PPRs mentioned above, it is important that the PSC move as expeditiously as possible in identifying Transmission Needs. Thus, Respondents encourage the PSC to evaluate, based on its analysis and on information that becomes available via the current studies, whether existing and expected incremental resource additions will create transmission constraints that warrant infrastructure upgrades in determining which, if any, of the Potentially Constrained Regions are areas in which the PPRs discussed above are driving Transmission Needs. As additional information becomes available, Respondents encourage the PSC to establish or declare Transmission Needs driven by PPRs in specific region(s) of the State as promptly as possible, rather than awaiting commencement of a future biennial PPR solicitation.

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<sup>18</sup> City of New York comments, Case 15-E-0302 (April 22, 2016) pp. 13-16.

## 6. Benefits

In its Western PPR Order, the PSC found that relieving persistent transmission constraints and increasing transmission capacity in the vicinity of NYPA's Niagara Power Plant would increase the availability of generation from that facility as well as access to renewable generation via imports from Ontario, and explained that:

Increased dispatch of these renewable and economical resources could produce significant benefits to the State in terms of reduced air emissions and energy costs. Congestion relief may also have significant system reliability benefits, including increased operational flexibility, efficiency, and avoiding the need to maintain generation that would otherwise retire.<sup>19</sup>

Most of the benefits that the PSC found would inure to New Yorkers from increased access to renewable resources in the western part of the State are equally available via increasing access to the St. Lawrence Facility and other renewable resources located in Northern New York and the Potentially Constrained Regions. Transmission upgrades in Northern New York and the Potentially Constrained Regions would provide many additional benefits, including the following:

Environmental Benefits - Emissions would fall with the introduction of additional wind and hydro resources, decreasing further as more renewable energy is able to flow downstate. As additional renewable generation is able to flow out of Northern New York and the Potentially Constrained Regions, demand across the State can be met with fewer fossil fuel generators. NYISO modelling has shown that the inclusion of additional transmission in Northern New York will decrease total carbon emissions statewide by approximately one million tons per year.<sup>20</sup>

Production Cost Savings - Additional transmission capacity would enable renewable generators to run without threat of curtailment, avoiding the need to run costlier and less efficient fossil fuel plants. Analysis performed by a third-party consultant retained by NYPA showed system-wide

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<sup>19</sup> Case 14-E-0454, In the Matter of New York Independent System Operator, Inc.'s Proposed Public Policy Transmission Needs Consideration, Order Addressing Public Policy Requirements for Transmission Planning Purposes (issued July 20, 2015)(the "Western PPR Order"), p. 26.

<sup>20</sup> NYISO modelling as part of NYPA's Power Flow Improvement study: scenario 1) modelling an additional 230 kV Moses-Adirondack-Porter line and 700MW injection of hydro from HQ at Dennison, and the scenario 2) modelling an additional 230 kV Moses-Adirondack-Porter line and the AC Proceedings

present value production cost savings of 4% over ten years when a Northern transmission solution was implemented accompanied by 700 MW of additional hydropower resources. In the same study, carbon dioxide emissions across New York State fell by 5% annually over the same ten year period. Savings are also realized through reduced congestion (which can create a need for costlier units to meet local demand), reduced cycling of plants, and avoidance of reliability-must-run conditions.

Fuel Diversity - New York State obtains electricity from a variety of sources including fossil fuel plants, nuclear, and renewable sources such as hydro, wind, and solar. Transmission expansion can provide increased access to power from this diverse portfolio of fuel sources, yielding increased reliability, reduced price volatility and enhanced market efficiency. As New York has become increasingly dependent upon natural gas (in 2015 natural gas represented over 41% of the state's generation mix<sup>21</sup>), the State is investing in renewables as a way to mitigate the potential negative reliability and economic implications of over-dependence on natural gas generation. Ensuring complete access to the State's hydroelectric resources, such as the St. Lawrence Facility, can play an integral role in improving fuel diversity in New York. By maximizing the hydro supply available to New York, the State can also leverage resources capable of providing the reliable and flexible characteristics that the New York power system currently depends on.

Infrastructure Investment Savings - Certain transmission facilities in Northern New York and the Potentially Constrained Regions are at or near the end of their useful lives and will require life extension investments. The New York State Transmission Assessment and Reliability Study ("STARS"), Phase II Study Report identified a potential need to replace nearly 4,700 miles of transmission over the next 30 years.<sup>22</sup> Savings can be realized if these investments can be

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<sup>21</sup> 2016 Load & Capacity Data Report ("Goldbook"), NYISO, p. 61.

<sup>22</sup> New York State Transmission Assessment and Reliability Study ("STARS"), Phase II Study Report, April 30, 2012

done as part of a comprehensive program that considers future growth of renewables in determining the most efficient approach to transmission system life extensions.

## 7. Evaluation Criteria

NYISO's August 1, 2016 solicitation indicates that parties identifying proposed Transmission Needs must provide suggested evaluation criteria. Accordingly, Respondents propose the following criteria to be used in evaluating projects proffered to satisfy each of the proposed Transmission Needs:

- Ability to provide increased competition among renewable resources that otherwise might not be simultaneously available to meet load;
- Ability to enable complete utilization of existing and expected future renewable and carbon-free generation resources, including the St. Lawrence Facility, under an array of potential future system conditions (including possible regional industrial load reductions);
- Contribution toward enhancing and refurbishing transmission facilities that are nearing the end of their useful lives;
- Economic benefits, including reduction in Demand\$Congestion and system-wide production costs; and
- The solution's contribution to meeting resource adequacy requirements with the lowest possible Installed Reserve Margin

8. Conclusion

For the reasons set forth above, Respondents request that NYISO submit to the PSC their proposal that the PSC establish the Northern Transmission Need and one or more Transmission Needs addressing the Potentially Constrained Regions.

Respectfully submitted,

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