

April 22, 2016

By Electronic Delivery

Hon. Kathleen H. Burgess  
Secretary  
New York State Public Service Commission  
Three Empire State Plaza  
Albany, New York 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**

Dear Secretary Burgess:

In accordance with the Notice Soliciting Comments and Providing for Technical Conference and Public Statement Hearings issued by the New York State Public Service Commission on January 25, 2016 and the Notice of Comment Period for Staff White Paper and Cost Summary issued on April 8, 2016, both in the above-referenced matter, the New York Independent System Operator, Inc. hereby submits the enclosed Comments.

Respectfully submitted,

/s/ James H. Sweeney

James H. Sweeney, Attorney

**New York Independent System Operator, Inc.**

10 Krey Boulevard

Rensselaer, NY 12144

Tel: (518) 356-6000

[JSweeney@nyiso.com](mailto:JSweeney@nyiso.com)

**CERTIFICATE OF SERVICE**

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated at Rensselaer, NY this 22<sup>nd</sup> day of April 2016.

*/s/ John C. Cutting*

John C. Cutting  
New York Independent System Operator, Inc.  
10 Krey Blvd.  
Rensselaer, NY 12144  
(518) 356-7521

**STATE OF NEW YORK  
PUBLIC SERVICE COMMISSION**

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

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**Case 15-E-0302**

**COMMENTS OF THE NEW YORK INDEPENDENT SYSTEM OPERATOR, INC.**

The Clean Energy Standard (“CES”) supports an ambitious and challenging directive that the New York State Public Service Commission (“Commission”) develop a program whereby 50% of all energy consumed in the State be served with renewable resources by the year 2030.<sup>1</sup> The New York Independent System Operator, Inc. (“NYISO”) welcomes the opportunity to work constructively with the Commission to pursue achievement of the State’s clean energy goals in a manner that maintains the efficiency of competitive wholesale electricity markets. By leveraging competitive markets, the State can pursue its goals in an economically efficient manner, while maintaining the high degree of reliability New Yorkers have come to expect.

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<sup>1</sup> In December 2015, New York State Governor Cuomo directed the Department of Public Service to develop a Clean Energy Standard and to present the Commission a framework for implementing the CES in June 2016. See [https://www.governor.ny.gov/sites/governor.ny.gov/files/atoms/files/Renewable\\_Energy\\_Letter.pdf](https://www.governor.ny.gov/sites/governor.ny.gov/files/atoms/files/Renewable_Energy_Letter.pdf).

Pursuant to the Notice Soliciting Comments and Providing for Technical Conference and Public Statement Hearings issued on January 25, 2016<sup>2</sup> and the Notice of Comment Period for Staff White Paper and Cost Summary issued on April 8, 2016,<sup>3</sup> the NYISO hereby submits its Comments in response to the Department of Public Service (“DPS”) Staff White Paper on Clean Energy Standard (“DPS Staff White Paper”).

## **I. BACKGROUND AND PRELIMINARY STATEMENT**

Through competitive markets and State energy policy, New York has established itself as a national leader with respect to clean energy production and reduced carbon emissions. New York has already reduced CO<sub>2</sub> emissions from its power sector by nearly 42% below 2005 levels and generates approximately 53% of its annual electricity needs from clean energy resources. The State’s generation fleet is one of the cleanest in the country and New York’s commitment to the Regional Greenhouse Gas Initiative calls for even further CO<sub>2</sub> reductions between now and 2020.

Since its inception in 1999, the NYISO has worked with the State to achieve these successes.<sup>4</sup> In 2005, the NYISO co-funded a study to determine how much wind generation could be developed in New York State without compromising system reliability. In 2008, the

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<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*, Notice Soliciting Comments and Providing for Technical Conference and Public Statement Hearings (January 25, 2016).

<sup>3</sup> Case 15-E-0302, *Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard*, Notice of Comment Period for Staff White Paper and Cost Study (April 8, 2016).

<sup>4</sup> In addition to the energy market and clean energy achievements discussed in this section, the NYISO has worked collaboratively with state, regional and federal entities to integrate environmental policy goals and regulations with the efficient, reliable operation of the energy markets. The NYISO has participated in the Regional Greenhouse Gas Initiative (“RGGI”) since development of the regional cap-and-trade program began in 2003 and the first compliance period in 2009. As a result, the NYISO and electric generators in the State successfully integrated the RGGI cap-and-trade program carbon emission allowance prices into the energy market. The NYISO also played an active role in shaping the federal Environmental Protection Agency’s (“EPA”) Clean Power Plan to be compatible with electric markets without obstructing the EPA’s goal to reduce carbon emissions. The NYISO’s primary focus with respect to the Clean Power Plan is to ensure that it will be implemented in a manner to achieve its objectives without compromising electric system reliability or market functionality.

NYISO developed procedures and software to collect forecasts and real-time meteorological data from wind generation sites to facilitate more accurate predictions of generation output from each wind generation facility.<sup>5</sup> In 2009, the NYISO became the first grid operator to fully integrate wind generation resources into its economic dispatch system, which mitigates the potential for these resources to be operated out of economic merit.<sup>6</sup> The NYISO's competitive wholesale market design, in combination with the State's current policies for advancing renewable generation, has a proven track record of success. The amount of electricity generated from New York's wind resource fleet in 2014—3,986 gigawatt-hours<sup>7</sup>—is enough to power more than 500,000 New York homes. The American Wind Energy Association describes competitive wholesale electricity markets as “the best way to ensure an efficient and adequate supply of electricity and to meet the nation's economic, energy and environmental challenges:”<sup>8</sup>

The design, scope, and independent operation of the organized markets are especially attractive to renewable and other innovative resources such as wind power. Wind power resource development has proven easier in areas with large regional organized markets than in balkanized regions and this fact is confirmed by studies and experiences in Europe and the United States. Nearly 80% of U.S. installed wind capacity is located in regions with organized markets while these areas have only 44% of U.S. wind energy potential.<sup>9</sup>

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<sup>5</sup> NYISO, *Integration of Wind into System Dispatch* (October 2008) at 2-4, available at: [http://www.nyiso.com/public/webdocs/media\\_room/publications\\_presentations/White\\_Papers/White\\_Papers/wind\\_management\\_whitepaper\\_11202008.pdf](http://www.nyiso.com/public/webdocs/media_room/publications_presentations/White_Papers/White_Papers/wind_management_whitepaper_11202008.pdf).

<sup>6</sup> See FERC Docket No. ER09-802-000, *New York Independent System Operator, Inc.*, Proposed Tariff Revisions to Enhance Operational Control of Wind Resources, Amend Settlement Rules Applicable to Them and Increase System Reliability (March 5, 2009); and FERC Docket No. ER09-802-000, *supra*, Order Accepting Tariff Revisions (issued May 11, 2009).

<sup>7</sup> NYISO, *2015 Load & Capacity Data* at 63, available at: [http://www.nyiso.com/public/webdocs/markets\\_operations/services/planning/Documents\\_and\\_Resources/Planning\\_Data\\_&\\_Reference\\_Docs/Data\\_and\\_Reference\\_Docs/2015%20Load%20and%20Capacity%20Data%20Report.pdf](http://www.nyiso.com/public/webdocs/markets_operations/services/planning/Documents_and_Resources/Planning_Data_&_Reference_Docs/Data_and_Reference_Docs/2015%20Load%20and%20Capacity%20Data%20Report.pdf)

<sup>8</sup> American Wind Energy Association and Compete Coalition, *Joint Statement Supporting Competitive Wholesale Electricity Markets*, October 28, 2010, available at <http://www.competecoalition.com/resources/compete-awea-joint-statement-supporting-competitive-wholesale-electricity-markets>.

<sup>9</sup> *Id.* (“Currently, the organized wholesale markets operated by the RTOs and ISOs best exemplify well-structured electricity markets. Those markets are keeping consumer prices affordable, improving efficiency,

The competitive wholesale electric markets have provided, and will continue to provide, significant benefits to the State and its electricity consumers, including fuel cost savings, improved generation efficiency, reduced reserve requirements, reduced emissions, and increased renewable generation. Generation fuel efficiency improved by more than 27%—compared to a national average improvement of less than 9%—as a result of competition, providing estimated fuel cost savings of \$6.4 billion between 2000 and 2013.<sup>10</sup> Generation performance and operational improvements have also reduced reserve margin requirements, producing additional savings of \$540 million since 2000.<sup>11</sup> During that time, the NYISO-administered markets have contributed to a reduction in carbon emissions equivalent to removing nearly 4.8 million passenger vehicles from the State’s roadways.<sup>12</sup> Competitive markets have achieved these significant benefits while shifting the risk of generation investments from consumers to independently-owned generating companies. To sustain these benefits, State policies should maintain consistency with the NYISO’s competitive wholesale energy markets.

The DPS Staff White Paper states “the CES program will be required to add an additional 33,700 GWh of renewable energy to meet the 50% by 2030 mandate.”<sup>13</sup> In order to meet this ambitious annual renewable energy target, the NYISO estimates that the CES will require the development of: (i) approximately 25,000 megawatts of solar capacity to meet the targets solely with solar resources; or (ii) approximately 15,000 megawatts of wind capacity to meet the targets solely with wind resources; or (iii) approximately 4,000 megawatts of hydroelectric capacity to

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fostering innovation, attracting new resources including demand response, and providing the products and services customers want.”)

<sup>10</sup> NYISO, *Powering New York – Responsibly*, available at: [http://www.nyiso.com/public/webdocs/media\\_room/publications\\_presentations/Other\\_Reports/Other\\_Reports/NYIS\\_O\\_15\\_Year\\_Brochure.pdf](http://www.nyiso.com/public/webdocs/media_room/publications_presentations/Other_Reports/Other_Reports/NYIS_O_15_Year_Brochure.pdf).

<sup>11</sup> *Id.*

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

<sup>13</sup> DPS Staff White Paper at 7.

meet the targets solely with high availability hydroelectric resources.<sup>14</sup> New transmission will be required to support these resources. The transmission infrastructure necessary to deliver capacity and energy from these resources will depend on where the new generation is located and how it is dispersed throughout the State.

Accurate cost benefit analysis of all resources and infrastructure necessary to implement the CES is critical to understanding the potential implications for New York State. The NYISO has preliminarily reviewed the DPS Staff Clean Energy Standard White Paper – Cost Study (“Cost Study”) that was filed with the Commission on April 8, 2016 in this matter. The NYISO looks forward to collaborating with the Commission and DPS Staff on further analysis of the Cost Study, including the resources and infrastructure that will be necessary to pursue the CES.

Together, the NYISO, the Commission and DPS Staff are diligently planning for the system transformation necessary to facilitate the growth of clean energy resources in New York. The Commission has issued orders on the Western New York Public Policy Transmission Need<sup>15</sup> and the Alternating Current (“AC”) Public Policy Transmission Projects.<sup>16</sup> The NYISO has commenced its Public Policy Transmission Planning Process to invite proposed solutions to transmission needs driven by public policy.<sup>17</sup> If permitted and approved, these public policy projects will unbundle transmission constraints and increase transfer capability from Upstate New

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<sup>14</sup> These estimates of new renewable megawatts in New York are calculated based on the historic demonstrated capacity factors for these categories of generators.

<sup>15</sup> NYPSC Case No. 14-E-0454 – In the Matter of New York Independent System Operator, Inc.’s Proposed Public Policy Transmission Needs for Consideration, *Order Addressing Public Policy Requirements for Transmission Planning Process* (July 20, 2015).

<sup>16</sup> NYPSC Case No. 13-E-0488 – In the Matter of Alternating Current Transmission Upgrades – Comparative Proceeding, *Order Finding Transmission Needs Driven by Public Policy Requirements* (December 17, 2015).

<sup>17</sup> See [http://www.nyiso.com/public/webdocs/markets\\_operations/committees/bic\\_espwg/meeting\\_materials/2015-07-30/Western\\_NY\\_PPTN.pdf](http://www.nyiso.com/public/webdocs/markets_operations/committees/bic_espwg/meeting_materials/2015-07-30/Western_NY_PPTN.pdf)  
[http://www.nyiso.com/public/webdocs/markets\\_operations/committees/bic\\_espwg/meeting\\_materials/2016-02-05/03\\_AC%20Transmission\\_PPTN.pdf](http://www.nyiso.com/public/webdocs/markets_operations/committees/bic_espwg/meeting_materials/2016-02-05/03_AC%20Transmission_PPTN.pdf)

York (including renewable resource-rich regions in Western, Central and Northern New York) to the load centers of southeastern New York. The NYISO recognizes the need for additional studies to evaluate transmission system upgrades needed to integrate the desired levels of renewable resources. It is important to understand, however, that these studies are likely to identify the need for additional transmission projects beyond what is currently contemplated by the Western New York and AC Transmission initiatives.

Importantly, because most renewable resources are intermittent technologies, conventional generation and energy storage resources must also be retained and developed to maintain system reliability. Nuclear resources should play a significant role in maintaining reliable system operation during the transition to a higher concentration of renewable resources and intermittent technologies. Currently, nuclear generators consistently provide approximately 30% of the energy generated in New York State. Nuclear generators are also generally available around the clock and only require refueling on 18- or 24-month cycles, providing reliable operation when intermittent renewable generators may be unavailable and when natural gas prices spike or consumption may be restricted. The DPS Staff White Paper acknowledges that “forward progress in reducing carbon also requires steps to ensure that existing, safe emission-free sources of electricity remain operational.”<sup>18</sup> The NYISO agrees that the continued operation of existing nuclear resources is a key component to meeting the State’s CES and State Energy Plan (“SEP”) goals because of their consistent, reliable zero-emission energy production.

The NYISO encourages the Commission to continue leveraging competitive markets to pursue New York’s clean energy goals at the lowest cost to consumers, while maintaining

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<sup>18</sup> DPS Staff White Paper at 27.



system reliability and efficiently constructing and operating necessary transmission infrastructure and balancing resources.

## **II. COMMENTS**

### **A. Competitive Markets Will Provide the Lowest-Cost, Most Efficient Clean Energy Solutions for the State**

Efficient competitive wholesale markets depend on transparent price signals that accurately reflect system needs. The price signals in the NYISO markets provide the foundation for economically efficient generation, transmission, demand response, and energy efficiency investment decisions. Supply resources rely on prices to determine whether to bid into NYISO's markets and operate. Investors and developers rely on transparent market signals to determine whether to build new facilities, what type of facility to build, and where to build. Wholesale market prices must, therefore, accurately reflect system needs and resource costs in order to produce the most efficient investment and operational decisions and ultimately the lowest costs for consumers.

Importantly, the NYISO's cooperative efforts with the State, to date, have enabled wholesale market signals to provide a platform for renewable generation to flourish in New York. The CES initiatives should similarly be structured to be compatible with competitive markets to continue this successful track record.

## **1. Bundled Power Purchase Agreements Could Adversely Affect Energy Market Efficiency and System Reliability**

The NYISO respectfully submits that “bundled” power purchase agreements (“PPAs”) are not the most efficient mechanism to develop the lowest cost renewable resources. Bundled PPAs obscure additional consumer funded payments to renewable resources and impede the market’s ability to procure the most efficient resources that minimize costs to consumers. Such PPAs unnecessarily transfer the risk that certain resources may not be economically viable from private investors and developers to those that are unable to manage and mitigate such risk – consumers. Significantly, the DPS Staff White Paper does not address the reliability concerns that arise when resources are insulated from the financial consequences of their operation.

The DPS Staff White Paper discusses various development options to achieve the target of 50% renewable generation with long-term bundled PPAs as the primary compliance tool. The options presented have different levels of compatibility with the competitive wholesale markets. Long-term bundled PPAs, however, mute the market signals that should be driving generation resource development, including renewable resources. While long-term bundled PPAs may be available as an option in states such as Massachusetts, Connecticut, and Rhode Island, they are only one option among many mechanisms, and renewable energy credit (“REC”) tracking and trading remain as significant approaches to renewable portfolio standard (“RPS”) compliance. According to the National Renewable Energy Lab (“NREL”) and the Lawrence Berkeley National Lab (“LBNL”), in restructured markets with competitive retail markets, RPS compliance obligations are:

generally placed on LSEs, and compliance is achieved through the purchase and retirement of RECs. Retail suppliers in these markets typically do not have long-term certainty regarding their

load obligations, and therefore typically purchase RECs through short-term transactions for unbundled RECs.<sup>19</sup>

The NYISO agrees with NREL and LBNL that RECs are the appropriate incentive for renewable resources in areas with competitive energy markets such as New York. By extension, NREL and LBNL point out that bundled PPAs are typically not used in competitive market states but are more commonly used in fully regulated states to satisfy RPS obligations.<sup>20</sup>

Long-term bundled PPAs may result in adverse market and reliability impacts because they effectively insulate renewable resources from temporal and location-based wholesale market price signals. These arrangements essentially guarantee that renewable resources receive a certain level of revenue for each MWh of output. This market insulation distorts the incentive for renewable resources to properly locate their facilities in areas of highest value and respond to dispatch instructions. Because a fixed revenue guarantee is tied to production, long-term bundled PPAs may provide a perverse incentive for renewable resources to generate regardless of system conditions in order to maximize their revenues.

Specifically, renewable resources may submit large negative offers to ensure their dispatch regardless of market prices, system conditions, or their actual marginal cost of generation. This behavior exacerbates the potential for very low and even negative energy prices, which in the long run increases the cost to consumers. Reduced energy prices resulting from resources that are not responsive to price signals may place additional financial strain on other existing conventional, clean and renewable resources. If reduced market prices cause or accelerate the retirement or mothballing of other generation facilities, or stall the development of new generation, the lack of diverse generation resources could adversely affect reliability. The

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<sup>19</sup> *A Survey of State-Level Cost and Benefit Estimates of Renewable Portfolio Standards*; NREL, LBNL; May 2014.

<sup>20</sup> *Id.*

insulated renewable resources, however, remain unaffected because the level of revenue received is fixed regardless of market outcomes. This is a significant concern where conventional generation must remain available to backstop intermittent renewable resources to maintain system reliability.

Insulating renewable resources from price signals and reducing incentives to follow dispatch instructions may also undermine the efficiencies gained by fully integrating wind resources into the NYISO's economic commitment and dispatch software. If renewable resources that receive market insulating incentives submit offers that seek to maximize their dispatch, the NYISO dispatch software may be unable to distinguish which units should be re-dispatched to maintain reliability based on the economics of all submitted offers. This may require system operators to manually redispatch wind resources to ensure continued system reliability. Manual actions often result in the removal of larger amounts of renewable capacity for longer periods of time than could otherwise be accomplished through the real-time dispatch and commitment software. This outcome runs counter to the State's renewable goals.

## **2. Bundled Power Purchase Agreements Shift Financial Risk to Consumers**

Incentive constructs such as long-term, bundled PPAs, alter the allocation of risk that is fundamental to competitive markets. Bundled PPAs do not eliminate the risk associated with renewable resource development. Rather, these mechanisms shift risk from developers to consumers. The entities best suited to manage and mitigate the risks are investors, not consumers. Consumers could be forced to pay the bundled PPA price regardless of the resources' performance in the electric market, *e.g.*, how frequently the resource is selected to operate. Consumers could also be subject to higher costs even if energy market prices decrease in the future, due to the insulated bundled PPA contract price.

Competitive markets transfer investment and performance risk away from consumers to the entities best positioned to manage such risk – investors and facility owners. In competitive markets, investors and facility owners evaluate alternatives, make investment decisions, place their capital at risk and have access to various instruments to hedge risk. Market prices provide the incentives to build new infrastructure and free consumers from the obligation to fund such investments. Poor investment decisions, even if reasonable at the time they were initially made, result in losses for investors and facility owners rather than consumers. This risk allocation fosters the continued pursuit of innovation and investments to improve operational efficiency and availability and reduce production costs. Similarly, the Clean Energy Standard should not predetermine winners and losers. The Clean Energy Standard should continue to rely on clean energy incentives to facilitate renewable resource development with accurate market signals while maintaining the appropriate allocation of financial risk.<sup>21</sup>

### **3. Bundled Power Purchase Agreements Should Only be Utilized as a Last Resort**

Due to potentially adverse impacts on system efficiency, reliability, and consumer costs, the Commission should avoid any material reliance on bundled PPAs to achieve the Clean Energy Standard goals. Instead, the Commission should continue to administer RECs to incentivize renewable resource development, thereby leveraging the competitive markets to the fullest extent possible.

As noted above, the NYISO's concerns revolve around the potential consequences of “price insulation” arising from bundled PPAs which are the focal point of the DPS White Paper.

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<sup>21</sup> See e.g., NYPSC Case No. 04-E-0952 – In the Matter of Competitive Opportunities Regarding Electric Service, *Opinion and Order Regarding Competitive Opportunities for Electric Service* (May 20, 1996) at p 30-31 (“We also expect to see market-based solutions to public policy issues rather than regulatory mandates. Competitive providers (generators and energy service companies) would bear more of the risk of investment decisions, and customers less, than under regulation.”).

The NYISO recently raised essentially the same concerns about bundled PPAs, as well as contracts for differences (“CFDs”) and utility-owned generation (“UOG”), in comments on Large Scale Renewables (“LSR”) procurement options in this docket.<sup>22</sup> The NYISO pointed out that each of these three mechanisms—PPAs, CFDs, and UOG—would insulate renewable resources from competitive price signals, cause inefficient market outcomes, and raise reliability concerns.<sup>23</sup>

Should the State determine that bundled PPAs become necessary, the NYISO recommends that, at a minimum, PPAs be structured to minimize the operation of renewable resources during low or negative priced periods by imposing an offer floor and prohibiting PPA payments when the LBMP at the resource’s location is zero or negative. An offer floor requiring resources to offer at or above their marginal costs to operate, regardless of the PPA payment, will allow the NYISO to economically evaluate each resource’s participation in the energy market against other market participants and to resolve transmission security constraints in an economically efficient manner.

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<sup>22</sup> NYPSC Case No. 15-E-0302 – In the Matter of the Implementation of a Large-Scale Renewable Program, *Comments of the New York Independent System Operator, Inc.* (August 12, 2015). Should the commission determine that it must implement UOGs, PPAs, CFDs or some other mechanism, the NYISO would ask the DPS and other affected stakeholders to work with the NYISO to explore ways to mitigate price insulation and other market concerns.

<sup>23</sup> *See also* NYPSC Case No. 06-M-1017, Responses of the New York Independent System Operator, Inc. to the Commission’s April 19, 2007 Request for Response (June 5, 2007); Reply Comments of the New York Independent System Operator, Inc. (June 25, 2007). The NYISO previously commented in the PSC proceedings that uneconomic long-term power purchase agreements, supported by regulatory cost recovery, could undermine private investment, adversely impact system reliability, and should therefore be used as a last resort if market mechanisms cannot respond, such as in emergency situations.

## **B. The Clean Energy Standard Must Make Clean Hydroelectric Resources Eligible to Participate in CES Programs to Achieve Policy Goals at the Least Cost**

Controllable Canadian hydroelectric resources could contribute to resource adequacy, balance the intermittency of other renewable resources on the electric system, and contribute to the State's overall 50% by 2030 goal. Controllable hydroelectric resources in Canada, which currently deliver power to New York with a near 100% capacity factor, have the potential to balance variable wind and solar output by serving as a base load resource that can also quickly ramp up and down. Hydroelectric power provides both zero-emission electric generation and the characteristics of conventional generation necessary for the reliability of the electric system. In order to fully utilize controllable Canadian hydroelectric resources, it may be necessary to construct additional transmission infrastructure throughout New York State to allow for delivery of hydroelectric power from the Canadian border to the load centers of New York State.

The NYISO strongly encourages the Commission to further evaluate Canadian hydroelectric resources as a REC-eligible option to broaden competition and control overall program costs. The need for balancing and storage resources, such as controllable hydroelectric resources, will increase over time as new variable resources interconnect to the grid. Imported hydroelectric power would provide system operators with an additional tool to manage variability from new in-state renewable resources. Properly designed, the CES could leverage access to Canadian hydroelectric resources to support in-state renewable development, manage the total costs to consumers, and support compliance with emissions goals.

## **III. CONCLUSION**

New York has established itself as a leader in addressing climate change and growing the clean energy economy. The NYISO is proud of the role that competitive wholesale markets have played in New York's progress. To maintain reliability, control costs to consumers, and favor

carbon reduction, the program adopted in support of the CES must be strategic and responsible. While the NYISO has concerns with certain details of the DPS Staff White Paper, we look forward to continuing our close work with DPS Staff and the Commission over the next several months to fashion the most economic solution to a clean energy future that fully utilizes wholesale competitive electricity markets while maintaining system reliability on behalf of all New York customers.

Dated: April 22, 2016

Respectfully submitted,

/s/ Rana Mukerji

Rana Mukerji, Senior Vice President, Market Structures  
James H. Sweeney, Attorney

**New York Independent System Operator, Inc.**

10 Krey Boulevard

Rensselaer, NY 12144

Tel: (518) 356-6000

[RMukerji@nyiso.com](mailto:RMukerji@nyiso.com)

[JSweeney@nyiso.com](mailto:JSweeney@nyiso.com)