

**Azure Mountain Power Co.
Boralex Hydro Operations, Inc
Chasm Falls Hydro, Inc
Eagle Creek Renewable Energy
Gravity Renewables
Kruger Energy, Inc. / KEI USA Power Management, Inc.
Oakvale Hydro
Riverrat Glass & Electric**

June 6, 2016

The Honorable Kathleen H. Burgess
Secretary to the Commission
NYS Public Service Commission
Agency Building 3
Empire State Plaza
Albany, NY 12223-1350

Copy
Elizabeth Little, NYS Senator, 45th District
Joseph A Griffo, NYS Senator, 47th District

Case Number: 15-E-0302 - Implementation of a Large-Scale Renewable
Program and a Clean Energy Standard

Dear Ms. Burgess,

The following comments are respectfully submitted regarding the Clean Energy Standard Cost
Study and CES White Paper on behalf of the above-referenced New York hydroelectric
producers.

Submitted on behalf of the undersigned by
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**Developing Short and Long Term Compensation to
Maintain the Hydroelectric Infrastructure of New York**

June 6, 2016

Executive Summary

According to the U.S. Energy Information Administration, New York State is the third highest hydroelectricity producing state in the nation and the largest hydropower producer east of the Mississippi¹. Hydro accounts for 15% of all power produced in New York and makes up 80% of the current renewable fleet². The northern part of New York State contains many lakes, rivers, and streams, on which are located operating hydroelectric facilities accounting for approximately 800 MW of capacity³. Many of these facilities are small. Statewide, 142 hydroelectric facilities under 10MW account for approximately 2100 GWh electricity production annually⁴ and are a significant contributor of the State's fleet of renewable resources. NYSERDA identified distributed generation resources (of which small hydro generation facilities are one) as "...a critical focus of the REV strategy..." in its June 2015 assessment of the Large Scale Renewables in New York⁵. The Commission recognized the tremendous value of New York's existing renewable generation resources in its 2015 year-end RPS Annual Report⁶. However, with the development of the Main Tier and Customer-sited Tier in the RPS Program, the

¹ Energy Information Administration. Electric Power Monthly. February 2015.

² "Power Trends 2015, Rightsizing the Grid", NYISO

³ Case 03-E- 0188, Renewable Portfolio Standard (RPS), Order Regarding a Retail Renewable Portfolio Standard. September 24, 2004.

⁴ Crafting appropriate compensation arrangements for existing small hydro producers in New York state – Ampersand Hydro LLC comments on the NYPSC Staff White Paper on Clean Energy Standard, Case 15-E- 0302

⁵ Large-Scale Renewable Energy Development in New York: Options and Assessment. New York State Energy Research and Development Authority. Albany, NY. June 2015. pp 14.

⁶ New York State Renewable Portfolio Standard. Annual Performance Report through December 31, 2015. Final Report. New York State Energy Research and Development Authority. Albany, NY. March 2016.

Commission did not provide a similar support tier for small to medium renewable hydro generators. Similar to New York's nuclear and biomass plants, these hydro generation assets are in a critical economic position as a result of the low wholesale price of electricity in New York. Wholesale electricity prices have declined significantly in recent years. Many forecasts indicate that wholesale electricity prices will remain flat or change very little over the next 5-7 years. With prices in northern zones near zero, some of these hydro facilities are in danger of ceasing operation in the very short term. Some facilities have shut down recently, unable to recover from Hurricane Irene. After reviewing the CES White Paper and the CES Cost Study⁷, it is the opinion of the undersigned that the additional revenue needed to support hydro is substantially underestimated, and as outlined will be "too little, too late" to avert significant short-term and longer term losses to New York's fleet of hydro generators.

Standing

The above referenced companies represent 26 hydroelectric facilities in New York state with a combined total capacity of 118 MW and average annual production of 600,000 MWh. These facilities are located all across New York state with a major portion north of the NYS thruway, and range in size from 350 kW to 30 MW. Nearly all are Merchant Facilities relying on the wholesale price of power for revenue.

Additionally, some of the above-named companies control facilities in other states, particularly in the Northeast, and as such have experience with the markets which are more supportive of hydro than is New York.

Hydropower in New York State

Although they contribute a substantial portion to the fulfillment of the state's renewable capacity targets, as existing capacity, hydro plants do not qualify for substantial state and federal subsidies in the way that new wind and solar generation facilities do. Although they are non-carbon emitting, renewable sources of electricity, they are priced in the same market as nuclear and natural gas power plants. While new solar facilities are built anticipating revenues of over \$100/MWh, existing hydro facilities are currently compensated between \$5-\$25/MWh. The low price of natural gas has driven these markets to historic lows, and pricing forecasts suggest no relief in the short term.⁸ Without support or additional revenue, these clean power sources may be forced to shut down. NYSERDA highlighted this risk in its 2015 Large Scale Renewables Assessment report. (p.15):

"Energy price risk. Under today's Main Tier Solicitations, renewable energy credit (REC) contracts with NYSERDA are the only source of revenue certainty for developers and financiers. Operating projects sell power into the wholesale market where it is difficult to secure revenue certainty beyond the short-term. The associated price risk leads to a higher cost of capital, and limits access to innovative financing structures, such as YieldCos, that demand a greater degree of revenue certainty. The allocation of energy

⁷ "Clean energy Standard White Paper - Cost Study" NYS Department of Public Service, April 8, 2016

⁸ "New York Electricity Consumers May See Lower Summer Prices". NY Public Service Commission Press Release. 5/19/2016.

price risk fully to renewable energy developers and their investors increases the overall cost of supporting LSR resources.”

While NYSEERDA’s focus of the above quote was large scale renewables, energy price risk is an even larger risk for small hydro generating facilities in New York because, given their capacity rating, their only option is selling into the wholesale market at the market price. In addition, smaller facilities have a higher operating cost per MWh than do larger facilities. Such lost renewable generation will have to be replaced in order for New York to achieve its stated goals. Replacing existing, renewable hydropower with solar or wind will be at a higher cost when the total energy produced over the respective useful lives is compared. Also, in this event, baseload-type hydropower would be replaced by intermittent wind or solar with the corresponding loss of dispatchability and grid support.

Hydroelectric power plants are exceptionally long-lived and able to continue operating at designed capacity for 50-100 years with regular maintenance. As of the end of 2010, hydropower generating facilities made up 72% of all U.S. electric generation sources over 60 years old.⁹ By contrast, wind turbines have a life span of 15-20 years, while the output from solar PV panels is expected to degrade by 1% per year. However, even the more durable hydro facilities require maintenance and, occasionally, substantial capital investment. With the current and forecast low wholesale price of power, it is not financially practical to make capital investments in many small hydro plants in New York. The unavailability of long-term contracts makes it nearly impossible to finance such improvements even when critically necessary. This means that plants have reduced output and reduced useful life expectancies. Again, these consequences not only do not support New York’s renewable energy supply targets but threaten to require additional new generation to achieve those targets.

In addition to the production of electricity, hydro facilities are critical to the infrastructure and the local economies of upstate New York. A significant percentage of all property taxes in one northern NY county are paid by hydro facility owners¹⁰. In addition to taxes paid directly to the taxing jurisdictions, waterfront property is typically assessed higher than non-waterfront property. The amount of waterfront property in New York State is partially a function of hydropower impoundments. Many of these facilities also ensure stable water levels and flood control, further increasing property values. As a result, communities benefit from a greater amount of higher assessed properties than would exist in the absence of those hydropower impoundments. Many of these impoundments also provide recreational opportunities such as fishing, boating and trail hiking on adjacent state land. Hydropower facility owners are fully responsible to the Federal Energy Regulatory Commission to ensure the continued safe operation and maintenance of these structures whether or not the associated facility is operating.

As a substantial portion of the generating capacity in Northern NY, these facilities provide critical voltage support to remote areas of the state. Often sited at former mills, many facilities are located in the middle of small towns and constitute an important part of the downtown infrastructure of these towns. They meet the very definition of distributed generation.

⁹ U.S. Energy Information Administration. Today in Energy. July 8, 2011.

¹⁰ Personal communication between O. Elphick/ Gravity Renewables and K. Zimmerman/ St. Lawrence Co. Planning Dept.

Additionally, these projects were the first microgrids, and can play a key part in the microgrids of the future – as evidenced by the National Grid proposal for a microgrid in Potsdam, NY, where two small hydro facilities are crucial for ancillary services.

Development of the Clean Energy Standard is ongoing, but it does not appear likely that REC prices in New York will be sufficient to bridge the financial gap between LBMP prices of \$5-\$20/MW and typical needed revenues to sustain small hydropower operations. If these renewable resources are to be maintained, additional revenue sources will be needed.

In short, although these renewable, long-lived, non-carbon producing, distributed electricity sources meet all of the criteria for the type of electrical grid which the State is pursuing in the Reforming the Energy Vision and the Clean Energy Standard initiatives, they are priced no different than natural gas generation. And as a result, many are near the brink of shutting down.

The undersigned hydro producers respectfully request the following short and long term initiatives to prevent this loss of existing, valuable renewable resources in New York. This approach is in line with NYSERDA's intention to achieve the state energy plan goals and REV goals through a combination of short-term and long-term mechanisms, which was reiterated in the CES white paper.

Recommendations for Short-Term Relief

Expansion and Simplification of the Successor Program to the previous NYS RPS Maintenance Resource Program

A very small number of hydroelectric facilities under 5 MW have qualified to receive maintenance tier support under the RPS¹¹ as maintenance resources. This important program is designed to close the gap between the Location-Based Marginal Price and the bare cost of operation, as determined by the Commission staff, in an effort to support the continued operation of baseload renewable resources which have become unsustainable and are threatened with discontinuing operations. However, the case-by-case financial review process for receiving this support can take a year, and is time-intensive for both Commission staff and the producer. The level of the award is limited to the amount that offsets the resource's expenses that cause it to generate at a net loss. No profit is allowed to be supported. The level of support is based on the LBMP at the time the application is reviewed. Once the award amount is determined, submitting a new application is the only way to reassess the level of support should the LBMP fall during the term of the award contract.

One of the most recent Maintenance Resource Program award recipients serves as a typical example. The facility applied for and received a Maintenance Resource award amount. As the NYS zonal electricity price that generator received continued to fall, over 50% in the two succeeding years, the facility has once more become unsustainable despite the support.

¹¹ New York State Renewable Portfolio Standard. Annual Performance Report Through December 31, 2014. March 2015.

This program serves as the model for the establishment of “maintenance” relief support for upstate nuclear facilities in the CES white paper¹². Given that the upstate hydro facilities represent approximately the same amount of total power and, hence, a similarly valuable resource to New York, in a similarly desperate economic state, we propose:

- 1) Hydro facilities less than or equal to 30 MW of capacity be eligible for this program,
- 2) Initial (year 1) standard offer awards be provided at the minimum operating cost deficit for those megawatt-hours actually produced,
- 3) Awards granted under this program be indexed to the LBMP, to ensure stability for the hydro producers and to assure that the electricity consumers in the state will not over-pay in the event that the wholesale electricity price goes up. This adjustment mechanism is consistent with NYSEERDA’s proposed design of bundled PPAs under the Large Scale Renewables program and is essentially the “V-REC contract” concept espoused in footnote 24 on page 34 of the CES white paper.
- 4) The awards provided to hydro producers under this program be allocated from the funds collected within the RGGI, to avoid impacting the State budget.

These interim proposed support mechanisms would sunset once the REC market created by the CES is functioning.

Intervention by the PSC to facilitate the progress of interconnections related to Remote Net Metering (RNM) Projects

Similar to many solar facilities throughout the state, several upstate hydroelectric facilities under 2 megawatts have completed applications and have contracts in place under the Remote Net Metering Law. However, the progress of these contracts is being impeded by inactivity on the part of the interconnecting utilities by requiring new interconnection agreements and expensive upgrades at operating plants with existing, functioning interconnections. State-imposed deadlines under Standard Interconnection Requirements for the processing of these interconnections agreements have been ignored, with no consequences. We request that the PSC or the Legislature intervene to ensure the State-created RNM program is successful.

Remote net metering load zone issue

In defining eligibility for remote net metering, Public Service Law 66-J under 3. Conditions of Service (e) states that a

“customer-generator... may designate all or a portion of the net metering credits generated by such equipment to meters at any property owned or leased by such customer-generator within the service territory of the same electric corporation to which the customer-generator’s net energy meters are interconnected and being within the same load zone.”

¹² Case 15-E- 0302, Proceeding on Motion of the Commission to Implement a Large Scale Renewable Program and a Clean Energy Standard. Order Further Expanding Scope of Proceeding and Seeking Comments (Issued and Effective February 24, 2016).

Generally, large areas of upstate utility territory are the same as ISO load zones. However, several small hydro plants have investigated the feasibility of an RNM agreement, only to discover that the ISO zones and utility territory boundaries were not locally congruent, stranding them in small corners of utility service territory where there were no viable off-takers.

We request that, in addition to off-takers in the pricing zone in which the renewable generating facility is located, off-takers in pricing zones adjacent to the one in which the facility is located be allowed for the purpose of RNM.

Recommendations for Long-Term Security

Proposition of language for the Tier REC pricing structure as it relates to hydroelectric facilities

Adequate REC pricing for hydro will hopefully make programs such as the Maintenance Tier unnecessary in the long term. However, steps must be taken to ensure adequate support for hydro. We do not believe that the current proposed language is adequate to accomplish this. Neighboring states such as Massachusetts, Maine, and Rhode Island all provide greater support for hydro under their REC marketplaces. Building on those existing programs, we propose the following revisions for the Tier REC pricing structure proposed in the CES White Paper. These changes are focused on two goals: 1- to encourage capital investment in extending the life of existing hydro plants, and 2- to ensure an equitable REC marketplace for small hydro plants.

- **Tier 1:** Hydroelectric generation facilities with a capacity of no more than thirty (30) MW that began operation on or after January 1, 2015 and that are run-of-river, including hydroelectric generation facilities combined with battery storage. Hydroelectric generation facilities refurbished or repowered on or after January 1, 2015 are also eligible as Tier 1 if
 - They can demonstrate that they are operating beyond their useful life following capital investment representing at least 80% of the depreciated value of the facility prior to the improvement. Qualifying investments include prime mover, dams, conduits, fish passage and water conveyance system.
 - They are in compliance with the Federal Energy Regulatory Commission issued current license requirements or are exempt from those requirements.
- **Tier 2A:** Competitive Sub Tier: Addition of the clause: “RECs produced by hydro plants of any size which are eligible to trade in markets outside of the New York State control area.”
- **Tier 2B:** Non-Competitive Sub Tier (no change to current proposal, would include all renewables that don't fit in other tiers.)
- **Tier 2C:** Hydroelectric generation facilities that began operation before January 1, 2015, have a capacity of 5 MW or less, meet current Federal Energy Regulatory Commissions license requirements and are located within the control area of the New York Independent System Operator (NYISO).

The proposed Tier 2C recognizes the unique values that existing small hydropower facilities in New York provide which are not all presently compensated for. Many small hydropower facilities are located in rural regions of the state. They provide voltage support in those regions, grid stability, and in some cases, black start capability. They are distributed generation that helps to maintain the electrical grid in many areas of the state that are not protected by the installation of

equivalent capacity banks or distributed energy storage systems. These small facilities are more severely limited in their ability to increase revenues than their larger counterparts. For these reasons, the Tier 2C is limited to those existing hydropower generation facilities in New York State that have a capacity of 5 MW or less.

Regardless of the tier, we believe it to be crucial that NY implement long-term pricing for the REC commodity given. Our recommendation is for ten years or longer. This will give the hydro community the incentive assurance they need to make long-term investments. It will also be an additional motivator that will encourage NY producers to sell their attributes into NY as opposed to the REC markets where prices are constantly adjusted. We further suggest that the REC Market be reviewed annually by the PSC in a process which gathers input from hydro and other renewable producers to ensure that the market is robust and REC prices are sufficient to continue encouraging the addition of renewable resources to New York State.

Also, as the NYISO looks to reforms in the future to properly price the attributes of clean energy in the future, we ask that special consideration be given to small hydro facilities that provide crucial services (frequency regulation, spinning reserves, etc.) in a geographic area that may not be priced into the current system. As most owners of these small hydro facilities do not have the personnel or capabilities to follow NYISO proceedings, we ask that the state develop a study on the benefits of small hydro to the grid – that can be used for future discussions with NYISO.

Securitization of Debt

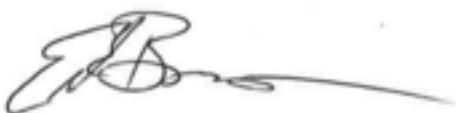
The lack of long-term contracts and the resulting lack of access to financing for hydro is a major impediment to capital-intensive maintenance projects. NYSERDA, in its Large Scale Renewables assessment report, recommends state-backed securitization of the debt used to increase the amount of renewable energy produced in New York by reducing the financing costs of those energy increases, which translates into lower consumer costs. It also provides greater certainty to developers who may not otherwise be able to access financing and is very likely to make the difference whether investment in existing small hydropower generation assets to increase or sustain output is feasible or not. We recommend that the Commission include a provision for securitization of debt for small hydro facilities that produce increases in efficiency or increase total facility output.

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Thank you for your attention to this matter. We also suggest that close attention be given to Comments filed on the CES White Paper by Ampersand, Brookfield, Gravity Renewables, and other hydro producers. Hydroelectric power currently accounts for 15% of the electricity generated in New York, making up 80% of the total renewable power produced here¹³. With wholesale electricity prices at a three-decade low, If New York is to meet its goal of 50% renewable power by 2030, the support needed to maintain these important existing resources must not be underestimated.

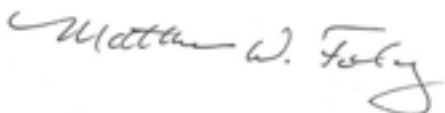
¹³ “Power Trends 2015, Rightsizing the Grid”, NYISO

Submitted on behalf the undersigned:



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John Dowd
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(signature submitted separately)



Matthew Foley, Owner
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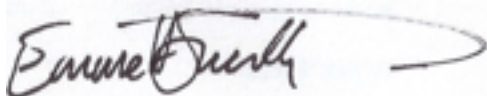


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