Advancing the Clean Energy Future

Acadia Center

747 Third Avenue
32nd Floor
New York, NY 10017
212.256.1535
www.acadiacenter.org

VIA ELECTRONIC DELIVERY

November 14, 2016

Honorable Kathleen H. Burgess
Secretary
New York State Public Service Commission
Three Empire State Plaza
Albany, New York 12223-1350

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,

Pursuant to Section 3.7 of the New York Public Service Commission (the "Commission") Rules and Regulation and the September 7, 2016, Notice with Respect to Requests for Rehearing and Reconsideration, Acadia Center hereby submits the following response to the Hydro Québec Energy Services (U.S.), Inc. petition for hearing filed on August 30, 2016 in the above-referenced proceeding.

Respectfully submitted,

/s/

Irina Rodina
Staff Counsel
irodina@acadiacenter.org
(212) 256-1535

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

ACADIA CENTER COMMENTS

I. Preliminary Statement

Acadia Center respectfully submits the following comments in response to Hydro Québec Energy Services (U.S.), Inc. ("HQUS") petition for rehearing for the Order Adopting a Clean Energy Standard ("CES") issued on August 1, 2016 in the above referenced proceeding. Acadia Center is a non-profit research and advocacy organization committed to advancing the clean energy future and is at the forefront of efforts to build clean, low carbon, and consumer friendly economies and market-based solutions.

HQUS seeks a modification of language in the New York Public Service Commission's ("Commission") Order Adopting a Clean Energy Standard that would effectively allow large established hydroelectric generators to compete with emerging clean energy technologies in the New York State Energy Research and Development Authority ("NYSERDA") Tier I solicitations.

II. Background

In its recent CES Order laying out a strategy to implement the "50 by 30" goal, the Commission divided the Renewable Energy Standard ("RES") into three tiers. Tier I consists of incremental renewable resources that load serving entities may procure to meet their compliance obligations. Tier 2 represents a maintenance tier for certain existing resources, and Tier 3 provides support for upstate nuclear plants. The Order limited hydroelectric Tier I eligibility to incremental production associated with upgrades and low-impact run-of-river facilities. The Order additionally made any type of hydro resource with new storage impoundment ineligible for Tier I.[1] These eligibility criteria mimic the treatment of hydro in the current Main Tier of the Renewable Portfolio Standard ("RPS").

HQUS requests the Commission to expand the eligibility of new and incremental hydro for Tier I and provide compensation for environmental attributes of existing hydro resources. HQUS specifically demands to (a) remove the

[1] Case 15-E-0302, Order Adopting a Clean Energy Standard (Aug. 1, 2016).

"no new storage impoundment" requirement for hydroelectric resources eligible for participation in Tier 1 of the CES and (b) permit any new large hydroelectric facilities to participate as Tier I resources.[2]

III. Argument

A. Expansion of the Tier I eligibility requirements is inconsistent with the New York CES objectives

a. Although large-scale hydro can play an important role in decarbonizing the electric system, it is a mature technology that does not require the type of support that is needed to facilitate development of emerging technologies and small-scale hydroelectric facilities.

Hydroelectric power generation is the most mature and developed renewable technology. By HQUS's own admission, large-scale hydroelectric generation "would not necessarily need [New York] state support."[3] Hydro Québec has successfully been selling 7-10 million MWhs per year to New York for decades[4] starting in the 1970s when Hydro Québec entered into a multibillion dollar contract with New York Power Authority.[5] For all these years, Hydro Québec has remained a major importer into the New York energy market, which currently receives 24% of the company's overall exports[6] despite receiving no additional incentives. In fact, the share of hydroelectric generation in the New York energy mix has increased over time, climbing from 17% in 2004[7] to 21% in 2014.[8]

Hydro Québec has been an active participant in the New York energy markets since the state established its 2004 RPS hydroelectric eligibility requirements for Main Tier resources that are substantially similar to the current Tier I criteria. Further, HQ remained in the market when the Commission modified the RPS to exclude any out-of-state generators from Main Tier solicitations in 2013-2015.[9] Neighboring jurisdictions likewise limit the eligibility of hydroelectric resources in their RPS programs, undermining the HQUS argument that alternative markets present a more attractive business opportunity.

A summary of the Tier I eligibility criteria for hydro projects across five New England States presented below suggests a fairly uniform approach to the treatment of large-scale hydroelectric resources. Every state – with the exception of Vermont – excludes new, large-scale hydro from eligibility toward meeting RPS requirements. Vermont allows new large-scale hydro resources to count toward its voluntary RPS target,[10] but Vermont is a relatively small market and as such is unlikely to divert significant quantities of large-scale hydroelectricity from other markets.

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[2] Case 15-E-0302, HQUS Petition for Rehearing, at 3-4.
[3] Case 03-E-0188, HQUS Initial Comments, at 8.
[4] Case 15-E-0302, HQUS Petition for Rehearing, at 7.
[5] Karl Froschauer, White Gold: Hydroelectric Power in Canada (1999), at 119.
[6] Hydro Québec, Power Generation, Purchases, and Exports http://www.hydroquebec.com/sustainable-development/energy-environment/power-generation-purchases-exports.html
[7] Case 03-E-0188, NYSERDA Preliminary Investigation Report, at 4.
[8] NYISO, Future of the Electric Gird presentation (Sept. 22, 2016).
[9] Case 03-E-0188, Order Modifying Renewable Portfolio Standard Eligibility Requirements (May 22, 2013).
[10] Vermont Act 56 An Act Relating to Establishing a Renewable Energy Standard and Energy Transformation Program.

Class I RPS Requirements for Hydroelectric Generators	
MA	Must be 25 MW or less, not involve any dam or water diversion and meet low impact standards[11]
CT	Must be run-of-the river that is less than 30 MW capacity, provided that it is not based on a new dam or a dam identified for removal[12]
RI	Must be small hydro only of no more than 30 MW that involves no new impoundment or diversion of water with an average salinity of twenty parts per thousand or less[13]
ME	Must not exceed 100 MW and must meet state and federal fish passage laws [14]
NH	Must be incremental new production resulting from capital efficiency improvements or additions of capacity that can be demonstrated to increase annual energy output [15]

HQUS references additional competition for large-scale hydroelectricity due to regional efforts in New England to procure renewable resources, such as the tristate Clean Energy RFP.[16] New England states have actively solicited proposals from renewables – including hydro – in this RFP, but offered no special incentives or benefits. In addition, recent results of the Clean Energy RFP show clear preference for emerging technologies –solar and wind – with no hydroelectric projects selected.[17]

Based on the above, large-scale hydro remains a valuable part of the New York energy mix but as a mature resource with a longstanding presence in New York markets, it requires no Tier I support.

b. Large-scale hydro may discourage local emerging renewable projects and deprive New York State of associated economic and climate benefits.

The CES sets an ambitious target of achieving 50% renewables in the New York State supply mix by the year 2030. Large-scale hydro undoubtedly plays an important role in achieving this goal, but so do other emerging renewable technologies, such as solar and wind. These technologies are not as well established and would likely have trouble competing with mature large-scale hydro projects if large-scale hydroelectricity were able to receive revenue streams from REC sales. REC contracts are critical in helping these emerging renewable projects to secure necessary financing which does not appear to be the case for large-scale hydroelectric resources already being developed.

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[11] 225 CMR 14.05(1)(a)6.
[12] Conn. Gen. Stat. §16-1(a)(20). CT permits hydro to count toward RPS compliance in a very limited scenario if certain trigger events occur related to regional REC shortages.
[13] R.I General Laws Section 39-26-5 (5).
[14] CMR 65-407-311.
[15] New Hampshire Statutes Chapter 362-F.
[16] Case 15-03-02 ,HQUS Petition for Rehearing, at 14.
[17] ICF, New England Clean Energy RFP, In With a Bang, Out with a Whimper (Nov. 2016).

By allowing mature large-hydro generators to compete alongside other renewables, the Commission could inhibit the growth of emerging renewable technologies and deprive the state of local economic benefits embedded in New York State energy and climate goals. Encouraging non-hydro renewables projects would promote fuel diversity and owner diversity that are part of the proposed project selection criteria in a recently filed NYSERDA Phase I Implementation Plan[18] and would avoid overreliance on any individual resource. To harvest these benefits, the Commission should not expand Tier I eligibility to large-scale hydropower.

B. THE COMMISSION'S DECISION TO EXCLUDE NEW STORAGE IMPOUNDMENTS IS SUPPORTED BY SUBSTANTIAL EVIDENCE.

HQUS argues that "without further examination or supporting evidence," the Commission concludes that "the resolution in [the 2004 RPS] proceeding, that no new storage impoundment will be permitted for any eligible hydroelectric facility, remains reasonable and is not changed."[19] The administrative record and science refute this assertion.

The Commission's determination is reasonable in light of the record as a whole for the 2004 RPS as well as the current CES proceeding. The Department of Public Service ("DPS") staff undertook comprehensive analyses and literature review of environmental impacts of eligible resources in the course of a statutorily mandated environmental impact assessment.[20] The 2004 Environmental Impact Statement ("EIS")[21] and the 2014 Draft EIS[22] present numerous adverse impacts of hydroelectric impoundments. Conventional store-and-release hydropower projects have significant impacts on water resources, including impediment to fish passage and protection. Impoundments can cause significant change and variation in water flow, temperature, nutrient levels, and the amount of dissolved oxygen ("DO") in a river system. DO levels below minimum standards can lead to hypoxic or anoxic conditions for aquatic organisms. Dams and reservoirs may create bypass reaches that also remove water from parts of water bodies needed for maintaining in-stream flows that are vital to the river ecosystems; insufficient flow levels can result in downstream sedimentation, habitat loss and degradation. These effects can inhibit the growth rate and survival of certain fish and other plant and animal species that rely on riparian ecosystems.

Parties to the proceeding had ample opportunities to comment on the Staff's proposal detailing resource eligibility, yet no party **including HQUS** disputed the validity of EIS findings with respect to hydroelectric reservoir impoundments.[23] To the contrary, a number of parties argued inter alia that "..expansion of [eligibility requirements] would fail to account for the significant environmental impact of new impoundment, the considerable carbon

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[18] Case 15-0302, NYSERDA Phase I Implementation Plan (Oct 31, 2016).
[19] Case 15-0302, HQUS Petition for Rehearing, at 3.
[20] NYS Environmental Quality Review Act (SEQRA), 6 NYCRR Part 617.9 and 617.10.
[21] Case 03-E-0188, DPS, Final Environmental Impact Statement (Aug 26, 2004).
[22] Case 14-M-0094 and 14-M-0101, Draft Generic Environmental Impact Statement (Oct 24, 2014).
[23] Case 15-E-0302, HQUS Comments (Apr. 22, 2016).

footprint of large-scale projects…"[24] and "very large hydro projects involving impoundments have environmental impacts that are inherently unacceptable…" [25]

Concerns have also been raised over scientific evidence that new reservoir impoundment cause significant increases in mercury (Hg) and mercury methyl (MeHg) concentrations in the water column, sediments, and biota, including fish in Labrador, Canada. [26] Large-scale and long-term decrease in fish growth has been observed in Scandinavia due to hydroelectric reservoir detrimental effects on ecosystem productivity, including oligotrophication and erosion.[27] Degradation of flooded soils during the first few years of impoundment has been linked to a boost in GHG production and in certain cases, continuous photomineralization of dissolved organic matter resulted in long-term increased GHG emissions according to recently published research.[28]

It is thus clear that there is sufficient evidence on the record to inform the Commission's decision to exclude any hydroelectric facilities with new impoundments in light of their harmful impacts.

IV. Conclusion

For the reasons set forth herein, Acadia Center urges the Commission to reject HQUS request to modify Tier I RES eligibility requirements. The Commission-set limits on hydro resource Tier I eligibility are in the public interest and are in furtherance of the State Energy Plan and should remain as such.

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[24] 15-E-0302, Independent Power Producers of New York reply comments, at 10.

[25] 03-E-0188, Renewable Energy and Environmental Coalition ("RETEC") comments, p.3.

[26] Roman Teisserenc et al., *Combined Dynamics of Mercury and Terrigenous Organic Matter Following Impoundment of Churchill Falls Hydroelectric Reservoir, Labrador*, Biogeochemistry 118:21-24 (2014). *See also* Lars Hylander et al. , *Fish Mercury Increase in Lago Manso, a New Hydroelectric Reservoir in Tropical Brazil*, J. Env. Management, Oct 2006 (Vol. 81, Issue 2, p.155-166).

[27] Goran Mlbrink, *Large-scale and Long-Term Decrease in Fish Growth Following the Construction of Hydroelectric Reservoirs*, Can. J. Fish. Aquat. Sci. 68: 2167-2173 (2011).

[28] Nicholas Soumis et al., *Photomineralization in a Boreal Hydroelectric Reservoir: a Comparison with Natural Aquatic Ecosystem*; Biogeochemistry 86:123-135 (2007); *See also* Bridget Deemer et al., *Greenhouse Gas Emissions from Reservoir Water Surfaces: a New Global Synthesis*, Bioscience XX:1-16 (Oct 5, 2016).