

Case 15-E-0302 – In the Matter of the Implementation of a Large-Scale Renewable Program

COMMENTS OF H.Q. ENERGY SERVICES (U.S.) INC.

In response to New York Public Service Commission's ("Commission") Notice Soliciting Comments and Notice of Technical Conference issued on June 1, 2015, H.Q. Energy Services (U.S.) Inc. ("HQUS"), the U.S. subsidiary of Hydro-Québec ("HQ") in the United States, hereby submits these comments regarding New York's Renewable Portfolio Standard ("RPS").

Introduction

HQUS commends the Commission for initiating the aforementioned proceeding, and the New York State Energy Research and Development Authority ("NYSERDA") for preparing the Large Scale Renewable Energy Development in New York: Options and Assessment paper ("the Report"). The Report acknowledges that changes to the RPS approach taken by New York may be warranted in order to achieve core policy objectives, which include pursuing the lowest program costs while maximizing customer benefits, promoting competition, and animating voluntary markets for renewables to compliment public investments.¹

Summary of Comments

New York should adopt a more inclusive approach to its RPS program so that all renewable resources, including large imported hydropower, are able to participate. The program should be based on clear objectives and a design that determines eligibility and selection based on specified environmental and performance criteria. In this way, New York will be better positioned to successfully achieve the renewable energy target, outlined in the 2015 New York State Energy Plan,² of 50% of electricity generation from renewable energy sources by 2030. The low carbon and flexible performance attributes of large hydropower also support the state's initiatives to meet environmental compliance requirements, maintain reliable system operations, and pursue the Reforming Energy Vision ("REV").

HQUS Background

HQUS has a long history of supplying clean and renewable energy to the state of New York, beginning with the construction of the Cedars-Dennison intertie in 1910. This relationship has continued through the evolution of electricity markets, as HQ has been an active participant in the New York Power Pool through the 1980s, and throughout the inception of the New York Independent System Operator ("NYISO") in 1999. This history has fostered a rich partnership, where the regions have worked collectively to harness HQ's vast renewable energy supply and unique operating characteristics to aid New York in meeting the state's energy supply needs and achieving policy initiatives related to improving the reliability, economic and environmental performance of the state's energy mix. Today, this partnership is demonstrated through 1) a long-term agreement in which HQ commits to supplying 900 MW of capacity to New York each year through 2030; 2) annual deliveries of approximately 7 TWh of energy, which in 2014 avoided 1.7 million metric tons of GHG emissions³; and 3) the development and

¹ NYSERDA LSR Report, Page 2.

² New York State Energy Planning Board, *The Energy to Lead: New York State Energy Planning Board Volume 1*. 2015

³ Based on data used by Western Climate Initiative members for emissions rights obligation related to electricity purchases in New York.

implementation of an intra-hour dispatch program between Québec and New York which can enable the integration of more intermittent renewable resources on the New York system.

Hydro-Québec operates a system of approximately 37,000 MW of installed capacity. Of this, approximately 3,000 MW has come online since 2005 and an additional 900 MW are under construction. Throughout this build out, HQ ensures the highest environmental and social standards are met in the design and development of hydro facilities in the province. To meet these stringent standards, all of HQ's projects undergo a rigorous and extensive environmental and ecological impact assessment at both the provincial and federal government level in order to proceed.⁴ Moreover, projects developed by Hydro-Québec must be profitable under market conditions, environmentally acceptable, and favorably received by local communities. Hydropower developed in Québec has a GHG emission profile similar to wind and about 20% of the emissions of photovoltaic solar on a lifecycle basis.⁵ In all, HQ's total installed and contracted capacity is 99% hydro. While HQ resources are proven to be as clean (or cleaner) than other renewable technology, the dispatchable capabilities of hydro enables clean energy to be generated on demand. These features deliver significant economic and environmental benefits to consumers, and make energy delivered from HQ's system one of the most reliable sources of energy across all renewable and non-renewable alternatives.

RPS Program Design

A) One problematic design element in the New York RPS program, in terms of meeting an aggressive target at the lowest cost, is the in-state requirement instituted in 2013.⁶

By excluding renewable resources from neighboring regions from participating in the program New York is forced to rely on a smaller pool of potential resources, resulting in higher program costs. What's more, since the most cost effective sites for renewable development in New York are already being utilized, more expensive alternative sites will need to be pursued. Costs are further amplified from the expiration of the federal production tax credit, as a portion of the costs for new projects previously funded through a federal subsidy will now need to be paid by New York ratepayers directly. Finally, a significant quantity of existing internal RPS resources are coming to the end of their long term contracts and will no longer count towards the program—and yet the state has limited its ability to access external sources as a replacement source of renewable power.⁷

B) A second design element that should be reconsidered is the specific exclusion of large hydropower from external sources.

For decades New York has recognized the benefits of hydropower as an important electricity resource, demonstrated by the creation of the New York Power Authority ("NYPA") and associated investments of 5,354 MW of large hydro and pumped storage facilities (Lewiston, Moses, Blenheim, Gilboa, St. Lawrence) in New York. These resources provide a substantial quantity of clean and cost effective energy and have contributed the majority of New York's progress towards the current RPS goal of 30%

⁴ <http://www.hydroquebec.com/about-hydro-quebec/construction-projects/approach.html>.

⁵ Hydro-Québec. Environnement et développement durable ; CIRAIQ ; Tirado-Seco, 2014, Comparaison des filières de production d'électricité et des bouquets d'énergie électrique, 50 p., annexes. (Study comparing electricity generation options and electricity mixes, available only in French on Hydro-Québec's website).

⁶ Case 03-E-0188.

⁷ Today contracts for 3.5 TWh of resources will expire by 2020. The potential shift of these resources from NY to the New England RPS REC market is identified as one of the most impactful changes in the marketplace.

by 2015.⁸ While New York has taken steps to increase the output of these facilities through incremental improvements, there is very limited opportunity to develop any new large hydro facilities within the state. As discussed above, new hydropower facilities continue to be developed by HQ and are available for export. New York should not deny itself the opportunity to consider the benefits of procuring neighboring large hydro resources for the RPS program, particularly in the context of the proposed future RPS target of 50% by 2030.

C) Broadening renewable eligibility to include external hydro resources could facilitate new transmission investment in New York.

To date, integrating substantial quantities of larger-scale renewable energy resources into load centers downstate has been challenging in New York, due largely to the difficulty and cost of development in close proximity to load centers near New York City. The alternative of delivering renewable energy from upstate locations is also a challenge because the necessary transmission investment is significant, especially since it would deliver an intermittent source of supply.

Recognizing the value of external large hydropower resources as renewable in the New York marketplace by including it in the New York RPS program can improve the value of new transmission projects to New York in two ways. First, large hydropower would provide significant value to the RPS program, as well as to other initiatives that aim to increase use of low-carbon energy. Second, as a high capacity factor renewable resource, hydro is capable of fully utilizing the capacity of the line, maximizing the value of the transmission investment. In fact, additional hydropower supply that can be delivered to load centers via new transmission in New York may be the most valuable and cost effective way to meet increasing RPS targets and contribute to numerous other public policy goals, including compliance with the U. S. EPA Clean Power Plan ("CPP") and to provide additional power system benefits including the benefits of transmission outlined in the NYISO's filing to the Public Service Commission in June relative to the numerous benefits of transmission⁹ (such as improved system reliability, reduced costs to ratepayers, fuel diversity, environmental benefits, and higher renewable penetration).

D) Creating an incentive for large hydropower resources within the New York RPS is warranted given the growing competition within North America for environmental and performance attributes from hydropower.

While HQ has historically delivered a substantial portion of its export sales to New York, recent federal and regional initiatives in the United States and Canada have the potential to fundamentally alter how energy resources are valued. Eastern Canada and New England are currently taking steps to secure and increase hydro supplies in their energy markets, for purposes including: increased fuel diversity to protect against price volatility driven by a growing dependence on natural gas, compliance with state and federal emissions reduction targets, and ensuring reliability during major nuclear refurbishments and market transitions. As the demand continues to grow for clean and dispatchable energy supply in the northeast, competing regions will need to take action to secure and incent the continued delivery of energy supplies from resources capable of delivering these attributes.

⁸ New York State Renewable Portfolio Standard Annual Performance Report through December 31, 2014.

⁹ June 4, 2015 Case 14-E-0454.

Growing Recognition of Large Hydropower Benefits

Several other northeastern states have recognized the role that large hydro can play in achieving nearer-term RPS objectives, as well as making a contribution to a longer-term renewable and low-carbon future.

Vermont:

In Vermont, large hydro is used in conjunction with other resources to maximize the portion of renewable energy in the supply mix. Legislation passed into law in Vermont this year¹⁰ replaced the SPEED program¹¹ with an RPS model based on tradable renewable energy credits (“RECs”). While imported hydropower has been recognized as a renewable resource in Vermont for several years, the new program reaffirms this recognition and solidifies Vermont’s status as a national leader in the penetration of renewable resources in their supply mix and continues to be one of the cleanest and lowest priced states in the Northeast region.

Connecticut:

Connecticut has adopted a structure in which large hydro resources serve to backstop RPS program costs to ratepayers. Public Act 13-303 authorizes the state to contract for large hydro resources that are not directly eligible in the state RPS program (due to hydro size restrictions of 30 MW) and count the contracted attributes towards state RPS compliance under certain market conditions. In this way, hydro contracts act as a buffer to protect ratepayers from unanticipated market events, and ensure uninterrupted access to clean energy supply at an affordable cost. The Connecticut program is an example of how large hydro can work in conjunction with traditional renewable generation technologies to serve the needs of ratepayers under any market conditions.

Massachusetts:

Through the Global Warming Solutions Act,¹² Massachusetts has committed to reducing GHG emissions in the state by 80% by 2050, with an approaching midterm target of 25% by 2020. In order to achieve these objectives, Massachusetts is taking a proactive approach to reducing emissions in the electricity sector, largely through new programs to access and contract for clean energy resources capable of delivering low-carbon and renewable energy into New England, including hydro from Québec. This effort is demonstrated by the three-state RFP being issued between Connecticut, Massachusetts, and Rhode Island,¹³ designed to procure resources to aid the states in meeting environmental objectives in the most cost effective manner.

RPS Objectives, Eligibility Criteria and Evaluation

New York should establish clear objectives for its RPS program to ensure the success of meeting future targets at the lowest cost to ratepayers. Based on the draft report, the cost of procuring RPS resources will be the critical factor in determining the success of meeting the 2030 goal within the recommended \$1.5 billion budget.

Therefore, New York should be cautious not to dilute the effectiveness of the RPS by attempting to address issues unrelated to clean energy, such as local economic development, and avoid foregoing the

¹⁰ Vermont H. 40 An act relating to establishing a renewable energy standard.

¹¹ <http://vermontspeed.com/>.

¹² <http://www.mass.gov/eea/air-water-climate-change/climate-change/massachusetts-global-warming-solutions-act/>.

¹³ <http://cleanenergyrfp.com/>.

most cost effective resources in favor of projects with greater projected in-state benefits. Since every dollar spent on the RPS program has an opportunity cost to the state, New York should strive to procure resources for the RPS at the lowest cost, leaving more money for ratepayers and the government to advance other policy objectives for the state.

Eligibility in the RPS program should be based on specified environmental and performance criteria. In order for New York to take a more inclusive approach to its RPS program, the state will need to establish specific environmental and performance criteria from which to evaluate competing resources. In terms of eligibility, New York should focus exclusively on the clean and renewable characteristics of resources to determine which technologies should be included. Geographic eligibility should be determined using the well establish requirement that energy be delivered into the control area to which the state belongs (in this case the NYISO). For selection, costs should be the driving factor, but other elements should be considered with an appropriate weighting, such as the displacement of fossil fuel and wholesale cost reductions to the energy system.

Hydro Benefits

New York can realize a number of additional benefits from securing hydro supply from outside New York. These benefits include wholesale cost benefits, hedging energy price volatility, improving fuel diversity and reliability, lowering environmental program costs, and providing a low carbon bridge to facilitate a transition to the New York's Reforming the Energy Vision ("REV").

Wholesale Cost Benefits:

A direct benefit of broadening eligibility in the RPS in New York is the impact of incremental renewable supply on wholesale energy costs. Increased supply procured through the RPS will decrease wholesale energy prices for ratepayers, and because these cost reductions are distributed across an entire system with millions of customers, even small market price reductions will have an enormous impact in total savings to ratepayers. Costs for capacity and ancillary services may also be impacted through RPS procurements, delivering even more benefits to ratepayers.

Hedging Energy Price Volatility:

The Report recommends several changes to the RPS framework including the use of long-term energy contracts to both reduce procurement costs and provide an energy price hedge to ratepayers. While it's true that fixed priced energy contracts can be an effective tool in protecting against price volatility, in order to be effective such contracts require energy to be delivered at the contracted price in a predictable hourly profile. To this point, energy contracts supplied by controllable hydro can be structured in any number of ways to optimize value to rate payers.

An example of an effective contract could be a fixed priced contract where all hours of the year are guaranteed at the contract price, or a contract allowing the counterpart to select specific hours or time periods that have historically been associated with high energy prices or extreme price volatility. Ultimately, a portfolio approach may be preferred, where hydro contracts can be structured to compliment output from intermittent resources. Such an approach would produce a firm and predictable energy supply contract, and a guaranteed hedge value to ratepayers. Additionally, since HQ does not receive any federal subsidies, inclusion of hydro attributes in a portfolio of renewable supply can effectively hedge against higher costs from uncertainty in federal energy policies.

Improving Fuel Diversity and Reliability:

Large hydro can play an integral role in improving fuel diversity in New York. As New York is becoming increasingly dependent upon natural gas for heating and electricity generation (in 2014 natural gas represented over 41% of the state's generation mix¹⁴), the state has looked to invest in renewables as a way to mitigate the potential negative reliability and economic implications of an over-dependence on natural gas generation. Large hydro resources can complement and make the most of these investments by delivering energy on demand during periods of high price volatility and low output from other renewables, and helping to cost-effectively integrate more intermittent renewable generation into the New York system. By using this approach, New York will be procuring renewable energy that is capable of providing the reliable and flexible characteristics that the New York power system currently depends on. To the extent that older fossil fueled resources that provide these characteristics today may exit the market, a portfolio of renewable resources that include large hydropower will be available to meet these needs.

Contributing to Environmental Compliance:

New York has a number of environmental goals that require incremental clean energy supply into the state. Some of these goals are self-imposed targets designed to advance New York's transition to a clean energy future, such as the State Energy Plan and PlaNYC,¹⁵ which set targets for emissions reductions at the state and city level. Other programs involve significant consequences for non-compliance, most notably the EPA Clean Power Plan, which imposes CO2 emissions targets for each state beginning in 2022. Given these targets and New York's current system mix, the state will need to take action to reach these goals while maintaining the reliability and affordability of the system. Additional large hydropower that is delivered into New York through the creation of an incentive in the RPS also contributes to other environmental compliance requirements aimed at lowering emissions and improving the environmental composition of the energy mix.

Supporting Integration of REV:

Given the challenges facing New York, the state has been proactive in creating the foundation for a next generation energy paradigm, which will utilize market forces to empower customers and incent distributed generation throughout New York.¹⁶ The REV is expected to revolutionize how end users interact with electricity markets, and is a model whose development is being examined closely by energy policy makers throughout the country. As is the case with any major transformation, this transition will take time to implement, and require a clean energy source capable of bridging the gap between today's natural gas dominated energy supply mix and a future grid that fully integrates distributed energy resources. Large hydro is well positioned to provide this bridge, by delivering the same flexible and affordable characteristics of natural gas, but with the environmental profile envisioned in the clean energy future by the REV initiative.

Conclusion

HQUS commends the Commission for conducting a review of the RPS program design in order to achieve objectives at the lowest cost to ratepayers and respectfully urges the Commission to consider the costs and lost benefits of continuing an eligibility standard that prohibits New York from procuring a cost effective renewable resource available to the state. In order to meet the ambitious 50% renewable target outlined in the State Energy Plan, New York should adopt an approach that includes all renewable energy, with eligibility based purely on environmental and performance criteria.

¹⁴ 2015 Goldbook pg 61.

¹⁵ <http://www.nyc.gov/html/planyc/html/home/home.shtml>.

¹⁶ <http://www3.dps.ny.gov/W/PSCWeb.nsf/All/CC4F2EFA3A23551585257DEA007DCFE2?OpenDocument>.