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

BROOKFIELD RENEWABLE ENERGY GROUP
COMMENTS REGARDING THE CLEAN ENERGY STANDARD

Brookfield Renewable Energy Group ("Brookfield Renewable"), respectfully submits the following comments on the Department of Public Service Staff ("Staff") White Paper on the Clean Energy Standard ("White Paper") in this docket.[1] Brookfield Renewable applauds Governor Cuomo's initiative to establish a standard whereby 50% of New York's generation will be provided by renewable electric generation by 2030 ("50 by 30 goal") and strongly supports the Public Service Commission's ("Commission's") proposal to adopt the Clean Energy Standard ("CES") to meet this goal. In addition, Brookfield Renewable appreciates the Commission's commitment to continued investment in clean energy reflected by its inclusion of both new and legacy projects in the CES. To that end, Brookfield Renewable offers the following comments on the White Paper in furtherance of creating a stable and certain market to help attain the State's 50 by 30 goal.

[1] Case 15-E-0302 – *Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard*, Staff White Paper on Clean Energy Standard (Jan. 25, 2016) ("White Paper").

Brookfield Renewable believes that in order to achieve a robust and sustainable market, the CES should create a predictable and stable environment that does not discriminate between new and existing resources or allow out of state policies to dictate growth and progress in New York. To accomplish this, the Commission should:

- Ensure fair treatment between new and privately-owned existing resources.
- Allow for long-term contracting of legacy resources.
- Collapse Tiers 2A and Tier 2B into one tier that provides appropriate compensation for all existing renewable resources.
- Under any scenario, establish an appropriate Alternative Compliance Payment ("ACP") that incentivizes new generation and the maintenance of all existing generation (whether sub-tiers are maintained or not).
- Follow the same cost/benefit analysis methodology throughout the Cost Study.
- Provide the bases and details of the generation target assumptions for each tier, including eligibility assumptions.

Brookfield Renewable strongly supports the Staff's conclusions in the White Paper that legacy resources are crucial to meet the 50 by 30 goal and that support for existing sources will be necessary to ensure continued efficient operation of those resources as well as mitigate exports of eligible renewable energy generation out of New York.

To successfully meet the goals and purpose of the CES, a meaningful, cost-effective construct that is transparent and simple will be required. The White Paper proposed that Tier 2 for legacy resources should be further subdivided into competitive and non-competitive tiers (Tiers 2a and 2b, respectively) to account for existing resources that have "limited alternative

markets for their [Renewable Energy Credits ("RECs")]"[2] and whose RECs have "limited demand and market value"[3] with the expectation that doing so will lower costs to ratepayers.[4] However, segregation of legacy resources based on a construct of "competitive" versus "non-competitive" does not serve the public interest of New York consumers. The competitive distinction as proposed may have the unintended consequence of promoting the export of RECs and energy to adjacent control areas such that New York's 50 by 30 goal will suffer significant delay or defeat. Moreover, the assumptions made in the White Paper are not reflective of the market conditions and programs currently available or proposed in nearby states which allow all renewable energy generation – whether Tier 1, Tier 2A, or Tier 2B by New York's definition – to be valued the same and, therefore, subsumes New York's CES to the discretion of these out-of-state programs and policies.

To successfully meet the goals and purpose of the CES, a meaningful, cost-effective construct that is transparent and simple will be required. Minimizing the number of tiers by collapsing Tier 2A and Tier 2B into a single Tier 2 will provide the simplicity needed to ensure the program is easy for consumers and participants to understand and apply, and provide stability and predictability in a non-discriminatory manner.

The overall environmental climate of the Northeast region and its focus on compensation for clean energy diminishes the need for different tiers based on whether adequate competition exists in other markets: competition for renewable energy resources clearly exists and is getting stronger. The key to a successful clean energy program is to ensure proper compensation of

[2] White Paper at 22.

[3] *Id.*

[4] *Id.* at 23.

these resources regardless of tiers. With the continuing evolution of Renewable Portfolio Standard ("RPS") programs in states in adjacent service territories, the number of competitive opportunities for existing New York resources to sell into other jurisdictions are increasing. Furthermore, a sub-tier defined by competition lacks stability due to the ever-changing market dynamics in other states. These principles will become even more important and evident as New York coordinates development of clean energy programs (such as the Regional Greenhouse Gas Initiative ("RGGI") or the U.S. Environmental Protection Agency's Clean Power Plan) with the energy policies and programs of neighboring states.

As the Commission is looking to other states for guidance on the New York CES, the Commission should strongly consider inclusion of Low Impact Hydro Institute ("LIHI") certified projects in Tier 1 as has been adopted in part by Delaware, Massachusetts, Oregon, and Pennsylvania (see Appendix A). Certified by the Low Impact Hydro Institute, LIHI projects are those that have avoided or reduced their environmental impacts pursuant to the organization's criteria, and represent the best-in-class for environmentally responsible hydropower. Allowing LIHI Certified facilities to be eligible for Tier 1 would provide support to resources that have the lowest environmental impacts as well as level the playing field for new and existing sources to ensure the most efficient long-term outcomes for the state.

Besides eliminating discrimination in eligibility, the structure and pricing for an Alternative Compliance Payment ("ACP") should not discriminate between new and existing resources or be based on the proposed sub-tier definition for competitive or non-competitive legacy resources. The ACP must be high enough to support operations of existing plants and keep renewable generation in New York in order to further the overall goals of the CES. The premise that a low ACP for some types of existing renewable generation would be justified

because there are limited opportunities for REC market revenues outside of New York is belied by the fact that adjacent states are providing increasing opportunities and competition for in-state clean energy.[5] Furthermore, a low ACP subverts the long-term goals of the CES, including maintenance of existing renewable resources, by reducing the incentives for load serving entities ("LSEs") to purchase RECs when they can simply pay a low ACP to be compliant.

In the future, Brookfield Renewable believes all renewable energy resources must be compensated the same in a market-based approach – whether directly through carbon pricing or compensation for each unit of generated renewable energy receiving the same environmental attributes. As with the existing capacity market, the cost of future RECs should reflect the lowest cost new renewable entrant. Therefore, the ACPs set now should not differentiate between new or legacy or be based on a competitive definition or sub-tier.

While the sub-tiered approach will be problematic and sub-optimal for New York's achievement of its renewable objectives, should the State proceed with the sub-tiered program as proposed, it is crucial that corresponding ACPs and/or price benchmarks for all tiers accurately reflect the full long-term value and opportunity cost for those resources. Without accurate valuation, the program faces great risk of failing to achieve its objectives. For example, the price benchmarks proposed in the CES Cost Study for Tier 2B[6] are undervalued by an order of magnitude as compared to the true alternative opportunities for such resources. As such,

[5] For example, Connecticut, Massachusetts, and Rhode Island have developed the New England Clean Energy RFP which includes eligibility for long-term contracting for firming hydro products. *New England Clean Energy RFP*, CLEANENERGYRFP.COM, https://cleanenergyrfp.com/ (last visited Apr. 22, 2016). Additional information regarding opportunities in adjacent states is included in Appendix A: Hydro in States in Adjoining Service Territories, as attached to these comments.

[6] Case 15-E-0302 – *Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard*, Clean Energy Standard White Paper – Cost Study, 83 (Apr. 8, 2016) ("Cost Study").

generation from resources that are undervalued by New York based on inaccurate facts and estimates is likely to be exported to other States where actual competitive compensation exists, thus, leaving the State no choice but to make-up the shortfall with procurement from the highest cost new renewable resources under Tier 1.

Overall, the availability of long-term contract mechanisms coupled with appropriate price compensation for all resources, new or existing, will provide the stability and predictability needed to accomplish the strategic objectives of the CES and help ensure existing resources remain economically viable while mitigating exports of RECs and energy outside of New York where there is also significant demand.

BACKGROUND

In its January 21, 2016 Order, the Commission expanded the scope of the Large Scale Renewable proceeding to include consideration of a CES to meet the 2015 State Energy Plan goal that 50 percent of all electricity used in New York State should be generated from renewable energy sources by 2030. In response to that Order, Staff prepared a White Paper regarding the proposal for a CES market-based program. On February 26, 2016, the Commission held its first technical conference (Workshop #1) to discuss the CES proposal outlined in the White Paper. Brookfield Renewable appreciates this opportunity to comment on the White Paper and overall CES.

BROOKFIELD RENEWABLE ASSETS IN NEW YORK

Brookfield Renewable has played a key role in New York's clean energy past and hopes to significantly contribute to its future. Brookfield Renewable has been actively investing in New York through purchases, maintenance, and upgrades of existing hydroelectric facilities in

the State and has responsibly managed these facilities to generate clean, renewable energy. Brookfield Renewable's 75 hydroelectric stations across western and upstate New York represent over 700 MWs of nameplate capacity. In addition to generating clean, renewable electricity, Brookfield Renewable has provided substantial value-added benefits to New York. For example, in 2013, Brookfield Renewable provided the State:

- 3 Terawatt hours (TWhs) of carbon-free electricity, representing over 2% of the power generated in New York,[7] which saved approximately 1 million tons of carbon dioxide ("CO_2") emissions had that electricity been generated from the typical system power emission profile (720.8 lbs of CO2 per MWh);
- Over $25 million in property taxes;
- Over 200 jobs across the state, many in the north country;
- Over $30 million in economic investment in operating and capital expenses;
- Resource diversity at a high level of performance during critical periods such as the polar vortex;
- Capacity and reliability; and
- VAR support to the grid to maintain voltage and power factors even with intermittent resources.

[7] In 2013, a total of 140,338 GWhs of net energy was generated in New York. Of that total, 25,631 GWhs was from hydroelectric sources, of which Brookfield Renewable contributed 12% in supply. NEW YORK INDEPENDENT SYSTEM OPERATOR, INC., 2014 LOAD & CAPACITY DATA ("Gold Book"), 28, Figure III-2 (April 2014).

COMMENTS ON THE WHITE PAPER

As requested in the Commission's January 25, 2016 notice soliciting comments, the following comments are organized in accordance with the sections and subsections of the White Paper. General comments are provided at the end of this section.

II.A.1: 50 by 30 Goal, Obligation, and Compliance Mechanism Calculating the 50 by 30 Mandate

Incremental Renewable Energy Needed to Reach the 50% by 2030 Goal:

The Commission has repeatedly recognized that the contributions from legacy renewable generation have been a crucial component in New York's attainment of its current renewable load of 26% as well as the indispensable role these resources will continue to have in the success of the CES program. In order to progress toward the 50 by 30 goal, New York will need a combination of both existing and new projects. To that end, it is critical to maintain New York's existing base of renewable generation. While Brookfield Renewable supports a triennial review for the CES program, it is also important to ensure that the annual goals, interim targets, and pricing mechanisms for existing projects in Tier 2 are as robust as they are in Tier 1 for new projects.

To ensure the targets and market mechanisms are appropriately set, the Commission should perform a full and accurate inventory of existing resources in-state and in the region that are eligible for import. A complete understanding (and publication) of the existing renewable resources will help evaluate whether the goals for Tier 2 are under or over obligated, and whether adjustments of other Tiers are necessary to set the state on the trajectory to the overall 50 by 30 target. Additional principles for targets and market mechanism are outlined below.

While the targets outlined in the White Paper seem in-line with today's understanding of the New York market, without the New York Generation Attribute Tracking System ("NYGATS"), the amount of renewable energy being imported and exported out of the State is initially uncertain. In the absence of this information, there could be significant fluctuations in the first few years, especially within Tier 2. As REC markets can quickly fluctuate between near zero when the market is oversupplied, and near the ACP when undersupplied, Brookfield Renewable recommends that Tier 2 have a mid-point review one and a half years after commencement of the program to evaluate the progress and ensure the targets are appropriately set. Brookfield Renewable also encourages the Commission to release the figures behind the targets. For instance, Tier 2A targets existing renewable energy resources that have opportunities in the Tier 1 equivalents of other states. Release of the information and assumptions that were used to build the Tier 2A targets, such as spreadsheets and other relevant documents, would inform the understanding of how New York is analyzing these markets and provide for a more transparent review process.

Alternative Compliance Mechanism:

Brookfield Renewable generally supports the use of an alternative compliance mechanism, but believes that development of a reasonable and adequate ACP is crucial to support a CES that incorporates alternative means to comply. In developing the ACP, Brookfield Renewable supports the strategic rationale outlined in Appendix D of the White Paper that the ACP should be "sufficiently high . . . to (i) support continued plant operation, and

(ii) attract or retain supply in the New York market, when eligible generation has other alternatives available."[8]

However, Brookfield Renewable strongly disagrees with the conclusions in Appendix D of the White Paper that the ACP should be set low for Tier 2B small hydroelectric.[9] The White Paper concludes that because there are limited opportunities outside of New York for REC market revenue, a low ACP will incent generators to sell RECs to LSEs and provide sufficient revenue to continue and maintain plant operations.[10] However, a low ACP provides no incentives for the generator or the LSE, and would serve to discourage and delay compliance with the overall 50 by 30 goal. A low ACP promotes more LSEs paying the ACP instead of purchasing RECs which defeats the purpose of the program and could ultimately serve to depress and devalue the market if limited RECs are purchased. In addition, the Cost Study does not list an ACP for Tier 2B, although the price benchmark identified is an order of magnitude below alternative out-of-state opportunities for these resources.[11] To retain value in the overall CES program and ensure longevity of the baseline, legacy resources, Brookfield Renewable suggests the ACP for Tier 2B should be set at the same value for Tier 2A under any case either by merging the tiers or, in the absence of merger, by applying the same ACP for both tiers.

Moreover, the ACP should not be set based on the type of resource within a Tier in order to sustain the CES and REC market for the long-term. In the future, all renewable energy

[8] White Paper, Appendix D at 1.

[9] White Paper, Appendix D at 2. Note that the Cost Study also sets a low ACP for Tier 2B resources. Cost Study at 83.

[10] White Paper, Appendix D at 2.

[11] *See* Cost Study at 83.

resources should have their environmental attributes be compensated in the same way in order to ensure the most cost-effective long-term outcomes for New York consumers. Similar to the capacity market where capacity prices are valued at the cost of new entry, the cost of RECs in the future should reflect the lowest cost new renewable entrant, and will therefore be the driver to construct (or invest in upgrades for) the least-cost renewable energy. Failure to base value on the lowest cost new renewable entrant will result in inefficient cycling of capital over the long-term, as the state may need to replace older resources that have not been valued appropriately.

Brookfield Renewable also agrees that the availability of long-term contracts will provide revenue stability and accomplish the strategic objectives of ensuring that existing resources remain economically viable while mitigating exports of generation to out-of-state areas that value the resource more highly. Long-term contracts for existing resources can act as a hedge for ratepayers against fluctuating electricity prices while locking in the renewable resources for compliance with environmental regulations – giving benefits to both the ratepayers and the generation owner. As such, long-term contracts should be available for all tiers to maximize flexibility in managing the State's overall load portfolio, thereby helping to minimize costs for New York ratepayers.

Disposition of ACP:

In regards to the options for disposition of ACP as outlined in the White Paper, Brookfield Renewable supports additional long-term contract procurements, and funding activities and programs that facilitate development, siting, or financing – with the caveat that these activities and programs must be open to both Tier 1 and Tier 2, particularly as Tier 2 resources increasingly have out-of-state contracting opportunities.

II.A.2: Eligibility and Tiers

Geographic Eligibility:

Brookfield Renewable supports the eligibility of out-of-state energy facilities for both Tier 1 and Tier 2, as outlined in the White Paper. Brookfield Renewable also believes that eligibility should not be limited to adjacent territories and should include all out-of-state energy facilities as long as the RECs are tracked and deliverable into New York via the New York Generation Attribute Tracking System ("NYGATS"). The expansion of eligibility coupled with tracking via NYGATS will serve the public interest, as noted in the White Paper, in that including more eligible resources will mitigate compliance costs for LSE's, and ultimately, impacts on consumers. Additionally, we strongly encourage NYGATS to be policy neutral with regards to program eligibility, much like the PJM Environmental Information Services Generation Attribute Tracking System ("PJM-EIS GATS"),[12] as the tracking system should be designed to track generation attributes for purposes that may be beyond the scope of the CES, including the voluntary green market(s).

Tier 1 – New Renewable Resources:

Hydro is unique among renewable technologies in that it is built once and then can continue to provide emission-free power for nearly 100 years, under responsible stewardship. Over this period, other technologies will be abandoned and re-built multiple times, which raises their life-cycle Greenhouse Gas ("GHG") emissions as compared to hydro. While Tier I has been designed to encourage new resources, New York should also use Tier I to incentivize the

[12] PJM – EIS, Generation Attribute Tracking System (GATS), Operating Rules, 1 (Rev. 8, May 2014).

optimization of new or existing hydropower just as Delaware, Massachusetts, Oregon and Pennsylvania, in whole or in part incentivize hydropower, as each includes LIHI certified hydropower in their Renewable Portfolio Standards ("RPS").

LIHI is a non-profit organization that seeks to reduce the environmental impacts of hydropower projects, and offers a voluntary certification program to identify and recognize hydropower facilities that have minimal environmental impacts. Its Certification Program has established eight criteria by which the environmental impacts of hydropower facilities are evaluated: (1) river flows; (2) water quality; (3) fish passage and protection; (4) watershed protection; (5) threatened and endangered species protection; (6) cultural resource protection; (7) recreation; and (8) facilities recommended for removal.

As these criteria ensure greater environmental protection over and above current legal requirements, hydro operators should be incentivized to ensure their projects have the lowest amount of environmental impact possible. Inclusion of LIHI Certified facilities (both new and existing) in Tier 1 would provide financial incentive for additional projects to be certified and operated with low environmental impact.

When evaluating any new utility-scale renewable energy projects for Tier 1, significant consideration should be given to project viability, including permitting ease, financial strength and developer experience. To further minimize impacts, preference should be given to those projects that use existing infrastructure, and those projects that can be "firmed up" by hydro or other forms of storage. The intermittency of new renewable energy projects can be more easily integrated into the overall grid or can stand alone as a microgrid if intermittent resources are paired with existing hydro resources such that the combined product can deliver firmed renewable energy. As such, the firming ability of hydro should be considered throughout all of

New York's energy initiatives, including the Reforming the Energy Vision and discussions on microgrids.

To ensure that economic and job benefits are distributed, New York should give preference to new renewable energy projects that are located up-state, or follow the example of the NY-Sun Megawatt Block program and have certain assignments per region of the state.

Tier 2 – Existing Renewable Resources:

Brookfield Renewable appreciates that the Commission has recognized the significant value in legacy resources and in preserving existing clean energy generation. As noted in the White Paper and as discussed above, New York's existing resources provide substantial environmental benefits and are valuable assets to New York that provide jobs and other economic benefits, especially throughout the rural areas of New York.[13] Existing, legacy renewables will continue to play a critical role in meeting New York's 50 by 30 target.

It should be noted that while legacy hydroelectric energy was counted towards the previous NYSERDA RPS, they were not compensated for it. The result has been exportation of these valuable resources to other states that valued renewable resources higher than New York and that highlighted the need for renewed investment into these sources. While Brookfield Renewable applauds the Commission's recognition of the importance of legacy renewable in the CES and in meeting the 50 by 30 target, it is imperative to ensure a leveled recognition between new and existing resources, and ensure appropriate value recognition for existing resources. To continue to impart value to legacy renewable generation, the Commission should evaluate minimizing the number of tiers, ensure appropriate compensation is available to existing

[13] White Paper at 17.

renewable resources regardless of tiering, and allow for long-term contracting for existing resources, as discussed in other sections of these comments. To further reduce impact on New York ratepayers, the Commission should evaluate compensating only those projects that are privately owned.

Tier 2A: Competitive Sub-Tier and Tier 2B: Non-Competitive Sub-Tier:

If a tiered structure is to be used with legacy resources allocated to Tier 2, the program should ensure that the pricing (both in RECs and in ACPs) for Tier 2 and its sub-tiers reflects the true value of existing renewable resources and allows long-term contracting for those sources. While Brookfield Renewable understands the reasoning behind the suggestion that the Commission separate Tiers 1 and 2 to incent new projects, the sub-classifications of Tier 2a as Competitive and Tier 2b as Non-competitive will not serve the public interest and should be merged into one tier.

Bifurcating Tier 2 as proposed in the White Paper will leave New York captive and vulnerable to the discretion of states and programs in adjacent control areas. It may have the unintended consequence of further renewables being exported as states in adjacent control areas value resources differently, sometimes higher than New York. Maryland, for instance, counts hydro up to 30 MWs that was constructed before 2004 as Tier 1 in its RPS. Even when not explicitly counted in an RPS Class I, hydro can be recognized as having more value to the state. For example, Connecticut allows "firming hydro" to enter into a long-term contract if it is paired with a Class I renewable on a transmission line delivered into New England, thus implicitly giving it value despite that it is not inherently counted as Class 1. A list of states in adjacent control areas that value hydro different from New York is included as Appendix A.

Moreover, the White Paper's assessment of "non-competitive" fails to consider the developing and increasing opportunities to sell into other jurisdictions. The recent New England Clean Energy RFP included eligibility for long-term contracting for firming hydro products that are classified by the White Paper as non-competitive. Furthermore, Massachusetts is currently considering legislative language that would allow for the contracting of up to 18.9 TWhs of Class I renewables and/or hydroelectricity.[14] As such, there is the potential for significantly more value in that market for these resources as compared to the limited market context for similar projects in New York, as described in the White Paper. We expect that this recognition could evolve further as federal carbon pricing policy is implemented at the state level, potentially through direct contracting mechanisms. Even when a state does not explicitly allow existing hydroelectric power in the Class I category, it will often value it higher than other resources in a separate tier, such as Massachusetts Class II or New Hampshire Class IV. The evolution of clean energy programs in adjacent areas, therefore, diminishes the distinction between Tier 2a and Tier 2b and does not warrant a definition founded upon competition. In the broader context, the competitive / non-competitive distinction is not a stable definition due to the ever-changing markets. Therefore the implied distinction between competitive and non-competitive existing resources breaks down under greater scrutiny.

A resounding sentiment expressed by multiple stakeholders at the first Technical Conference in this proceeding was that the program should be transparent and as simple as is reasonably possible. Reducing the total number of tiers adds to the simplicity and effectiveness

[14] State House News Service, *Beaton: Hydro is Most Cost Effective Renewable*, WBJOURNAL.COM (Mar. 1, 2016) *available at* http://www.wbjournal.com/article/20160301/NEWS01/160309996/beaton-hydro-is-most-cost-effective-renewable.

of the overall program. Conversely, every additional tier that is added makes the program more difficult to manage, confusing to consumers and participants, and harder to reduce and redefine down the road as the market develops.

Long-Term Clarity on CES Targets:

The White Paper set forth Targets for each tier out to only 2020. During the technical conference, Staff suggested that it may also consider a "rolling visibility period" such that at the end of each three year review, the targets beyond 2020 would be released. Brookfield Renewable supports this suggestion in the interest of providing all resources with the ability to better plan – either for the development of new projects or upgrades or continuous maintenance of existing resources. This three year review will also allow for an analysis of the set ACP rates; if ACPs are being extensively used in lieu of procuring RECs the ACP should be re-examined to ensure the program is working as intended.

II.C: The Role of Long-Term Contracting Mechanisms

Brookfield Renewable appreciates and supports that the White Paper and Cost Study recognize that long-term contracting will be necessary to enable sufficient development of new generation. While the Commission has recognized the important role legacy resources will play in New York achieving the 50 by 30 goal, in order to ensure this goal is attained in the most cost-effective way and ensure a robust REC market, long-term contracting opportunities should be available for all tiers – not just Tier 1. The availability of long-term contracting for all tiers will be vitally necessary as the market continues to evolve toward innovative clean-on-clean structures where hydro is required as a balancing solution to help manage intermittency issues. Moreover, allowing long-term contracts for Tier 2 would be in the public interest as ratepayers

would benefit from bundled contracts for both energy and RECs insofar as these provide hedges for New York ratepayers while enabling lower financing costs for the project owners.[15]

As described in Brookfield Renewable's comments to the Large Scale Renewables docket, Brookfield Renewable supports long-term Power Purchase Agreements ("PPAs") with credit-worthy entities. In any market, having a broader range of parties as procuring parties or contract parties enhances the sustainability and growth of that market. Brookfield Renewable continues to believe that multiple parties can and should be considered as counter-parties to PPAs, providing that they are creditworthy.

OTHER COMMENTS

Follow the same cost/benefit analysis methodology throughout the Cost Study

Brookfield Renewable was very heartened to see that the benefits of carbon reduction were included in the Tier 1 and Tier 2A cost/benefit analysis, but was disappointed that the social cost of carbon was not accounted for in the net present value calculation for Tier 2B. As a result, the cost of Tier 2B appears unnecessarily high. Every megawatt hour of renewable energy generation can potentially displace fossil fuel generation and reduce carbon emissions. However, renewable power removed from the market, through retirement or export, requires carbon-emitting generation to take its place, all else being equal. As previously discussed, there are ample opportunities for export of all clean energy generation within New York. Therefore, generation from Tier 2B resources should not be treated as a sunk benefit with respect to the

[15] Currently the vast majority of New York is unhedged for periods greater than 2 years forward. This puts the market at overall risk of significant long-term gas volatility – such as during the last peak in gas pricing in 2007-08, when the market exposure became a significant concern and a rushed attempt to contract resulted in higher overall long-term pricing for the state.

social cost of carbon. Instead, Tier 2B existing resources that have laid the foundation for clean energy in New York should be accounted for and valued with the same methodology used for Tier 1 and Tier 2A.

In addition, to continue to follow the carbon cost and benefit methodology of the Cost Study, the Tier 1 analysis should include the *cost* of the increase in carbon emissions that will result from the construction of new projects. In comparison, Tier 2 existing projects would not incur this cost or add to carbon emissions, as no new construction will be required. While studies have shown there are low lifecycle emissions for renewable technologies,[16] the construction of these projects still incur some carbon emissions – the cost of which should be factored into the cost study analysis.

Overall, the existing resources that have paved the way for renewable energy in New York and provided the forward progress towards meeting the 50 by 30 goal should not be evaluated differently with respect to the carbon cost/benefit analysis, especially when *all* CES resources will reduce carbon emissions. Regardless of the competitive distinction made for valuing RECs, Tier 2B existing resources provide the same carbon-reducing benefit as all other resources as well as avoid additional carbon emissions associated with construction of new projects.

Coordination with Other State, Regional, and Federal Programs

Brookfield Renewable appreciates that the Commission has carefully evaluated and continues to benchmark programs in other states. In addition to evaluating the lessons learned from other programs, Brookfield Renewable would recommend that Staff review the interplay

[16] Intergovernmental Panel on Climate Change, *Annex III: Technology-specific Cost and Performance Parameters*, 10 (2014) *available at* https://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_annex-iii.pdf

with the Regional Greenhouse Gas Initiative ("RGGI"), greenhouse gas reduction initiatives by states in the RGGI program, as well as the effect of the Clean Power Plan. With RGGI currently undergoing its 2016 Program Review, there may be opportunities for coordination or stakeholder involvement by the Commission.

CONCLUSION

Brookfield Renewable lauds the State's 50 by 30 Clean Energy Standard goals. In order for the program to be successful, however, there must be a robust, transparent plan that recognizes and provides adequate support for existing renewable resources. The current White Paper is an important step in the right direction, but as currently conceived, is at risk of failing to achieve adequate support levels to maintain the full complement of existing legacy generation within the State, despite its contribution of nearly two-thirds of New York's renewable energy baseline. New York should therefore learn from the successes and mistakes of neighboring states and provide a program that is robust enough to compete with these states. The program should be as simple as possible with as few tiers as is practicable. Brookfield Renewable looks forward to the continued opportunity to help maintain and increase the State's renewable generation assets.

Dated: April 22, 2016

S/

Maureen O. Helmer
Laura L. Mona
Barclay Damon, LLP
80 State Street
Albany, NY 12207
(518) 429-4220
MHelmer@barclaydamon.com
Counsel for Brookfield Renewable Energy Group

Appendix A: Hydro in States in Adjoining Service Territories

Connecticut:

Allows for the contracting of existing hydropower if used to "firm" Class I renewables:
Public Act 15-107:
https://www.cga.ct.gov/2015/act/pa/pdf/2015PA-00107-R00SB-01078-PA.pdf

Delaware:

Class I: Up to 30 MWs:
To be an Eligible Energy Resource under the Act, a hydroelectric facility shall: 1) have a maximum design capacity of 30 MW or less from all generating units combined; and 2) meet DNREC standards including Low-Impact Hydro standards. DNREC standards include: 1) cannot diminish water quality and/or adversely impact watersheds; 2) provide an adequate water flow for protection of aquatic life and for safe and effective fish passage; 3) protect state and federally-designated threatened and endangered species and their habitat; 4) protect cultural and historic resources; 5) preserve or improve public access and recreation opportunities; and 6) meet the certification standards established by the Low Impact Hydropower Institute or their successors.
http://depsc.delaware.gov/orders/8139.pdf

Maryland:

Tier 1: Eligibility restricted to small hydroelectric plants (systems less than 30 MW) that were in operation as of Jan. 1, 2004.
http://www.dsd.state.md.us/comar/subtitle_chapters/20_Chapters.aspx#Subtitle61

Massachusetts:

Class 2: Up to 7.5 MWs:
Electrical energy from a generation unit that uses flowing fresh water as the primary energy resource, with or without a dam structure or other means of regulating water flow, and that is not located at a facility that uses mechanical or electrical energy to pump water into a storage facility is eligible. The Department can consider facilities that have been denied LIHI certification. Must meet certain environmental standards and have LIHI certification. Standards address adequate and healthy river flows, water quality standards, fish passage and protection measures and mitigation and enhancement opportunities in the impacted watershed.
http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/rps-aps/rps-and-aps-program-summaries.html

Pennsylvania:

Tier 1. Eligibility includes new and existing low-impact hydro facilities -- hydropower consisting of any technology that produces electric power and that harnesses the hydroelectric potential of moving water impoundments, provided such incremental hydroelectric development:

(i) does not adversely change existing impacts to aquatic systems;

(ii) meets the certification standards established by the Low Impact Hydropower Institute and American Rivers, Inc., or their successors;

(iii) provides an adequate water flow for protection of aquatic life and for safe and effective fish passage;

(iv) protects against erosion; and

(v) protects cultural and historic resources.

http://www.legis.state.pa.us/cfdocs/legis/li/uconsCheck.cfm?yr=2004&sessInd=0&act=213