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June 6, 2016

VIA ELECTRONIC FILING

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

Re: Case 15-E-0302 – Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard

Dear Secretary Burgess:

Pursuant to the *Notice of Comment Period for Staff White Paper and Cost Study*, issued by the New York State Public Service Commission on April 8, 2016 in the above-referenced proceeding, Multiple Intervenor hereby submits for filing the attached Comments of Multiple Intervenor on Clean Energy Standard Cost Study. Copies of the attached Comments are being served herewith on the active parties to this proceeding.

Respectfully submitted,

MULTIPLE INTERVENORS

Michael B. Mager

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Counsel to Multiple Intervenor

MBM/dp
Attachment
cc: Active Parties (via E-Mail; w/attachment)
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**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

**COMMENTS OF
MULTIPLE INTERVENORS ON
CLEAN ENERGY STANDARD COST STUDY**

Dated: June 6, 2016

**MULTIPLE INTERVENORS
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PRELIMINARY STATEMENT

On April 8, 2016, the New York State Public Service Commission (“Commission”) issued a *Notice of Comment Period for Staff White Paper and Cost Study* (“Notice”), which, *inter alia*, solicited comments on the *Clean Energy Standard White Paper – Cost Study* (“Cost Study”) issued on the same date by New York State Department of Public Service Staff (“Staff”) in Case 15-E-0302.¹ Pursuant to the Notice, Multiple Intervenors hereby submits its Comments on the Cost Study.²

For the reasons set forth herein, Multiple Intervenors contends that the Cost Study has numerous infirmities and is fatally flawed. The Cost Study understates significantly the costs of implementing the proposed Clean Energy Standard (“CES”) while, at the same time, overstating significantly its purported benefits.

Multiple Intervenors further contends that the costs and the purported benefits of the proposed CES would recovered from – and realized by – two very-different populations. For instance, the costs of the proposed CES would be borne solely by New York electric customers. On the other hand, the purported benefits of the CES relied upon by the Cost Study relate solely to carbon reductions, calculated using the “social costs of carbon (“SCOC”),” which theoretically would be realized by the world at large, of which New York constitutes only a very-small portion

¹ Case 15-E-0302, *Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard*. Parenthetical references to the Cost Study are preceded by the notation “CS.” Additionally, parenthetical references to the *Staff White Paper on Clean Energy Standard* (“White Paper”), issued herein on January 25, 2016, are preceded by the notation, “WP.”

² While Staff issued the Cost Study, it was prepared by a combination of Staff, the New York State Energy Research and Development Authority, Sustainable Energy Advantage, LLC, AWS Truepower, Antares Group, and Daymark Energy Advisors. (CS at 2.)

thereof. Thus, if benefits and costs were evaluated on a New York-specific basis, the costs projected to be imposed on the State's electric customers (which are understated) would dwarf the projected benefits allocable to New York (which are overstated), thereby damaging the State's competitive position vis-à-vis other states in terms of electricity costs and, Multiple Intervenors contends, future economic development prospects.

The Cost Study also is lacking in details and transparency. Although voluminous, the Cost Study – organized in presentation form with a lot of colorful tables and graphs – omits a substantial amount of the underlying data and assumptions that are needed to conduct a thorough evaluation of its findings and supporting calculations.³ Based on this lack of data and specificity regarding the assumptions employed, the Cost Study is not even clear in parts as to what costs and benefits are being attributed to the proposed CES, let alone how those costs and benefits actually were calculated.

The Commission should not rely on the Cost Study, at least in its present form, for purposes of evaluating the proposed CES. This proceeding is examining various proposals that would impose billions of dollars of incremental costs on captive electric customers and bind those customers to policies that would impact electricity prices for multiple decades. Such decisions should not be based on a study that, at worst, appears biased to reach certain conclusions, and which at a minimum is incomplete, reliant upon numerous questionable assumptions, and lacking transparency in terms of the data utilized for many (if not most) of the underlying calculations.

³ On May 4, 2016, a technical conference was conducted on the Cost Study. In response to a request by an interested party, it was represented that the data, assumptions, spreadsheets, *etc.*, underlying the Cost Study's conclusions would be released so that parties generally would be capable of replicating the calculations contained therein (apparently the Cost Study relies on certain proprietary models that cannot be released publicly). Notwithstanding such representation, however, to date this information has not been released to the parties in this proceeding.

Instead, the Commission should direct Staff to conduct a new, rigorous, unbiased cost study that utilizes methodologies determined through an open, transparent stakeholder process.

ARGUMENT

THE COST STUDY IS FATALLY FLAWED

The proposed CES, if implemented, is a critically-impactful regulatory initiative. The Commission currently is considering whether – and how – to mandate that New York consume 50 percent of its electricity needs in 2030 from renewable resources (“50 by 30”), irrespective of market forces or whether renewable technologies are economic or cost-effective. Rather, such increasing “penetration” by renewables would be ensured by forcing captive electric customers to fund much-higher subsidies than those that have been extracted for over a decade under the Renewable Portfolio Standard (“RPS”). Moreover, the proposed CES also calls for electric customers to start subsidizing selected nuclear generation facilities that claim to be no longer economic. Significantly, one potential means of implementing the CES under consideration is to force the State’s electric utilities – at the financial risk of their customers – to enter into long-term (*e.g.*, 20-year) power purchase agreements (“PPAs”) with renewable developers.⁴ Thus, the decisions made by the Commission with respect to the proposed CES will impact electric customers – and the prices they pay for an essential commodity (*i.e.*, electricity) - for decades.

With this much – and literally billions of dollars of customer funds – at stake, Multiple Intervenors anticipated that a rigorous, unbiased examination of the likely costs and benefits of the proposed CES would be conducted in an open and transparent manner. Electric

⁴ Multiple Intervenors has advocated repeatedly that the Commission should not mandate the use of PPAs. *See, e.g.*, Case 15-E-0302, *supra*, Initial Comments of Multiple Intervenors (dated August 12, 2015). Multiple Intervenors incorporates those positions by reference herein.

customers in this State certainly deserve nothing less. Unfortunately, however, Multiple Intervenors contends that the Cost Study issued herein suffers from numerous infirmities and flaws. Those infirmities and flaws tend to fall into one of two overarching categories: (1) the Cost Study understates significantly the costs of the proposed CES; and (2) the Cost Study overstates significantly the purported benefits of the proposed CES.

A. The Cost Study Understates Significantly the Cost of the Proposed CES

The Cost Study is flawed because it understates significantly the cost of the proposed CES. It does so in numerous different ways, many – but perhaps not all – of which are detailed below.

1. The Cost Study Focuses on Costs Only Up Until 2023, Thereby Disregarding Substantial Costs Expected to Be Incurred After That Time

The CES is focused on achieving certain objectives for reliance on renewable generation facilities and retention of selected nuclear generation facilities through 2030. It is proposed to become effective as of 2017. Significantly, however, the Cost Study focused only on the projected costs of the CES through 2023. (CS at 6.)⁵ In so doing, the Cost Study fails to evaluate comprehensively – and, therefore, understates significantly – the costs of the proposed CES.

The costs and other impacts of the CES, as proposed, would be borne by electric customers for many years. Furthermore, based on how a CES may be implemented – *e.g.*, by reliance on long-term PPAs – the relevant time period that should have been evaluated arguably

⁵ As detailed, *infra*, the Cost Study also excludes substantial costs expected to be incurred prior 2020.

extends more than three decades. For instance, a 20-year PPA entered into in 2030 in furtherance of the CES would commit customers to paying financial subsidies through 2049. The Cost Study, however, essentially stopped its analysis at 2023.⁶ This approach is highly questionable given that the CES is focused on achieving certain objectives as of 2030 and, as proposed, would commit electric customers to expensive financial subsidies well beyond that date.

Moreover, the reason why the Cost Study failed to extend certain of its analyses and conclusions past 2023 is particularly noteworthy. The Cost Study states that:

Any projection extending to 2030 (as well as the decades following 2030, once the full lifetime of installations deployed until 2030 is taken into account) is subject to uncertainty. Forecasts can be provided with a comparatively high degree of confidence for the near term, but as estimates are extended further in time, input assumptions (such as technology cost assumptions) become increasingly uncertain, and long-term analysis could suggest a false sense of precision. The conclusions presented in this Study are therefore based on analysis covering the period to 2023.

(CS at 13.) From Multiple Intervenors' perspective, the tremendous uncertainty relating to the costs and benefits of the proposed CES provides ample reasons why the CES should not be mandated at this time, at least beyond 2023. If the authors of the Cost Study did not feel comfortable even estimating the cost impacts of the CES after 2023, Multiple Intervenors questions how the Commission rationally can decide, in 2016, to mandate the adoption and the implementation of a program costing billions of dollars that, while scheduled to run through 2030, may bind captive customers to long-term subsidy contracts through 2049.

⁶ For Tier 1, pertaining to new renewable generation facilities, the Cost Study stops at 2023 but, in recognition of the proposal to utilize 20-year contracts, includes certain costs through 2042. For Tiers 2 and 3, however, pertaining to existing renewable and nuclear generation facilities, the Cost Study excludes all costs subsequent to 2023. (CS at 19.)

When tasked with calculating the projected costs and benefits of the proposed CES, Staff and its collaborators stopped at 2023 due to significant uncertainties. The Commission should do likewise. It should recognize that given the absence of reliable information and cost projections, it would be imprudent and/or arbitrary and capricious to mandate requirements in 2016 that essentially would force customers to pay potentially-exorbitant subsidies through 2049, let alone 2030.

2. The Cost Study Focuses on Costs Commencing in 2020, Thereby Disregarding Most Costs Expected to Be Incurred Prior to That Time

One primary purpose of the CES is to achieve the 50 by 30 goal. Significantly, however, the Cost Study focused on the costs to procure new renewable resources starting in 2020, not 2017 when the proposed mandates are scheduled to become effective. (CS at 25.) Rather, the Cost Study assumed that the subsidized procurement of large-scale or main tier renewable resources and behind-the-meter (“BTM”) solar installations under NY-Sun prior to 2020 should not be treated as part of the CES for purposes of estimating costs. (*Id.*) That assumption, however, is questionable, at best.

There should be no doubt that new large-scale and smaller BTM renewable resources are being counted toward the proposed CES targets. In fact, Staff states in the White Paper that: “Staff assumes that the incremental renewable target will be achieved through obtaining energy from new, large scale renewable, as well as BTM resources.” (WP, Appendix B at 4.) Staff also proposes that the CES mandates become effective in 2017, with targets that increase annually. (WP at 8, 45.) If those targets are not achieved, LSEs – or, in reality, their customers – would be forced to make alternative compliance payments. (See WP at 14-15.) Thus, there can be little doubt that subsidies paid to new large-scale and BTM renewable resources prior to 2020

will be counted towards – and are part and parcel of – the proposed CES. Under such circumstances, the costs associated therewith should have been included in the Cost Study. Moreover, such costs are material, and are estimated to have a 2015 net present value of \$989.3 million. (CS at 25.)⁷

In projecting the costs of the proposed CES, it appears that the Cost Study not only stopped at 2023 due to uncertainties, it did not even start counting costs until 2020. Thus, while the CES is proposed to become effective in 2017 and run through 2030 – a period of 14 years (not counting PPA and other payments that potentially extend well beyond 2030) – the Cost Study relied inexplicably on only a four-year period (*i.e.*, 2020-2023) to measure costs. To make matters worse, it also appears that the Cost Study is counting pre-2020 carbon reductions as purported benefits of the proposed CES. (*See* CS at 17.) If that is the case, then the flaws inherent in the Cost Study are even more troubling. Quite simply, if the Cost Study is going to attribute carbon reductions occurring in the 2017-2019 period as benefits of the proposed CES, then, at a minimum, all of the costs associated with achieving such carbon reductions (*e.g.*, subsidy payments for large-scale and BTM renewable generation facilities) similarly should be attributed as costs of the proposed CES.

⁷ Multiple Intervenors also notes that, on a unitized basis, the subsidizing of small, BTM solar projects is much more expensive for customers than subsidizing large-scale renewable generation projects. Additionally, it is Multiple Intervenors' understanding that the projected costs of the NY-Sun program referenced (but not counted) in the Cost Study do not account for any of the cross-subsidies between customers inherent in various net metering applications.

3. The Cost Study Excludes Substantial Transmission-Related Costs That Would Be Incurred, in Whole or Material Part, Due to the Proposed CES

The Cost Study relies on a massive build-out of land-based wind generation facilities. (*See, e.g.*, CS at 37.) It is highly unlikely that such facilities would be located in close proximity to large load centers. Rather, such facilities – which collectively would require enormous acreage – most likely would be sited in locations far from large load centers and require significant transmission investment to deliver energy where needed. Indeed, in attempting to justify potential (and expensive) transmission projects (*e.g.*, the Energy Highway, public policy transmission investment in the Western region of the State), proponents have relied upon the perceived need for additional transmission infrastructure to allow for the siting of new renewable generation facilities.⁸ Significantly, however, the Cost Study purposefully excludes consideration of substantial transmission-related costs, and also appears to understate the transmission-related costs that it does attempt to include in its analysis.

Some transmission-related costs typically are assumed by interconnecting generators. To the extent those costs are borne by renewable generation facilities subsidized under the CES, such costs almost certainly would be passed-on to captive customers through higher required subsidies and/or energy bids. Those costs are addressed later below. Significantly, however, the large build-out of new generation facilities also would require certain transmission

⁸ *See, e.g.*, the NY Energy Highway website, explaining that: “The Energy Highway is a far-reaching initiative to modernize New York’s statewide energy system, including electric transmission and generation construction, development of renewable resources ...”; available at <http://www.nyenergyhighway.com/>. *See also New York Energy Highway Update* (dated April 2013) at 8 (asserting that: “Easing the current transmission constraints will ... provide significant economic and environmental benefits by permitting excess power from upstate sources, including renewable energy facilities, to reach the downstate areas of greatest need”).

upgrades that, in some form, would be socialized throughout the State. Such costs were excluded from the Cost Study.

The Cost Study states, in pertinent part, that:

Socialized grid integration and upgrade costs are not examined in this Study. [The Department of Public Service] has initiated a **State Resource Planning** (SRP) study to examine the effects of various public policies on the State's bulk power system. The SRP will examine potential reliability impacts to the State's bulk electric system given the addition of variable generation sources contemplated by the CES. It will identify the reliability boundaries of the bulk power system and the upgrades that would be required to maintain a reliable system.

(CS at 251; emphasis in original.) The Cost Study also states that while it “includes some assessment of grid-related costs to the extent they are borne by project developers ... wider grid integration costs or benefits of renewables are not quantified in this Study.” (*Id.*) These statements are somewhat astounding in at least two respects.

First, to the extent Staff is conducting a study on (i) the reliability impacts of intermittent renewable generation related to the CES, and (ii) the upgrades to the bulk power system that would be needed due in whole or material part to the CES, the publication and analysis of such study surely should precede any Commission ruling on the proposed CES. Indeed, it seems startlingly premature to consider adopting the proposed CES – or some variant thereof – without awaiting the results of an ongoing study that purportedly will identify the reliability impacts, and extent of bulk power system upgrades necessitated by, the proposed CES.

Second, to the extent the authors of the Cost Study were uncertain as to the magnitude of the socialized grid integration and upgrade costs that would be necessitated in whole or material part by the proposed CES, they either should have attempted to develop a meaningful estimate of such costs and/or awaited the results of the Staff study and incorporated same into the

Cost Study prior to its release. As things stand now, however, the Cost Study essentially ignores entirely a significant cost related to the proposed CES. Contrary to the Cost Study, the Commission should not assume that socialized grid integration and upgrade costs would be zero. Indeed, such costs easily could total well into the billions of dollars, thereby offsetting and eliminating all of the purported benefits associated with the proposed CES.

For generator lead costs, the figures contained in the Cost Study appear understated. According to the Cost Study, if a renewable generation project (*e.g.*, a wind farm) of between 40-150 MW were developed, and required a 10-mile transmission line at 115 kV voltage that would interconnect to an existing substation, the cost of such a line – for purposes of the Cost Study – would be only \$16.1 million.⁹ In Multiple Intervenors’ experience, interconnection costs tend to be considerably higher than those included in the Cost Study.

For network upgrades, the Cost Study uses as a proxy to estimate interconnection costs “a \$1.2 B transmission upgrade project that was estimated to bring an additional 1000 MW capacity to the UPNY/SENY interface.” (CS at 256.) The justification for using such a substantial transmission proposal as a proxy here – and Multiple Intervenors notes that the costs of the proxy represent a pre-construction estimate, not a post-construction total cost – is unclear. Furthermore, Multiple Intervenors suspects strongly that the cost of a proxy 1,000 MW transmission line will reflect certain economies of scale not likely to be found in each and every network upgrade required to enable new renewable generation projects to be developed under the CES. Assuming that is the case, the Cost Study may understate materially the cost of such network upgrades by its selective reliance on a non-representative proxy transmission project.

⁹ See CS at 254 (using an estimated \$14.3 million in transmission line costs and an estimated \$1.8 million in costs interconnecting to an existing substation).

For the foregoing reasons, the Cost Study (i) excludes entirely socialized grid integration and upgrade costs and (ii) likely understates materially generator lead and network upgrade costs. Inasmuch as transmission-related costs necessitated by the proposed CES probably would total well into the billions of dollars, these flaws are substantial and impact the accuracy and the credibility of the Cost Study.

4. The Cost Study Relies on an Overly-Aggressive Forecast of Wholesale Energy and Capacity Price Increases

The Cost Study relies on very-bullish projections of future wholesale energy and capacity prices in New York. (See CS at 44, 46.) The projections assume that wholesale energy and capacity prices will rise in every NYISO load zone and in every year through 2049. (*Id.*) Such projections also anticipate that, *inter alia*: (a) energy prices in New York essentially will double between now and 2023; (b) capacity prices in the Rest-of-State zone essentially will double between 2015 and approximately 2017; (c) capacity prices in the Long Island zone essentially will double between 2015 and approximately 2019; and (d) capacity prices in the New York City zone essentially will double between 2015 and approximately 2021. (*Id.*) Such projections do not account adequately for, *inter alia*, recent, sharp declines in energy prices, projections of persistently-low natural gas prices in the region, and stagnant electric demand in the State related to a very-challenging economy. By utilizing an aggressively-high projection of future wholesale energy and capacity prices, the Cost Study underestimates the costs of the CES because the level of subsidies required for new and existing renewable generation facilities and existing nuclear generation facilities declines as wholesale energy and capacity prices rise (and *vice versa*).¹⁰

¹⁰ Staff's projections in the White Paper of declining electric load from 2016 through 2030 also casts the huge energy and capacity price increases assumed in the Cost Study in a questionable light. (See WP, Appendix B at 2.) The Commission similarly forecasted much-higher electric

The Cost Study relies on certain assumptions contained in the NYISO's 2015 Congestion Assessment and Resource Integration Study ("CARIS") Report, issued on November 17, 2015, as adjusted by the Study's authors. (CS at 44.) Importantly, however, the CARIS Report arguably already is somewhat stale, and recent energy prices are substantially lower than what the Cost Study is forecasting. For instance, Statewide average energy prices over the November 2015 through March 2016 period were as follows:

Month	Locational-Based Marginal Prices¹¹
November 2015	\$24.83 per MWh
December 2015	\$20.90 per MWh
January 2016	\$34.29 per MWh
February 2016	\$28.71 per MWh
March 2016	\$20.66 per MWh
April 2016	\$27.96 per MWh

While future energy prices are impossible to predict with certainty, it appears that the Cost Study relies on projections of future energy prices that are excessive. Indeed, current futures prices are considerably lower than the price projections utilized in the Cost Study. Additionally, no persuasive (or any) explanation has been proffered as to the sharp capacity price increases being projected in the Cost Study. Inasmuch as electric customers would be funding massive financial subsidies to new and existing renewable generation facilities, selected existing nuclear generation facilities and utility-administered energy efficiency programs, it is difficult to conceive why the

generation costs in the late 1980s and early-1990s than what proved to be the case, resulting in many billions of dollars in above-market costs being borne by customers the last time the State mandated PPAs as a vehicle for subsidizing environmentally-preferred forms of generation. Once again, as the Cost Study forecasts aggressively-high energy and capacity prices – perhaps to make the proposed CES appear less costly - history appears poised to repeat itself, at great potential economic harm to customers.

¹¹ NYISO CEO/COO Report, May 25, 2016 Management Committee Meeting at 5, available at http://www.nyiso.com/public/webdocs/markets_operations/committees/mc/meeting_materials/2016-05-25/Agenda%2003_NYISO%20CEO_COO%20Report.pdf.

Commission should rely on projections that assume capacity prices will be doubling (and more) in all or most capacity zones between 2015 and the 2017-2023 period.

By overstating likely future energy and capacity prices, the Cost Study understates the cost of financial subsidies proposed to be paid to owners of new and existing renewable generation facilities and selected existing nuclear generation facilities, thereby understating materially the costs of the proposed CES to electric customers.

5. The Cost Study Fails to Account for the Highly-Detrimental Impact That the Proposed CES Would Have on the State’s Installed Reserve Margin

By subsidizing and increasing the State’s reliance on intermittent renewable generation technologies, implementation of the proposed CES would have a highly-detrimental impact on the State’s Installed Reserve Margin (“IRM”). The Cost Study ignores completely the increased costs to customers associated with a higher IRM.

Every year, the New York State Reliability Council, LLC (“NYSRC”) establishes the Statewide IRM for the upcoming capability year (running from May 1 through April 30). Generally speaking, the IRM refers to the installed capacity above the projected State peak demand that must be procured to satisfy applicable reliability criteria. The NYSRC prepares a report annually summarizing its IRM analyses. The most recent version of this report – entitled, “Technical Study Report: New York Control Area Installed Capacity Requirement For the Period May 2016 through April 2017” (“IRM Report”) – was issued on December 4, 2015.¹²

¹² The IRM Report defines IRM as: “That capacity above firm system demand required to provide for equipment forced and scheduled outages and transmission capability limitations.” IRM Report, Appendices at 71.

The current IRM is 17.5%, which was adopted by the NYSRC based on analyses showing that, under base case assumptions, an appropriate IRM was 17.4%.¹³ Significantly, the amount of wind generation operating in New York currently has the effect of increasing the State's IRM by a material amount. The reason for this is that because wind generation is intermittent, and has relatively low availability, particularly during hot summer afternoons when New York traditionally experiences its peak demand, more conventional baseload generation is needed – and must be procured at customer expense – to back-up the intermittent wind generation. For instance, the IRM Report includes a “no wind” sensitivity to measure the impact of intermittent wind generation on the IRM. For the most recent year, the “no wind” sensitivity produced an IRM of only 13.8%.¹⁴ Thus, inclusion of the current wind generation in the State – 1,455 MW (nameplate)¹⁵ – increased the base case IRM calculation from 13.8% to 17.4%.

Pursuant to the proposed CES, New York would rely to a much-greater extent on intermittent wind generation facilities. Consequently, the CES is likely to lead to a much-higher IRM in the future (possibly well in excess of 20%), thereby imposing increased capacity obligations – and costs – on customers.¹⁶ Quite simply, the more the State relies on intermittent generation (renewable or otherwise), the more conventional baseload generation will be needed to ensure that all applicable reliability criteria are satisfied. Thus, there is an entire category of costs

¹³ See generally IRM Report at 2. The NYSRC typically relies on base case and sensitivity analyses to approve a specific IRM.

¹⁴ IRM Report at 24.

¹⁵ See IRM Report at 12.

¹⁶ A much-greater reliance on intermittent generation facilities (of any type) also is likely to lead to an increased need for certain ancillary services (*e.g.*, regulation), thereby imposing further incremental costs on electric customers. The Cost Study does not address the impact of the CES on statewide ancillary services costs.

associated with CES and its likely impacts on the State IRM that was not analyzed in the Cost Study. Including such impacts in a rigorous cost/benefit analysis likely would increase materially the projected costs of the proposed CES.

6. The Cost Study Relies on an Aggressively-Low Forecast of New York Electric Load, Thereby Understating the Costs of the Proposed CES

The Cost Study appears to utilize the load forecasts contained in the Staff White Paper. Those forecasts are aggressively-low and, Multiple Intervenors contends, likely understated. For instance, after accounting for energy efficiency, the Staff White Paper projects a 2015 State electric load of 160,632 GWh. (WP, Appendix B at 2.) That projection increases slightly in 2016 and then declines every year through 2030, with a projected 2030 electric load of 150,017 GWh, materially less than the 2015 load. (*Id.*) The projection in the Staff White Paper for 2026 – 152,312 GWh (*id.*) – is less than that contained in the NYISO Gold Book for that year (*i.e.*, 156,777 GWh).¹⁷

Importantly, to the extent New York experiences higher electric loads – and not the gradual decline in electricity consumption being forecasted in the Cost Study (an outcome not unforeseeable and arguably likely given the anticipated growth in electric vehicles, among other things) – the projected costs of the proposed CES may be substantially understated due solely to an inaccurate load forecast. In the Cost Study, Staff acknowledges that its cost projections are highly sensitive with respect to electric load: “The high load sensitivity shows significantly higher costs: lifetime gross program costs (NPV) double from less than half a billion dollars to over a billion over lifetime of deployment to 2023.” (CS at 73.) Thus, a higher-than-projected electric

¹⁷ NYISO, *2016 Load & Capacity Data (“Gold Book”)* (dated April 2016) at 11. The Gold Book only includes load projections through 2026. *Id.*

load could cause the costs of the proposed CES to double, or go even higher, compared to what is projected in the Cost Study. Given this extreme sensitivity to load variations, Multiple Intervenors questions the wisdom of relying on an aggressively-low load forecast to evaluate the proposed CES.¹⁸

In order to derive a load forecast that declines materially from 2015 to 2030, Staff is relying on huge increases in subsidized energy efficiency. For instance, the Staff White Paper forecasts the following with respect to load reductions due to energy efficiency programs:

Year	Cumulative Average Range of Energy Efficiency (GWh)	Year	Cumulative Average Range of Energy Efficiency (GWh)
2015	2,227	2023	20,040
2016	4,453	2024	22,267
2017	6,680	2025	24,493
2018	8,907	2026	26,720
2019	11,133	2027	28,947
2020	13,360	2028	31,173
2021	15,587	2029	33,400
2022	17,813	2030	35,627

(WP, Appendix B at 2.) Those are very-high projected load reductions related to energy efficiency. Multiple Intervenors is concerned that by overstating the likely reductions related to energy efficiency, the Cost Study understates the State’s likely electric load during the term of the CES, thereby understating materially the costs of the proposed CES.¹⁹

¹⁸ Multiple Intervenors contends that the sensitivity analyses contained in the Cost Study are woefully inadequate because, *inter alia*, only one sensitivity is tested at a time. For instance, it does not appear that any sensitivity was calculated – or at least published – using higher-than-expected loads and lower-than-expected energy prices.

¹⁹ Additionally, to the extent subsidized energy efficiency is less costly than CES subsidies, the Cost Study may be relying on exorbitantly-high energy efficiency subsidies (much-higher than current levels) in order to make the proposed CES appear less costly.

7. The Cost Study Over-Relies on Land-Based Wind Generation Facilities, Thereby Understating the Subsidies Required to Achieve CES Goals

The Cost Study assumes that land-based wind will be responsible for most of the renewable generation developed under the CES, particularly in the near-term through 2023. Inasmuch as land-based wind currently is less uneconomic than other forms of renewable generation, an emphasis on land-based wind to meet a sizeable portion of CES requirements generally appears reasonable. The problem, however, is that the Cost Study assumes that an impossibly-large amount of land-based wind generation is developed in the next seven years and, in so doing, understates the likely cost impacts of the CES. When other forms of renewable generation are substituted for land-based wind, the projected costs of the CES increase, likely by a material amount.

Multiple Intervenors is highly skeptical that land-based wind generation will be developed at anything approaching the levels assumed in the Cost Study. Accordingly to the Cost Study, land-based wind generation projects developed in 2015 produced 55 gigawatt-hours for consumption in New York State. The Cost Study projects that figure will rise as follows:

Year	Cumulative Gigawatt-hours of Land-Based Wind Generation for In-State Consumption
2015	55
2016	127
2017	586
2018	880
2019	1,241
2020	2,531
2021	3,979
2022	5,519
2023	6,733

(CS at 37.) Thus, on a cumulative basis, the Cost Study is projecting that by 2023, land-based wind generation will be producing for consumption in New York over 122 times the amount of generation that was developed in 2015, notwithstanding the fact that the State has been subsidizing the development of land-based wind generation under the RPS for over a decade. Such projection appears absurd on its face, particularly in light of growing, community-based opposition to the siting of large wind generation projects.²⁰

Furthermore, the Cost Study is relying heavily on land-based wind generation for purposes of projecting the costs of the CES. Set forth below are the cumulative gigawatt-hours of the different renewable generation technologies that the Cost Study is projecting will be consumed in New York in 2023:

Renewable Generation Technology	Cumulative Gigawatt-hours of Generation for In-State Consumption in 2023
NY-Sun	3,594
Land-Based Wind	6,733
Utility-Scale Solar	151
Hydro	641
Bioenergy/Other	590
Offshore Wind	0
Imports	654

(CS at 37.) As detailed, *supra*, the Cost Study excludes NY-Sun costs from the projected costs of the CES. Thus, if the generation from NY-Sun similarly is excluded, the Cost Study is projecting 8,769 gigawatt-hours of cumulative renewable generation for in-State consumption in 2023, of which 6,733, or approximately 77 percent, would come from land-based wind generation.

If, however, it is not possible to site and develop that much land-based wind generation (as detailed, *supra*, over 122 times the amount in place in 2015), compliance with the

²⁰ Multiple Intervenors notes that the Cost Study includes purported carbon-related externality benefits associated with land-based wind generation but ignores all externality costs associated therewith (*e.g.*, impacts on birds, noise, property value reductions, visual impairments).

proposed CES would require greater reliance on other forms of renewable generation. This shifting of reliance from what currently is the least uneconomic form of renewable technology to technologies that are even more uneconomic would, by necessity, increase the cost of the CES, likely by a material amount.

8. The Cost Study Overstates the Likely Output of Land-Based Wind Generation Facilities

The Cost Study utilizes an over-inflated estimate of the average annual capacity factors for land-based wind generation facilities, one of the biggest contributors toward achievement of the proposed CES mandate.

In the Cost Study, Staff relies on power curves for a so-called “typical site” for land-based wind generation facilities and uses an average net capacity factor of 35%. (CS at 220.) Significantly, however, such capacity factor is much-higher than what has been experienced in New York to date.

Every year, the NYSRC prepares its IRM Report. In the most recent IRM Report, encompassing the period May 2016 through April 2017, the NYSRC utilized a 14% summer capacity ratio for New York wind generation facilities.²¹ On an annual basis, the IRM Report utilized an annual wind capacity factor on the “order of 25%” for wind generation “farms.”²² Importantly, these data points were provided to the NYSRC by the NYISO based on actual experience in New York. As such, an annual wind capacity factor of 25% based on actual data realized in the State appears much more reliable than the 35% estimate for a hypothetical “typical site,” as was used in the Cost Study.

²¹ IRM Report, Appendices at 19.

²² IRM Report, Appendices at 68.

When an appropriate annual capacity factor (*i.e.*, 25% as opposed to 35%) is utilized to project the output of land-based wind generation facilities, the costs of the CES will rise, likely by a material amount.

9. The Cost Study Excludes All Administrative and Transactional Costs

The Cost Study excludes certain administrative and transactional costs that, while perhaps difficult to quantify with accuracy at this time, are certain to be incurred and may be substantial.²³ The Cost Study states that: “The establishment and operation of the CES REC market will entail certain **administrative and transactional costs** for both government and market participants. These are not assessed in this Study.” (CS at 29; emphasis in original.)

Although excluded from the Cost Study for reasons unknown, administrative and transactional costs associated with implementing the CES likely will be substantial. The Commission and/or NYSERDA would need to establish and administer platforms to award, track, facilitate the trading of, and perhaps retire, renewable energy credits and zero-emission credits pursuant to the proposed CES. Regulators and interested parties would expend considerable resources on the calculation of potential subsidies to be paid to owners of existing renewable and nuclear generation facilities. Alternative compliance mechanisms (*e.g.*, payments, banking and borrowing) also will need to be established and administered. All load-serving entities subject to CES requirements would incur administrative and transactional costs associated with compliance.

²³ Multiple Intervenors contends that the various categories of costs excluded from the Cost Study due to uncertainties (*e.g.*, CES costs after 2023, certain transmission-related costs, all administrative and transactional costs) are no more difficult – and probably are easier – to quantify with accuracy than the so-called SCOC, which is included in the Cost Study and reflects numerous estimates, assumptions, computer-based modeling and calculations that have produced very volatile results in the recent past and likely will be the subject of numerous future adjustments up and/or down.

There are proposals for some entity to conduct centralized procurement of large-scale renewable resources, which also would require an investment in resources. Moreover, to the extent LSEs or other entities are required to enter into PPAs, the negotiation of such agreements likely would require substantial resources to implement.²⁴

Thus, while not anticipated to be as substantial as many of the other cost categories excluded from the Cost Study, administrative and transactional costs associated with implementing the proposed CES likely would be substantial and the failure to account for any such costs – whether incurred by the government and/or market participants – understates the costs of the CES to customers.

10. The Cost Study Assumes 1% Voluntary Market Penetration by Renewable Resources That Has Not Been Justified

The Cost Study appears to assume that 1% of the CES objectives would be satisfied through the voluntary procurement of renewable resources by loads. (See CS at 261.)²⁵ That assumption has not been justified and its inclusion has the effect of reducing artificially the costs of compliance to captive customers.

Initially, the Cost Study makes no effort whatsoever to justify the 1% assumption. Multiple Intervenors notes further that the Commission previously expected that a voluntary

²⁴ Multiple Intervenors anticipates that all utilities would seek to recover 100% of CES-related administrative and transactional costs from customers, and that unregulated load-serving entities would include such costs in their commodity prices, resulting in captive customers ultimately bearing all such costs.

²⁵ By voluntary procurement, Multiple Intervenors assumes that the authors of the Cost Study are referring to the procurement of renewable generation over and above CES requirements without the payment of Commission mandated subsidies.

market for renewable resources would satisfy a portion of the RPS targets.²⁶ That voluntary market never materialized, probably in large part because the Commission took no action to facilitate its development and customers never demonstrated any widespread willingness to pay above-market prices for renewable energy absent financial subsidies. Similarly, there is no reason to suggest that, on top of the enormous costs that would be incurred to satisfy the proposed CES objectives, customers would procure more renewable power than required on a voluntary basis. Indeed, if there was sufficient interest among customers in paying more for renewable energy, the enormous subsidies under consideration herein – possibly as high as \$40-\$50 per MWh – would hardly be necessary. Moreover, there currently are no proposals pending at the Commission aimed at achieving the assumed voluntary procurement of renewable resources. Inasmuch as the CES, as proposed, is a series of aggressive, mandatory requirements that would be imposed on LSEs to procure ever-increasing amounts of renewable resources, it is unreasonable to expect that all such requirements would be satisfied and, on top of that, additional, material renewable resources would be procured absent customer-funded subsidies.

Because the 1% voluntary assumption contained in the Cost Study appears to have no purpose or justification other than serving to reduce artificially the projected costs of compliance with the proposed CES, it should be eliminated.

B. The Cost Study Overstates Significantly the Purported Benefits of the Proposed CES

²⁶ See Case 03-E-0188, *Proceeding on Motion of the Commission Regarding Retail Renewable Portfolio Standard*, Order Regarding Retail Renewable Portfolio Standard (issued September 24, 2004) at 27 (speculating, inaccurately, that “in light of the expected increase in the supply of renewable resources and greater public awareness and opportunities for voluntary purchases, that voluntary programs will meet or perhaps exceed the overall 25 percent renewables target”).

In addition to understating significantly the costs of the proposed CES, the Cost Study is flawed because it also overstates significantly the purported benefits of the proposed CES. It does so in numerous different ways, many (but perhaps not all) of which are detailed below.

1. Only a Very Small Fraction of the Purported Benefits Would Be Realized by the Entities Bearing All of the Costs

All of the purported benefits of the proposed CES accounted for in the Cost Study relate to avoiding SCOC associated with certain forms of electric generation. (CS at 6.) Putting aside temporarily issues concerning the particular SCOC estimate utilized (addressed *infra*), it is important to recognize that there is a huge mismatch with respect to the funding sources of the proposed CES and the purported beneficiaries of same. Specifically, while New York electric customers would bear 100 percent of the enormous costs associated with implementing the CES, only a tiny fraction of the purported benefits would inure to the State. This mismatch is ignored entirely by the Cost Study.

There is no question that, pursuant to the proposed CES, all of the costs associated therewith – predominantly but not exclusively in the form of financial subsidies paid to existing and new renewable generation facilities and selected existing nuclear generation facilities – ultimately would be borne by New York electric customers. Significantly, however, the State’s electric customers would realize only a very-small fraction of the purported benefits. Those benefits relate solely to the avoidance of greenhouse gas emissions, as valued by the SCOC established by the United States Environmental Protection Agency (“EPA”). (CS at 16.) Notably, because greenhouse gases are well-mixed in the atmosphere, the benefits associated with reducing them are considered to be global in nature (unlike certain air pollutants, whose impacts largely are local). This means that the climate costs or benefits would be realized primarily outside of the

United States. Even if one were to assume that 10%-20% of the benefits are allocable to the United States, the share of those benefits allocable to and realized by New York customers – the ones footing 100% of the bill – probably is no more than 1%-2%, at most.

The Cost Study is flawed because, *inter alia*, it fails to recognize or acknowledge the mismatch between (i) the entities that would be forced to pay for the CES as proposed and (ii) the actual beneficiaries, which encompasses a far-greater universe. In so doing, the Cost Study massively overstates the purported benefits that are allocable or attributable to New York. Correcting this single flaw removes any doubt that, from a benefit/cost analysis, the CES is a highly-unfavorable proposal in terms of the State's economic interests.

2. It is Not Clear that the Proposed CES Would Result in Any Net Reductions in Greenhouse Gas Emissions

As proposed, it is questionable whether implementation of the CES would result in any net reductions in greenhouse gas emissions due to the manner in which the Regional Greenhouse Gas Initiative ("RGGI") currently is implemented. Pursuant to RGGI, the participating states in the Northeast have agreed to achieve reductions in greenhouse gas emissions over time by, *inter alia*, reducing the number of allowances that are available for purchase by emitting generators.

It is Multiple Intervenors' understanding that RGGI establishes regional emissions targets encompassing all of the participating states. Therefore, to the extent that New York voluntarily reduces emissions below its allotted or proportional share of the targets, more allowances then would be available for emitting resources located in the other RGGI states. In other words, allowances not used in New York essentially are reallocated amongst the other RGGI

states through the auctioning and trading of allowances.²⁷ Under this scenario, the proposed CES is unlikely to result in any reductions in greenhouse gas emissions.

Therefore, unless emission reductions in New York incremental to RGGI and related to the CES result in the permanent retirement of RGGI allowances – something that has not been proposed to date to Multiple Intervenors’ knowledge – then it appears that the CES, if implemented, likely would result in zero or an immaterial amount of net emission reductions because reductions achieved in New York simply would increase the number of available allowances in the other RGGI states. Were that to occur, there would be little to no net carbon reductions encompassing the RGGI states, and the benefits claimed in the Cost Study would be entirely or largely illusory. Unfortunately, it does not appear that the Cost Study adjusts its quantification of purported emission reductions (in the form of claimed benefits associated with the proposed CES) to account for the potential (or possibly inevitable) redistribution of allowances within the RGGI states.

3. The Cost Study Relies on an Extremely-High Value for the SCOC

There is considerable controversy over the EPA’s estimates of the SCOC.²⁸ The estimates were increased dramatically from prior levels only a few years ago. In this proceeding,

²⁷ Moreover, the value of RGGI allowances will decline because generation owners in New York – the largest participating state – presumably would be using less than their allotted allowances due to CES, thereby reducing the demand for, and thus the value and the cost of, allowances.

²⁸ See, e.g., Institute for Energy Research, *White House Revises Dubious ‘Social Cost of Carbon’* (June 6, 2013), available at <http://instituteforenergyresearch.org/analysis/white-house-revises-dubious-social-cost-of-carbon/>, Marlo Lewis, *Hearing Shines Light on Social Cost of Carbon Sophistry* (July 26, 2015), available at <http://www.globalwarming.org/2015/07/26/hearing-shines-light-on-social-cost-of-carbon-sophistry/>, Center for Strategic & International Studies, *What is the Social Cost of Carbon?* (November 7, 2013), available at <https://www.csis.org/analysis/what-social-cost-carbon>.

the Cost Study simply utilizes the EPA's estimates of the SCOC without any independent analysis of the issue. Depending upon how the Cost Study's calculations actually were performed – which is not transparent from the document itself – there may be some double-counting for carbon reductions given that New York electric customers already pay higher energy prices than they would otherwise due to the State's participation in RGGI, which was intended to be a multi-state effort at reducing greenhouse gas emissions.

Significantly, the Cost Study also is not clear as to what discount factor rate is being applied to the calculation of the SCOC. This omission is particularly troubling because SCOC estimates are highly dependent upon, *inter alia*, the discount rate employed. For instance, using EPA's estimates, in 2015 the SCOC was \$56 assuming a 2.5% discount rate and \$11 using a 5% discount rate.²⁹ While the Cost Study employs a 5.5% discount rate for certain things (*see* CS at 18), it is apparent that a lower discount rate was used for the SCOC, thereby increasing the value of SCOC and the benefits attributed to the proposed CES. It also appears that even-higher discount rates were applied to certain scenarios involving the likely costs of the proposed CES, thereby minimizing the present value of such costs.³⁰ Indeed, using similarly-high discount rates for the

²⁹ EPA Fact Sheet, *Social Cost of Carbon* (December 2015) at 3, available at <https://www3.epa.gov/climatechange/Downloads/EPAactivities/social-cost-carbon.pdf>.

³⁰ The apparent use of multiple discount rates in the Cost Study raises concerns of potential bias that should be examined carefully by the Commission. If, as it appears, the Cost Study used high discount rates for calculating the costs of complying with the proposed CES (thereby minimizing their present value) and low discount rates for calculating the purported benefits of the proposed CES (thereby maximizing their present value), the Cost Study should be re-run using consistent discount rates. Multiple Intervenors finds it remarkable that the Cost Study is not transparent on the discount rates applied to the various estimates of costs and benefits. At a minimum, the Cost Study requires clarification as to all of the discount rates utilized therein and the rationale for such decisions.

SCOC may eliminate the net benefits attributed to the proposed CES, even without remedying all of the other flaws in the Cost Study identified herein.

CONCLUSION

For all the foregoing reasons, the Cost Study is fatally flawed and should not be relied upon in the evaluation of the proposed CES. As demonstrated herein, the Cost Study understates significantly the costs of the CES while also overstating significantly its purported benefits. Multiple Intervenors calls upon the Commission to direct the preparation of a new study that corrects the flaws identified herein and which is conducted in a far more transparent manner, with an opportunity for public input and comment on the methodologies and assumptions to be utilized, rather than presenting interested parties with a *fait accompli* that appears driven by a desire to understate the costs – and overstate the benefits – of the proposed CES. Additionally, all data, assumptions, spreadsheets, work papers, *etc.*, used in the creation of the Cost Study should be released for public review.

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Respectfully submitted,

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