November 30, 2017

VIA ELECTRONIC FILING

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

Re: 17-01821 In the Matter of Carbon Pricing in New York Wholesale Markets
NYISO/DPS Integrating Public Policy Task Force

Attached for filing with the Public Service Commission and the New York Independent System Operator are comments of the Natural Resources Defense Council, Acadia Center, Alliance for Clean Energy New York, American Wind Energy Association, Environmental Advocates of New York, and Pace Energy & Climate Center on the development of a proposal to price carbon emissions in New York's wholesale electricity markets.

Please contact me if you have any questions.

Respectfully submitted,

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COMMENTS OF THE NATURAL RESOURCES DEFENSE COUNCIL, ACADIA CENTER, ALLIANCE FOR CLEAN ENERGY NEW YORK, AMERICAN WIND ENERGY ASSOCIATION, ENVIRONMENTAL ADVOCATES OF NEW YORK, AND PACE ENERGY & CLIMATE CENTER ON THE DEVELOPMENT OF A PROPOSAL TO PRICE CARBON DIOXIDE IN NEW YORK'S WHOLESALE ELECTRICITY MARKETS

Thank you for the opportunity to provide input on a method to price carbon emissions[1] in a manner that will harmonize NYISO wholesale market rules with New York's state energy policies. We commend the New York Department of Public Service (DPS) and the New York Independent System Operator (NYISO) for their leadership in initiating discussions on this important topic, and for their commitment to work together to develop a framework to harmonize NYISO markets with state policies to help New York achieve its energy policy goals in the most efficient manner possible. We submit the following comments in response to DPS's Notice on Process, Soliciting Proposals and Comments, and Announcing Technical Conference, issued on October 19, 2017.

We are supportive of the general structure of the carbon pricing mechanism that is outlined by the August 10th Brattle Report, insofar as it calls for adding the cost of carbon to resources' offers in the NYISO energy market, dispatching resources according to the combined cost of the original energy market offer and the cost of carbon, and compensating resources only for the portion of their adjusted offers that does not include carbon costs. Accordingly, we do not propose any alternative mechanism in these comments.

[1] For simplicity's sake, we refer to a "carbon adder" to price carbon emissions throughout these comments. Nevertheless, we are supportive of a structure that more broadly addresses greenhouse gas emissions. Carbon equivalents can be calculated for emissions of other greenhouse gases to provide for a single unified pricing mechanism.

However, within the basic framework outlined above, there are nevertheless many possible paths to implementing such a carbon adder. Several assumptions of the Brattle Report warrant further study, and should not be taken as fixed under the proposed Brattle structure. Other fundamental areas, such as the roles of NYISO and NY PSC, were not addressed in depth by the Brattle Report. Areas that may vary from the base assumptions used in the Brattle Report include, among other things:

- The price of carbon in each given year and the process by which it is set
- Rules for revenue allocation and reinvestment
- Leakage provisions
- PSC, NYISO, and other policy adjustments, both to account for the carbon adder and to render it more effective

Our November 10 comments on the carbon adder discuss these and other potential areas for investigation. Thus, while we support the basic framework of dispatching energy market resources according to the combined cost of energy offers and the cost of carbon emitted by their operation, that support should not be taken as a blanket endorsement of the assumptions used in the Brattle Report. In these comments, we give feedback on a few specific areas of the Brattle Report and expand upon our Nov. 10 comments in discussing key topics where further quantitative analysis would be helpful. In particular, we discuss a mechanism by which REC contracts could be structured to maximize the benefits of a carbon adder and continue to allow for the development of new renewable energy generating projects, underscore the importance of preserving state authority over revenue allocation and reinvestment, and highlight information that would help with the design of a mechanism to prevent leakage.

A. REC contract provisions to maximize carbon adder benefits

Analysis should be conducted to better understand and predict how the carbon adder could affect bids from renewable energy developers into NYSERDA REC solicitation, as well as to support the development of contracting provisions within NYSERDA REC contracts to maximize the benefits of a carbon adder and reduce costs for customers, while still ensuring that New York's Renewable Energy Standard (RES) mandates are achieved.

While many of Brattle's assumptions regarding the effects of a carbon adder were quite conservative, one stood out as both optimistic and highly dependent on an accompanying state policy framework to maximize the carbon adder's benefits: Brattle assumed "that each dollar of expected increase in wholesale energy prices would reduce REC prices for new resources by a dollar."[2] But as Brattle recognized, "[i]n reality, the actual offset in REC prices resulting from a carbon charge could be somewhat lower due to differences in risk."[3] We suggest that the actual offset in REC prices resulting from a carbon charge should be further analyzed.

Investors will view the future carbon price as a "regulatory risk," because the ongoing price of carbon out into the future will likely be determined by governmental regulatory authorities. Given the currently untested nature of the carbon adder, they will naturally factor in the possibility that the PSC could reverse its decision regarding the carbon price in the future, or that action by a future governor or legislature could modify the price. Discounting carbon revenues to account for regulatory risk could cause REC bids to be higher than necessary, preventing the savings in REC contracts projected by Brattle from materializing unless additional measures are taken to insulate renewables developers from this risk. Specifically, New York's REC procurement program needs to provide renewable developers a mechanism that protects the

[2] *Id.* at 28.
[3] *Id.*

developers from the risk associated with the carbon price. Depending on the specific procurement approach use, procurement of renewables by the New York Power Authority (NYPA) or the Long Island Power Authority (LIPA) may also need to be modified to account for this regulatory risk. Such a mechanism could significantly reduce or eliminate entirely such risk. Below, for discussion purposes only, we sketch out one possible path by which NYSERDA could supplement its existing REC procurement process to implement such a mechanism, highlighting analysis that would need to be done to support such a regulatory reform. We present this potential mechanism so as to identify analysis that would need to be conducted to support such a proposal, and as a strawman for reaction from other stakeholders; this is not a definitive position on how such a mechanism should be designed.

NYSERDA could supplement each REC Contract awarded with a Carbon Price Risk Protection Contract. The Risk Protection Contract would provide for "carbon price reconciliation payments" to be made to REC producers during years in which the actual carbon price falls short of a pre-forecasted carbon price, and for payments to be made from REC producers in years in which the actual carbon price exceeds the forecasted carbon price.

A long-term forecast of carbon prices would be needed to provide a benchmark price that acts as the foundation of the carbon price payment calculations. Such a forecast would need to be developed in advance of each of NYSERDA's solicitations so as to be known to renewable developers in advance of submitting their bids in the REC contract solicitations. The easiest way to generate such a forecast would be to do so when setting the carbon price.

The carbon price reconciliation payments should be based on the difference between what revenues for the renewable energy generator would have been had the carbon price not changed unexpectedly, meaning that they need to reflect not just the difference between the

actual carbon prices and the forecasted carbon prices, but also the carbon emission rate per MWh that is imbedded in the market price of energy received by each non-emitting generator. For example, if the actual carbon price falls short of the forecasted carbon price by $10 per ton, the carbon price reconciliation payment to a downstate generator may be different from the payment to an upstate generator. If the downstate price is being set by a gas-fired unit whose emissions rate is ½ ton of carbon per MWh, the carbon price reconciliation payment is $5 per MWh ($10 x ½). If the upstate price is set by an equal split between a gas-fired generator whose emission rate is ½ ton per MWh and a hydro plant with a zero emission rate, the upstate emission rate would be ¼ ton per MWh, yielding a carbon price reconciliation payment of $2.50 per MWh ($10 x ¼). Note, the relevant emission rates are those of the generation units that are on the margin setting the market price at each location.

If structured in this manner, the Carbon Price Risk Protection Contracts would protect developers from uncertain future carbon prices, but *not* from the uncertain future level of carbon intensity at the generator's location. This protection against regulatory risk but not from market development risk would be efficient for a number of reasons. First, by using actual carbon intensity, renewable generators would be paid only for the actual carbon emissions they avoid. Second, the carbon intensity relevant for any given generator's market price will be affected by many factors, including the location decision of the generator itself. It is best to have the generation owner retain exposure to the actual carbon intensity so that the generator can, among other things, initially choose its location carefully, and, later on, advocate for transmission or other infrastructure improvements to enable its generation to displace more carbon-emitting generation elsewhere in the system.

To structure such contracts, the mechanism would need to be informed by estimates of carbon intensity. If the NYISO can produce an hourly measure of the actual carbon intensity incorporated in its nodal market prices of energy, that should be sufficient for this purpose. If the NYISO cannot do that, then other approaches should be explored. Thus, implementing a carbon risk protection mechanism would be easier if the NYISO's data on hourly energy prices displayed the data on the emissions of generators that are the marginal emitters by zone, or, better, by node. At the last Integrating Public Policy Task Force meeting, this issue was raised and there was an inquiry to market participants whether they would find it useful for the NYISO to develop the ability to post hourly prices that separately showed the carbon price effect on prices, just as today's posted hourly prices show the price effect of losses and congestion separately. This would be a valuable service that could help facilitate and implement a carbon adder program, and we support this being an element of the carbon adder program.

We stress, however, that if such data cannot be developed, other methods may be used. The carbon price risk protection mechanism does not need to be perfect; rather, to be effective, it needs only to adjust for most of the difference between actual carbon prices and forecasted carbon prices. Doing so would be a significant, and important, benefit to developers and customers that will allow developers to efficiently bid into NYSERDA renewable energy solicitations under the Renewable Energy Standard (RES).

The mechanism would also need a source of revenues to provide for such payments in the event that they become necessary. One potential counterparty for such payments would be NYSERDA. Were NYSERDA to be the counterparty for such payments, that would raise the question of how it could guarantee such payments would be made. One approach, for example, could be to provide for a variable System Benefit Charge in the event that such payments

become necessary, that would automatically rise and falls to provide NYSERDA the money it needs. Because such an SBC would be necessary only in the event of a regulatory change to the carbon price, the PSC could guarantee that it would not need to be drawn upon by simply keeping the carbon price as originally provided for and forecasted. Another option would be to provide for the allocation of some portion of the revenues from the carbon adder program to NYSERDA to cover their costs should any payments under this mechanism become necessary.

Designing a mechanism to guarantee the payment of Carbon Price Risk Protection Contracts would likely benefit significantly from analysis regarding the potential costs of such contracts. Accordingly, NYISO and the PSC should investigate how revenues would change for generators at each location were the carbon price adjusted.

As mentioned in previous comments, we support the proposed carbon adder approach as a supplement to the Renewable Energy Standard, and not as a replacement for it. It is on this foundation that we note that the structure of the carbon adder must be designed to facilitate the success of the renewable energy standard and NYSERDA's, NYPA's, and LIPA's procurement of renewable energy. We strongly suggest that the joint DPS/NYISO Task Force examine interactions between the carbon adder and the RES, such as the regulatory risk of the carbon price and how it could impact bidding behavior of renewable energy generators in the State's long-term procurement efforts. The NYISO/DPS task force should examine ways for a carbon adder to work more efficiently together with the RES. A variety of options for enhancing efficiency should be explored beyond the carbon price risk protection contract idea discussed herein, which we offer for discussion purposes merely as one illustration of a mechanism to address this problem. We anticipate that there are also other mechanisms that should be explored.

B. Revenue allocation and reinvestment

1. High level structure for revenue allocation

The Brattle Report assumes a structure wherein the cost of carbon emissions is added to energy market offer prices and generators earn revenues based on their unadjusted offers. Under this structure, a 'carbon fund' would be created. We endorse a structure that creates such a fund, as opposed to settling energy market and/or carbon transactions in such a way that LSEs pay only for the aggregate price of the unadjusted offers that clear. Settling transactions in a manner that keeps carbon revenues separate is the only way to preserve the PSC's authority and essential policymaking role. As discussed further below, how to allocate carbon revenues is a critical policy question in every carbon pricing scheme, and there are significant potential benefits to allocation decisions beyond simply returning revenues to customers. Settling transactions such that LSEs pay only the aggregate price of unadjusted offers would take this important policy decision away from the state and replace it with a NYISO decision to return funds to LSE customers. But it is the PSC's role, not NYISO's, to set public policies.

Allowing the PSC control over the use of the carbon fund will help harmonize state policies with wholesale energy markets than if NYISO has primary responsibility over allocating funds. Two potential structures should be investigated and further vetted from a legal and substantive perspective: (1) the NYISO refunds amounts to LSEs with the PSC supervising the ultimate use of funds; (2) carbon revenues are segregated and the PSC decides both allocation of revenues and supervises disposition of the funds.

Brattle notes that a policy for allocating revenues among zones would need to be developed. One simple approach that should be investigated further is to allocate to each Transmission District. This would be analogous at a high level to the current policy for energy

purchases outlined in the NYISO accounting and billing manual at 3.2.2.1.[4] This approach may prove to offer equitable outcomes, because it would ensure that the areas with the highest carbon adders will get the largest refunds.

Another relevant design feature is whether revenues should be returned on a volumetric or non-volumetric basis. Brattle discusses how allocating volumetrically could discourage energy efficiency.[5] Exploring other types of allocation could align long term incentives with state goals to increase investment in clean energy and energy efficiency. For example, California's climate credit program helps offset potentially higher electricity rates for retail customers by providing bi-annual rebates. The Climate Credit program is non-volumetric, and as such, returns funds to help offset customer bill increases without muting the incentive to conserve energy. Each household within a utility's territory receives the same Climate Credit. Southern California Edison forecasted $262.052 million in residential Climate Credits in 2015 which resulted in a $29 semi-annual per-household credit.[6] A key variable that could be tested in further analysis of non-volumetric revenue allocation is the effect of different carbon prices on the cost effectiveness of investments in renewables and energy efficiency. At the same time, non-volumetric allocation approaches should be scrutinized to ensure that they do not discourage beneficial electrification.[7]

[4] *See* NYISO Accounting and Billing Manual (Dec. 2016) at 3-6, *available at* http://www.nyiso.com/public/webdocs/markets_operations/documents/Manuals_and_Guides/Manuals/Administrative/acctbillmnl.pdf
[5] *See* Brattle Report, at 23.
[6] *See* Decision authorizing 2015 forecast of greenhouse gas allowance revenue and reconciliation for return to customers (Feb. 2015), available at: http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M146/K885/146885556.docx
[7] Brattle Report, at 23.

The Brattle Report suggests that the PSC could mandate a non-volumetric rate structure "if it returns carbon charges through the electric distribution companies, but probably not if through LSEs."[8] But recent precedent dictates that the PSC could structure non-volumetric carbon revenue allocation for both EDCs *and* LSEs. In *Retail Energy Supply Association v. New York State Public Service Commission*,[9] the New York Appellate Division for the Third Department held that the Public Service Commission had the authority to require energy service companies (ESCOs) to "guarantee savings in comparison to what the customer would have paid as a full service utility customer or provide at least 30 percent renewable electricity."[10] As the court explained, "[a]mong the powers delegated to the [PSC] is the authority to establish the rates charged by a utility for gas and electric service. Indeed, it has been recognized that when it comes to setting rates for such service[,] the [PSC] has been granted the very broadest of powers, the Legislature mandating only that the rates fixed be just and reasonable."[11] Such authority is reasonably construed as extending to basic business practices regarding revenue allocations, just as it extends to the minimum requirements set forth in the PSC's Order Resetting Retail Energy Markets and Establishing Further Process. Thus, the PSC's authority over ESCOs is broad, and the PSC can regulate revenue allocation as a business practice required for ESCOs to operate, or as a component of their sales of electric service that must be just and reasonable.

Furthermore, NYISO, the PSC, and stakeholders should explore the potential for ESCOs to induce carbon savings through voluntary mechanisms to allocate revenues in a manner that encourages emissions reductions.

[8] Brattle Report, at 51 n. 86.
[9] 59 N.Y.S.3d 590 (N.Y. App. Div. 2017).
[10] *Id.* at 592.
[11] *Id.* at 594.

2. Revenue reinvestment case studies

The experience of other mechanisms to price carbon demonstrates that the use of carbon revenues is an important public policy decision, and reinvesting revenues could induce greater emissions reductions than would otherwise occur while creating economic savings for customers. Reinvesting revenues is an important state public policy decision that holds the potential to help New York achieve the goals set forth in the State Energy Plan, including achieving 50 percent renewable energy by 2030, 40 percent GHG emissions reductions by 2030, and achieving a 600 billion BTU increase in statewide energy efficiency.[12]

Additional modeling should be conducted to analyze how revenue reinvestment can affect savings for customers both within the electric sector and economy wide. Possible sensitivities could include analyzing the impact of the value of the carbon adder on emissions and the impact of different percentages of investment in energy efficiency and low-income energy assistance programs on customer bills.

The Analysis Group has conducted two detailed examinations of the Regional Greenhouse Gas Initiative (RGGI), which explain how funds were used in a variety of ways. Specifically, in New York State, during the first compliance period almost $328 million in RGGI revenues were allocated as follows: General fund/state government funding ($90,000,000), EE and other utility programs ($163,660,609); Renewable investment ($16,800,000); Education and Outreach and Job Training ($8,600); GHG Programs and Program Administration ($48,588,106). During the second compliance period, New York invested $383.4 million in revenues, and invested 59 percent of this in energy efficiency programs.[13] In New York alone, the net present

[12] New York State Energy Plan, New York State Energy Research and Development Authority (2014), at https://energyplan.ny.gov/
[13] RGGI Second Compliance Period Review, at 27.

value of reduced consumption and price impacts for electricity consumers was $138 million, including $54 million in savings from heating bills focused on reducing consumption of oil and gas.[14]

As explained in our prior comments, Analysis Group found that through these uses of carbon revenues, residential, commercial, and industrial customers were all able to save money. For the first compliance period, for example, Analysis Group estimated that over the study period, customer bills were lowered by an average of "$25 for residential consumers, $181 for commercial consumers, and $2,493 for industrial consumers."[15] During the first compliance period "RGGI produced $1.6 billion in net present value (NPV) economic value added to the ten-state region."[16] During the second compliance period, RGGI "led to 1.3 billion (net present value) of economic value to the nine-state region."[17] Analysis Group highlighted "a lowering of prices over time because the states invested a substantial amount of the allowance proceeds on energy efficiency programs that reduce electricity consumption."[18] They explained that "[h]ow allowance proceeds are used affects their economic impacts: use of auction proceeds to invest in energy efficiency produces the biggest bang per buck, in terms of net positive benefits to consumers and to the economy."[19]

In implementing its cap-and-trade program, California similarly decided to reinvest revenues from auction proceeds. Through 2015, California reinvested $912M of proceeds from its cap-and-trade program into programs to reduce greenhouse gases, such as by advancing

[14] RGGI Second Compliance Period Review, at 47.
[15] RGGI First Compliance Period Review, at 4.
[16] RGGI First Compliance Period Review, at 2.
[17] RGGI Second Compliance Period Review, at 5.
[18] RGGI First Compliance Period Review, at 3.
[19] RGGI Second Compliance Period Review, at 13.

energy efficiency or renewable energy.[20] 51 percent of these funds were invested in projects that benefited disadvantaged communities, including solar PV systems for 600 low-income single-family homes.[21] A report by the Center for Climate Strategies estimates that the proposed Climate and Community Reinvestment Act could generate a rebate of $160 per month for an average family of four and $277 per month for a low-income family of four, and $30 million per year in tax benefits for small businesses by 2032.[22]

The work group should develop a structure that preserves the authority of the state to make similar beneficial decisions regarding revenue reinvestment. The programs above demonstrate that reinvestment decisions can be made on a periodic basis, so long as the state's authority is preserved. Such decisions can be informed by analysis of similar programs applied in the New York context.

C. Leakage

Brattle rightly identifies the importance of adopting mechanisms to prevent emissions leakage as part of a carbon adder. As discussed in our prior comments, leakage may occur across a number of different axes (e.g. leakage to DER emissions, leakage to other sectors, etc.) and analysis should be conducted with regard to each potential source of leakage to ensure that policies are designed to prevent or minimize each significant source of leakage. With regard to preventing emissions leakage to and from neighboring regions, Brattle presents two approaches:

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[20] Annual Report to the Legislature on California Climate Investments Using Cap-and-Trade Auction Proceeds, at 5 (March 2016), available at https://arb.ca.gov/cc/capandtrade/auctionproceeds/cci_annual_report_2016_final.pdf.
[21] Union of Concerned Scientists, *Carbon Pricing 101* (2016), *available at* http://www.ucsusa.org/global-warming/reduce-emissions/cap-trade-carbon-tax#.
[22] The Center for Climate Strategies, *DC Carbon Fee-and-Rebate Policy: A Macroeconomic Analysis* (2017), available at http://www.carbonpricedc.org/wp-content/uploads/2017/08/Carbon-Fee-Macroeconomic-Analysis.pdf

(1) charging importers and crediting exporters the New York carbon charge applied to the marginal emission rate in the New York power market; and (2) charging importers based on the carbon content of the supplying resources and the difference in carbon prices between the two markets and crediting exporters based on the marginal emission rate in the destination market.[23]

To better understand the pros and cons of these approaches, and to investigate whether additional mechanisms may be available, NYISO should present information to stakeholders regarding how imports from other regions are scheduled and accounted for in NYISO's markets. Relevant information includes the degree to which NYISO has or would be able to gather data on the emissions profiles of individual generators located outside of the NYISO region.

D. Conclusion

In summary, we support further investigation of the basic high-level structure of a carbon adder explored by Brattle, and have offered a few observations regarding potential areas of further analysis. We are open to investigating other ideas proposed by stakeholders, and anticipate that other stakeholders will help identify additional variables of the approach modeled by Brattle that should be open to further investigation and analysis. We emphasize that these comments do not intend to capture all aspects of the carbon adder. Additional analyses will likely be necessary and appropriate, including the investigations recommended by the signing parties in prior comments to the task force. We look forward to working with the Department of Public Service, NYISO, and other stakeholders in exploring these issues further.

Respectfully submitted,

[23] *See* Brattle Report, at 23-26.

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