



Date: December 5, 2016

VIA ELECTRONIC MAIL

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

Re: Case 15-E-0751 – In the Matter of the Value of Distributed Energy Resources and Options Related to Establishing an Interim Methodology

Dear Secretary Burgess:

Environmental Defense Fund and the Institute for Policy Integrity at New York University School of Law¹ hereby submit for filing their joint initial comments in response to the Notice Soliciting Comments on Staff Report and Recommendations filed on October 28, 2016 in the captioned proceeding.

Respectfully submitted,

A handwritten signature in purple ink, appearing to read "E Stein", written over a light blue background.

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Cc: Active Parties

¹ No part of this document purports to present New York University School of Law's views, if any.

**STATE OF NEW YORK
PUBLIC SERVICE COMMISSION**

**Case 15-E-0751 – In the Matter of the Value of Distributed Energy Resources and Options
Related to Establishing an Interim Methodology**

**JOINT INITIAL COMMENTS OF ENVIRONMENTAL DEFENSE FUND
AND
THE INSTITUTE FOR POLICY INTEGRITY AT NEW YORK UNIVERSITY SCHOOL
OF LAW
ON THE STAFF REPORT AND RECOMMENDATIONS IN THE VALUE OF
DISTRIBUTED ENERGY RESOURCES PROCEEDING**

DATED: December 5, 2016

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I. Introduction

The Reforming the Energy Vision (“REV”) proceeding of the New York Public Service Commission (“Commission”) has been groundbreaking in many ways. It has brought an innovative approach to rethinking current utility business models. It has made exemplary strides in redesigning existing regulatory practices and realigning utility incentives to ensure that a successful transition to a clean energy economy can be achieved. And, the importance it put on distributed energy resources (“DERs”) as an integral component to providing value to the entire electricity system, especially to the distribution network, placed REV at the forefront of electricity policy making.

As part of this ongoing effort to understand and harness the value of DERs, the Commission issued the Notice Soliciting Comments and Proposals on an Interim Successor to Net Energy Metering and of a Preliminary Conference (“Notice Soliciting Comments”) in December 2015, inviting interested parties to submit proposals for full valuation methodologies that can be used for compensation in DER markets, as well as an interim methodology that can be used as a near-term transition tariff.¹ Interested parties were urged to collaborate in preparing such proposals, which were due in April.

That comment period was followed by a technical conference on May 10, 2016, and a procedural ruling on May 25, 2016, which adopted an informal and collaborative process consisting of meetings on notice to all active parties. The collaborative process was structured to promote the development of joint recommendations for Commission action, and culminated on October 27, 2016, in the filing of the Staff Report and Recommendations in the Value of Distributed Energy Resources Proceeding (the “Staff Report”).² On October 28, the Commission issued the Notice Soliciting Comments on Staff Report and Recommendations.³

Environmental Defense Fund (“EDF”) and Institute for Policy Integrity at New York University School of Law (“Policy Integrity”) filed joint comments (“April Comments”) in response to the Notice Soliciting Comments and Proposals on an Interim Successor to Net Energy Metering on April 18, 2016,⁴ and presented jointly at the technical conference on May 10. Both organizations

¹ Case 15-E-0751, *Proceeding in the Matter of the Value of Distributed Energy Resources*, Notice Soliciting Comments and Proposals on an Interim Successor to Net Energy Metering and of a Preliminary Conference (Dec. 23, 2015).

² Case 15-E-0751, *supra*, Staff Report and Recommendations in the Value of Distributed Energy Resources Proceeding (Oct. 27, 2016) [hereinafter Staff Report and Recommendations].

³ Case 15-E-0751, *supra*, Notice Soliciting Comments on Staff Report and Recommendations (Oct. 28, 2016).

⁴ Case 15-E-0751, *Proceeding in the Matter of the Value of Distributed Energy Resources*, Joint Comments of Environmental Defense Fund and the Institute for Policy Integrity at New York University School of Law in Response to the Notice Soliciting Comments and Proposals on an Interim Successor to Net Energy Metering and of a Preliminary Conference (April 18, 2016) [hereinafter, “April Comments”].

also attended and participated in the meetings that formed part of the collaborative process leading up to publication of the Staff Report.

At this juncture, we acknowledge Staff's immense effort to reflect all the issues that were raised during this process in the Staff Report and Recommendations, and to respect and balance the differing objectives of all stakeholders when making their recommendations. The Staff Report and Recommendations shows Staff's clear commitment to helping unlock the full value of DER to ensure that the energy future as envisioned by REV proceeding can be realized.

As we mentioned in April Comments and during our May 10 presentation, realizing the REV vision requires DERs to be compensated for the full value they contribute to the grid. This objective requires unbundled price signals that could value generation and transmission, distribution, ancillary services, as well as environmental benefits, separately, and that are granular with respect to time and location.⁵ Achieving this objective fully, however, requires new technological as well as methodological capabilities. Cognizant of these limitations, our April Comments outlined steps that can be taken to improve today's imprecise and crude valuation methodologies and provide better incentives for more efficient DER deployment by recognizing the time-variant energy value, the locational distribution system value, the capacity value, and the environmental value that DERs provide.⁶ We suggested a more refined construct, "LMP+D+E", where "LMP", "D", and "E" stand for the locational marginal price, the distribution system value and the environmental value respectively, which can serve as a foundation for more accurate and precise DER valuation as our methods improve.⁷

We are encouraged to see that many of the recommendations outlined in the Staff Report are consistent with the main principles we outlined in our April Comments in this proceeding. Specifically, we applaud Staff for:

- Highlighting the need for more "accurate and granular" price signals to ensure efficient market operations, and emphasizing the need for continued work towards this goal;
- Proposing a bottom-up value stack approach for the Phase One methodology that recognizes different value categories, and establishing this structure as a foundation for a more complete, precise, granular, and unbundled valuation for Phase Two methodology; and
- Further deconstructing the initially suggested "LMP+D" valuation structure to recognize that the environmental value, "E", should be valued separately.

⁵ *Id.* at 3

⁶ *See generally Id.*

⁷ *Id.* at 4.

Complementing the foregoing, we suggest that the Commission should:

- Lay out a clear roadmap to including the environmental values that are not currently reflected in the current methodology, such as air pollutants other than carbon and additional potential environmental value streams of energy storage, and;
- Ensure that the valuation of environmental attributes is consistent across all Commission orders and all technologies.

II. Comments

The remainder of these comments will follow the structural order of the Staff Report and Recommendations as requested in the Notice Soliciting Comments on Staff Report and Recommendations.

1.1.2 The Need for More Precise Valuation and Pricing

As we stated in our April Comments, providing incentives for economically efficient DER integration requires unbundled price signals that are based on cost causation and are granular with respect to both time and location.⁸ Therefore, we appreciate the emphasis that Staff puts on the long-term necessity for more precise and unbundled retail price signals,⁹ and how this more granular pricing is crucial for effective and efficient investment and utilization of DER.¹⁰

1.1.3 Determining the Value of Distributed Energy Resources and Developing Appropriate Compensation

We are encouraged to see that Staff plans to lead discussions with DER companies, the utilities, and the New York Independent System Operator (“NYISO”) to address important issues that arise due to NYISO market design. As Staff recognizes, NYISO currently allocates costs of capacity and charges for ancillary services to load-serving entities (“LSEs”) in a way that is not necessarily aligned with cost causation.¹¹ Such lack of accurate pricing of these services is a hindrance to efficient DER compensation, and thus to full integration of DER in electric markets. Such barriers to full integration of DER into the electric markets need to be removed in order to fully realize DERs’ potential to lower total electric system costs.

We also agree with Staff that the Phase One methodology should establish a valuation and compensation foundation that can evolve as new knowledge and capabilities evolve.

⁸ *Id.* at 19, 25.

⁹ Staff Report and Recommendations at 8.

¹⁰ Staff Report and Recommendations at 5.

¹¹ Staff Report at 10.

2.2.2 Energy Storage

Ensuring that energy storage is accurately valued is crucial to REV goals. Therefore, we applaud Staff’s recommendation that energy storage that is paired with any eligible technology be included in Phase One.

However, we want to highlight that using renewable energy credit (“REC”) prices to value the environmental attributes of such systems based on net exports is insufficient to estimate the full environmental value of currently eligible energy storage systems. Energy storage, even in the absence of a paired clean generator, can provide environmental value, after taking into account the round trip efficiency of storage (the ratio of its input energy to its output energy), by charging at times of lower marginal emissions and discharging at times of higher marginal emissions, effectively replacing dirty bulk system electricity generation with less dirty bulk system electricity generation.¹² But, the proposed methodology focuses only on net exports of energy storage that is with a paired clean generator and, therefore, cannot be used to accurately compensate energy storage systems for the environmental value they bring when they shift load from dirty to less dirty generation on the bulk system.

We want to emphasize the importance of making sure that the valuation methodology accurately compensates energy storage systems for their full contributions to the system, including for all the environmental value streams they bring. Furthermore, we support and strongly encourage Staff’s effort to develop a methodology to compensate energy storage *without* an eligible generator at or before Phase Two.

2.3.6 Monetary Crediting Based on Locational and Temporal Values

As suggested in our April Comments, monetary crediting is necessary to reflect the dynamic nature of the values created by DER. Therefore, we support Staff’s proposal to move from volumetric crediting to monetary crediting based on locational and temporal values. Such a move is an important prerequisite to making sure that DER are accurately compensated for the actual value they provide to the system, and thus, for efficient DER integration. It also provides the crucial price-based foundation on which the Phase Two methodology must rest in order to ensure economic efficiency.

2.4 Continuation of Projects in Service after the Date of the Order

In our April Comments, we indicated that given the lack of advanced metering and communications technologies in much of the state, continuing the net metering mechanism for

¹² Zivin, J. S. G., M.J. Kotchen, and E. T. Mansur (2014). “Spatial and temporal heterogeneity of marginal emissions: Implications for electric cars and other electricity-shifting policies”, *Journal of Economic Behavior & Organization*, 107: 248–268.

mass market customers would be a pragmatic approach. Further, we stated that continuing net metering would be a simple solution given that any potential negative consequence of net metering is expected to be minimal at low levels of penetration,¹³ and the current net energy metering policy in the state provides a compensation that is on an order approximately commensurate to its total value as shown by the Net Metering Study commissioned by NYSERDA.¹⁴ As full advanced metering infrastructure even in the Con Edison service territory will not be completed before 2022, and the timing of deployment of such capabilities in the rest of the state is still undetermined, we support Staff's suggestion to keep net energy metering ("NEM") for small onsite DER that goes into service before Jan 1, 2020.

In our April Comments, we further suggested that a speedy transition to a more accurate valuation would be necessary to prevent any potential negative consequences if DER penetration started to accelerate.¹⁵ Therefore, we also support the use of a MW trigger that would prompt new analysis and Commission consideration of appropriate action.

By contrast, as we said in our April Comments, for distributed generation that is not co-located with load, the transition to a more time- and location-granular approach and away from a traditional net metering approach should occur more quickly, for two reasons. First, remote systems inject energy into the grid at a location that is different from where the corresponding consumption occurs. Consequently, any locational benefit associated with these systems cannot be expected to offset any system needs created by the customer's usage of the electric grid, which undermines a key rationale for treating NEM as a reasonable first-order estimate of the value of DER that are co-located with load. Second, such distributed generation facilities will be likely to be relatively large, and thus worth the investment in modern telemetry necessary for a more granular compensation methodology from the outset. Therefore, Staff's proposal to make Community DG (CDG), and Remote Net Metering (RNM) subject to the Phase One methodology from the outset makes sense. Similarly, large scale onsite projects are also worth the investment in advanced metering and should therefore be put on the Phase One methodology because this will improve incentives to site and utilize large-scale DER when and where they provide the most value to the system, and transition market actors towards an even more granular Phase Two methodology.

2.5.2 Structural Design

EDF and Policy Integrity strongly support Staff's recommendation to use a bottom up value stack approach for the Phase One methodology. As we mentioned earlier, the valuation construct should ensure that all value categories provided by DER are reflected in price signals

¹³ April Comments at 8.

¹⁴ *Id.*

¹⁵ April Comments at 8.

experienced by customers. Therefore, we applaud the move towards the more deconstructed “LMP+D+E” approach, consistent with making the Phase One methodology a foundation for a more precise, granular and unbundled Phase Two methodology.

2.5.3 Energy Value

As we discussed in our April Comments, the energy value of DER is highly dynamic and time dependent. Energy injections that help avoid energy generation from the bulk system at peak times when the system is constrained are more valuable than energy injections at off-peak times. Using NYISO’s Locational Based Marginal Price (“LBMP”) would correctly signal the energy value of DERs, and provide deployment incentives for DERs that help avoid electricity generation when it is most expensive. Therefore, we support Staff’s suggestion of using LBMP as the energy value.

2.5.4 Installed Capacity Value

NYISO currently requires utilities to purchase capacity based on the MW usage on their system during the statewide peak hour of the previous year. Consistent with this approach, Staff accordingly proposes to credit dispatchable technologies and intermittent technologies paired with storage for their performance during the peak hour of the previous year. We agree that this approach is reasonable because it is consistent with NYISO’s current approach for allocating the cost of installed capacity to the various utilities.

Staff also notes that the same crediting approach applied to intermittent renewables would create uncertainty for financing projects consisting of intermittent technologies. Accordingly, Staff suggests two crediting alternatives for intermittent technologies. The first alternative is to give per-kWh compensation based on the capacity portion of the utility’s full service market supply charges and apply this credit to each kWh generated throughout the year. The second alternative is to first calculate a \$/kW/year amount that is based on the realized capacity statements in the prior 12 months, and then use this total amount to calculate a per kWh credit that would be paid to any kWh generation during the summer’s 460 peak hours in June, July, and August. The second alternative is better aligned with underlying system costs and would, as Staff points out, encourage project siting and design focused on generating during peak summer hours, and help avoid costly capacity investments in the future. Therefore, we encourage the Commission to adopt this second approach.

If Staff’s planned discussions with NYISO should result in an improved approach for ICAP cost allocation which aligns closer with cost causation, the crediting approach for ICAP under the Phase One methodology should be updated accordingly.

2.5.5 Environmental Value

Staff recommends that the environmental value of eligible behind-the-meter generation be at least equal to the Social Cost of Carbon (“SCC”) as calculated by the U.S. Environmental Protection Agency. Staff posits, however, that the SCC may not reflect the full value of the environmental attributes of the generation and states that this value may be more fully reflected in the price of Tier 1 RECs in New York’s market.¹⁶

We agree with Staff that the SCC should be the floor price for the “E” component for two reasons. First, the federal SCC estimates should be considered a lower bound for the true marginal external damage costs of carbon emissions.¹⁷ These estimates rely on the most established integrated assessment models developed by climate economists and updated to include the most current economic and scientific literature; however, they cannot include all relevant damages because monetary damage estimates for many climate impacts do not yet exist.¹⁸ Second, even if the SCC fully captured all damages associated with carbon, it still would not reflect the full value of the environmental attributes of DER, because as a definitional matter it would not reflect estimates of the avoided damage from pollutants other than carbon, such as SO₂ and NO_x.

As Staff acknowledges, the value of reduced SO₂ and NO_x emissions, to the extent that their damage costs are not already embedded in the LBMP through existing programs, was not included in the Staff’s Phase One proposal.¹⁹ Staff’s own preliminary calculations in Staff’s BCA White Paper show that the net monetized environmental externalities (dollars per MWh) for SO₂ and NO_x may potentially be larger than that for CO₂. For example, using a 3% discount rate, Staff calculated that the net monetized environmental externalities would be \$56/MWh for SO₂, \$5/MWh for NO_x, and \$24/MWh for CO₂ in 2017.²⁰ Ideally, these environmental attributes would be added to the environmental value stack.

Finally, we understand that the Tier 1 REC price may be a practical way of providing compensation for the environmental value of eligible generation, as well for values specific to other state energy policy goals, and we recognize that it may very well turn out to be higher than the SCC per kWh value that Staff calculates given the state’s ambitious Clean Energy Standard

¹⁶ Staff Report at 34.

¹⁷ R. L. Revesz et al., *Global Warming: Improve Economic Models of Climate Change*, 508 NATURE 173, 174 (2014).

¹⁸ See generally Peter Howard, Omitted Damages: What’s Missing from the Social Cost of Carbon, *Institute for Policy Integrity Report*, 1 (2014), available at <http://policyintegrity.org/publications/detail/omitted-damages-whats-missing-from-the-social-cost-of-carbon>.

¹⁹ Staff Report at 38.

²⁰ Case 14-M-0101, *Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision*, Staff White Paper on Benefit-Cost Analysis in the Reforming Energy Vision Proceeding Submitted by Staff of Department of Public Service (Jul. 1, 2015) at C-9.

goals. However, we want to highlight that depending on the actual market outcomes, the REC prices could be substantially different from the actual damage costs of carbon emissions. Moreover, using a REC price to distinguish between the “environmental value” of generation from emitting vs. non-emitting DERs will be unhelpful when a valuation mechanism needs to be developed for a full range of DER technologies, including those that are currently not eligible for NEM in Phase Two. Therefore, we encourage the Commission to adopt a methodological framework that can be used for all resources consistently.

2.5.6 Demand Reduction Value and Locational System Relief Value

As we suggested in April Comments, ensuring efficient DER deployment requires price signals to reflect the time- and location-variant value that DER brings to the system. Staff’s recommendations to introduce a demand reduction value and locational system relief value are consistent with this principle. Therefore, we support development of these values. However, we want to re-emphasize the importance of making the value of D and the associated credits as granular as possible with respect to both time and location, and that this should be done as soon as utilities have the required information and can reasonably be expected to develop the capability to value these contributions more precisely.

Staff suggests not providing a credit for Demand Reduction to projects that qualify for the market transition credit (“MTC”), i.e., to CDG projects. One concern with implicitly incorporating the D value of CDG project in the MTC in this way is that it does not provide sufficient incentives for locating and designing projects to provide high value to the distribution system. To address this issue, one approach would be to make part of the MTC conditional on project performance during some number of the highest usage hours in a particular distribution network or circuit. An alternative approach would be to make a higher Demand Reduction value part of the criteria for qualifying for higher value tranches of the MTC.

Staff further suggests that the utilities should offer a fee-based portfolio service for intermittent renewables to provide compensation stability and reduce risk. We support this suggestion but want to emphasize that fees charged for such a service would need regulatory oversight to ensure that they are just and reasonable.

2.7 Community Distributed Generation

Phase 1 of the CDG Program in New York was exclusively for projects that are located in the new CDG Opportunity Zones designated by the utilities or projects that include low-income residential customers, defined as customers participating in State or utility energy assistance

programs, as at least 20% of the project membership.²¹ This was done to expand access to renewable energy to low- and moderate-income (“LMI”) customers and also to recognize the specific challenges of enrolling the LMI customers in this program. While the LMI issue was not brought up during the collaborative discussion or mentioned in the Staff Report, we think that the participation of LMI customers in the CDG Program is important but also challenging given the market barriers for that segment. Additional incentives are appropriate for developers that pursue and enroll LMI customers as part of their CDG projects. One approach would be, for example, to make CDG projects that have a significant share of LMI subscribers (above a certain threshold) eligible to receive a greater MTC.

2.10 Market Transition Credit and Tranches

Throughout the Staff Report, Staff emphasizes the importance of the principle of gradualism to avoid sudden disruption of DER markets. Consistent with this principle, Staff proposes that Phase One tariff also includes a MTC that is stepped down for successive tranches of CDG projects.²² Staff thinks that MTC is appropriate given the fact that the initial value stack is incomplete in terms of total value provided by DERs because it does not fully reflect the distribution system values, avoided net pollution costs other than carbon, and some other harder-to-quantify non-energy benefits.²³

We agree that gradualism is important and an MTC is appropriate as the market transitions to a value stack compensation mechanism that is more precise. But, we want to note that if an MTC is also designed to capture some of the values currently un-monetized in the value stack, using the full value of the revenue impact of an MTC as a limiting mechanism may be inefficiently restrictive. For example, the distribution system value of DERs may help lower the revenue requirements for the distribution utility in the long run, reducing future capital investment and thus providing benefits to all ratepayers.

²¹ See NYSERDA. Community Distributed Generation Overview for Project Developers, available at <https://www.nysERDA.ny.gov/-/media/NYSun/files/Contractor-Resources/Community-Distributed-Generation-Project-Developers.pdf>.

²² Staff Report at 44.

²³ Staff Report at 38-39.

III. Conclusion

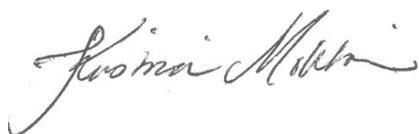
Environmental Defense Fund and Institute for Policy Integrity thank the Department of Public Service for offering parties the opportunity to provide these initial comments on the Staff Report.

Respectfully Submitted,

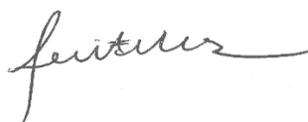
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