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September 2, 2016

Christopher Villarreal
Chair, Staff Subcommittee on Rate Design
National Association of Regulatory
Utility Commissioners
1101 Vermont Avenue, NW
Suite 200
Washington, D.C. 20005

Re: *Draft NARUC Manual on Distributed Energy Resources Compensation*

Dear Mr. Villarreal:

Attached please find the comments of Consolidated Edison Company of New York, Inc., and Orange and Rockland Utilities, Inc. in the above matter.

Please contact me if you have any questions or if I can be of any further assistance.

Sincerely,

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Enclosure

NATIONAL ASSOCIATION OF REGULATORY UTILITY COMMISSIONERS

STAFF SUBCOMMITTEE ON RATE DESIGN

COMMENTS OF CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. AND ORANGE AND ROCKLAND UTILITIES, INC. ON THE DRAFT NARUC MANUAL ON DISTRIBUTED ENERGY RESOURCES COMPENSATION

Consolidated Edison Corporation of New York, Inc. ("Con Edison") and Orange and Rockland Utilities, Inc. ("O&R") (collectively, the "Companies")[1] appreciate the opportunity to provide these comments on the National Association of Regulatory Utility Commissioners ("NARUC") Staff Subcommittee on Rate Design's draft *NARUC Manual on Distributed Energy Resources Compensation* ("Draft Manual"). The Companies commend NARUC for taking on this critical effort.

As the Draft Manual notes, Distributed Energy Resources ("DER") are becoming an increasingly important component of the nation's energy grid. In New York, for example, solar developers have submitted interconnection applications for more than 4,000 MW of distributed solar.[2] Much of this development appears to be the result of a community net metering policy that is being reconsidered by the New York Public Service Commission, and once the policies are clarified many of these projects may not ultimately come to fruition. However, it demonstrates the importance of developing rate policies that provide for DER development and integration in a way that ultimately benefits all customers.

The Companies agree with many of the principles outlined in the Draft Manual, including the emphasis that has been placed on aligning pricing and rate design with a customer's use of the system. As

[1] Together, Con Edison and O&R serve New York City and the surrounding metropolitan area in New York and a small portion of New Jersey, providing electricity service to 3.6 million customers and natural gas service to 1.2 million customers each day.

[2] New York Public Service Commission. Case 15-E-0751. *In the Matter of the Value of Distributed Energy Resources* ("NYPSC Value of DER Proceeding"). Reply Comments of the Joint Utilities on the Notice Soliciting Comments and Proposals on an Interim Successor to Net Energy Metering and of a Preliminary Conference (Filed June 10, 2016). p. 2.

discussed in more depth below, DER customers continue to rely on the energy grid for many services and should not be allowed to transfer their costs to other customers. These cost transfers will have real and lasting impacts on utility customers across the country if current rate Net Energy Metering policies are not reformed. In New York State, for example, residential non-DER customers in Orange & Rockland's service territory will see bill increases of more than 30 percent if all DER in the current interconnection queue are built and the existing Net Energy Metering policy is maintained.[3]

Con Edison and O&R appreciate NARUC Staff's well-timed effort to provide a reference tool for policy makers to address important issues of pricing and rate design that can adapt to changing technologies. The Companies respectfully offer these comments for NARUC Staff's consideration.

I. DER Customers Continue to Use and Benefit from the Energy Grid

As the Draft Manual notes, current DER compensation mechanisms, particularly Net Energy Metering, present significant challenges to promoting the sustainable growth of DER. The Draft Manual correctly highlights several complications associated with Net Energy Metering, including its inability to account for a difference in value between the cost of service and the value of the DER and its inability to differentiate locational and time-based value. Perhaps the most salient challenge presented by Net Energy Metering at the full retail rate for residential, small business, and small agricultural customers is that it allows DER customers to avoid paying for the grid services they use and benefit from every day. This creates a rate equity and cost-shifting concern for non-DER customers who pay a larger share of the costs.

The Draft Manual analogizes Net Energy Metering as akin to customers using the grid as a "bank" for excess energy generated during the daytime hours, which can then be withdrawn during the nighttime hours.[4] In reality, however, no such "banking" occurs. The Companies suggest that this analogy could be refined to better reflect operational realities by thinking of grid services as a shipping

[3] *Id.*
[4] Draft Manual, p. 42.

and logistics service, separate from the commodity (kWh) bought and sold. Just like online shopping, whether a customer is buying an item from on online merchant or a small business is shipping its product to a customer, both the customer and the seller rely on a shipping and delivery service to complete their transaction. Additionally, when a customer returns an item to the seller, she is not "unusing" the shipping and logistics service, she is actually using it twice. The same applies to a DER customer that exports excess power to the grid when it cannot be used on-site, effectively selling power to the utility at that time, then purchasing power when needed later in the day. Both transactions require "shipping" or grid services, the costs for which should be equitably recovered from those using the service.

Furthermore, electricity service is more complicated than simply "shipping" electrons. DER customers continue to rely on the grid for multiple services every day, including:

- **Balancing Output:** DER customers rely on the grid to balance both minute-to-minute (*i.e.*, cloud cover), daily (*i.e.*, day/night), and seasonal (*i.e.*, summer/winter) variations in the output of their DER.
- **Power Quality:** Voltage and frequency from a private solar system that is not interconnected to the grid will generally have harmonic distortion and significant variations in frequency. DER customers rely on the grid to maintain the power quality critical to avoiding harm to sensitive end-use devices and reducing the life of home and business appliances.
- **Startup Power:** The grid provides the instantaneous power needed by many appliances to start up. Certain DER may not be able to provide this current unless significantly oversized.
- **Export Capability:** The grid allows DER customers to export excess power for use by other customers. Without the grid, this energy would have to be wasted absent an energy storage device.

Net Energy Metering at the full retail rate for residential and small business customers inappropriately allows those customers to avoid paying for the grid services they consume.

II. Net Energy Metering Does Not Appropriately Value DER

As shown by numerous studies,[5] Net Energy Metering at the full retail rate is a poor proxy for the true value of a DER installation. While the commodity or energy value is relatively easy to calculate using wholesale Locational Marginal Prices ("LMP") published by the wholesale market operator in restructured states, much of the debate centers around how to value DER contribution to reducing the need for distribution system investment, as well as any externalities or social value it may create. This is a complex question. What is clear, however, is that a flat volumetric rate that values all DER at the same level regardless of location or time of output is not appropriate.

A. DER Location Matters When Assessing Value to the Distribution System

The value DER provides to the distribution system depends on many factors, and the value of each DER may be different. In a true economic marginal cost paradigm, the DER must actually be sited where there is value to the distribution system – in effect a need for investment that the DER can help to defer. These opportunities can be limited for the following reasons.

First, there must be a need for investment that can be deferred by the DER. Because growth in demand for electricity has slowed over the past several years, there may be few areas on the distribution system where incremental investment is needed. In addition, much of the funding embedded in distribution rates is used for maintenance and repair of existing equipment rather than expansion. DER simply cannot replace a wired connection or a failed distribution transformer that has knocked out power to a neighborhood block.

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[5] See, *e.g.*, EPRI, *The Integrated Grid: A Benefit-Cost Framework* (Feb. 2015), at 4-4, http://www.epri.com/abstracts/Pages/ProductAbstract.aspx?ProductId=000000003002004878; E3, *California Net Metering Ratepayer Impacts Evaluation* (Oct. 28, 2013), at 6, http://www.cpuc.ca.gov/General.aspx?id=8919.; E3, *Updated Nevada Net Energy Metering Impacts Evaluation* (Aug. 2016), at 16, http://pucweb1.state.nv.us/PDF/AxImages/DOCKETS_2015_THRU_PRESENT/2016-8/14179.pdf.

DER can be most valuable in areas of the distribution grid where growing load is approaching the system design limits. One example is Con Edison's efforts in its Brooklyn-Queens Demand Management program,[6] which will defer the need for $1.2 billion of transmission and distribution substation investment for about five years by relying on a mix of privately-owned distributed customer-sited resources to generate local energy, reduce electricity usage, and shift coincident demand for electricity to off-peak hours of the day. Alternatively, DER located in an area of the system that has significant "room" to grow provides less value – perhaps a savings in losses. Moreover, in some cases resources could generate more electricity than can be locally used, causing local reliability and power quality issues that can require expensive system upgrades to address.

B. DER Coincidence with Local Peak Demand Matters When Assessing Value to the Distribution System

DER value to the distribution grid also changes with the alignment of output with the periods of peak usage in the local area. Many distribution networks in residential areas experience peak usage at night, when families return home from work and school and local retail stores remain open. DER that are able to generate power during these local peak periods create more value to the distribution system. While a DER may provide greater value to the wholesale power system based on coincidence with state- or region-wide system peak, as reflected in LMP, these resources may miss providing benefits to the local distribution system. In short, DER wholesale peak value and distribution peak value are not the same, and can be mutually exclusive. Efforts to determine the full value of DER should consider these wholesale and distribution values distinctly to determine total value.

[6] New York Public Service Commission. Case 14-E-0302. *Petition of Consolidated Edison Company of New York, Inc. for Approval of Brooklyn/Queens Demand Management Program.*

C. DER Externality Values Should Be Carefully Considered

The Draft Manual appropriately highlights that the arguments for Net Energy Metering are largely based on the externality value that DER may provide. NARUC Staff should consider providing information or guidelines that help policy makers consider programs that already value externalities[7] and avoid double counting – and double paying. The Northeastern states and California, for example, already pay for carbon dioxide ("CO_2") within wholesale prices – either via a Regional Greenhouse Gas Initiative ("RGGI") or California Air Resources Board ("CARB") allowance. Market-based values for sulfur dioxide ("SO_2") and nitrous oxides ("NO_x") are also included in wholesale rates. Any emissions benefits should be calculated based on the actual emissions offset, using the marginal generating unit. As for other frequently-cited external benefits, such as land-use and jobs, the Draft Manual may offer guidance that helps regulators consider such values and whether such benefits are already captured in wholesale electricity prices. Purported "land-use benefits," for example, may not materialize as traditional generating plants are still needed to balance variability of renewable resources.

III. LMP+D+E Represents a More Appropriate Framework for Valuing DER

Together, these components make up what is becoming known as an "LMP+D+E" rate structure, which adds wholesale commodity value ("LMP"), value to the distribution system ("D"), and environmental or externality value ("E") to establish a fair compensation rate for DER. The Companies are actively engaged with the New York Department of Public Service Staff, DER companies, and other interested parties in an ongoing proceeding[8] to establish a transition to this rate structure in New York. In fact, the Companies recently partnered with solar developers SolarCity, SunEdison, and SunPower and other utilities in the State to propose a groundbreaking approach to this transition under the Solar Progress

[7] *E.g.*, Renewable Energy Credit programs, Demand Response Programs, State Technology-Specific Incentives, Federal Renewable Tax Credits.

[8] Case 15-E-0751, *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 (issued December 23, 2015).

Partnership.[9] The Companies look forward to the resolution of this proceeding in New York. This proceeding can be another source of information for the resource guide.

IV. Demand-Based, Time-Variant, and Standby Rates Are Key Tools for Regulators

Demand charges and standby rates can be key tools in regulators' toolkits to both appropriately allocate distribution costs, as well as to create the appropriate price signals for DER adoption and operation. As the Draft Manual notes, current rate designs do not fully align cost causation with cost recovery. Grid service costs are often collected from customers on a volumetric, or per kilowatt-hour, basis, and do not recognize the relatively fixed nature of infrastructure costs.

Demand rates strike the balance, aligning customer charges with their peak usage that drives infrastructure investment. Cable and fiber-to-the-home companies do this today, providing internet plans that offer a certain speed or instantaneous throughput. These plans are not structured based on the total amount of data transferred in a month (*i.e.*, Megabytes ("MB")), but on the amount provided at any given time (*i.e.*, Megabytes per Second ("MBps")). Evidence from this market suggests that mass market customers are able to understand the difference between volumetric usage and instantaneous demand, and manage their usage accordingly. Such rate structures show great promise for the electricity industry, particularly as "smart home" technology improves. NARUC Staff could consider this example in illustrating a more positive, or at least neutral, view of future demand rates for residential customers.

Time-variant rates also have significant potential value to the electricity industry as they can better align the price charged for electricity with the cost of generating and delivering it at a specific time. These rates may help establish more transparent and efficient price signals to customers and DER developers, incenting technologies like west-facing solar, for example, whose output better aligns with system peaks. Such rate structures may also reward customers or DER developers for investing in storage

[9] NYPSC Value of DER Proceeding. Comments of the Solar Progress Partnership on an Interim Successor to Net Energy Metering (Filed April 18, 2016).

that can help shift their usage to off-peak, lower-cost times. As the Draft Manual notes, time-variant rates can be implemented in many forms, including peak rebate programs that encourage actions at a particular time.

While both demand rates and time-variant rates are usually implemented on an opt-in basis, experts are increasingly encouraging regulators to consider an "opt-out" basis. While there are pros and cons to each approach, recent studies have demonstrated that an opt-out approach can be more successful at engaging customers and reducing overall peak energy demand than an alternative opt-in approach.[10] The Draft Manual may consider providing a list of possible references that could include these studies as a resource.

In its discussion regarding allocation of "fixed" costs, NARUC Staff could consider drawing a brighter line between the need to recover costs for grid investments that have already been made and future grid investments that could potentially be avoided by DER. In every case, investments that have already been made cannot be avoided and therefore should not be construed as a potential benefit of DER. Viewed in this way, these costs are not variable. The medium-to-long run variability in infrastructure investments refers only to future investments, which can, in some cases, be deferred through changes in customer behavior driven by economically-efficient price signals, such as demand rates, including a customer's decision to adopt DER.

[10] See, *e.g.*, Sacramento Municipal Utility District. *SmartPricing Options Final Evaluation*. Released September 2014. https://www.smartgrid.gov/files/SMUD_SmartPricingOptionPilotEvaluationFinalCombo11_5_2014.pdf ; U.S. Department of Energy. *Analysis of Customer Enrollment Patterns in Time-Based Rate Programs – Initial Results from the SGIG Consumer Behavior Studies*. Released July 2013. http://energy.gov/sites/prod/files/2013/07/f2/CustomerEnrollmentPatterns.pdf ; Baltimore Gas & Electric. *BGE's Residential Smart Energy Rewards Program.* Presented March, 2015. https://www.edf.org/sites/default/files/content/harbaugh_presentation.pdf

V. Conclusion

Utilities across the country are actively working to incorporate DER technologies into the energy grid. The Companies believe in facilitating customer choice, not limiting it. In fact, in New York, the Companies are examining ways to enhance the development of DER to better align its growth with the needs of the grid and, ultimately, the interests of all energy customers.

In each of these cases, the Companies are working collaboratively with DER developers in an effort to provide new business opportunities, catalyze new markets, and create value for all customers in the process. The Companies continue to support the development of appropriate compensation mechanisms that will allow DER to benefit all customers. The Companies appreciate the opportunity to provide these comments for NARUC Staff's consideration.

Respectfully Submitted,

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By: */s/ Stuart Nachmias*

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