

New York Is Transitioning Away from Net Energy Metering for Distributed Resources

New details from the New York Public Service Commission and New York's investor-owned utilities outline shift to a value-based compensation model for distributed energy resources.

Key Points:

- Distributed generation projects being compensated under New York's existing net energy metering program, such as those hosted by residential and smaller commercial customers, will continue to be eligible for compensation under that program.
- Certain projects, including residential and small commercial distributed generation projects that interconnect before January 1, 2020, will be eligible for compensation equal to that under a new transitional net energy metering compensation model for a term of 20 years from the project's in-service date.
- A new compensation model referred to as the "Value Stack" will compensate distributed energy resources (DERs), including community and commercial solar generation projects, through new tariffs for a term of 25 years according to these resources' estimated electric energy and capacity values and their estimated environmental and locational values associated with their net exports of generation.
- Projects eligible for compensation under the net energy metering compensation model will be able to opt into the Value Stack compensation model.
- New York's investor-owned utilities recently provided work plans and implementation proposals to facilitate their move towards the Value Stack compensation model that includes preliminary locational values for DERs within the utilities' retail distribution service territories and the methodologies used to calculate them.
- These preliminary locational values indicate that locational values under the Value Stack compensation model could vary widely as between and within the retail distribution service territories of the utilities such that for a particular DER, compensation under the Value Stack compensation model could be very different (likely lower but possibly higher) than that under the existing net metering program.

Background – Reforming the Energy Vision

In April 2014, the New York Public Service Commission (NYPSC or Commission) instituted a proceeding in which it proposed a platform to transform the electric industry in New York as related to New York's investor-owned utilities (IOUs) by creating market-based, sustainable products and services that would

drive an increasingly efficient, clean, reliable and customer-oriented electric industry.¹ This proceeding is part of a statewide initiative designed to reform the electric industry, known as the “Reforming the Energy Vision” (REV).² As envisioned by the NYPSC, REV would result in a wide range of DERs such as distributed generation (e.g., rooftop solar), energy storage, demand response and energy efficiency technologies being coordinated to manage load, optimize system conditions, and enable clean distributed power generation.

Nearly a year later, the NYPSC issued an order adopting a regulatory framework for REV (the Framework Order).³ As described in the Framework Order, the central vision of REV is to increase the deployment, use and coordination of DERs through markets operated by the IOUs acting as Distributed System Platform (DSP) operators. DSP operators will coordinate DERs to manage load, optimize system operations and enable clean distributed generation.⁴ A DSP will integrate DERs into the current electricity delivery system and facilitate retail interactions. Under this framework, the IOUs will play a key role as DSP operators in facilitating the interaction of DERs with the wholesale markets, including serving an intermediary role between some DERs and the wholesale markets for electric energy, capacity and ancillary services that the New York Independent System Operator (NYISO) will administer.

Limitations of Net Energy Metering Compensation Models

One of the major issues the REV initiative addresses is how to compensate DERs based on the actual value of the benefits they provide to the grid and the general public net of the costs they impose. Under a net energy metering (NEM) compensation model, for example, utility customers with an eligible distributed generation system such as a residential rooftop solar installation are typically credited for the quantity of their net exports of generation from their system at a price equal to the retail electric rate. This compensation structure effectively allows the utility customer to offset, or net, their export of generation to the utility’s distribution system against their retail consumption. To the extent that their distributed generation system generates more electricity than they consume at retail during a billing period, they then receive a credit from the utility based on their excess generation priced at the retail rate.

While NEM compensation models are relatively simple and can be easily implemented and administered, they may not accurately reflect the actual value of the net benefits to the grid and the general public provided by exports of generation from DERs hosted by NEM customers. For example, generation from DERs may provide benefits by reducing emissions of pollutants, increasing grid reliability, shifting load to avoid the need to operate more costly peak generation resources and displacing or deferring the need for traditional grid infrastructure expansions or upgrades. A NEM compensation model, however, reflects only the amount of net exports of electricity generated by a customer-hosted DER and the customer’s retail rate and fails to take into account the value of locational, temporal and environmental benefits associated with a specific DER. As a result, a NEM compensation model may over- or under-compensate owners of DERs from a grid or societal perspective and lead to inefficient investment decisions with respect to the implementation of DERs and grid infrastructure.

The Roadmap to a Value-Based Compensation Model for DERs

In its Order on Net Energy Metering Transition, Phase One of Value of Distributed Energy Resources, and Related Matters (VDER Order),⁵ the NYPSC laid out the initial phase of its plan to transition away from legacy compensation models for DERs, such as the NYPSC’s legacy NEM compensation model, and towards a value-based compensation model through the development of Value of Distributed Energy Resources (VDER) compensation models for exports to the grid.

The VDER Order represents a significant step in New York’s efforts to move its electric system to one that has a much greater deployment of DERs and is more transactive and integrated. The initial phase in the

NYPSC's move to a VDER compensation model is transitional, and the VDER Phase One tariffs consist of two distinct compensation models: Phase One NEM and the Value Stack.

Eligibility for the Phase One NEM and Value Stack Compensation Models

Compensation under the Phase One NEM and Value Stack models will only be available for DER technologies and projects that were eligible for compensation under the legacy NEM compensation models.⁶ These projects must have a rated capacity of 2 MW or less (except for combined heat and power (CHP) generation, which must have a rated capacity of 10 kW or less) and meet certain other eligibility requirements under New York law. The table below summarizes the availability of the VDER Phase One tariffs for various DER technologies:

Legacy NEM	<ul style="list-style-type: none"> Existing projects currently operating under NEM Projects that are eligible for NEM⁷ and that completed certain phases of the Standard Interconnection Requirements (SIR) by March 9, 2017⁸ Otherwise eligible projects that wish to pair energy storage with a non-Community Distributed Generation (CDG), remote net metered (RNM) or large on-site system New eligible wind projects until applicable procurement caps are reached⁹
	VDER Phase One Tariff
Excluded from VDER Phase One Tariff	<ul style="list-style-type: none"> Technologies and projects that would not have been eligible for NEM Projects larger than 2 MW CHP projects larger than 10 kW Projects involving non-eligible fuel sources,¹¹ other than eligible fuel cells and eligible combined heat and power generators Non-generation DERs¹² Stand-alone energy storage

Transition from Legacy NEM to the VDER Phase One Tariffs

In order to facilitate the transition away from the legacy NEM compensation model, new projects will not be eligible for compensation under this model as of the date of the VDER Order (*i.e.*, March 9, 2017).¹³ Instead, new projects will receive compensation for services provided based on the VDER Phase One tariffs.

Existing projects will continue to receive compensation under the legacy NEM compensation model, as will qualifying projects that reached a certain point of completion of the Standard Interconnection Requirements (SIR) by March 9, 2017. New wind projects will also remain eligible for compensation under the legacy NEM compensation model until the applicable procurement caps under New York state law are reached.¹⁴ Projects operating under the legacy NEM compensation model, however, will be permitted to opt-in to the Value Stack compensation model.

Phase One NEM

Compensation under Phase One NEM is largely identical to the volumetric crediting under the legacy NEM compensation model.¹⁵ However, projects that are eligible for Phase One NEM will only be permitted to receive such compensation for up to 20 years from their in-service date. Eligible projects are also permitted to carry-over excess credits, subject to certain conditions. Projects operating under Phase One NEM will have the ability to opt-in to the Value Stack compensation model described in more detail below.

Projects eligible for Phase One NEM include:

- Residential and small commercial projects installed on-site (referred to as “mass market projects”) that interconnect before January 1, 2020
- CDG projects
- RNM projects
- Large on-site¹⁶ projects for which 25% of interconnection costs have been paid or a Standard Interconnection Contract has been executed if no such payment is required within 90 business days of the VDER Order

CDG projects that meet the Phase One NEM requirements are subject to the availability of IOU-specific MW capacity allocations as well.

The Value Stack

The Value Stack is the second compensation model offered under the VDER Phase One tariffs. During Phase One, the Value Stack compensation model will only be available for projects that are or would have been eligible for compensation under the legacy NEM compensation model. Future Phases will address the application of the Value Stack compensation model to other types of projects. Compensation for a project under the Value Stack compensation model lasts for a period of 25 years from the in-service date of the project.¹⁷

The compensation is calculated based on the value of net exports to the grid associated with all of the following:

- Energy value (\$/kWh) – based on the NYISO Day Ahead hourly zonal locational-based marginal price, inclusive of losses
- Capacity value (\$/kW or \$/kWh) – based on retail capacity rates for intermittent technology and the capacity tag approach for dispatchable technologies based on performance during the peak hour in the previous year
- Environmental value (\$/kWh) – based on the higher of the latest CES Tier 1 Renewable Energy Certificate procurement price published by the New York State Energy Research and Development Authority (NYSERDA) or the Social Cost of Carbon (SCC)¹⁸
- Demand Reduction Value (DRV) and Locational System Relief Value (LSRV) (\$/kW-year) – based on a deaveraging of the IOU's respective marginal cost of service into their system-wide DRV and a location-specific LSRV, DER performance during the 10 peak usage hours in an IOU's retail distribution service territory, and further processes detailed in the VDER Order to translate these values into monthly credits¹⁹

Market Transition Credit

CDG projects compensated under the Value Stack compensation model will be eligible for a Market Transition Credit (MTC) (\$/kWh) equal to the difference between the “Base Retail Rate” and the “Estimated Value Stack.” While the value components will be different, the payment under the Value Stack compensation model plus the MTC provides, at least initially, compensation substantially similar to what would have been received under the legacy NEM compensation model. The MTC is intended to avoid market disturbances for projects, such as CDG solar with no storage, that are likely to receive lower compensation under the Value Stack compensation model as compared to what the projects would receive under the legacy NEM compensation model. The MTC is also intended to reflect values provided by DERs that have not yet been identified or calculated, such as DRV.

Project eligibility for the MTC is subject to the availability of capacity allocations derived from the incremental 2% net revenue impact limitation described below. Projects that receive the MTC will not receive compensation for DRV but can be compensated for LSRV. For a CDG project the MTC will be pro-rated based on the portion of that project that is dedicated to mass market customers. CDG projects will not receive a DRV for that portion of their project.

To facilitate the transition of CDG projects into the Value Stack compensation model and further limit the impacts on non-participants, the VDER Order defines a “Tranche Zero” and a series of three other tranches (Tranches 1, 2 and 3) with specific fixed-MW capacity limits for each IOU.²⁰ Tranche Zero constitutes projects compensated under the Phase One NEM compensation model for a term of 20 years. Tranches 1, 2 and 3 constitute projects compensated under the Value Stack compensation model that are eligible to receive the MTC, though the MTC steps down in Tranches 2 and 3. That is, the MTC for Tranche 1 is calculated using the Base Retail Rate, while Tranche 2 uses 95% of the Base Retail Rate, and Tranche 3 uses 90% of the Base Retail Rate. Once Tranche 3 is filled, the MTC will no longer apply and CDG projects will be compensated according to the Phase One Value Stack methodology, which includes the DRV.²¹

Managing Potential Impacts on Non-Participants

The NYPSC acknowledges in the VDER Order that the VDER Phase One tariffs will affect customer bills and utility revenues. To mitigate the potentially harmful economic effects of the VDER Phase One tariffs on non-participants, the NYPSC set limits for both the availability of compensation under the Phase One NEM compensation model and the inclusion of the MTC for certain CDG projects.²² To design the capacity-based allocations for mass market and CDG projects under the VDER Phase One tariff, the NYPSC used an incremental net annual revenue impact of approximately 2% for each IOU. The 2% threshold is not a cap, but will inform the NYPSC that further action may be warranted. The NYPSC's analysis indicated that a 2% level was appropriate because it balances potential rate impacts with the need to provide market opportunity.

Other Provisions

The VDER Order addresses several other topics associated with the VDER Phase One tariffs. The order provides that compensation under the VDER Phase One tariffs will be collected proportionally from those customers who benefit from the savings associated with the compensated DER.²³ It also provides that mass market customers with projects that pair energy storage with an eligible resource will be eligible for compensation under the legacy NEM or the Phase One NEM compensation models, while customers who pair storage with a CDG, RNM or large on-site system will receive compensation under the Value Stack compensation model.²⁴ However, stand-alone storage facilities are not eligible for compensation under the VDER Phase One tariffs. Such facilities will be addressed in future phases.

The VDER Order also directs the NYPDS Staff to work with NYSERDA, the utilities and market participants to develop a proposal for additional steps designed to reduce, eliminate or mitigate market barriers, bill impacts or CDG project costs.²⁵ In addition, the VDER Order directs Staff to consider ways to facilitate the participation of low-income customers in CDG under the VDER Phase One tariffs.²⁶ The NYPSC also calls on Staff to develop an updated whitepaper for public comment that will enable a discussion of DER oversight provisions concurrent with discussion over the actions described in the VDER Order.²⁷

Initial Implementation of VDER Phase One Tariffs

As directed by the Commission in the VDER Order, the IOUs filed various documents between the date of the VDER Order and May 8, 2017, including:

- Their most recent marginal cost of service (MCOS) studies
- Work plans and timelines for developing locationally granular prices to reflect the value to their distribution systems of DER additions
- "Implementation Proposals" which include, among other topics calculation and compensation methodologies for DRV and identification of, compensation for, and MW caps for LSRV zones; and opportunities for "Non-Wire Alternatives" (NWA)

The purpose of these filings is to enable the NYPSC to issue an "Implementation Order" as soon as the summer of 2017.

On April 24, 2017, the IOUs together submitted a joint work plan IOU,²⁸ while the IOUs also individually submitted IOU-specific work plans.²⁹ Their joint work plan addressed issues the IOUs asserted could be more effectively addressed on a statewide basis, including distribution-level reactive power and voltage support, more granular locational energy, capacity and ancillary service values, and avoided air pollution

emissions. Their individual work plans focused on issues the IOUs asserted should be addressed on a utility-specific basis, including more granular (e.g., substation level) load and DER forecasting, updates to their MCOS studies and opportunities for NWA's. With regard to NWA's, the IOUs reported that they have issued or will issue solicitations for proposals from qualified suppliers to supply DER-based solutions that provide transmission and distribution load relief in identified areas, specifically load relief that would be more cost effective than traditional transmission and distribution solutions under the NYPSC's "Benefit-Cost Analysis" methodology.

On May 1, 2017, the IOUs submitted their Implementation Proposals.³⁰ The Implementation Proposals address a range of issues, including each IOU's proposed take on the calculation and compensation methodologies for DRV and identification of, compensation for, and MW caps for LSRV zones. For example:

- Consolidated Edison Company of New York (Con Ed) proposed a combined LSRV and DRV in constrained areas at \$340/kW-year, or 150% of its current estimated average system-wide MCOS of \$226/kW-year. When "de-averaged," this results in a system-wide DRV of \$199/kW-year and a location-specific LSRV of \$141/kW-year. Con Ed identified a number of initial LSRV zones across its retail distribution service territory in New York City and Westchester County.³¹
- Orange and Rockland Utilities (O&R) proposed a combined value of LSRV and DRV in LSRV zones of \$104/kW-year, based on 150% of its current estimated average system-wide MCOS of \$70/kW-year. When de-averaged, this results in a DRV of \$65/kW-year and a LSRV of \$39/kW-year. O&R identified only a handful of initial LSRV zones across its retail distribution service territory in Orange, Rockland and Sullivan Counties.³²
- In contrast to Con Ed and O&R, Central Hudson Gas & Electric Corporation (CHE) did not identify any initial LSRV zones across its retail distribution service territory in the Mid-Hudson River Valley. CHE proposed a DRV of \$14.55/kW-year.

As discussed above, it is important to remember that the DRV and LSRV will be distributed across the 10 highest usage hours in an IOU's retail distribution service territory and DERs will be compensated based on their performance during these 10 hours (*i.e.*, the coincidence of their net exports with peak usage). This distinction means that the actual credit received by a DER will be proportionate to the coincidence of its net exports with peak usage.

Next Steps – Transition to VDER Phase Two

The NYPSC envisions development of the VDER Phase Two methodology by the end of 2018.³³ To that end, the NYPSC plans to convene a procedural conference or other meeting of interested parties during May 2017. The meeting will address the process for Phase Two, and will include consideration of relevant comments received on December 23, 2016. The NYPSC anticipates that the scope of Phase Two will include at least the following topics:

- Inclusion of DER projects in VDER tariffs on a technology-neutral basis
- Development of methods to provide equal compensation for reduced consumption and injected generation
- A framework for the development and consideration of grid access charges, non-bypassable fees, or other methods to mitigate costs imposed on non-participants

- Potential changes to default rate design and development of optional rates for VDER participants
- Improvements and modifications to the Value Stack compensation model, including components related to the bulk system, distribution system and societal values
- Transitioning of mass market projects to VDER tariffs

The NYPSC provides that it will give priority to the consideration of both additional project and bill impact cost mitigation initiatives, and the inclusion of DER projects in VDER tariffs on a technology-neutral basis.

If you have questions about this *Client Alert*, please contact one of the authors listed below or the Latham lawyer with whom you normally consult:

[Michael J. Gergen](#)

michael.gergen@lw.com
+1.202.637.2188
Washington, D.C.

[David E. Pettit](#)

david.pettit@lw.com
+1.202.637.3341
Washington, D.C.

[Christopher M. Randall](#)

christopher.randall@lw.com
+1.202.637.2189
Washington, D.C.

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Endnotes

¹ Case 14-M-0101, *Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision*, Order Instituting Proceeding (issued April 25, 2014) (Order Instituting Proceeding).

² DPS – Reforming the Energy Vision: About the Initiative, NEW YORK DEPARTMENT OF PUBLIC SERVICE, <http://www3.dps.ny.gov/W/PSCWeb.nsf/All/CC4F2EFA3A23551585257DEA007DCFE2?OpenDocument> (last visited April 17, 2017).

³ Case 14-M-0101, *supra*, Order Adopting Regulatory Policy Framework and Implementation Plan (issued Feb. 26, 2015) (Framework Order).

⁴ For example, the Framework Order asserted that the pressure on retail rates in New York caused by aging infrastructure replacement, reliability and security needs, carbon rules and other factors could be mitigated by the cost reductions available through increased system efficiency. The Framework Order provided various examples of such cost reductions, including: (i) long term avoided capacity and energy savings of as much as \$1.7 billion per year if the 100 hours of greatest peak demand were flattened, as well as reduced price volatility and price inefficiency through increasing responsiveness of demand. See Framework Order at 20.

⁵ The NYPSC is part of the New York Department of Public Service (NYDPS), both of which are governed by the New York Public Service Law (Public Service Law). The mission of the NYDPS is to, among other objectives, ensure affordable, safe, secure, and reliable access to electric services for New York State's residential and business customers, while protecting the natural environment. The NYDPS also seeks to stimulate effective competitive markets that benefit New York consumers through strategic investments, as well as product and service innovations.

⁶ Order at 43-46.

⁷ Eligible projects include the following:

- Solar: 25 kW for residential; 100 kW for farms; 2 MW for non-residential
- Wind: 25 kW for residential; 500 kW for farm-based; 2 MW for non-residential
- Micro-hydroelectric: 25 kW for residential; 2 MW for non-residential
- Fuel Cells: 10 kW for residential; 1.5 MW for non-residential
- Biogas: 2 MW (farm-based only)
- Micro-CHP: 10 kW (residential only)

⁸ Step 8 of the SIR for projects larger than 50 kW, and Step 4 of the SIR for projects smaller than 50 kW.

⁹ See New York Public Service Law § 66-1.

¹⁰ See Order at 131 (Table 4).

¹¹ Projects that are currently eligible for NEM are listed in New York Public Service Law §§ 66-j and 66-l.

¹² Examples include demand response and energy efficiency.

¹³ *Id.* at 23-29.

¹⁴ See Public Service Law §66-1.

¹⁵ *Id.* at 40-42.

¹⁶ “Large on-site projects” are defined as “projects interconnected behind the meter of a customer within a utility's non-residential demand-based or mandatory hourly pricing service class and not used to offset consumption at any other site”. *Id.* at 153.

¹⁷ *Id.* at 15-16, 94-119.

¹⁸ The Social Cost of Carbon is a dollar estimate of the long-term damage done by a ton of carbon dioxide emissions in a given year. The SCC takes into account changes in net agricultural productivity, human health, property damages from increased flood risk, and changes in energy system costs, such as reduced costs for heating and increased costs for air conditioning. The EPA and other federal agencies use the SCC to value climate impacts of rulemaking. See *The Social Cost of Carbon: Estimating the Benefits of Reducing Greenhouse Gas Emissions*, United States Environmental Protection Agency, <https://www.epa.gov/climatechange/social-cost-carbon> (last visited April 17, 2017).

¹⁹ Order at 15-16, 94-119.

²⁰ *Id.* at 131 (Table 4).

²¹ *Id.* at 122-34.

²² *Id.* at 32-37.

²³ *Id.* at 51-53.

²⁴ *Id.* at 46-49.

²⁵ *Id.* at 142-45.

²⁶ *Id.* at 138-41.

²⁷ *Id.* at 141-42.

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- ²⁸ Case 15-E-0751 – *In the Matter of the Value of Distributed Energy Resources*, Work Plan of the Joint Utilities to Consider Additional Potential Sources of Value Created by Distributed Energy Resources (Filed April 24, 2017).
- ²⁹ Case 15-E-0751 – *In the Matter of the Value of Distributed Energy Resources*, Work Plan of Central Hudson Gas & Electric Corporation to Consider Additional Potential Sources of Value Created by Distributed Energy Resources (Filed April 24, 2017); Case 15-E-0751 – *In the Matter of the Value of Distributed Energy Resources*, Work Plan of Consolidated Edison Company of New York and Orange Rockland Utilities, Inc. to Determine Locational Values of Distributed Energy Resources (Filed April 24, 2017); Case 15-E-0751 – *In the Matter of the Value of Distributed Energy Resources*, Proposed Workplan and Timeline for Developing Granular Marginal Distribution Cost Estimates for DER Compensation in NYSEG and RG&E Service Territories (Filed April 24, 2017); Case 15-E-0751 *et al.*, – *In the Matter of the Value of Distributed Energy Resources et al.*, Work Plan and Timeline of Niagara Mohawk Power Corporation d/b/a National Grid to Determine Locational Value of Distributed Energy Resources (Filed April 24, 2017).
- ³⁰ Case 15-E-0751 *et al.*, – *In the Matter of the Value of Distributed Energy Resources et al.*, Central Hudson Gas & Electric Corporation Value of Distributed Energy Resources Implementation Proposal (Filed May 1, 2017); Case 15-E-0751 *et al.*, – *In the Matter of the Value of Distributed Energy Resources et al.*, Consolidated Edison Company of New York, Inc. Implementation Proposal for Value of Distributed Energy Resources Framework (Filed May 1, 2017); Case 15-E-0751 *et al.*, – *In the Matter of the Value of Distributed Energy Resources et al.*, Value of Distribution Implementation Proposal of New York State Electric and Gas Company and Rochester Gas & Electric Company (Filed May 1, 2017); Case 15-E-0751 *et al.*, – *In the Matter of the Value of Distributed Energy Resources et al.*, Niagara Mohawk Power Corporation d/b/a National Grid Implementation Proposal for the Value Stack Component of VDER Phase One Tariff (Filed May 1, 2017); Case 15-E-0751 *et al.*, – *In the Matter of the Value of Distributed Energy Resources et al.*, Orange and Rockland Utilities, Inc. Implementation Proposal for Value of Distributed Energy Resources Framework (Filed May 1, 2017).
- ³¹ For example, one of these LSRV zones is in the Borough of Manhattan in an area bounded by W. 42nd Street, W. 31st Street, and 7th Avenue.
- ³² For example, one of these LSRV zones is in eastern Orange County – Highland Falls, Fort Montgomery and West Point.
- ³³ Order at 136-38.