

Matter 17-01276
Value of Distributed Energy Resources Working Group Regarding Value Stack

Staff Discussion Document on VDER Value Stack Expedited Eligibility Expansion
December 18, 2017

By issuing the VDER Order on March 9, 2017,¹ the Public Service Commission (Commission), began the transition of compensation for Distributed Energy Resources (DER) to methodologies that reflect the actual value provided by those resources and enabling a distributed, transactive, and integrated electric system. As a first step, eligibility for the Value of DER (VDER) tariffs created under the VDER Order, and finalized by the Commission's VDER Implementation Order,² was limited to technologies and project types that had previously been eligible for net energy metering (NEM) based on Public Service Law (PSL) Sections 66-j and 66-l (see Appendix A), as well as projects that paired energy storage with an eligible technology. However, as the VDER Order explained, following the implementation of Phase One, "VDER tariffs will be expanded beyond NEM-eligible DG technologies to all DER in a technologically-neutral, value-focused manner as soon as practicable." In addition, the VDER Order directed that stand-alone energy storage projects be included in the VDER tariff "as expeditiously as possible."

In order to progress towards the goal of expanding VDER tariff eligibility, Department of Public Service Staff (Staff) has worked with Stakeholders through the VDER Value Stack Working Group to develop a process for expanding eligibility for VDER tariffs. Staff determined that certain currently ineligible DER could be compensated using the same Value Stack approach used in the VDER tariffs without change to the Value Stack elements. For that reason, the potential exists to expand the VDER tariffs to those DER in an expedited manner. This discussion document represents Staff's preliminary proposal regarding the process for identifying those resources and expanding the VDER tariffs to them. In this discussion document, Staff requests comments on both the proposed principles and the specific technologies and project types identified for expedited eligibility expansion.

¹ Case 15-E-0751, In the Matter of the Value of Distributed Energy Resources, Order on Net Energy Metering Transition, Phase One of Value of Distributed Energy Resources, and Related Matters (issued March 9, 2017) (VDER Order).

² Case 15-E-0751, supra, Order on Phase One Value of Distributed Energy Resources Implementation Proposals, Cost Mitigation Issues, and Related Matters (issued September 14, 2017) (VDER Implementation Order).

This discussion document does not address the potential expansion of VDER tariff eligibility to projects larger than 2 MW. In the VDER Implementation Order, the Commission stated that an increase in maximum project size to 5 MW could be a beneficial change and requested comments on policy issues associated with that size increase. Those comments have now been submitted and the expansion of VDER tariff eligibility to projects larger than 5 MW is ripe for Commission consideration. Comments on this discussion document should assume that an expansion in maximum project size, if adopted, would be applied based on consistent policies and principles to all technologies and project types eligible for VDER tariffs.

This discussion document deals specifically with the narrow issue of expedited eligibility expansion. A variety of other issues related to the continued development of VDER are currently under consideration in the working groups established following the issuance of the VDER Order.

Principles for Expedited Eligibility Expansion

Staff has developed and proposes the following general principles to identify technologies and project types for expedited eligibility and to determine the appropriate treatment of those technologies and project types.

- I. Practicality: Inclusion of the technology or project type must not require any changes to the definition or calculation of existing Value Stack elements;
- II. Ripeness: There must be a complete enough factual record for a decision at this time.
- III. Environmental Impacts: Technologies should be either (i) renewable technologies, based on Tier 1 REC eligibility rules; or (ii) non-renewable technologies that have potential environmental impacts that are better than or at least approximately “no worse” than bulk system power. Compensation based on environmental attributes should be offered only to projects that are eligible for and provide Tier 1 RECs.
- IV. Non-Participant Cost Impacts: Any potential utility net revenue impact, and therefore potential non-participant cost impact, if applicable, should still be subject to the Tranche system approved in the March 9, 2017 Order. (Possibly only relevant if Principle VIII, below, is not adopted.)
- V. Technology neutrality. The compensation for resource injections should be based on the specific values provided, rather than on technology designation.

- VI. Each element of the Value Stack should reflect an actual value to the system and society and an accurate calculation of that value.
- VII. Each element of the Value Stack should have a direct relationship to the production and injection of electricity to the grid.
- VIII. The Market Transition Credit (MTC) should be limited to technologies that could previously receive NEM compensation: The MTC was based on kWh retail rates that mass market customers could avoid via NEM and is a transition tool for NEM-eligible resources only.

The fact that a determination is made that a technology or project type does not qualify for expedited eligibility at this time, either in this discussion document or by the Commission, should not be interpreted as a determination that technology or project type will not become eligible for VDER tariffs at a later point. Staff will continue to evaluate the potential for eligibility expansions, as both the VDER tariffs and the market evolve, and recommend further action as appropriate.

Proposed Removal of Customer-Type Based Technology and Size Limits

As Appendix A shows, eligibility for NEM was limited to certain technologies, and certain project sizes by technology, depending on customer type (e.g., residential vs. commercial). These limits may have been necessary and appropriate when compensation was associated with the utility service class that applied at that project's site. However, with the advent of the Value Stack, the service class applied at a project site no longer impacts compensation and therefore those limits no longer appear to be needed. For that reason, Staff recommends that those limits be lifted, such that any of the technologies appearing in PSL 66-j or 66-l can be built by any type of customer up to the overall 2 MW limit, with the exception of Combined Heat and Power (CHP), which requires further analysis and is discussed in more detail below. In any case where, based on customer type and/or project size, a project would not have been eligible for NEM under PSL 66-j or 66-l, the project will not be eligible for Phase One NEM or the MTC element of the VDER Tariff.

Proposed Technologies for Expedited Eligibility

Staff has identified additional technologies and project types that could be made eligible for Value Stack compensation based on the Commission's direction and the principles described above. In considering the inclusion of additional technologies and project types, Staff has also considered which elements of the Value Stack should be included in compensation for each resource.

The potentially additional eligible resources fall into three categories:

- (1) CES Tier 1 Eligible Resources that were not already NEM eligible;
- (2) Stand-alone storage, as well as regenerative braking; and
- (3) Distributed CHP generation not already eligible under NEM; specifically, CHP projects larger than 10 kW and no larger than the VDER maximum project size, currently 2 MW.

Each category of resources present distinct issues and questions that require consideration when considering the application of each Value Stack element. Table 1, below, summarizes Staff's proposal regarding the applicability to each project type of each of the Value Stack elements: (a) LBMP energy; (b) ICAP; (c) E, the environmental externality value based on Tier 1 RECs; (d) DRV/LSRV, the local distribution avoided cost value; and, (e) the MTC.

Table 1. Proposed Eligibility for Credit Element by New Resource Category				
		Potential Additional VDER Eligible Resources		
		Other Tier 1	Batteries/Storage/ Braking	Non-Tier 1 CHP
<u>Credit Element</u>				
LBMP		Yes	Yes	Yes
ICAP		Alt. 3	Alt. 3	Alt. 3
E		Yes	No	No
LSRV		Yes	Yes	Yes
DRV		Yes	Yes	Yes
MTC		No	No	No

(1) Tier 1 REC Eligible Resources. DPS Staff proposes to expand the eligibility for Value Stack crediting under the VDER tariff to any clean generation technology that satisfies the

requirements described for Tier 1 resources under the Clean Energy Standard (CES). Examples of technologies that produce Tier 1 RECs, but are not currently eligible to participate in VDER tariffs, are tidal energy generators and biomass generators that meet the Tier 1 CES requirements but not the very prescriptive PSL 66-j requirements, which require among other things that at least fifty percent of the feedstock be "livestock manure materials."

While only clean resources that began operation on or after 1/1/2015 are eligible to participate in the CES, Staff proposes that resources that would qualify for Tier 1 but for their vintage date be eligible for compensation under the Value Stack. Consistent with existing rules for VDER crediting, resources that are not CES eligible due to their vintage date will not be eligible for the E value. Non-NEM-eligible resources should not be eligible for MTC crediting because the MTC is an element specifically tied to NEM eligibility. Similarly, because Alternatives 1 and 2 of the ICAP credit represent transition tools for moving away from NEM toward value-based crediting, Staff proposes that non-NEM-eligible resources be eligible only for Alternative 3 ICAP credits. This alternative best represents the value provided to the system. Alternatives 1 and 2 were transitional constructs to allow resources that have been relying on NEM compensation to gradually adapt to the VDER approach. Alternative 3, which reflects actual ICAP cost causation for LSE's and large retail customers, will provide an improved value signal for entry by new market participants.

(2) Stand-Alone Storage, including Regenerative Braking. Pursuant to the VDER Order, storage paired with an eligible VDER resource is eligible for Value Stack compensation. Staff proposes that stand-alone storage, including storage paired with consumption load, be eligible for the VDER tariff for any hourly injections to the grid. Staff also proposes to include energy storage systems charged by using regenerative braking technologies such as those used by New York subway systems. As shown in Table 1, staff proposes that storage be eligible for hourly LBMP, Alternative 3 ICAP, and LSRV/DRV crediting. If storage is "charged" with either system power, or an otherwise VDER-eligible technology, then it should satisfy the principle that its injection is no worse than system power, environmentally. The addition of storage to the VDER eligibility list raises a concern with respect to possible uneconomic arbitrage with the retail consumption rates under which the battery may be charged. That concern will be discussed further below.

(3) CHP. The only CHP that was eligible under NEM was so-called “Residential Micro-Combined Heat and Power,” defined as CHP with a rated capacity between 1 kW and 10 kW that would produce at least 2,000 kWh annually, at a total fuel use efficiency of at least 80%. Staff proposes to expand CHP eligibility beyond this very narrow class to all CHP below the maximum project size, currently at 2 MW, for any customer. As shown in Table 1, Staff proposes that this expanded non-NEM CHP not receive E or MTC credits, as it is neither Tier 1 nor NEM-eligible. For the purposes of VDER eligibility, Staff recommends a definition for CHP that is similar to the definition used in Consolidated Edison’s Standby Rate Pilot. Appendix B contains Staff’s preliminary proposed CHP definition, but Staff recommends that interested parties convene a collaborative subgroup to perfect a definition applicable to all six utilities. While such a definition may be adequate to satisfy the principle of “no worse” than system power, at least for the present time, it is possible, perhaps even likely, that system power may become much more environmentally benign over time. Because of this, Staff recommends that CHP, as well as any other resources other than Tier 1 resources or storage charged with Tier 1 resources or system power, be subject to future, possibly downward, adjustments of credit value if it is determined that such resources are more environmentally damaging than system power.

Other Issues

Uneconomic retail rate arbitrage. Retail consumption rates for most customers represent average cost causation over a period of time, such as a period of hours, a month, or even a year, while VDER compensation is specific to value in an individual hour. A storage resource could be used to engage in uneconomic arbitrage, compensation that does not actually reflect the costs and benefits created by the resource, by charging from system power during a high-value period at an average retail consumption rate and then immediately injecting that power back into the system for the more granular, and therefore higher, VDER tariff value. While the technological potential for such situations may be limited at the present, technology in this area is changing rapidly. To avoid this situation and to more generally ensure that storage resources receive charges and credits that accurately reflect the costs and values they create, Staff proposes requiring that, in order for a customer with storage to be eligible for VDER injection compensation, that customer be charged for consumption at the utility’s Mandatory Hourly Price, resulting in both charges and credits accurately reflect hourly values. This requirement would apply at the utility meter level; a customer who sites storage behind a separate meter from its other consumption or

generation would only be required to be charged based on the Mandatory Hourly Price at the meter on the storage.

Standby and buyback rates. Standby rates seek to ensure some minimum payment from “prosumers” to support the existence and maintenance of the electrical grid. Some provisions of certain utility “buyback rate” tariffs seek to do the same for projects that have de minimis retail consumption. However, NEM-eligible technologies and project types have generally been exempt from participating in standby and buyback rates. Staff believes that such an approach is neither fair nor sustainable as the VDER eligibility list is expanded. Thus, Staff proposes that any standby rate, or buyback rate, provision that would otherwise be applied to non-VDER prosumers also be applied to customers in this expanded eligibility VDER class, except that compensation for net hourly injections would be based on the Value Stack as described in this discussion document rather than on existing buyback rate compensation.

Community Distributed Generation (CDG) Eligibility. Staff proposes permitting any VDER eligible technology to be organized and compensated as a CDG project. Regardless of whether a project is organized or compensated as a CDG project, an on-site project, or a remote crediting project, compensation would be under the Value Stack and consistent with the proposals in Table 1.

APPENDIX A

Currently Eligible Resources: NEM (PSL §§ 66-j and 66-l) eligible

- a) Solar (66-j)
 - a. Residential: 25 kW or less (except Farm);
 - b. Farm: 100 kW or less;
 - c. Non-residential: 2,000 kW.
- b) Farm Waste (66-j)
 - a. 500 kW Residential; 2,000 kW Commercial;
 - b. Agricultural waste and food waste; with
 - c. 50% of annual feedstock, by weight, being livestock manure.
- c) Residential Micro-Combined Heat and Power (66-j)
 - a. Cogenerating building heat and electric power;
 - b. Any fuel (engine, fuel cell, or other);
 - c. Between 1 kW and 10 kW;
 - d. Produces at least 2,000 kWh annually;
 - e. Design total fuel use efficiency of 80%.
- d) Fuel Cell (66-j)
 - a. Residential: 10 kW or less;
 - b. Non-residential: 2,000 kW.
- e) Micro-Hydroelectric (66-j)
 - a. Residential: 25 kW or less;
 - b. Non-residential: 2,000 kW or less.
- f) Wind (66-l)
 - a. Residential: 25 kW or less;
 - b. Farm: 500 kW or less;
 - c. Non-residential: 2,000 kW or less.
- g) Storage Combined with a) - f) (March 9, 2017 VDER Order)

APPENDIX B

a. Proposed efficiency standard (adapted from Con Ed Standby Pilot):

CHP facilities ELIGIBLE FOR VDER shall have the following requirements with respect to qualification:

- (i) an average annual efficiency of 60 percent or greater and has a usable thermal energy component that absorbs a minimum of 20 percent of the CHP facility's total usage annual energy output. Average annual and peak efficiency will be determined using the Higher Heating Value of the fuel. For peak efficiency, power island system efficiency will be measured at the prime mover connections for fuel and electricity, and at the heat recovery device connections for steam and/or hot water. Peak efficiency calculations are performed based on full utilization of electrical and thermal energy.;
- (ii) All CHP facilities shall meet the NOx emissions standard of 1.6 lbs/MWh or less;
and
- (iii) the professional engineer of a Customer whose CHP facilities in one of the below zip codes must certify that the CHP facility is designed to meet the following NOx emission standards:

<u>Nameplate Rating of the Facility</u>	<u>Max. NOx Emissions Rate</u>
up to 1 MW	0.6 lbs/MWh
above 1 MW up to 2 MW	1.2 lbs/MWh
above 2 MW	0.5 lbs/MWh

<i>Borough/Neighborhood</i>	<i>Zip Codes</i>
Bronx: Crotona – Tremont Fordham – Bronx Park High Bridge – Morrisania Hunts Point – Mott Haven Pelham – Throgs Neck	10453, 10457, 10460 10458, 10467, 10468 10451, 10452, 10456 10454, 10455, 10459, 10474 10461, 10462, 10464, 10465, 10472, 10473
Brooklyn: Bedford Stuyvesant – Crown Heights East Flatbush – Flatbush East New York Greenpoint Williamsburg – Bushwick	11212, 11213, 11216, 11233, 11238 11203, 11210, 11225, 11226 11207, 11208 11211, 11222, 11249 11206, 11221, 11237
Manhattan: Central Harlem – Morningside Heights Chelsea – Clinton East Harlem Gramercy Park – Murray Hill Greenwich Village – SoHo Lower Manhattan Union Square – Lower East Side Upper East Side Upper West Side Washington Heights	10026, 10027, 10030, 10037, 10039, 10115 10001, 10011, 10018, 10019, 10020, 10036, 10096, 10097, 10103, 10104, 10105, 10106, 10107, 10110, 10111, 10112, 10118, 10119, 10120, 10121, 10122, 10123, 10196 10029, 10035 10010, 10016, 10017, 10022, 10055, 10151, 10152, 10153, 10154, 10155, 10158, 10165, 10166, 10167, 10168, 10169, 10170, 10171, 10172, 10173, 10174, 10175, 10176, 10177, 10178 10012, 10013, 10014 10004, 10005, 10006, 10007, 10038, 10041, 10043, 10045, 10080, 10081, 10203, 10259, 10260, 10265, 10270, 10271, 10275, 10278, 10279, 10280, 10281, 10282, 10285, 10286 10002, 10003, 10009 10021, 10028, 10044, 10128, 10162, 10065, 10075 10023, 10024, 10025, 10069 10031, 10032, 10033, 10034, 10040
Queens: Jamaica Rockaways	11412, 11423, 11430, 11432, 11433, 11434, 11435, 11436, 11439, 11451 11096, 11691, 11692, 11693, 11694, 11697
Staten Island: Port Richmond	10302, 10303, 10310