BEFORE THE NEW HAMPSHIRE
PUBLIC UTILITIES COMMISISON

DE 16-576

ELECTRIC DISTRIBUTION UTILITIES

Development of New Alternative Net Metering Tariffs and/or Other Regulatory Mechanisms and Tariffs for Customer-Generators

City of Lebanon, NH Comments on Non-Wires Alternative Pilot Program Issues Clarification

December 8, 2017

1. **Should the NWA pilot programs be limited to distributed generation (DG) projects or should the pilot programs also be open to other DERs, such as demand response, energy efficiency measures, or battery storage, either on a standalone basis or in concert with DG installations?**

No, NWA pilot programs should not be limited to DG. To do so would limit the ability of the pilots to best reveal the value of DG in synergy with or in competition and comparison with other DER alternatives and the traditional wires solution itself. To so limit NWA pilots would also be contrary to the energy policy of the State of New Hampshire "… **to meet the energy needs of the citizens and businesses of the state at the lowest reasonable cost while providing for the reliability and diversity of energy sources; to maximize the use of cost effective energy efficiency and other demand resources**; and to protect the safety and health of the citizens, the physical environment of the state, and the future supplies of resources; and consideration of the financial stability of the state's utilities." RSA 378:37 (emphasis added).

The Commission's Order No. 26,029 at 64 providing that "DG projects should be selected to participate in the pilot program through a competitive solicitation process overseen by a neutral third party consultant engaged by the Commission" should not preclude other DERs from competing with DG, or, perhaps more likely, complimenting and enhancing the value of DG

from what it might be on a stand-alone basis. Indeed the very next sentence in the Commission's Order directs that "[t]he projects selected should be those that meet the relevant reliability criteria and result in the greatest utility cost avoidance or deferral, net of the incentives required to be paid pursuant to the project developer's bid proposal, determined on a present value basis using the utility's weighted average cost of capital as the applicable discount rate." This recognizes the importance of trying to achieve the least cost/ best value solution for ratepayers. It is easy to imagine that the most reliable and least cost solution may well be one that has an optimal mix of DERs, not just DG.

For example, for a given kVA capacity constraint, maybe the best 100% DG solution would be more expensive than the conventional wires solution, suggesting no DG value for avoiding distribution system investment, at least for that given situation. On the other hand, imagine a solution in which 60% of the effective capacity need was provided by DG, with another 40% provided by a mix of storage and targeted EE, which might be incentivized, as a package, at much less than the cost of the conventional wires solution. The value of DG in that case could be figured in relation to the total savings, the portion of the solution provided by the DG component and the share of the incentive allocated to the DG portion of the solution

Furthermore, of primary interest to the City is the fact that Liberty Utilities has already committed to integrating the consideration of NWAs into their distribution system planning process as part of their 2016 Least Cost Integrated Resource Plan (LCIRP) that the Commission approved on July 10th in Order No. 26,039 in DE 16-097. Liberty is already proceeding with trying to implement the consideration of NWAs in distribution planning. Just last week they filed a petition for a battery storage pilot (DE 17-189,) that may find part of its value proposition as part of, or perhaps an entire NWA solution, for one of the two Liberty identified candidate

projects at the Nov. 6th meeting of the NWA pilot working group. Upon first impression much of the business case that Liberty seems to be making for their proposed battery pilot relies on the value of avoided transmission charges, but by trying to geographically target the distributed deployment of batteries behind the meter (BTM), NWA value could also be important factor. Liberty's proposed battery deployment, in combination with DG, smart inverters, RTP, and BTM power factor correction (providing VARs and voltage regulation services) might create an even more optimal and least cost solution for the projected wires capacity constraint in W. Lebanon.

2. If the NWA pilot programs are open to other DERs in addition to DG, will the pilots provide sufficient "experience and data demonstrating the effects of DG on potentially• stressed components of the utility distribution system at specific locations," per the June 23rd Order?

Yes, it seems most likely that if other DERs are included the pilots will best provide sufficient experience and data to demonstrate their true value and may fail to do so if other DERs are excluded. For example, with only a few locations being piloted, if DG alone can't cost-effectively provide an acceptable solution or is only marginally lower in cost than the wires solution, DG might be deemed to be of little or no value for this purpose. However, if, in combination with other DERs there are multiple solutions that would provide a range of savings compared with the wires solution, then there would be multiple data points relative to value, as well as duration, reliability and risk of various solutions if those might also be evaluated. Allowing all DERs to compete for the best solution will provide the most useful information.

3. If the answer to question 2 above is negative or uncertain, should NWA pilot programs be undertaken in this docket?

The City is ambivalent as to whether Liberty's effort to implement consideration of NWAs occurs within this docket or not. The important thing is that a range of DERs should be considered and allowed to compete for the best value solutions. Data collection and experience

from Liberty's consideration and evaluation of NWAs at the two candidate locations that they have identified thus far should be shared in this proceeding and be used to help inform the planned Value of DER study.

4. If the answer to question 3 above is negative, should NWA pilot programs instead be deferred for potential implementation in other contexts, such as utility integrated resource planning dockets or grid modernization initiatives?

Liberty's implementation of full consideration of NWAs has already been approved in its last LCIRP case and should not be delayed or held up by the pilot called for in this proceeding. It's not clear that trying to constrain the timing of Liberty's NWA evaluation process to fit with the timing of a one-time "competitive solicitation process overseen by a neutral third party consultant engaged by the Commission" makes sense as they need to develop an ongoing procedure that can harness the power of competitive markets and choices to find the least cost-solutions. However, such a consultant in conjunction with this proceeding may be able to aid the Commission and Liberty in developing a good ongoing process in this regard.

Certainly the issues being raised are integral to grid modernization and it would make sense going forward to begin to better integrate the consideration of net metering and DG with the broader issues of modernizing the grid to create a more optimal integrated smart grid with smart rates that supports an economically and environmentally smart and sustainable future.

5. If NWA pilot programs are not undertaken in this docket, should studies be conducted to determine the potential benefits of DG deployment as a means of avoiding or deferring distribution system capital projects in specific locations?

Yes, the value of DG for avoiding distribution costs is integral to the Value of DER study.

6. If NWA pilot programs are not undertaken in this docket, should maps or other presentations be prepared showing locations where DG installations potentially would be beneficial as a means of avoiding or deferring distribution system capital projects?

Yes. We won't fully realize the value of DG and other DERs for avoiding or deferring

distribution system capital projects unless stakeholders, including various DER providers and potential providers, know on a timely and ongoing basis, from the utility system planners, where and when NWAs might potentially be viable and competitive with conventional utility solutions. This then needs to be coupled with opportunities to discover least cost solutions, including those driven by competitive innovation. The best way to do this would be to develop smart rate structures and competitive retail electricity markets with sharing platforms that enable and value all of the potential services that various DERs can provide to the distribution and transmission grids, as well as energy markets, including real energy (kWh), reactive power (kVAR), and capacity/reserves (KW). An outline of this approach can be found in a paper entitled "Distributed Energy Resources: New Markets and New Products" that is part of the Proceedings of the 50th Hawaii International Conference on System Sciences, 2017 found at: http://scholarspace.manoa.hawaii.edu/bitstream/10125/41519/1/paper0370.pdf.

7. If NWA pilot programs are not undertaken in this docket, should some other methodology not identified above be used to determine the potential benefits of DG deployment as a means of avoiding or deferring distribution system capital projects?

Yes, I refer the reader to additional resources that suggest how the value of DG and other DERs with regard to both distribution system capacity and power quality might be estimated. First is a set of recommended readings that specifically address valuing DERs for distribution services from the Smart Electric Power Alliance in partnership with the AEE Institute and Rocky Mountain Institute: "Beyond the Meter: Recommended Reading for a Modern Grid," June 2017 (see p. 12) that can be found at: https://sepa.force.com/CPBase__item?id=a121J00000mMInvQAG. There are other publications in the SEPA "Beyond the Meter" series that are also relevant, such as "Addressing the Locational Valuation Challenge for Distributed Energy Resources" with Nexant found at: https://sepa.force.com/CPBase__item?id=a12o000000RNvYdAAL.