

As occurred in the DE 16-576 hearings regarding a net metering tariff, there was general consensus on many of the issues. However, some parties, including the New England Ratepayers Association (NERA), continue to assert that several of the elements of compensation should not be included in any net metering tariff. It was argued during that docket and will continue to be argued by NERA that any elements included in a net metering structure must be directly related to the benefits received (as well as the costs incurred) and must be quantifiable.

Despite this logical approach to protect ratepayers, the PUC determined an arbitrary valuation on transmission and distribution benefits, and only then proceed with this study to determine if there is any real, quantifiable value that might be included in a net metering tariff. NERA consistently argued in the prior docket that it was not appropriate to put the cart before the horse by compensating DG for unquantified and unsubstantiated benefits, and then attempt to determine after the fact if those levels of compensation are justified or not. From the standpoint of grandfathering in DG systems based on unsubstantiated value, only to possibly determine that a proper valuation would provide much less compensation is unfair to ratepayers and goes against the intent of HB 1116. Regardless of this illogical progression, NERA supports a formal evaluation of the costs and benefits of DER and applying those to the net metering tariff.

### **Consensus items**

As noted in the staff report, there is general consensus around a majority of the specific parameters which will be evaluated by the PUC consultant. NERA supports the staff request to have the independent consultant provide an analysis and evaluation of the value of DER for these specific items.

### **Lack of Consensus Items**

There are six individual cost elements where consensus has not been achieved. NERA provides the following comments for the staff, the Commissioners and the consultant to consider as the process for valuing DER takes place.

#### **Transmission Capacity**

As noted in the net metering tariff docket proceedings, many of the parties believe, based on a number of studies<sup>1</sup> from around the country, that DERs do not provide any substantial benefit to transmission, and certainly nothing close to the full transmission compensation which is allowed under the PUC's (interim) net metering decision. When considered with respect to peak load timing, the seasonality of transmission constraints, the lack of DER energy moved

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<sup>1</sup> "Estimating the Impacts of Net Metering on LPSC Jurisdictional Ratepayers" by Acadian Consulting Group <http://lpscstar.louisiana.gov/star/ViewFile.aspx?Id=f2b9ba59-eaca-4d6f-ac0b-a22b4b0600d5>; and "Valuation of Distributed Solar: A Qualitative View" by Ashley Brown <https://sites.hks.harvard.edu/hepg/Papers/2014/12.14/Brown%20%20Valuation%20of%20%20Distributed%20Solar%20%2011.14.pdf>

outside of its immediate distribution loop and the potential costs if/when the density of DER requires substation upgrades to transmit power around the grid, the transmission benefits are de minimus and possibly negative.

Many studies which have quantified any transmission capacity benefit estimate that value in the \$30-\$50/kw-yr., which equates to approximately \$0.0034/kwh to \$0.0057/kwh – a value which is 70% to 80% less than the approximately 2 cents per kWh benefit the PUC arbitrarily assigned<sup>2</sup>. Even these much lower values are speculative given the complexity of properly identifying value (or cost) for transmission capacity as well as the potential for transmission system upgrades in cases where DG density requires system modifications. And it is even more problematic when considering that any transmission benefits are more likely due to large utility scale projects and not any net metering qualified development.

Given that the most egregious assignment of value in the existing net metering tariff on a percentage basis is in the transmission portion (while the costliest absolute assignment of value is the use of default energy pricing over wholesale/LMP pricing), as well as the limited congestion values for transmission that occur in New Hampshire during periods of solar generation, NERA supports a quantification of this benefit as it applies to transmission capacity. If specific quantification cannot be determined, then this value should not be included in any net metering tariff. “Proxy” values should not be an acceptable alternative in lieu of any formal quantified assessment.

### Distribution Capacity

The current recommendation of staff recognizes the general consensus that distribution capacity values will be assessed in a separate distribution-level locational value study. NERA concurs that this is the best approach to formalize the actual value for distribution capacity compensation, but NERA also believes that this study should focus on assessing and developing a method of compensation that identifies the specific and real benefits and, if possible, avoids a universal assessment based on assumptions that compensates all DG installations when only specific DG installations should benefit.

The current net metering tariff includes 25% of distribution value to existing DG systems. NERA believes this value is far above the actual benefit provided by DER in general and for almost all installations in particular. Recent studies using real time data have indicated that even in more

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<sup>2</sup> “2013 Updated Solar PV Report” by SAIC for the Arizona Public Service ([https://azenergyfuture.files.wordpress.com/2013/04/2013\\_updated\\_solar\\_pv\\_value\\_report.pdf](https://azenergyfuture.files.wordpress.com/2013/04/2013_updated_solar_pv_value_report.pdf)), and “Costs and Benefits of Distributed Solar Generation on the Public Service Company of Colorado System” by Xcel Energy Services (<http://www.eei.org/issuesandpolicy/generation/NetMetering/Documents/Costs%20and%20Benefits%20of%20Distributed%20Solar%20Generation%20on%20the%20Public%20Service%20Company%20of%20Colorado%20System%20Xcel%20Energy.pdf>) are two examples.

concentrated DG areas of the country, the benefits to the distribution system from DG is extremely limited to local loops that may have congestion problems that require upgrades<sup>3</sup>. Avoiding this additional capital cost is the only real benefit to distribution which DG can provide. Adding DG to a distribution circuit that isn't near capacity provides no value, whereas DG on a constrained distribution loop may provide more than the 25% of distribution value in the current tariff.

As indicated by the utilities in the prior net metering docket, almost all of the distribution circuits in New Hampshire would not require any additional capital spending to accommodate even much higher levels of DG penetration. As such, there really is no benefit provided and distribution compensation should be de minimus rather than the existing 25% value. For those local distribution systems that may require capital upgrades, compensation for DG should be based on whether the DG installation is the lowest cost solution to the congestion problem. If an economic assessment of the options for relieving that congestion indicates that substation upgrades are the lowest cost solution, then no credit should be provided under the net metering tariff. If it is determined that the DG installation is the lowest cost solution, then those specific installations should receive compensation for the real and quantifiable benefit they are providing.

The consultant should be required by staff to assess a methodology and/or criterion which can be used by the utilities and/or the PUC to allocate distribution capacity value to those systems that are truly providing distribution benefits. Staff should encourage the consultant to utilize real date over engineering models. This is the preferred solution to ensure we are providing proper price signals and are rewarding systems located where they are most needed. It also avoids cost shifts which is a preferred outcome by the legislature.

#### Distribution System Operating Expenses

The partial consensus on this element of the net metering docket is indicative of the need to focus on real, tangible, quantifiable values and avoid "proxy" values which are little more than a reach to metrics outside of the real evaluation of costs and benefits to ratepayers. In this case, and as recognized in the staff scope and timeline report, this aspect of study may only be accomplished through less than reasonable time and costs commitments. NERA is highly skeptical that any consultant can properly assess this metric, in addition to being very skeptical that this metric will end up positive at all. As such, NERA recommends that the PUC staff

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<sup>3</sup> There are several excellent papers which have conducted real time data studies (as opposed to modeling) indicating very little value to transmission by DER. One of the most recent is the "Effects of Distributed PV Generation on California's Distribution System: Economic Analysis" by Cohen, Kauzmann and Callaway (2016). That study used real time data from DER and found that even in California capacity deferral values are concentrated in only about 1% of the circuits, while the overall value was \$6/kw-yr, or \$0.0007/kwh across all circuits.

identify how much time/cost the Commission will allow the consultant to spend in order to quantify to the extent possible this element of the tariff. If the consultant proposal either does not break out the time/cost with respect to this area of study, or if the time/cost estimate exceeds the PUC staff reasonable expectations, then the staff should defer having the consultant spend time and money on this effort.

#### Hedging/Wholesale Risk Premium

This element, even more than the Distribution Operating Expenses, is highly speculative in terms of real value provided through DG. All through this docket the utilities have indicated that hedging activities do not occur and that trying to evaluate a value for “hedging” is a waste of time and money. The DG advocates have acknowledged this but have been proposing that some form of proxy estimate approach be assessed and recommended by the PUC consultant. Given the lack of foundational costs to base this against (i.e. actual hedging costs by the utilities which would be offset) it is unreasonable and irresponsible for the PUC to devote time and resources to this metric. The costs for these studies are ultimately borne by ratepayers and it is incumbent on the PUC staff to justify any attempt to find a proxy metric for a cost that doesn’t even actually exist. Focusing the consultant’s time on the more important elements (i.e. transmission values) and ignoring requests for studying metrics which are irrelevant to our existing electric infrastructure is the responsibility of the PUC staff. In this case they should not request assessment of hedging premiums under this study.

#### Externalities

DER advocates have been strenuously arguing for the inclusion of “externality” value for inclusion in the net metering tariffs. NERA argues that inclusion is not warranted due to the fact that many of the external values they advocate for are already embedded in energy rates. In addition, a net metering tariff should reflect the value to the ratepayer for the commodity provided – namely electricity – and any value outside of the direct costs and benefits to the electric grid which advocates consider due for compensation should be done through the legislative process and not through tariff filings.

The single largest externality which DER advocates want to include in net metering tariffs is the social cost of carbon and advocates argue for use of the federally established Social Cost of Carbon by the EPA. Recognizing that the focus of this docket is not one that is conducive to critiquing the flawed methodology of this federal assessment (i.e.. use of arbitrarily low discount rates, ignoring quantifiable present value benefits of CO<sub>2</sub>, attributing health benefits not directly linked to CO<sub>2</sub>, the use of opaque and speculative future “benefits” to establish the SCC, etc.), NERA will refrain from documenting this data currently, but will provide extensive analysis if the Commission and the staff consultant choose to use this flawed metric. More directly though, the use of any externality valuation, especially a SCC based form of compensation, is not part of the scope of the net metering tariff legislation. NERA believes that

it is improper to consider this element as part of the net metering tariff and it should not be included in the scope to the consultant, for the following reasons:

DER advocates regularly point to the language in HB1116 (specifically the Purpose Statement) as support for including environmental benefits in a net metering tariff, but a straightforward reading of the statute indicates there is no directive to include environmental benefits in the tariff itself.

In Section 1, the Purpose Statement, the bill notes “To meet the objectives of electric industry restructuring pursuant to RSA 374-F, including the overall goal of developing competitive markets and customer choice to reduce costs for all customers, and the purposes of RSA 362-A and RSA 362-F to promote energy independence and local renewable energy resources, the general court finds that it is in the public interest to continue to provide reasonable opportunities for electric customers to invest in and interconnect customer-generator facilities and receive fair compensation for such locally produced power while ensuring costs and benefits are fairly and transparently allocated among all customers. The general court continues to promote a balanced energy policy that supports economic growth and promotes energy diversity, independence, reliability, efficiency, regulatory predictability, environmental benefits, a fair allocation of costs and benefits, and a modern and flexible electric grid that provides benefits for all ratepayers.”

The first sentence of this two sentence Purpose Statement is the more critical of the two, as it specifically addresses the purpose of providing for a net metering tariff. As indicated, “the general court finds that it is in the public interest to continue to provide reasonable opportunities for electric customers to invest in and interconnect customer-generator facilities and receive fair compensation for such locally produced power while ensuring costs and benefits are fairly and transparently allocated among all customers.” (Emphasis included)

This sentence makes references to fair and transparent costs and benefits. The elements of this are detailed in Section XVI of the bill which states “In developing such alternative tariffs and any limitations in their availability, the commission shall consider: the costs and benefits of customer-generator facilities; an avoidance of unjust and unreasonable cost shifting; rate effects on all customers; alternative rate structures, including time based tariffs pursuant to paragraph VIII; whether there should be a limitation on the amount of generating capacity eligible for such tariffs; the size of facilities eligible to receive net metering tariffs; timely recovery of lost revenue by the utility using an automatic rate adjustment mechanism; and electric distribution utilities’ administrative processes required to implement such tariffs and related regulatory mechanisms.”

All of the specific elements referenced in this language instruct the commission to focus on the value of the commodity provided and the impact on utilities and ratepayers. There is no reference to vague external values that may be provided outside of those that impact the electric grid, the utilities and the customers. This language, and not the purpose statement, is

the direct statement as to what to consider as part of a net metering tariff. As such there is no legislative justification for including a vague, non-transparent, indirect and open-ended metric for the consultant to evaluate.

In addition, the second sentence of the Purpose Statement refers directly to the efforts of the General Court and in no way empowers the PUC to go beyond the scope of the specifics in Section XVI. That language states:

“The **general court** continues to promote a balanced energy policy that supports economic growth and promotes energy diversity, independence, reliability, efficiency, regulatory predictability, environmental benefits, a fair allocation of costs and benefits, and a modern and flexible electric grid that provides benefits for all ratepayers.”

It is unreasonable to argue that because the general court stated its priorities for overall energy policies as a whole that the PUC must include those in a net metering tariff. By that measure the PUC should consider economic growth considerations as an valuation element of the tariff, a “value” on energy independence and a reliability premium/discount, among others. It is far more reasonable to read this statement as one of what the general court is promoting and not as instructions to the PUC.

Finally, it is argued by NERA and others that any value for externalities have been and should be considered and provided through the general court and not a net metered tariff. In fact, many elements such as RGGI benefits, RPS mandates, tax benefits, grant programs, etc. are already providing substantial “externality” compensation for DG resources. If there is a determination of additional externality value by DER then the general court should address it in conjunction with these other existing programs. The PUC, if it considers additional values to include in a tariff for items like a “social cost of carbon”, will certainly be double counting on top of these existing general court sponsored programs and will be penalizing ratepayers. This also goes against the specific language in Section XVI which requires the commission to avoid unjust and unreasonable cost shifts. Making ratepayers compensate for something that is already being done by the general court programs would certainly appear to be an unreasonable and unjust tariff mechanism.

As such, NERA recommends that the consultant not be instructed to spend ratepayer time and money on identifying a vague and inappropriate “Externality” compensation mechanism as part of the net metering tariff.

## **Additional Matters for Consideration**

### **Discount Rates**

The staff properly notes in Section C.4 that there should be a review and understanding of proper discount rates in this analysis. Historically the use of unreasonably low discount rates has driven economic justification of renewable projects which would not be supported using a

more reasonable rate assumption. Even here in New Hampshire, many of the renewable grant requests used economic analysis with discounts rates approximating 3% over a 20-year time horizon. This is equating a project that has construction risk, performance risk, and energy price risk with the US Treasury “risk free rate” on a 10 or 30-year bond. That is entirely inappropriate except to the extent that a low discount rate was used to justify and receive funding for the projects.

In addition to assessing discount rates used in any of the materials provided by the consultant to the PUC, the consultant should also fully understand and weigh the use of arbitrarily low discount rates that appear in many of the VDER studies used by the industry. The use of discount rates as low as 2-3% which justify policy decisions should be either heavily adjusted by the consultant before recommending those studies guide PUC policy, or entirely ignored due to the glaring flaw of using a discount rate below the “risk free” rate of US bonds. Especially in the current rising interest rate environment and energy price risk environment, a detailed and defensible discount rate is extremely important to provide credibility to any PUC decisions.

The PUC should require any consultant recommendation on the discount rate to provide a detailed summary of the elements used to construct the preferred discount rate. This should include which “risk free” rate is used as the baseline and what other risk elements need to be considered for a discount rate used for these purposes. This would presumably include what type of risk is assumed for energy prices, regulatory and legislative risk, other inflation risks, and other externalities which are not individually considered in the financial modeling.

As part of the assessments for any element of valuation which uses a discount rate, the consultant should also provide a sensitivity analysis which shows the value across a range of discount rates, preferably as low as the “risk free rate” of 3.0% to as high as 12% which would be appropriate for more speculative and less quantifiable elements of valuation. By doing this the consultant can provide staff, participants and the Commissioners in the docket with a better perspective on projected values.