BEFORE THE STATE OF NEW HAMPSHIRE

PUBLIC UTILITIES COMMISSION

In the matter of:	**)**
Electric Distribution Utilities	**)**
Docket No. DE 16-576	**)**
Development of New Alternative Net Metering Tariffs	**)**
And/or Other Regulatory Mechanisms and Tariffs for	**)**
Customer Generators	**)**

Direct Prefiled Testimony

Of

Elizabeth Doherty
Advanced Energy Clinician, Energy Clinic, Vermont Law School

Dated: **October 24, 2016**

OFFICE OF CONSUMER ADVOCATE

TESTIMONY

Docket DE 16-576, Development of New Alternative Net Metering Tariffs, &c.

Q: What is your full name and qualifications?

A: My name is Elizabeth Doherty and I am currently in my second year at Vermont Law School working as an Advanced Energy Clinician at the Energy Clinic while pursuing my JD and Master's in Energy Regulation in Law.

Q: What is the role of the Vermont Law School Energy Clinic in this proceeding?

The Energy Clinic was engaged by the Office of the Consumer Advocate (OCA) to make recommendations for a new community solar tariff as part of this alternative net metering tariff proceeding.

Q: What is the purpose of your testimony?

A: My testimony describes the community solar tariff that we recommend be implemented pursuant to this proceeding.

Q: Please summarize your testimony.

A: This docket presents New Hampshire with an important opportunity to extend the benefits of distributed generation beyond its traditional constituencies to a broad swath of the Granite State through a renewed and expanded commitment to community solar. Building upon the fixed solar credit option the OCA is proposing for individual customers, we propose that utilities adopt a community solar tariff that rewards participants in community solar projects for retiring Renewable Energy Credits (RECs) – because the act of retiring such credits is what makes a community truly "go solar." In addition to this environmental "adder," we are proposing a similar mechanism that rewards community solar projects for including people of low and moderate income among their participants. We believe that such a program laudably aligns the interests of consumers with broader societal goals, the achievement of which community solar is particularly well-suited.

Q: What is community solar?

A: Community solar allows customers across a large geographic area (e.g. a utility service territory) to participate jointly in all of the benefits of a single solar photovoltaic (PV) project. While traditional net metering programs have allowed many residential customers and small businesses to participate in the benefits of solar ownership, many customers are not able to

participate given the lack of a good solar site or the fact that they may live in multiunit rental housing. The National Renewable Energy Laboratory estimates that 49 percent of households and 48 percent of businesses are unable to host a PV system.[1] NREL, in its report titled "Rooftop Solar photovoltaic Technical Potential in the United States: A Detailed Assessment" and issued in January 2016, estimated that for New Hampshire "only 26% of the total rooftop area on small buildings ... is suitable for PV deployment" and that the rooftop PV technical potential for New Hampshire's small buildings (those with a footprint smaller than 5,000 ft^2) is approximately 32.4 percent of total electricity sales from the electric industry in 2013.

Typically, community solar projects are structured in one of two general forms. Under the direct ownership model, a community solar array is developed to allow a group of customers to own a percentage of a solar array and have the solar energy output reflected as a credit on their utility bills (or, under current New Hampshire law, as a payment from the host. *See* RSA § 362-A:9, XIV(c), N.H. Code Admin. Rules Puc 909.05(a)(2) and Puc 909.08) for their portion of the energy produced by the solar array. This type of project provides solar energy ownership to renters or other customers who are unable to install rooftop solar due to unsuitable roofs because of structural integrity or a lack of sufficient sunlight. A second form of community solar is the third party model where a third party finances and owns the community solar array and charges the customer a fee for participation in the project and the customer receives the solar credits on her utility bill (or as a payment from the host).

Q: Does New Hampshire currently permit community solar?

A: Yes, New Hampshire's current group net metering statute, RSA § 362-A:9, XIV, and New Hampshire Code of Administrative Rules Puc 909, permit community solar through group net metering.

Q: What are the goals of the community solar tariff you propose?

A: Our community solar proposal offers customers an option for receiving the benefits of solar that they would not otherwise have available and is structured to work with our fixed solar credit rate outlined in the testimony of OCA witness Lon Huber. Furthermore, our tariff proposal would provide customers with all of the opportunities available to owning their own solar energy system

[1] Feldman, D., Brockway, A., Urlich, E. and Margolis, R., Shared Solar: Current Landscape, Market Potential, and the Impact of Federal Securities Regulation, NREL U.S. DOE, April 2015, p. V.

including providing to the customer the environmental attributes, particularly any Renewable Energy Certificates (RECs), associated with generating the renewable energy so that the customer can be sure she is legally purchasing solar electricity and can claim the environmental attributes and carbon reductions for their community as well as the State of New Hampshire.

Q: Are there any additional features to your community solar rate that you propose?

A: Yes, our community solar rate proposes to include a low and moderate income (LMI) adder to help support increased participation by LMI customers. Higher energy burdens for low-income people contribute to health problems such as asthma, respiratory problems, heart disease, arthritis and rheumatism due to poorly heated or cooled housing. High energy bills may also lead to low-income people foregoing purchasing nutritious food, medicine, medical appointments, and other necessities.[2] Low-income residents face additional challenges to gaining access to solar energy opportunities because they may lack the creditworthiness to obtain low-cost, long-term financing.[3]

Solar energy produces clean, renewable energy. It can provide long-term financial benefits to low-income people struggling to pay uncertain and rising energy costs.[4] The installation cost of solar energy has fallen more than 70 percent in the last ten years.[5] It is important to provide access to LMI customers to facilitate long-term energy stability and an alternative to rooftop solar installations.[6]

Q: What is the structure of the Community Solar Rate that you propose?

A: Our Community Solar Rate is built upon the fixed solar credit rate with a fixed adder for the environmental attributes of the solar energy produced plus a fixed adder based on the percentage of LMI participation in the community solar project.

Q: What is the "fixed solar credit rate"?

[2] Shahyd, K. (Khalil).(April 20, 2016). "Study highlights energy burden for households and how energy efficiency can help." *NRDC*. Retrieved October 10, 2016, from https://www.nrdc.org/experts/khalol-shahyd/study-highlights-energy-burden-households-and-how-energy-efficiency-can-help

[3] *Ibid.*

[4] FRID Alternatives, Vote Solar Initiatives, and Center for Social Inclusion. (March 2016). "Low-income solar policy guide website." Retrieved July 7, 2016, from http://www.lowincomesolar.org/

[5] Dong, X. (Xiumei) (5/09/16). "Turning low-income neighborhoods on to solar power." Retrieved July 6, 2016, from http://www.usnews.com/news/articles/2016-05-09/turning-low-income-neighborhjoods-on-to-solar-power

[6] Dobos, H. (Hillary M.) & Artale, E. (Emily). (November 2015). "Analysis of the fulfillment of the low-income solar policy guide website." Retrieved July 7, 2016, from http://www.lowincomesolar.org/

A: The fixed solar credit rate is the rate structure described in the testimony of OCA witness Lon Huber beginning at page 33 of his testimony.

Q: Please explain the "fixed adder for the environmental attributes of the solar energy."

A: The phrase "environmental adder" refers to the additional payment per kWh that would be added to the fixed credit rate for customers who elect to keep bundled the electricity and environmental attributes, including Renewable Energy Certificates (RECs), generated from their renewable energy facility. That means that a customer retires the RECs associated with her renewable energy generating facility, instead of transferring or selling those RECs. As the current New Hampshire statute, RSA § 362-A:9, IX, and NH Code of Administrative Rules, Puc 903.02, dictate, RECs from a customer's renewable facility shall remain their property until the RECs are transferred or sold. This adder would apply to those customers who generate, but do not transfer or sell their RECs.

Q: How can we ensure customers don't actually sell their RECs?

A: There would need to be a legal mechanism in place to hold customers accountable for keeping the electricity and RECs generated by their renewable energy generating facility bundled if the customer wants to take advantage of the environmental adder. For example, the host and each member of a group net metering project could be required to certify that they will keep the electricity and RECs generated by the renewable energy generating facility bundled and will not transfer or sell the RECs issued to that facility. The utility could also include this selection as a part of their interconnection agreements.

Q: What is the justification for an "environmental adder"?

A. The customer who retires her RECs in New Hampshire by keeping the electricity and RECs bundled is contributing to the state's greenhouse gas reduction goals and should be compensated for this contribution. The adder represents the environmental benefit to society and to New Hampshire as a result of increased renewable energy capacity and decreased greenhouse gas emissions. The idea is that every renewable system added to the grid, where the customer retires her RECs in-state, is contributing to reducing the state's carbon footprint and increasing quality of life. As a result, all Granite Staters are benefitting from the cleaner environment and therefore the customer responsible for this benefit should be compensated more generously than a customer who chooses to sell her RECs out of state.

Further, when a customer sells her RECs to the utility, instead of keeping the electricity and

RECs bundled, the customer and hercommunity do not truly receive the benefit of "going solar."[7]

Q: How does the environmental adder differ from the customer's option to sell her RECs to the utility at a long term fixed rate as outlined in the testimony of Lon Huber?

A: The environmental adder recognizes and compensates the customer for the environmental benefits to society that that customer contributes by keeping the electricity and RECs bundled. Selling the RECs to the utility, on the other hand, enables the utility to comply with its RPS mandates.

Q: But doesn't selling the RECs to the utility get the job done by helping to make it possible for a community to add to its supply of solar energy?

A: Not quite. Renewable Energy Credits do represent the environmental *attribute* associated with renewable energy production, but that is separate from compensation for the societal environmental benefit resulting from renewable energy generation. Under this model, with an environmental adder to the net metering rate, customers will retain possession of their RECs and retire the RECs themselves, but the rate will compensate the customesr for the benefit they are providing for New Hampshire. The utility will not own the RECs and therefore could not count those customers' RECs as a part of the utility's RPS requirements. The true essence of community solar is solar for the community, not just solar development in the community.

Q: Do other states allow the environmental attributes including the RECs to be retained by the customer?

A: Yes, consistent with current New Hampshire law this is what the current New Hampshire net metering program allows and in states such as California under the Green Tariff Shared Renewables program the RECs are retained and retired on behalf of the participating customer and not for RPS compliance by the utility.

[7] "If the utility keeps the RECs for any reason, including for Renewable Portfolio Standard compliance, then only the utility can make environmental claims related to the solar system." *Community Shared Solar FAQ*, U.S. DEPARTMENT OF ENERGY, http://apps3.eere.energy.gov/greenpower/community_development/community_solar_faq.html (last visited Feb. 24, 2016). *See also Making Environmental Claims*, ENVIRONMENTAL PROTECTION AGENCY http://www3.epa.gov/greenpower/buygp/claims.htm

Q: How would the energy generated by community solar be recognized for New Hampshire's RPS compliance by the utilities?

A: Utilities could not recognize the solar energy generated from community solar projects that take advantage of the environmental adder and retain their RECs and use that energy towards RPS compliance. Instead, the utilities should be allowed to exclude the total kWh generation from community solar facilities from total load calculations for RPS compliance. In this sense, the utility would treat community solar generation as a conservation measure where any community solar capacity would appear as a reduction in the utility's overall load. RPS requirements are measured as a percentage of the utility's overall load, therefore, by accounting the community solar as a reduction in total load, the utility's MWh requirement would be lower.

Q: How much is the environmental adder?

A: We have proposed a $0.03/kWh environmental adder.

Q: Where does that price come from?

A: This price reflects the historic regional market price for Renewable Energy Credits, which has, in recent times, ranged from $30 to $60 per MWh. We propose that it would be prudent to set the adder for a ten-year period at the lower end of that range, or $30 per REC ($0.03/kWh).

Q: If the environmental adder is related to the environmental benefit of renewable generation, which is separate from the environmental adder related to RECs, why is the environmental adder price based on the Renewable Energy Credit market?

A: Although the utility would not be purchasing the RECs from the customer with the environmental adder, the customer is giving up revenues that could be generated from the sale of their RECs to the utility or out-of-state, and yet the customer is contributing the same benefits to the state. Therefore, using the REC market price represents just compensation for the customer.

Q: If the customer would receive the same price whether they sell their RECs out-of-state or retire their RECs in exchange for the environmental adder, what is the incentive for a customer to retire their RECs?

A: Firstly, by retiring their RECs a customer will be able to claim she is using the renewable energy that she has generated. If that customer sells her RECs she would not be able to make that claim. Secondly, the REC market is highly sensitive to the legislation that created the market. There is no guarantee of the market's stability nor of the market price of RECs. If a customer chooses to sell her RECs, her payback period for their system could fluctuate dramatically

depending on the REC market.

Q: Is there a mechanism for adjusting the environmental adder?

A: Yes, we propose that the Public Utilities Commission conduct a biennial review of the environmental adder to ensure it appropriately reflects current state goals. This process should review the pace of deployment of net-metering systems and ensure it is consistent with state greenhouse gas reduction goals, that group net metering does not result in undue rate impacts, and that the program accounts for changes in costs of technology over time. A similar review would be conducted for our proposed LMI adder.

Q: Would the biennial review impact the rate paid to existing customers?

A: Not for the first 10 years, we would propose that the environmental adder in place at the time that a project is approved be guaranteed for a 10 year period. Following that period the rate would be adjustable per the PUC review process.

Q: What happens if a customer doesn't want the adder?

A: No customers will be required to retire their RECs and receive the environmental adder. If the customer chooses not to take advantage of the adder they would simply not check the box on the interconnection agreement or not sign the affidavit. The customer would still be interconnected and would receive the fixed net metering rate or auction price described in the testimony of Lon Huber and any other applicable adders, such as the LMI adder. The customer would be free to do whatever she wanted with her RECs, but if they chose to sell their RECs, she would no longer be able to claim that they are using clean, renewable energy. Under the current host arrangement for group net metering, the group would all be required to make the same determination in regards to the adder and the bundling of the RECs.

Q: Can the customer change her mind later?

A: No, this would be a one time election process to prevent customers from gaming the system based on market prices and to reduce any administrative burden associated with frequent changes.

Q: In addition to the environmental adder, you are also recommending an LMI adder. What is LMI?

A: LMI is the abbreviation used for "low to moderate income."

Q: What is the current federal definition for low and moderate income households?

A: The U. S. Department of Housing and Urban Development defines the term *low-income household* as a household with an income equal to 80 percent or less of the applicable area median income. The term moderate-income household is "generally defined" as cash income of 140 percent of the area median income.[8]

Q: Please describe the proposed LMI adder.

A: The LMI adder is an incentive that is paid in addition to the community solar rate in order to increase the number or percentage of service provided to low to moderate income households. The LMI adder is intended both to increase the participation of LMI customers in net metering and to distribute the benefits to all customers in a more fair fashion.

Q: How would the LMI adder work?

A: To qualify for the adder, participating community solar projects would have to certify the percentage of LMI customer participation on a kW share basis. The kW percentage share of LMI participation would then be multiplied times the LMI incentive. For example, if 15 percent of the kW shares were subscribed by LMI customers then the project rate would be increased by the LMI incentive multiplied by 0.15; if the LMI participation was 35percent then the project rate would be increased by the LMI incentive multiplied by 0.35.

Q: What rate would you propose for the LMI incentive?

A: Our initial proposal is $0.03 per kWh. The goal of the LMI incentive is to provide sufficient cash flow to the project to reduce the payback period sufficiently to incent increased LMI participation. After two years, the PUC would undertake a process to review and adjust the LMI incentive as necessary to incent fair access to community solar for LMI customers going forward using the biennial review process referred to in my testimony regarding the environmental adder.

Q: For what period would the LMI adder be available?

A: The LMI adder would be locked in for participating customers for a ten-year period to ensure the ability of LMI customers to finance their participation over a reasonable payback period. For new customers they would be subject to the current LMI incentive as updated biannually by the PUC.

[8]U. S. Department of Housing and Urban Development. Low and Moderate Income Definitions under the CDBG Program. October 19, 1984. http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/communitydevelopment/rulesandregs/memoranda/lmidef84

Q: Why is an LMI Adder needed?

A: According to a recent study, low income households spend an average of 7.2 percent of their income on energy bills, which amounts to about $1,700 annually out of $25,000 median income. This is more than triple the 2.3 percent spent by wealthier households[9] and puts additional pressure on already tight budgets, making low-income residents significantly more susceptible to growing energy costs. Additionally, solar energy provides community benefits, including local jobs and economic growth, and the reduced carbon emissions rates essential to lessening the damaging effects of climate change. Solar energy provides significant benefits to the low-income residents that need them most, but who are often least familiar with how this renewable resource can improve their lives.

Q: Are there other models for LMI incentives in other states?

A: Yes, for example, Xcel Energy's Solar*Rewards Community Program provides incentives to stimulate the development of community solar gardens in its service territory. Of the total megawatts (MW) of projects dedicated to Solar*Rewards Community annually, a portion will be allocated to standard offers of 500 kilowatts (kW) or less. The remaining MW will be dedicated to the large request for proposal (RFP) program for large (greater than 500 kW) systems, for competitive project development. At least 5 percent of the allocation must be attributed to income-qualified subscribers. Customers that are a member of Energy Outreach Colorado, The Atmosphere Conservancy, the Colorado LEAP Program, or a Municipal Housing Authority qualify as low income. Customers must complete a Low-Income Verification Form signed by a representative of the relevant organization. Low-income customers do not face the 1 kW minimum subscription level.

Q: Why not adopt a system like Colorado's which requires a minimum participation rate for LMI customers?

A: Colorado's program has merit but our design is intended to incent higher participation by LMI customers rather than setting a low mandatory requirement. Our proposal will provide increased incentives for LMI customers to participate in net metering and will allow LMI communities such as New Hampshire's many Resident Owned Communities (ROCs) to achieve higher incentives for projects that include high participation by LMI customers.

[9] Shahyd, K (Khalil). (April 20, 2016). "Study highlights energy burden for households and how energy efficiency can help." NRDC. Retrieved October 20, 2016, from https://www.nrdc.org/experts/khalil-shahyd/study-highlights-energy-burden-households-and-how-energy-efficiency-can-help.

Q: Can the PUC approve and implement our proposal without first requesting that the Legislature amend RSA 362-A:9, XIV, the statute that governs group net metering in New Hampshire?

A: Legal issues are beyond the scope of this testimony and, in due course, I assume the OCA will brief and argue any statutory issues that arise in this docket through counsel. I would note, however, that what we are proposing here is not explicitly prohibited by RSA 362-A:9, which begins by requiring the state's electric utilities to offer "[st]andard tariffs providing for net energy metering." Our proposal comprises, in effect, an outline of one such standard tariff – or, more precisely, one aspect of the "fixed solar credit" standard tariff the OCA is elsewhere proposing. RSA 362-A:9, XIV authorizes customer-generators to "become a group host for the purpose of reducing or otherwise controlling the energy costs of a group of customers who are not customer-generators." This opportunity can continue to coexist with the tariff provisions we are proposing, although it does not appear to be a desirable option.

Q: Why?

Under RSA 362-A:9, XIV, a group host "shall be paid for its surplus generation at the end of each billing cycle" and then compensates other group members according to whatever private arrangements the group members have made. The cash compensation regime has tax implications that make participation in such programs undesirable for most people. Our proposal offers an effective alternative by treating participants in community solar projects as fundamentally entitled to the same kind of benefits all customer-generators can access while, at the same time, recognizing that community solar has uniquely desirable attributes that deserve to be cultivated as a matter of sound public policy.

Q: Does this conclude your testimony?

A: Yes it does.