SOLAR ENERGY ASSOCIATION OF MAINE

Testimony in Opposition to LD 1347

An Act to Eliminate the Current Net Energy Billing Policy in Maine

Steven Weems, Board Member, Solar Energy Association of Maine

President, Dirigo Community Solar Group

To the Joint Standing Committee on Energy, Utilities and Technology

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Senator Lawrence, Representative Zeigler, and other members of the Joint Standing Committee on Energy, Utilities and Technology: my name is Steve Weems, a Board Member of the Solar Energy Association of Maine; also President of Dirigo Community Solar Group, a nonprofit association of 14 small, member-owned community solar farms. We respectfully oppose LD 1347 as a bill without any constructive provisions. There are far better ways to deal with the issue it seeks to address.

Net energy billing (NEB) is a bedrock clean energy program in Maine and across the nation. It is the backbone of our individual and collective response to worsening climate disaster. Some form of net energy billing is essential to allow individuals, businesses, and other entities of conscience to install clean energy equipment, or participate in cooperative projects generating renewable energy for them, and be charged on their utility bills only for any additional energy they need. About 25,000 Maine electricity customers already have heeded this call (page 15, DG Stakeholder Group report).

We have a national commitment to net energy billing, in various forms. NEB projects have real benefits for all Maine people, as well as ratepayer costs. In Maine and elsewhere, continuous improvements can and should be made to the NEB program, to enhance the benefits and reduce any net negative impact on other ratepayers. Some of these are available now, notably through the successor program recommendations of the DG Stakeholder Group. These would take up to 90% of the pipeline projects

currently eligible for net energy billing out of this program and transform this volume so it reduces the costs of all ratepayers. Other rate cost reductions will be available with improved battery technology, two-way grid construction, and time-of-use rate designs. Making it virtually impossible for customers to take direct action to address their contribution to climate disruption would be a regressive action that hurts everyone.

Distributed generation (DG) projects, including the smallest projects covered by the net energy billing program, are the foundation on which the dynamic, two-way grid of the future will operate. Unrealized utility revenues associated with NEB projects are not equivalent to negative ratepayer impact, due to the many benefits of small projects. Chair Bartlett of the Public Utilities Commission (PUC) made this point recently. Good policy entails identifying refinements that will increase benefits and reduce costs.

For example, data from CMP and Versant (November 2022) shows that 74% of all proposed projects are in the upper 2-5 MW range; and a mere 7% in the 0-1 MW category. (See chart on the next page, page 18 of the DG Stakeholder Group final report.) These smallest projects (0-1 MW) would decrease utility revenues about $12 million per year, resulting in a 1.2% increase in the customer delivery charge only. This equates to an increase of about $0.60 per month for a typical residential customer, before any offsetting benefits are considered. (Reference: Item # 9, pages 5-6 of Appendix A to this testimony.) This is a very small ratepayer impact, which simply illustrates the value of being surgical about potential change, contrasted with simply eliminating net energy billing.

In sum, we believe LD 1347 prescribes a destructive policy inconsistent with a clean energy future including distributed generation. There are more sensible ways to achieve ratepayer equity. Thank you for your service and consideration of our perspective.

Attachment: Total Pipeline of NEB projects, November, 2022

Appendix A follows

APPENDIX A

Considering the complexities of electrical energy policy, the following policy framework is a mixture of facts and perspective we hope you will consider when dealing with individual renewable energy bills, including LD 1347. This following framework relates to renewable energy projects of all sizes, with special attention to distributed generation (DG) and net energy billing (NEB) projects. We use the common definition of distributed generation as projects up to 5 MW in capacity. The following list includes big-picture considerations, with supporting facts and commentary. Please excuse any parts that are self-evident.

1. There is a global climate crisis that is getting worse, requiring action at all levels of government. Despite good intentions and some progress in curtailing the emission of greenhouse gases (GHG), global GHG emissions *increased* in 2021 and again in 2022. The most recent UN Intergovernmental Panel on Climate Change (IPCC) report, dated October 16, 2022, states that *by 2030 GHG emissions must be cut by 43% from 2019 baseline levels to avoid the worst impacts of climate disruption*.

2. The only practical avenue to avoid climate disaster is to electrify almost everything, get off of fossil fuels, and produce the required electricity from renewable resources (and possibly some nuclear power).

3. In Maine, solar energy is a foundation technology for what has to be done. The technology and economics of solar energy are well-established. The technological, economic, and operational risks are known to be limited. Solar electricity is cost effective over the life cycle of the equipment, and this continues to improve.

4. We need solar electricity generation projects of all sizes for multiple reasons. These include (i) creating sufficient total generating capacity, (ii) siting considerations, and (iii) generating widespread public support. Large-scale projects have economies of scale (see # 5 below). Siting smaller projects close to load offers many unique benefits, including the potential for dynamic, two-way generation and use. In Maine, land use and cultural considerations indicate individual solar installations must be varied in size and dispersed to be accepted and add up to the necessary aggregate capacity.

5. Large renewable projects (land-based wind and solar) selling electricity wholesale are economically advantageous to everyone. Large, grid-scale solar projects offer undeniable economies of scale, although when making cost comparisons among procurements it is important to delineate what bundle of values the buyer (utility) is acquiring. These are not always the same. [For example, who gets the value of the renewable energy certificates (RECs) makes a significant difference in the values being purchased, and therefore cost.] In any case, large-scale solar installations are driving down and stabilizing the average cost of electricity, to the benefit of everyone. It is our view that additional large-scale competitive procurements pursuant to Maine's renewable portfolio standards (RPS) legislation are desirable.

6. Estimates of the hypothetical cost shift of distributed generation (DG) projects (up to 5 MW) to nonparticipating ratepayers are misleading. The highest estimates are based on pipeline numbers including many projects that will never be built, due to grid constraints, siting and economic challenges, and recent legislated changes already enacted into law. Raw estimates of potential lost revenues to utilities are not the same as ratepayer cost shift, since DG projects result in certain reductions in utility costs (e.g., avoided capacity payments, reduced transmission line costs). Also, such estimates ignore customer benefits that do not show up their monthly bills, but affect their lives positively (societal benefits such as reduced pollution, local jobs, local control, and climate change mitigation). One could say these are ratepayer benefits, in the sense that just about every person in Maine is a "ratepayer," if they reside in a home that purchases electricity. Nevertheless, "on-bill" electric rate equity considerations among ratepayers is an issue that should be taken into account, as done in the work of the distributed generation (DG) Stakeholder Group.

7. The vast majority of any actual, on-bill net ratepayer cost shift resulting from DG renewable energy occurs in projects of 2-5 MW, which account for the rapid growth in DG. Rectifying this would solve the bulk of the ratepayer cost shift problem. This was the focus of the two years of work done by the DG Stakeholder Group, pursuant to LD 936 (2021). This included high quality analyses of (i) the full range of benefits and costs associated with this upper range of DG projects, (ii) a separate distinct examination of ratepayer bill impacts, and (iii) a specific recommendation for a successor DG program. Pending legislation embodying these recommendations would eliminate any future ratepayer cost shift from these projects. Projects of 2-5 MW would

actually provide a net financial benefit to all ratepayers. Specifically, the successor program recommended by the DG Stakeholder Group (the "Hybrid" program) would have a benefit-cost ratio of 1.68; the "Hybrid + Storage" combination program would be even better, with a benefit-cost ration of 2.71 (page 29 of the DG Stakeholder Group final report). **When looked at solely from an electric ratepayer perspective, both the Hybrid and the Hybrid + Storage successor programs would decrease electric rates for all ratepayers (page 30, same report).**

8. Small-scale DG projects (up to 2 MW) have many unique benefits and are extremely popular, creating strong grassroots public support for the transition to clean energy. These small, highly distributed projects provide an essential platform for the possibilities of the dynamic two-way, time-based local generation and use electrical system sector of the future. We need this electrical infrastructure for this purpose. In addition, the NEB concept provides a critically important avenue for individuals, families, small businesses, towns, schools, and other institutions to initiate clean energy projects. This is empowering and sustains public support for clean energy. Currently there are about 25,000 of these customers (page 15, DG Stakeholder Group final report). The essential aspect of NEB is the customer's ability to take direct action, as the designated off-taker of a project, to address climate disruption, whatever the design of the NEB rate or tariff.

9. Any actual cost shift to other ratepayers associated with all the smallest NEB projects (up to 1 MW) in the pipeline would be extremely low, well less than one percent (1.0%) of a nonparticipant customer's electric bill, or about $ 0.60 per month for a typical residential customer. This is an absolute worst case, ignoring any offsetting factors that would reduce the actual electric bill impact, based on the unlikely assumption that all planned NEB projects of this small size will be built. If pipeline NEB projects between 1-2 MW are included, the ratepayer impact still would be very low. The assumptions, mathematics, sources, and notes related to these statements follow.

Assumptions

* Total annual Maine electricity consumption (use): 12,000 GWh (12,000,000,000 kWh)
* Total Maine ratepayer payments for electricity delivery only (all T&D charges): About $1 billion (12,000,000,000 kWh x $0.09/kWh)

* Total pipeline of NEB projects up to 1 MW: 120 MW (120,000 KW) (DG Stakeholder Group final report, p. 18, Governor's Energy Office – included as page 2a)
* Average generation per KW of installed small-scale solar capacity (all types of NEB, including residential rooftop projects): 1,100 kWh/year/KW capacity (industry standard)

Math

* Annual future generation of small NEB pipeline projects: 132,000,000 kWh/year (120,000 KW project pipeline x 1,100 kWh/KW/year)
* Lost utility annual revenue (i.e., maximum potential ratepayer cost shift) per year: about $12 million (132,000,000 kWh/ x $0.09/kWh delivery charge)
* Cost shift percentage: 1.2% ($12 million/$1 billion) of **delivery charge only** (note this percentage would be far less of the total bill when the energy charge is included)
* **Monthly increase in typical residential electric bill (based on 550 kWh use per month): $0.60** (550 kWh x $0.09/kWh delivery charge x 1.2%)

Worst Case Note: This is an exaggerated worst case. The actual cost shift to other ratepayers is likely to be less. Among the reasons for this are:
* This simple analysis ignores on-bill benefits of DG (e.g., reduced utility peak load capacity payments, avoided transmission costs), which reduce net ratepayer cost.
* These calculations include a significant amount of NEB project generation that is utilized immediately behind the meter, which is not lost revenue of the utility.
* Many NEB customers are electrifying their lives. This creates new revenues for utilities, when these NEB customers need electricity in addition to their NEB energy.

Related Notes and Statistics

* Historically, the amount of the Standard Offer energy charge has been comparable to the delivery charge (although the energy charge is about double the delivery charge right now). If this historical ratio were used, the cost shift calculated above would increase the total typical residential electricity bill by about six tenths of one percent (0.60%).
* If the total pipeline of NEB projects up to 2 MW were used in this ratepayer impact analysis, which includes an additional 340 MW of pipeline projects (see p. 18 of the GEO DG Stakeholder Group Report, as attached), the total bill maximum bill impact would

increase but still be very low at about 2.3% of the total amount of the typical residential electric bill (energy plus delivery). This would be about $2.30/month, based on the current delivery charge of about $0.09/kWh.

* The foregoing figures relate to all future projects in the pipeline of the sizes specified, and disregard the potential offsetting factors that would reduce the actual bill impact.

10. Keeping NEB as it is for small projects will provide a platform for future innovations like mutually-beneficial two-way energy flows, time-of-day pricing, and other features designed to eliminate even any minor cost shift associated with this established small-scale clean energy program category.

SUMMARY

Many economic studies, over the years, in Maine and elsewhere, have shown that solar electricity, including that produced by distributed generation (DG) resources, provide net benefits for all people. Solar energy is good for us and the planet. It reduces GHG emissions dramatically. The fuel is free, which stabilizes the cost of electricity and keeps more money in Maine. It creates excellent Maine jobs. However, as pointed out explicitly in the recent economic analyses done for the DG Stakeholder Group by two consulting firms, there is an important distinction between (i) overall benefits and costs (benefit/cost ratio) and (ii) ratepayer impact. These considerations do not always align. Both are important to consider.

Based on all the accumulated evidence, including the simple math included in this testimony, we think it is reasonable to conclude that solar electricity projects of all sizes are beneficial to all Maine people and should be encouraged by well-structured State policies. This assumes the recommendations of the DG Stakeholder Group are adopted, perhaps with certain refinements. Specifically, and with explicit consideration of ratepayer impacts, we think the following conclusions are warranted.

1. Procurements of large-scale solar projects (greater than 5 MW) should be accelerated to the extent practical. We need more grid-scale projects where they can be appropriately sited, and the grid can accommodate them. It seems like we are developing a lot of solar, but the in-state solar capacity can supply only a tiny fraction of our total electricity use (well under 5%). Large-scale solar projects providing electricity to the grid at low wholesale prices are lowering the blended cost of electricity for all

ratepayers. Maine should have as much of this type of clean energy capacity as can be sited appropriately, assuming beneficial bid pricing as determined by the PUC.

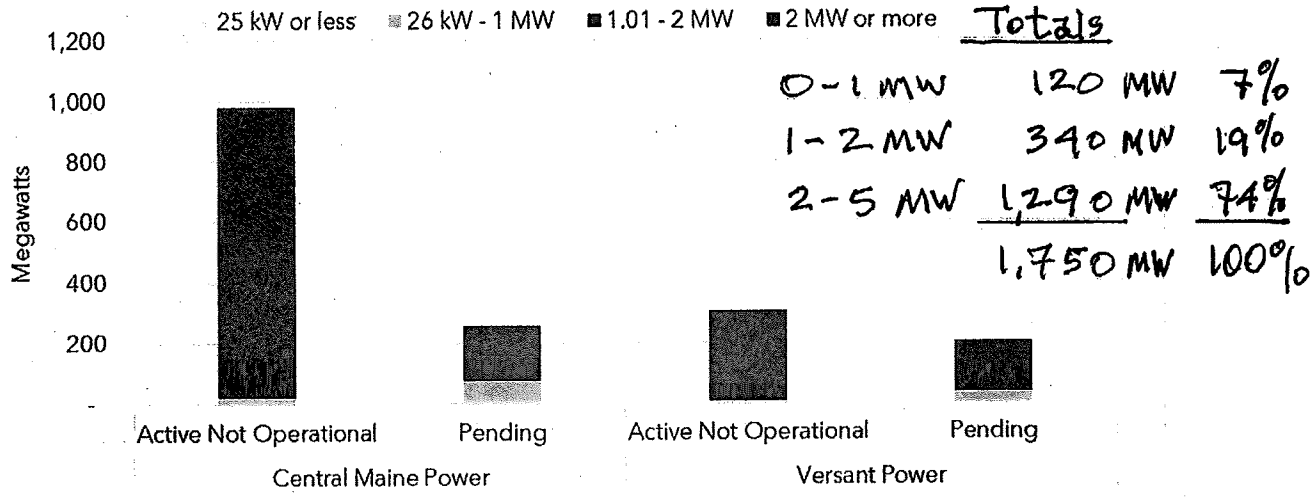
2. Medium-scale projects (1 or 2 MW to 5 MW) should be embraced by enabling legislation consistent with the Hybrid or Hybrid + Storage options defined in the final report of the DG Stakeholder Group. As shown by economic consultants Synapse and SEA, this would **eliminate** any negative ratepayer cost shift associated with DG projects in this size range. This would be a real breakthrough causing these projects to **reduce all ratepayer costs**. This would create a justification for doing even more projects in this size range (by increasing the 7% limit of total capacity currently in force).

3. Small-scale NEB projects (up to 1 or 2 MW) should be continued as currently structured, with beneficial changes in the credit rate structure being introduced over time, for future projects. As shown, the nonparticipant ratepayer impact of operational and planned projects of this scale is extremely low. Continuously modernizing the NEB rate structure over time should eventually ensure this program is beneficial to all ratepayers, including nonparticipants. In the aggregate, these small projects account for a tiny fraction of the total electricity consumed in Maine. Small NEB projects create great public support for clean energy because they allow people to take direct action to mitigate climate change, and such small projects create the infrastructure for the dynamic electrical system of the future, including two-way energy flows. Small-scale NEB is a truly foundational program, in Maine and around the nation.

SEAM is a broad coalition of solar energy supporters, advocating for the development of solar electricity of all project sizes and ownership models, for the benefit of all Maine people. It is a not-for-profit corporation governed by a diverse Board of Directors. Dirigo CSG is a nonprofit membership organization providing management services to 14 established, small community solar farms. All of these 14 separate projects are owned and managed by their members, a distinctly different business model from the larger community solar farms currently being developed by solar developers, who are selling subscriptions. The smaller group projects are all under 1 MW in nameplate capacity. The member owners of these projects typically cannot put solar on their rooftops and own shares in a group project for this reason. These small group projects, individually and in the aggregate, have a negligible impact on other ratepayers.

Figure 7

Net energy billing capacity in the pipeline, by project size
November 2022

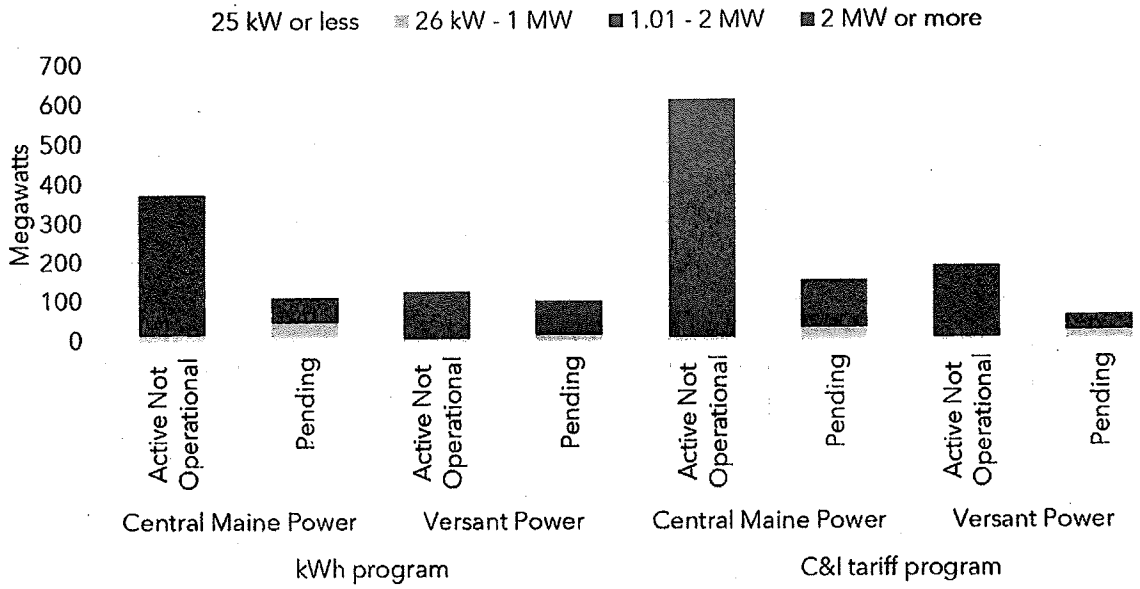


Totals

0-1 MW	120 MW	7%
1-2 MW	340 MW	19%
2-5 MW	1,290 MW	74%
	1,750 MW	100%

Figure 8

Net energy billing capacity in the pipline, by project size, status, and program
November 2022



Based on the average offtaker capacity illustrated in Figure 5 and Figure 6, as well as the potential net energy billing capacity in the program pipeline illustrated in Figure 8, an estimated additional 82,000 –

2a