

**STATE OF MAINE  
PUBLIC UTILITIES COMMISSION**

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| <b>MAINE PUBLIC UTILITIES COMMISSION</b>  | ) | <b>COMMENTS OF</b>                        |
| Notice of Inquiry into Net Energy Billing | ) | <b>Natural Resources Council of Maine</b> |
| Rules (Chapter 313)                       | ) |   |
|   | ) | <b>July 22, 2016</b>                      |
| <b>Docket No. 2016-00120</b>              | ) |   |

**I. Summary**

On January 14, 2016, Central Maine Power (CMP) filed with the Commission that there were net energy billing (NEB) systems in Maine with an installed capacity equal to 1% of CMP's annual peak demand, thus triggering the Commission's review of Chapter 313 rules. NRCM appreciates the opportunity to provide comments to the Commission in response to its June 14, 2016 Notice of Inquiry. NRCM believes that NEB will probably not be the preferred platform for solar and distributed generation (DG) deployment over the long-term. However, NRCM believes there are several distinct and compelling reasons why the Commission should not propose changes to Chapter 313 at this time. These include the ratepayer benefits of NEB at low penetration, the need for much more detailed analysis, the regulatory precedents around the review and changes to Chapter 313, and the fact of ongoing policy deliberations that supersede Commission rules.

If the Commission proposes major changes in 2016, they are almost certainly going to be modified or superseded in some way by forthcoming legislation in 2017. This in itself would needlessly harm the solar market which, over the past several years, has been subject to significant stress and fluctuations stemming from legislative and regulatory uncertainty. This has kept Maine's solar market from maturing, to the detriment of the state. Over the last year, Maine drew national attention for its ability to consider innovative solar/DG policy ideas that advanced beyond traditional interest-group debates. We sincerely hope that this can continue and that the current proceeding does not result in Maine garnering a different kind of attention for creating further impediments to solar deployment and policymaking.

## II. Primary Comments

- A. Both the broader policymaking context and regulatory precedent suggests no changes should be made to net energy billing at this time.**

As the Commission is well aware, Maine policymakers are in the process of establishing a comprehensive policy with regard to solar power and other DG resources. We strongly suggest that making substantive changes to NEB at this time would needlessly disrupt that process. Policies under consideration include substantive changes to net metering as it currently operates, and importantly those changes are being considered amidst a broader package of solar/DG policies.

The legislature recently passed a comprehensive solar bill (LD 1649). Although the legislature subsequently failed by a narrow margin to override a veto of the bill, multiple lawmakers of both parties have expressed a clear intent to try again in the coming session. For example, Representative Robert Foley (R-Wells) stated the in Journal Tribune in May: “The solar bill, or a newer version of it, will be back before the next Legislature.” Even lawmakers who opposed the bill expressed this intent, such as Representative Ken Fredette (R-Newport) in April: “I would like to think that in eight months we can be looking at a different solar bill that both sides of the aisle could agree upon... This is not the end. We will be back here in eight months.” See Attachment A.

The legislature is the appropriate body to do this work, because it requires balancing potentially competing policy objectives outside the scope of traditional utility regulation, and because the legislature can use policy tools outside of the Commission’s current authority in order to maximize benefits for both consumers and utilities. If the legislature wanted the Commission to help develop a solar policy, it can ask—we know because that is precisely what the legislature did in 2015, through the Resolve that directed the solar stakeholder process and report (P.L. 2015, Ch. 37). The Commission is not currently operating under any such direction, and the report remains available for the ongoing legislative policymaking.

Because the Commission cannot properly enact a comprehensive solar/DG solution, and because the legislature is in the process of doing just that, it is an inappropriate time to make partial changes to

such a fundamental piece of Maine's existing policy as net energy billing. It would be especially disruptive for the Commission to propose rule changes at the very time when lawmakers will be discussing, drafting, and submitting complex legislation, i.e. October - December.

The Commission is not required to propose any changes to NEB rules, nor has the legislature asked the Commission to make or propose changes. In fact, individual lawmakers have stated the opposite. For example, Representative Nathan Wadsworth (R-Hiram), the ranking House member on the Energy, Utilities & Technology committee, has strongly and repeatedly stated that he wants the Commission to continue net metering in order to protect consumers and the solar market. For example in April, he wrote: "The PUC is looking for guidance from the Legislature. Net metering, the status quo solar policy in Maine, should be allowed to continue." See Attachment B.

There is substantial precedent for the Commission to make changes to NEB primarily in response to direct legislative guidance. Since Chapter 313 was first adopted 18 years ago, there have been two substantive changes to the rules, in 2009 and 2011, and both were in response to legislation. A legislative Resolve passed in 2008 (Resolve 2007, ch. 183) directed the Commission to amend the rules to allow shared net metering. The proposed rules also increased the system capacity limit from 100 KW to 500 KW, which the legislature itself amended to 660 KW. In 2011, the legislature passed a bill that required the Commission include term limits for NEB contracts.

In addition, the Commission has periodically reported and commented on NEB to the energy committee of the legislature, in all cases explaining the ratepayer costs as it sees them. The Commission has repeatedly suggested that the legislature might want to set a hard statutory cap on NEB to limit ratepayer risk, for example, which the legislature has declined to do. (e.g. Maine Public Utilities Commission. Report on Net Energy Billing. January 15, 2009. p. 20.) The Commission has repeatedly expressed deference to the legislature on NEB. For example, in its 2009 Order Adopting the Provisional Rule on shared net metering, the Commission wrote: "The transfer of funds among ratepayers inherent to net energy billing makes the design and extent of a net billing program fundamentally a question of policy. Accordingly, the decision to adopt shared ownership net energy billing rules is an energy policy determination for the Legislature." (Order Adopting Provisional Rule, January 8, 2009. Docket No. 2008-410. p. 3.)

Finally, there is clear precedent for deferral of any changes when the 1% review trigger is reached. Chapter 313 rules state that the Commission will “review” the rules when a utility reaches NEB arrangements totaling 1% of peak demand. In 2009, Maine Public Service (MPS) notified the Commission that it had reached 1%. The Commission decided to reset the review trigger for MPS to 2% without proposing any changes to the rule. (See answer to Question 6, below, for a comparison of estimated “lost revenue” by MPS in 2009 and CMP today.) Explaining this decision, the Commission noted: “During its last session, the Legislature conducted an extensive review of net energy billing and its various policy implications. During this review, the Legislature was informed of the number and aggregate capacity of net energy billing facilities in the State and estimates of the amount of resulting revenue loss to the utilities.” (Order, July 28, 2009. Docket No. 2009-236. p. 2.) The identical statement could be made of the 2016 legislative session as well. For example, as part of solar policy deliberations, the Commission provided the energy committee with an analysis of the costs of net metering on April 7, 2016.

For all of the reasons above and below, it would be reasonable and follow clear precedent for the Commission to not proposed changes to NEB and instead order CMP to report when it reaches 2% or more of peak demand.

**B. The Commission review should consider the full costs and benefits of net energy billing from a ratepayer perspective.**

It is unclear from the questions in the Notice of Inquiry whether the Commission intends to evaluate the costs and benefits of NEB. Although substantial useful data exist to estimate the costs and benefits of NEB, to our knowledge no such an analysis has been completed for Maine. We urge the Commission in the strongest terms to conduct a complete assessment of the costs and benefits before proposing any changes to NEB. If such an assessment cannot be completed at this time, that would be all the more reason to defer proposing changes, especially given the available evidence that suggests a net benefit (see Paragraph C, below) and ongoing policy deliberations

A thorough cost-benefit analysis can include multiple perspectives, e.g. utility, ratepayer, societal. It is important that the Commission consider the ratepayer perspective. Any such analysis must consider more than the "lost revenue" that utilities may perceive from NEB, because the Commission's own 2015 Value of Solar study showed important, real and quantifiable ratepayer benefits that may exceed any costs of lost revenue for non-solar ratepayers. A NEB analysis, like the Value of Solar analysis, should consider long-term impacts. To the extent the Commission uses ranges of inputs to create "sensitivities", these ranges should be balanced and symmetrical.

Avoided environmental costs are also relevant to a cost-benefit analysis of NEB. In directing the Commission to complete a study on the value of distributed solar, the legislature specifically instructed the Commission to calculate "the societal value of the reduced environmental impacts of the energy." (P.L. 2014. Ch. 562). While one could debate the legislature's intention for specifically how this information should be used, the legislature clearly concluded that avoided environmental costs were relevant to a regulatory evaluation of the costs and benefits of distributed solar. The Commission should consider and report on environmental benefits in a way that is consistent with the Value of Solar framework, in addition to the more traditional ratepayer cost-benefit analysis.

**C. Net energy billing has limitations, including over the long term, but it currently provides net benefits for all ratepayers.**

NRCM has long supported the use of net energy billing as a simple and effective way to promote renewable energy development by providing self-generating customers with clear compensation for excess generation. We also believe that net energy billing provides a limited platform for which to achieve long-term growth of solar power, and for achieving the necessary broader transition to more modernized, integrated and efficient electricity markets and physical grid. Broader regulatory reform and a legislatively adopted policy framework for solar will take time to complete, and NEB should remain in place in the interim.

Based on available evidence from Maine, echoed by relevant studies elsewhere, it is likely that NEB at current levels provides net benefits for all ratepayers. Therefore eliminating, weakening or further limiting it would not be in the direct interests of ratepayers.

The energy supply value of distributed solar does not appear to be of primary regulatory concern. Bundled into the retail rate, NEB customers receive a market value rate for excess energy supply. (Retail energy rates may still undervalue solar as an energy supply product, given its largely unmonetized coincidence with load peaks.) Greater attention has been paid to costs or benefits beyond the energy supply element. The Commission's 2015 Value of Solar analysis found that when no environmental benefits were included, distributed solar generation creates levelized benefits to non-solar ratepayers of 16 cents/kwh in addition to the wholesale energy value. (Including environmental benefits brings the total non-supply benefit to 25.6 cents/kwh.) These benefits obviously significantly exceed the non-supply portion of a NEB credit above supply rates, which in CMP territory is 6.5 cents/kwh.

There are many cost-benefit studies of net metering available to the Commission for reference. At least one ISO-NE state has conducted a complete cost-benefit analysis of net metering in the last two years, including but not limited to an examination of cross-subsidization. The Vermont Public Service Department (VT PSB) concluded that "the aggregate net cost over 20 years to non-participating ratepayers due to net metering under the current policy framework is close to zero, and there may be a net benefit." (VT Public Service Department. Evaluation of Net Metering in Vermont Conducted Pursuant to Act 125 of 2012. January 15, 2013. p. 28.) The VT PSB found a net ratepayer benefits resulted from both a 4 KW rooftop solar array and a 100 KW group net metered solar farm. (p. 17, 23.)

**D. Eliminating or significantly reducing the value of net energy billing credits would lead to major declines in distributed solar and therefore these benefits.**

As noted in the Commission's most recent report on NEB in 2009, by the late 1990's NEB had "developed into a means of encouraging the use of small-scale renewable technologies designed primarily to serve the customers own needs." (Maine Public Utilities Commission. Report on Net Energy Billing. January 15, 2009. p. 7.) As such, it is relevant to consider how effective NEB has been at encouraging small, customer-sited solar and what effect changes might have.

Put simply, NEB has become effective at enabling significant solar adoption rates, although penetration is still very modest in the context of Maine's overall energy use. Currently there is probably 20-25 MW of NEB solar installed in Maine. Generation from 25 MW of distributed solar would represent approximately 0.25% of Maine's annual electricity consumption of about 12,000 GWh.

It is well documented that NEB adoption rates have accelerated as solar prices have declined. During the Commission's solar design stakeholder process in late 2015, several forecasts were presented that suggest adoption will continue to grow under the status quo. One from the National Renewable Energy Labs (NREL) gave a mid-case forecast of approximately 150 MW of cumulative net metered solar by 2021. (NREL. Distributed PV Adoption in Maine through 2021. November 6, 2015.) A model developed by Bloomberg New Energy Finance forecast 100 MW of net metered solar by 2021. (Bloomberg New Energy Finance. How extending the investment tax credit would affect US solar build. September 2015.) Again, these growth forecasts still only represent 1 - 2% of Maine's electricity generation.

NREL recently conducted an assessment of what would happen to solar installation rates if net metering at the retail rate was replaced with bill credits at wholesale energy supply rates. (NREL. Utility Regulatory and Business Model Reforms for Addressing the Financial Impact of Distributed Solar on Utilities. May 2016.) They found that payback periods would increase significantly. In the one ISO-NE state they looked at closely, Connecticut, this change would increase residential payback periods by 70% or 6.2 years. (NREL. 2016. p. 24.) Unsurprisingly, NREL found that this change would lead to significantly depressed rates of distributed solar deployment.<sup>1</sup> Over the long-term, cumulative distributed solar capacity nationally would be reduced 20% compared to the status quo. In the near-term (e.g through 2022), solar capacity would drop to 30-35% below the status quo. (NREL. 2016. p. 32.) These are averages; the impacts on residential and non-residential solar would be higher and lower respectively.

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<sup>1</sup> This finding follows basic economic theory that "supply" of solar will be reduced if the price paid declines significantly. This conflicts starkly with analysis presented to the legislature by the Commission, e.g. on April 7, 2016, that shows an identical volume of solar capacity across scenarios that pay 100%, 75% and roughly 50% of retail rates.

Extrapolating this finding to the forecasts above, eliminating retail rate NEB might result in missing 35 ó 50 MW of distributed solar in Maine by 2021, compared to the status quo. Given the apparent net ratepayer and societal benefits of NEB, this would not be in the public interest. It would lead to a significant contraction in the solar market in Maine, which would not be good for consumers either.

Substantially weakening or eliminating NEB could also have other effects, including increased rates of “grid defection”, whereby existing customers can more economically meet their power needs through full self-generation and storage. This is particularly true as solar and storage costs continue to rapidly decline while retail rates grow. This has rightly raised concerns about the long term financial sustainability for maintenance and improvements to the electricity grid, and rate impacts on those who remain grid-tied.

One especially interesting study was conducted by the Michigan Technology University on the Upper Peninsula, an area with striking parallels to Maine: “population densities are quite low, winter weather is extreme, incomes are relatively low, and electrical rates among several of the utilities are quite high.” (Kantamneni et al. Emerging economic viability of grid defection in a northern climate using solar hybrid systems. Energy Policy 95. 2016. p. 10.) The analysis calculated the number of single-family homes (both seasonal and year-round) that could economically meet all power needs with solar, batteries and/or gas CHP generation, under current conditions and forecasted through 2020. It found that by 2020, 82% of residents would be able to economically self-generate off-grid and 65% would be able to afford to do so assuming the availability of reasonable financing. (Kantamneni. p. 9.)

**E. The Commission should complete a more careful estimate of lost utility revenue from net energy billing.**

Changes to utility revenues are often an important regulatory consideration, however any claim of lost revenue need to be very carefully vetted to determine whether it is actually occurring and to what degree. Any estimate of lost revenue attributable to net energy billing should only include lost revenue from the cost of bill credits, not lost sales attributable to behind-the-meter generation. Self-generation and NEB are quite distinct. Lost sales from consumption of behind-the-meter generation



are no more a source of revenue loss than other forms of load reduction, such as a customer deciding to be more frugal with their use of air conditioning. More frugal use of air conditioning by individual ratepayers is not said to harm or cost other ratepayers.

We also believe some previous figures for so-called lost revenue from NEB cited by Maine utilities and the Commission are inaccurate in part because they are based on inaccurate assumptions about gross generation. Any estimates of production from distributed generation resources should be based on actual data relevant to Maine as much as possible. However, we believe the correct way to address these inaccuracies is simply to properly attribute lost revenue from exported NEB power, for which the utilities should be able to provide specific and accurate information.

A number of parties, including the Public Advocate, have stated that lost utility revenue and any potential cost-shifting from NEB are not really near-term concerns but long-term concerns. However, elimination of retail rate NEB might have other long term effects on utility revenue that could be even worse. As suggested above, any estimate of the costs of lost utility revenue from NEB should also include some consideration about the potential for even greater lost utility revenue if NEB is eliminated or phased out and increasing numbers of solar customers migrate off the grid. Of course we could transition from NEB to another model of fair and effective compensation to keep solar customers connected to the grid and providing system and ratepayer benefits. Again, we believe this will require at least some legislative policymaking.

### III. Additional Responses to Individual Questions

#### 1. In what respects (if at all) should Chapter 313 be revised, and what objective is each such revision intended to achieve?

As our comments above make clear, Chapter 313 should not be revised because:

- The preponderance of evidence suggests that at low penetration levels NEB provides net benefits to ratepayers, in addition to providing other public benefits. Previous claims about the cost of NEB are poorly substantiated and/or incomplete.

- NEB is an effective and low-cost tool to foster distributed generation; making changes to weaken it would likely significantly depress DG deployment.
  - Lawmakers are actively developing a comprehensive solar/DG policy and rule changes at this time would disrupt that process and add needless uncertainty. Because there is no compelling evidence of a near-term problem with NEB, the Commission should defer (as it has done in the past) to the legislature which can better address the important questions around NEB.
  - There is a clear precedent for asking utilities that reach the 1% trigger to report at the 2% threshold.
- 2. In what respects (if at all) should there be revisions to the retail rate components that are netted such that less than the full retail rate (T&D and supply) would be netted, and what objectives are such revisions intended to achieve?**

There should be no changes to the rate components. It would not be in the interest of ratepayers to modify or reduce NEB rates without considering the full costs and benefits of net metered DG. Compensation for excess solar generation at the supply rate, for example, would be grossly unfair ó providing no compensation for the 16-24 cents/kwh of non-supply value. It would also be economically inefficient because it would significantly depress solar DG deployment with net benefits for ratepayers.

- 3. Should the Commission consider changes in the current kWh (660kW) threshold for qualified projects? What is the rationale for such a change?**

No. Although the 660 KW limit is arbitrary, it is one of the policy considerations before the legislature.

- 4. If there are revisions to NEB, should existing NEB customers be “grandfathered” with respect to any future changes that affect NEB? Please provide the rationale for your answer, and, if yes, for how long should customers be grandfathered?**

NEB should not be revised. However in the event any changes are proposed, it would be massively disruptive, legally questionable and virtually unprecedented to change NEB for existing customers. NRCM will comment further on this question in the future if it becomes necessary.

- 5. How can an NEB program be designed to track changes in the costs of distributed generation facilities?**

NEB is not a cost-based approach for deploying DG resources. The cost of installing DG resources is not particularly material to the question of whether or not NEB is in the interest of ratepayers. Replacing NEB with a cost-based payment, what is usually called a feed-in tariff, is something the legislature has considered in the past and could again in the future.

**6. Should issues of revenue loss and rate impacts be addressed through T&D utility rate design? How should rate design be approached--through cost of service, avoided cost, or a value of solar approach? Please discuss any equity issues that might arise from these approaches.**

When Maine Public Service reached 1% of peak demand in 2009, the Commission noted that lost revenue from NEB in Maine Public Service at that time was only 4/10 of one percent of total revenue. (Order, July 28, 2009. Docket No. 2009-236.) Allowing NEB to rise to 2% in MPS meant lost revenue could reach 8/10 of one percent of total revenue. In comparison, at the 16 MW of NEB capacity reported by CMP in January, we estimate that lost revenue actually attributable to of NEB systems is approximately 2/10 of one percent. (If 60% of gross generation is exported, that is roughly \$925,000 worth of T&D revenue, out of roughly \$475 million of total revenue.) Based on the mid-case build-out scenario, CMP will not reach 8/10 of one percent of lost revenue attributable to NEB until 2019. (This is true even for the high-case; for the low-case, it would be 2020.)

As described above, òrate impactsö of NEB are not only limited to potential lost T&D revenue. As the commission's VOS study shows, there are several kinds of rate impacts from DG solar, most of which are positive. Any conclusion about rate impacts needs to consider all impacts, positive and negative. One reason the commission should not make changes to NEB at this time is to allow for further exploration of rate design changes as a whole. A docket to review NEB is not a good forum for examining important broader rate design issues.

Switching to a value of solar tariff that substituted 6.5 cent/kwh T&D rate with 16 cent/kwh non-supply benefit payment would be a rationale rate design change, but it an example of a change that would probably be inappropriate for the Commission to implement.

**7. With respect to the structural approach discussed in ... LD 1649, in which the output from solar facilities would be purchased and re-sold into the wholesale market, please comment on the statutory authority under which the Commission could**

**implement such an approach. In the event the Commission has the statutory authority, should the Commission pursue such an approach and, if so, how should the purchase price be established for the various distributed generation resources that participate in NEB?**

The Commission may have authority to some elements but not all. However, we believe it would be very inappropriate for the Commission to attempt to implement a piece of legislation that failed to become law just this year, especially when lawmakers have so clearly indicated their intent to continue policy deliberations in the coming session. Such a move would raise significant questions about the proper role of the Commission.

**8. Should solar PV be treated differently than other NEB eligible resources with regard to any changes that might be adopted to the program?**

No changes should be adopted at this time, and NEB should remain a technology neutral rule. That said, solar PV does have specific characteristics that inform any cost-benefit analysis, and because solar does and will continue to dominate the NEB market, it is appropriate to chiefly consider the characteristics of solar for the purposes of this review.

**9. How should any changes to NEB arising from CMP's January 14, 2016 letter request for review apply to Emera Maine and the consumer-owned utilities?**

NEB should be a consistent policy across all investor-owned utilities. 1% of peak demand is an arbitrary volume of solar at which to review NEB, and there is no reason to conclude that NEB is would have a particularly different effect when a utility is just above 1% (i.e. CMP) vs. just below 1% (i.e. Emera.) If the Commission instructs CMP to re-file when it reaches 2% or more, it should direct Emera to do the same.