



**Northeast
Utilities**

Northeast Utilities Service Company
One NSTAR Way
Westwood, MA 02090

VIA ELECTRONIC MAIL

January 29, 2014

Mr. Michael Judge
Massachusetts Department of Energy Resources
100 Cambridge Street, Suite 1020
Boston, MA 02114
DOER.SREC@state.ma.us

Re: Draft Changes to RPS Class I Regulation (SREC II)

Dear Mr. Judge,

Thank you for the opportunity to comment on the Department of Energy Resources' ("DOER") proposed changes to the RPS Class I regulation that would create a second solar carve-out program ("SREC II").

Northeast Utilities ("NU" or "the Company") recognizes the importance of solar energy to the Commonwealth's renewable energy goals and is an active participant in the Commonwealth's solar market. NU regularly conducts solicitations for the sale of the SREC output of the Western Massachusetts Electric Company's ("WMECO") Silver Lake and Indian Orchard solar facilities. The Company also participates by directly purchasing SRECs needed to meet the RPS requirements associated with NSTAR Electric Basic Service. Further, the Company is a key participant in the renewable energy market outside the Commonwealth, including in Connecticut where its affiliate, The Connecticut Light and Power Company ("CL&P"), has supported the implementation of that state's "LREC/ZREC" program, among other initiatives. These activities provide the Company substantial insight into renewable energy markets and successful renewable policies.

As described further below, NU disagrees with DOER's decision to proceed with SREC II at this time because, in its current form, the program will not promote competition and will burden customers with unnecessarily high costs. There is ample evidence that the benefits of solar energy can be procured at prices substantially below those targeted in the proposed regulation. A comparison of SREC II price targets to competitive bids currently being offered by solar suppliers in neighboring states indicate that the proposed SREC II program is likely to burden Massachusetts customers with more than \$1 billion in excess costs over the life of the program.

As also described below, the cost-benefit projections that are serving as a basis to justify the SREC II program are fundamentally flawed and are based on an incomplete analysis. NU disagrees with DOER's decision to rely upon solar policy consultants' (the "Consultants") reports to justify the substantial projected costs of the program, without soliciting formal public feedback on the reports. The reports incorrectly account for avoided transmission and distribution costs, which are claimed as the single largest "benefit" of the program, and also substantially overestimate potential savings for capacity costs. Had the analysis in the Consultants' 3b

Report: *Analysis of Economic Costs and Benefits of Solar Program* been more closely scrutinized, it would be clear that the proposed program is unlikely to be cost effective.

For these reasons, NU encourages DOER to withdraw the current proposed changes to the RPS Class I regulation, and to instead work with stakeholders to develop alternative strategies for supporting solar development in the Commonwealth at lower cost. NU believes that DOER should more closely examine competitive programs in other states that are supporting solar energy at substantially lower costs to customers, and model Massachusetts solar policies on these successes. However, in the event that DOER decides to proceed to implement the proposed SREC II program despite these concerns, it should make changes to maintain consistent treatment between energy suppliers, as described further below.

SREC II Burdens Customers with Unnecessary Costs

As with the first solar carve-out program ("SREC I"), the proposed design of SREC II is intended to maintain SREC prices within a range roughly bounded by the Clearinghouse Auction price and the Alternative Compliance Payment rate. In this way, prices are set administratively rather than by a competitive market. The proposed regulation would seek to maintain prices between \$285-\$375/MWh in 2014, declining to \$189-\$257 by 2024. These price targets are alarmingly high when compared to the results of competitive solar energy procurements in other states. For example, in the second year of the LREC/ZREC program in Connecticut, which is a program to procure various types of renewable energy projects in that state through competitive solicitation, CL&P was able to purchase renewable solar energy at prices well below \$100/MWh.¹ The proposed SREC II design would burden Massachusetts customers with costs for solar energy that are easily 2-3 times those paid by Connecticut customers for the same resource. NU has attached to these comments an analysis that shows DOER could readily achieve customer savings of \$800 – \$1,600 million by adopting a competitive solar policy instead of the proposed SREC II design. The Commonwealth could readily achieve these estimated customer savings without sacrificing the market's ability to achieve the ambitious goals set forth by Governor Patrick.

The substantially lower solar energy prices paid by Connecticut customers demonstrate the benefits that result from competition and are also consistent with conclusions reached by the Consultants with respect to the deficiencies in the SREC II design. In the Consultants' Task 2 Report: *Comparative Evaluation of Current Carve-Out Policy to Other Policy Alternatives*, the Consultants identified the structure of the proposed SREC II program (SREC with Soft Floor) to require the greatest level of customer-paid incentives of four program designs. The Competitive Procurement design of the LREC/ZREC program was identified as one of the least-cost options.

SREC II is Unlikely to be Cost Effective

In the Task 3b Report: *Analysis of Economic Costs and Benefits of Solar Program*, the Consultants projected the proposed SREC II program would have a Benefit-Cost Ratio of 1.07-1.37 over 32 years and, therefore, found the proposed program to be cost-effective. DOER

¹ Weighted average prices of medium and large ZREC contracts accepted by CL&P were \$93.65 and \$76.63, respectively, as reported to the CT Public Utilities Regulatory Authority on 12/4/2013 in docket 11-12-06.

cited this conclusion to justify the substantial costs of the program.² However, many of the suggested benefits of SREC II are ambitious and are not likely to materialize as projected. Thus, a revision of the analysis to include more realistic benefits would likely yield a different conclusion on cost-effectiveness.

Avoided Transmission & Distribution Benefits are Not Well Supported

Avoided Transmission and Distribution (“T&D”) costs were the single largest benefit credited to SREC II. Avoided T&D benefits were claimed to have an NPV of \$949 million over 32 years and comprised 45% of total reported benefits. Unfortunately, no independent analysis was performed by the Consultants to support avoided T&D estimates. Instead, the Consultants cited the avoided T&D value attributed to energy efficiency as reported in survey results included in the 2013 Avoided Energy Supply Cost (“AESC”) study. This is a misapplication of the AESC study. It is not reasonable to assume that distributed solar generation will have the same impact as energy efficiency on T&D requirements, for several reasons:

- Energy efficiency resources are, by definition, highly coincident with load and have high effective capacity factors. Solar generation is only seasonally coincident with load, has a low capacity factor and is intermittent.
- Some key load pockets will be particularly less coincident with load. Summer load on Cape Cod, for example, typically occurs between the hours of 5 PM and 10 PM. As such, solar generation will not greatly offset peak loads in the region.
- Solar generation cannot be assumed to always be situated in close proximity to load. The land requirements of many larger installations result in their installation on sites with only parasitic onsite load, and which are distant from load centers. Such sites will not offset loads in the same manner as energy efficiency and may in fact increase T&D requirements to effectively move supply from new locations to load.

Nor does the Company believe that the effective load carrying capability (“ELCC”) as determined by a 2006 National Renewable Energy Laboratory (“NREL”) report is a reasonable measure of T&D requirements. In its report, NREL characterizes ELCC as “the ability to effectively increase the *generating* capacity available to a...regional power grid”(emphasis added).³ The authors make no finding that ELCC is reflective of the ability to avoid T&D costs, and include no evaluation of transmission or distribution data in their analysis. In NU’s view, the methodology and resulting conclusions reached by NREL actually implicitly assume a T&D network sufficiently robust to accommodate intermittent distributed solar generation without interruption. The maintenance of such a system could actually require additional investments beyond those directly funded through interconnection fees.

Given the substantial projected costs of SREC II, NU believes that an independent analysis of avoided T&D costs is required to assess any benefits or costs that may result from distributed solar generation in the Commonwealth. NU expects that a proper analysis would show the value of avoided T&D costs to be substantially less than what was estimated by the Consultants.

² RPS Solar Carve-Out II Final Policy Design, presented by Commissioner Mark Sylvia to Electricity Restructuring Roundtable, December 13, 2013.

³Pg 1, R. Perez, R. Margolis, M. Kmeicik, M. Schwab, and M. Perez, *Update: Effective Load Carrying Capability of Photovoltaics in the United States*.

Avoided Generation Capacity Costs are Substantially Overestimated

The second largest benefit attributed to solar generation was avoided capacity costs. Avoided capacity costs were claimed to have an NPV of \$772 million over the study period and comprised 36% of total reported benefits. However, the Consultants' estimate of avoided capacity costs included material oversights pertaining to both the quantity and value of avoided capacity.

The Consultants' use of the capacity price forecast from the 2013 AESC study was not appropriate given that it was based on an inflated load forecast that assumed the absence of new energy efficiency programs.⁴ Such an artificial assumption is appropriate for evaluation of energy efficiency programs, but results in projections of more expensive resources setting the capacity clearing price. The resulting high capacity price forecast is not representative of the benefits attributable to solar generation

The 2013 AESC capacity price forecast is also notably high when compared to other publicly available forecasts of the New England Capacity Market. For example, average capacity prices from June 2018 – May 2025 are roughly 60% greater in the 2013 AESC study than in the 2012 Connecticut Integrated Resource Plan. This difference is likely not entirely attributed to an alternative load forecast, but it demonstrates the considerable range in capacity price projections and suggests estimates of avoided capacity benefits based on the 2013 AESC study are ambitious.

The Consultants also based the capacity value of solar generation on the ELCC as determined by NREL. However, any avoided generation benefit actually realized by customers will be derived from the capacity market. As such, accurate estimates should be based on ISO-NE market rules, and the capacity value of resources should be based on performance during applicable peak hours.⁵ ISO-NE has found that application of established rules results in solar generation having a summer Seasonal Claimed Capability of 35-40% of AC nameplate capacity.⁶ The winter capability of solar generation for capacity market purposes is zero.⁷ Application of appropriate DC-to-AC derate factors⁸ to ISO-NE findings suggests the capacity value of solar generation should be less than 30% of DC nameplate capacity rather than the 35% derived from ELCC estimates.

The combination of using an inappropriate capacity price forecast and a capacity measurement not based on ISO-NE market rules produced an estimate of avoided capacity benefits approximately double what should be reasonably projected at this time.

Consistent Treatment of Energy Suppliers Should be Maintained

Section 14.07(3)(b) of the proposed regulation exempts *competitive* Retail Electric Suppliers from the SREC II compliance obligation associated with sales that are subject to a contract executed or extended prior to the effective date of the proposed revisions. This provision is

⁴ Pg 5-2, *Avoided Energy Supply Costs in New England: 2013 Report*, Synapse Energy Economics, July 2013.

⁵ Market Rule 1 III.13.1.2.2.2.1-2 and III.13.7.1.5.2.

⁶ *Update on Solar PV and other DG in New England*, ISO-NE presentation to Planning Advisory Committee, June 19, 2013.

⁷ *Ibid.*

⁸ 77% PVWatts Default http://www.nrel.gov/rredc/pvwatts/changing_parameters.html, retrieved November 1, 2013.

inconsistent with the rest of the RPS Class I regulation, which otherwise calls for uniform application of the regulations among *all* retail suppliers.

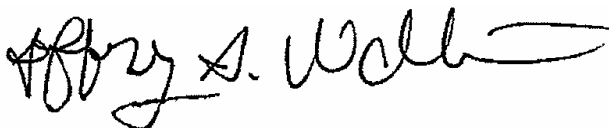
There is no rational basis for treating competitive suppliers and electric utility companies providing retail supply differently for purposes of this exemption. As DOER is aware, the utility companies periodically issue competitive solicitations for load-following retail supply that may include RECs required for RPS compliance, and as a result also have supply contracts in place that would predate the effective date of new regulations. Indeed, it is clear that the current regulations were intended to apply to competitive and utility suppliers alike. For example, a "Retail Electricity Supplier" is defined to include utility distribution companies supplying Basic Service (Section 14.02). Similarly, Section 14.07(2)(a)2 maintained the 2013 SREC I compliance obligation at 0.2744% for *all* retail electric supply that was subject to a contract executed or extended prior to June 7, 2013. No distinction was made between competitive Retail Electric Suppliers and Basic Service in that context, nor should one be made in Section 14.07(3)(b).

Any retroactive application of new requirements must be acknowledged to be, at a minimum, burdensome and disruptive. The inclusion by DOER of the exemption for contracts signed by competitive suppliers acknowledges this fact. However, such an obligation is no less burdensome or disruptive when applied to contracts signed by utility services companies. Clearly, the impact of imposing a retroactive legal obligation on a discriminatory basis would not only impact current agreements, but may also increase the perceived risk of supplying Basic Service within Massachusetts, thereby increasing costs to customers. Accordingly, NU strongly urges DOER to strike the word "competitive" from Section 14.07(3)(b) to clarify that Section 14.07(3)(b) applies to *all* Retail Electric Suppliers.

Conclusion

NU applauds DOER's efforts to develop innovative ways to support development of renewable energy and meet the Commonwealth's ambitious energy and environmental goals. However, substantial evidence shows that the proposed SREC II program does not serve the interests of customers and is not the best available means of supporting solar development at this time. NU encourages DOER to withdraw the proposed changes to the RPS Class I regulation and to work with stakeholders to develop a more competitive means of meeting the Commonwealth's solar goals.

Regards,

A handwritten signature in black ink, appearing to read "Jeffery S. Waltman", with a stylized flourish at the end.

Jeffery S. Waltman
Manager, Planning & Power Supply
Northeast Utilities

Attachment: Cost of SREC II v. Competitive Alternative

[illegible]

Attachment: Cost of SREC II v. Competitive Alternative

Line		Notes	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
1	Class I RPS Forecast (\$/MWh)	2013 AESC report Exhibit F-1, inflation adjusted	35.87	36.58	37.31	38.06	38.82	39.60	40.39	41.20	42.02	42.86	43.72
2													
3	SREC II Projected Costs												
4	Net Auction Price (\$/MWh)	Proposed RPS Class I Changes, trended past 2024	179	170	161	152	144	137	-	-	-	-	-
5	ACP (\$/MWh)	Proposed RPS Class I Changes, trended past 2024	244	231	219	208	197	187	-	-	-	-	-
6													
7	Compliance Obligation (MWh)	SREC II Proposed Design, DOER 8/12/13	796,163	670,680	537,015	394,870	243,904	83,726	-	-	-	-	-
8													
9	Avoided Class I Cost (\$M)	Line 1 x Line 7	28.56	24.54	20.04	15.03	9.47	3.32	-	-	-	-	-
10													
11	Net Annual Cost (\$M)												
12	Min	Line 4 x Line 7 - Line 9	114.08	89.32	66.35	45.17	25.77	8.15	-	-	-	-	-
13	Max	Line 5 x Line 7 - Line 9	165.49	130.48	97.67	67.05	38.61	12.34	-	-	-	-	-
14	Competitive Alternative Projected Costs												
15	Annual Capacity (MW)	SREC II Proposed Design, DOER 8/12/13	1,200	1,200	1,200	1,200	1,057	905	744	575	397	210	15
16	Annual Production (MWh)	Line 15 x 13.21% x 8,760	1,388,635	1,388,635	1,388,635	1,388,635	1,223,156	1,047,262	860,954	665,388	459,407	243,011	17,358
17	Incremental Production (MWh)		-	-	-	-	(165,479)	(175,894)	(186,309)	(195,566)	(205,981)	(216,396)	(225,653)
18	Incremental Contract Price (\$/MWh)	CT Medium ZREC price (Year 2), adjusted by decline rate											
19	Weighted Average Contract Price (\$/MWh)	Weighted average price of active contracts	82.70	82.70	82.70	82.70	81.22	79.74	78.26	76.79	75.32	73.83	71.19
20													
21	Annual Cost (\$M)	Line 16 x Line 19	114.8	114.8	114.8	114.8	99.3	83.5	67.4	51.1	34.6	17.9	1.2
22	Avoided Class I Costs (\$M)	Line 1 x Line 16	49.8	50.8	51.8	52.9	47.5	41.5	34.8	27.4	19.3	10.4	0.8
23	Net Cost (\$M)	Line 21 - Line 22	65.0	64.0	63.0	62.0	51.9	42.0	32.6	23.7	15.3	7.5	0.5