

August 26, 2013

VIA ELECTRONIC MAIL

Dwayne Breger
Director, Renewable & Alternative Energy Development Division
Massachusetts Department of Energy Resources
100 Cambridge Street, Suite 1020
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RE: SREC-II Final Proposed Design

Dear Mr. Breger:

On August 12, 2013, the Massachusetts Department of Energy Resources (“DOER”) held a public stakeholder briefing at which it presented an updated proposal for an expanded and altered Solar Carve-out program to encourage developers and other owners of solar photovoltaic (“PV”) systems to create a total of 1,600 MW of installed capacity (or “Phase II”), when including the capacity to be developed under the first phase of the Solar Carve Out as well. National Grid¹ provides the following comments in response.

In summary, National Grid supports and continues to support the development of solar as an alternative energy resource and appreciates the efforts of the DOER in advancing the solar industry in the Commonwealth. Solar holds out a promise of benefits that need to be recognized. As such, employing a program that continues the advancement of solar at reasonable cost is appropriate. However, National Grid has concerns about the structure of the program that we believe will lead to a higher cost program than is necessary. For that reason, we urge the DOER to re-consider its current proposal. National Grid believes that a tariff based system that relies on competition among suppliers to drive costs down, along with certainty of revenue streams for developers, is a more cost effective approach to the advancement of solar in the Commonwealth. In turn, we believe a program structure that proactively guides integration of solar with a modernized electric distribution system would result in more direct benefits to customers.

These comments are presented in two separate sections. Section one contains general comments addressing the concerns that National Grid has with the overall plan, including the cost implications associated with the Phase II proposal. Section two then addresses a few technical elements of the Phase II proposal.

¹ Massachusetts Electric Company and Nantucket Electric Company d/b/a National Grid, (“National Grid” or the “Company”)

I. General Comments

Massachusetts has taken major strides to make solar power a reality. Solar is among the mix of renewable resources that should be relied upon to reduce carbon emissions and reduce reliance on traditional fossil-fueled forms of energy production in the region. The initial mechanisms put in place to achieve these goals have been successful in creating a market that has resulted in a substantial deployment of solar generation throughout the Commonwealth.

Since efforts began to deploy solar PV and other forms of renewable generation in the Commonwealth and on the ISO-NE system, National Grid has been a constructive participant in such policy development efforts. In addition, we have employed additional resources to address the wave of installations that have taken place over the last few years and have publicly supported the programs. Solar PV, in particular, has great promise to serve a portion of our future capacity and energy needs and may over time become a cost-competitive resource not requiring subsidies. The Company continues to support incremental payments for solar to help build a cost effective deployment industry. Properly sited and sized solar also has the potential to bring benefits for all customers, if thoughtfully deployed. If strategies were developed that would allow electric distribution companies the ability to coordinate its system planning with the installation of solar facilities, there is an untapped potential that could be promising. However, while the mechanisms employed to date have been effective in stimulating the market, it has left no room for integrated and measured planning.

National Grid also has assessed the scale and structure of the plans laid out for the Phase II Solar Carve-out design and performed cost analyses that give us some pause. Stated simply, we believe that while the Phase II design results in a lower unit cost than Phase I of the Carve-out, the mechanisms being proposed are still likely to result in a much more expensive solar subsidy program than is necessary.

In addition, solar is still among the most expensive renewable generation options available. On a per kilowatt-hour basis, the unit prices being paid for many of the solar installations are reaching over 40 cents per kilowatt-hour under the current program design, when all subsidies are taken into account. On shore wind and other renewable or low carbon alternatives can be acquired at a unit cost that is lower than the unit cost of solar. By way of example, we have seen some larger scale on shore wind projects recently being priced at less than 10 cents per kilowatt-hour without escalation over fifteen years. Thus, we caution the DOER about over-reliance on solar, at the expense of other technologies. Finally, an examination of the projected costs that would be borne by electric utility customers for the entire term of the proposed program raises concerns. Specifically, while National Grid is a strong supporter of advancing renewable technologies, our best estimate of the solar carve-out program as proposed suggests a cost that calls into question the scale and overall affordability of this goal, as well as the cost effectiveness of the program itself.

Broadly, the expansion of the Carve-Out to meet the goal of 1,600 MW by 2020 will require a tremendous investment in solar, the cost of which will flow through electric rates to utility customers across the Commonwealth from utilities and third party suppliers. Owners of solar PV arrays will likely make in the range of \$3.5 to \$4 billion of capital investments to build the

1,000 to 1,200 MW expected to be built under the Phase II program. The Carve-Out will then provide owners with revenues that, as the Company estimates, would likely total more than \$8 billion over the useful life of those arrays statewide. The revenues will be derived from a combination of SRECs, Class I RECs, and net metering credits, which credits include energy, transmission, and typically distribution values.

From the perspective of National Grid customers, the expense for SRECs alone from the Phase II program will increase from roughly \$16 million in 2014 to more than \$100 million in 2020, based on the obligation and floor price schedules DOER presented on August 12. Adding this amount to the Phase I program residual costs, the costs for solar would more than double the cost of the Class I RPS requirement for National Grid customers, and rise to approximately \$400 million for both SRECs and RECs by 2020.² When the effects of net metering are included, the combined cost of RPS plus net metering would exceed \$500 million per year by 2020 for National Grid customers.

To put this in context, we have attached a bar graph to these comments. The graph shows the combination of all RPS costs (including solar and non-solar) and net metering from 2010 through the projected cost in 2020. As illustrated, it reflects a steep increase in costs to customers in the next seven years, driven largely by the Solar REC program and net metering. Given these projections, National Grid believes there is reason to re-assess the program design for the rising solar and associated net metering components. When the costs to customers of other utilities in Massachusetts are added, the annual cost statewide for all solar and non-solar RPS (plus net metering) subsidies could exceed \$1 billion per year, nearly half of which would relate to solar alone.

The inclusion of floor prices or other price support mechanisms serve only to diminish competition and increase costs. We recognize the value and significance of revenue certainty for projects. But we believe such certainty can be achieved at a project level through innovative tariffs that avoid creating incentive entitlements, do more to encourage competitive forces, and maximize market and administrative efficiencies.

The expansion of the Carve-out appears to assume that the legislature will raise the current net metering caps. Already, National Grid is approaching the ceiling of the current net metering caps of 3% for public projects and 3% for private projects, based on information from the net metering assurance queue on August 14, 2013.³ Expanding them as presently designed would perpetuate the subsidies embedded in net metering that stay in effect for the life of the units installed. The Company believes it is extremely important to eliminate reliance on net metering, and in particular the distribution component of net metering, as a revenue stream. While there are

² This value reflects an estimate of the Class I and Carve-out obligations for all distribution customers of National Grid, or about 46% of the statewide load that is subject to the Commonwealth's Renewable Portfolio Standard, and is based on the schedule of auction mechanism clearing price values presented by DOER on August 12, 2013 and recent estimates of future Class I REC market values.

³ <http://massaca.org/pdf/Public%20and%20Private%20Cap%20Information%20as%2014August2013.pdf>

reasons to distinguish small residential-type installations that are sized for consumption on a customer's home, reliance on unlimited net metering for medium and larger scale solar installations is not sustainable.

Net metering operates much like a regressive tax, where the customers who cannot afford to install solar generation pay more to subsidize those customers who are able to afford an investment in solar. Moreover, the majority of net metering volumes have been occurring on non-residential accounts, with the cost of those subsidies paid, in part, by all rate classes. Thus, there is a cross-subsidy across rate classes as well. Finally, those benefiting from net metering still receive electric service when the solar units are not producing electricity. Based on capacity factors for solar in the northeast, customers benefitting from solar still rely on the delivery of power from the grid for more than 75% of the hours in the year. Yet, in many instances, they pay nothing for the service, leaving all other customers with the responsibility to support the electric system relied upon by everyone, as well as the responsibility to continue to fund the environmental and renewable programs. This presents a growing inequity among customers.

Fortunately, we have experience in other jurisdictions that suggest the acquisition of solar can be achieved at lower unit costs than would occur under the current and proposed programs. In Rhode Island, National Grid has seen a weighted average cost of \$235 per MWH for 15 years for all output and attributes from solar projects that have been subjected to a competitive bidding process. Moreover, after the 15 year period, the units will only sell energy at the wholesale rate, without net metering. In New York, the latest round of competitively offered subsidies for solar by the New York State Energy Research and Development Authority (NYSERDA) provided 64 MW of solar projects an average of \$843/kW of rebate and performance incentive support, which over a 10 year project term amounts to approximately \$270/MWH. By contrast, a ground mounted, net metered, stand alone solar PV facility in Massachusetts will receive between \$300 and \$500 per MWH to start, which would decline modestly over the first ten years, and then receive approximately \$200-250 per MWH for the rest of its lifetime output through net metering and Class I RECs. This is substantially more than what New York state is paying to solar owners. In short, the proposed Phase II program would pay more than what other states have found to be successful, and more than most owners need to invest in solar.

For all of these reasons, National Grid urges a different approach to accomplishing the renewable generation goals as they relate to solar development.

Specifically:

- For larger solar installations, a combination of competitive bidding with tariff mechanisms could provide a more certain revenue stream to developers who bid successfully could reduce the costs of the program.
- Such a tariff could also eliminate the need for net metering of these systems and could serve to combine all solar subsidies in one transparent mechanism that could be fairly monitored relative to policy goals.
- Leveraging this competitive tariff to establish incentives for smaller systems on similar standard offer tariffs could reduce administrative costs and simplify acquisition for residential

and small business customers Inclusion of provisions which more specifically focus on solar deployment that truly creates system benefits (e.g. on-site generation matched to load, installations in constrained pockets, or equipment configurations that support grid resiliency) could ensure the promise of this technology is realized for all customers, not just those with the financial wherewithal to make their own investment.

Through this combination of improvements, absolute costs can be reduced through more competitive and more certain revenue streams, net cost can be reduced by increasing real benefits that may accrue from properly sited solar, and more long-term optimization can be achieved from deployment of solar technology in a way that is complementary to grid modernization rather than in conflict with it.

Understanding these comments are not an appropriate forum to present a more detailed alternative plan, National Grid urges the DOER to re-consider the Phase II plan as currently conceived and to engage with utilities and other stakeholders in considering other options better suited to achieving the long-term goals of the Commonwealth.

II. Specific Comments

National Grid recommends that DOER not implement its plan as proposed. Nevertheless, in the event DOER chooses to move forward, National Grid has a few specific comments to offer. First, the proposal by DOER does offer several tangible improvements compared to the original concept design. However, the concept design does not go far enough to encourage competitively set prices for SRECs, and will still offer very little security to the cash flows that developers might expect, undermining their ability to obtain debt financing and accept lower overall returns from their projects.

Second, a key component of the Phase II design is the “SREC Factor,” which will act to discount the amount of energy output from a project that is eligible for SRECs. DOER has proposed a simplified design of the SREC Factor component of the program wherein such factors will be assigned to solar PV facilities meeting certain Market Sector criteria, or be assigned to a Managed Growth Sector in which it would need to compete based on the level of SREC factor it is willing to accept and other non-price factors. This design will effectively reduce the cost compared to Phase I of the Carve-out, and provide varying levels of support to a few subcategories of solar PV installations. This regime should be simpler for both sellers and buyers of SRECs than the initial proposal of declining factor levels and partial issuance of Class I RECs for such output.

However, if DOER goes forward with its plan, National Grid would encourage DOER to revisit the factors assigned to different Sectors of solar PV development, as the program would still provide far more revenue to many projects than needed to successfully move forward in the current climate. Notably, while it may be understandable to provide the highest factor level to small and residential systems, why should DOER offer the same factor of 0.9 to all systems larger than 25 kW simply because they have more than 67% of annual usage on-site? In general, rooftop system

cost less to build than ground-mounted systems, particularly those on landfills and brownfields.⁴ In addition, DOER's own construction cost data for solar facilities that are operational shows a clear relationship of declining cost with increased size of facility. To achieve this differentiation, DOER should offer a lower factor with increased size, with an even lower factor granted to systems lacking significant onsite load. Even better would be to require all systems above some threshold, like 150 kW, to compete on the level of SREC Factor they are willing to accept. The lack of robust competition among suppliers for the subsidies is one of the key missing components of the program that we believe results in higher costs to all customers, among other structural issues.

National Grid does support the concept of Forward Minting of SRECs for small installations as a simple means to help residential and small commercial solar hosts to monetize the value of the Carve-out program as an upfront rebate. However, in all cases, systems that benefit from forward minting should be required to report their performance, and should be subject to repayment obligations or penalties for non-performance.

National Grid appreciates the opportunity to submit these comments. While we are urging reconsideration of the proposal, we do want to reiterate our support for the DOER's efforts to continue to advance renewable generation. But in this instance, we believe the cost of the program design presents important policy questions that need to be fully understood before moving forward. We look forward to participating in the process of developing a better program to support the continued deployment of solar PV in a manner that is fair, cost effective, and competitive.

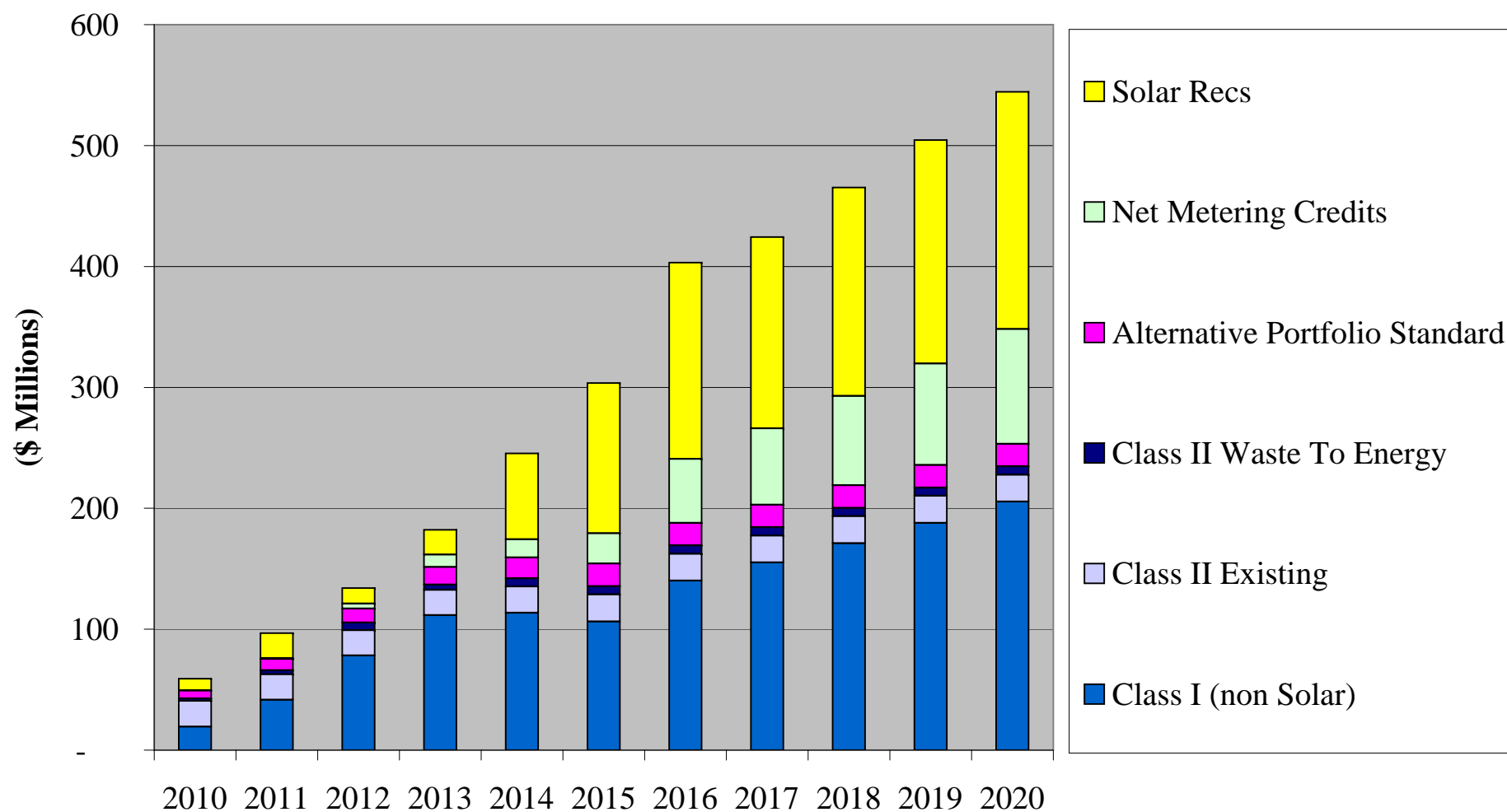
Sincerely,



Ronald T. Gerwatowski
Senior Vice President

⁴ Barbose, Galen, et. al., "Tracking the Sun IV: The Installed Price of Photovoltaics in the United States from 1998-2012," Lawrence Berkeley National Laboratory, July 2013. Pg. 37, Figure 30.

Costs of Renewable Portfolio Standards and Net Metering Credits for Massachusetts Electric Customers (1)



(1) RPS costs reflect estimates for both Basic Service customers and National Grid delivery customers receiving competitive supply at the same market values.