

October 28, 2016

Michael Judge  
Director, Renewable and Alternative Energy Division  
Massachusetts Department of Energy Resources

Dear Mike:

The UMass Clean Energy Extension is pleased to provide these comments in reference to the Next Generation Solar Incentive Straw Proposal. These comments and recommendations are provided in the context of our overall strong support for the new program design and particularly its features to offer a declining block of fixed revenue for solar generation, and with differentiations for various system sizes, applications, and public policy objectives.

The sequence of solar programs supported by DOER has successfully brought Massachusetts into a leadership role in the U.S. and to a place where the market provides significant contributions to the Commonwealth's energy diversity, environmental commitments, and job and business creation. We anticipate that the new program design will continue this success.

Our comments concern what we believe are missed opportunities due to market barriers that limit the value of the solar market to our ratepayers and Commonwealth as a whole. We offer recommendations on how the current straw design could be modified to help unleash innovation in solar delivery business models that may better deliver the value of solar to our ratepayers.

### **The Promise of Solar**

Americans favors solar energy more than other renewables<sup>1</sup>. Why is solar popular? Certainly it's popular for its environmental attributes. But solar provides distributed generation that is readily accessible to citizens and businesses – easy to install, simple to use, and reliable. No other energy source offers such a real opportunity for consumers to take control of their own energy generation needs. Such control affords small consumers the value of energy and price security, but also an attractive value proposition to gain independence from large electricity generators and redistribute significant wealth and power through individual acquisition of energy capital. Those old enough to remember wearing bell bottoms recall this promise of solar energy

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<sup>1</sup> <http://www.seia.org/research-resources/polling-data-support-solar>

from its very beginnings, as does the more recent interests in the notion of solar creating energy democratization and prosumers<sup>2</sup>. The value to the Commonwealth's economy of solar wealth creation and economic development amongst our ratepayers, we believe, is a viable and important attribute for the solar program.

## **The Limits of the Current Market**

In the substantial solar market in Massachusetts today, the vast majority of capital wealth creation is going to investors outside the Commonwealth and, likely, to investment funds and shareholders that exacerbate the wealth distribution gap in the country as a whole. This result makes solar not materially different economically than our central generation plants that have had to meet our electric needs to date.

Certainly, Massachusetts citizens, businesses, and municipalities that engage in the solar market are most often provided benefits through discounted energy, but the vast portion of equity rate of return and long term capital value in our solar market is being missed by our ratepayers and the Commonwealth.

Prevailing business models in our market have served us well to create remarkable growth in solar capacity installed and greenhouse gas reductions. These business models using third-party equity investors dominate the U.S. markets, and have been readily adapted to our and other markets with virtual net metering to offer discounts to municipal, low income, and community shared solar ratepayers. The third-party business model is implicitly endorsed by the federal tax laws which limit access of parties without sufficient tax liability to federal benefits despite not costing the federal budget any more<sup>3</sup>. Solar developers and financiers compete to offer best possible discounts to municipal, low-income, and community shared solar off-takers, but these consumers hold little bargaining power, face high transactional costs, and have no readily available alternative business models to consider.

For community shared solar (CSS) the current market is particularly frustrating to many citizens who seek viable opportunities to realize a project created through community organizing for the community to share as their own collective asset. That is, opportunities that originally gave rise to the terms "community shared solar" or "solar garden". This form of direct-owned CSS shares little in common with the near-entirety of the current CSS market of third-party developers with equity investors selling discounted energy to ratepayers unaffiliated with the project development or each other. While not central to the recommendations offered in this comment, the Clean Energy Extension does suggest that DOER separate the definition of these two classes of projects so that differential policy can better be applied as opportunities arise (for example in net metering or state personal tax eligibility).

The expansion of low-income and municipal projects in our market has not transparently demonstrated the value these projects to the public good, nor does the current or proposed

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<sup>2</sup> see, for example, <https://ilsr.org/democratizing-electricity-system-vision-21st-century-grid/>, <http://www.nature.com/articles/nenergy201632>

<sup>3</sup> Lawrence Berkeley National Laboratory, *An Analysis of the Costs, Benefits, and Implications of Different Approaches to Capturing the Value of Renewable Energy Tax Incentives*, Mark Bolinger, May 2014 (see discussion on page 30 including footnote 33).

program structure provide levers to enhance and maximize the public benefits that can be realized.

A report<sup>4</sup> prepared for DOER to compare the economic benefits to the ratepayer of a residential third-party owned solar installation with a direct-owned installation concluded that direct ownership offers as much as 15 times the lifetime benefit stream to the homeowner, and added benefits to the Commonwealth as a whole. Similar shifts in the value stream would be reasonable to expect beyond the residential rooftop sector with innovative business models offering ratepayer access to capital or electric generation ownership. While solar ownership is not without risk, technical and other risks of solar investment is becoming increasingly low and can be managed with available strategies and tools.

## **Market Barrier to Business Plan Innovation**

The Clean Energy Extension has heard a clear yearning from many citizens, community groups, business and non-profit owners, and municipalities in Massachusetts for easier access to business models affording direct financial engagement in solar projects. The fact that little options are available to serve this substantial demand, despite lower financing costs due to lower financial hurdle rates, suggests market barriers are inhibiting this financial innovation.

Market barriers start with the federal tax credit scheme offering incentive only to tax liable entities. Further, though, is the resulting dominance of large national financial institutions in the market which has crowded out new innovation while leaving energy consumers or virtual net metering off-takers with little bargaining power. Additionally, access to debt from local lenders for solar investments remains limited especially beyond the residential rooftop market.

Financial innovation and market penetration is particularly complicated by federal and state legal structures around securities investments meant to protect small consumers, which may not appropriately reflect the risk and opportunities now offered by solar assets. For community groups or new business innovators seeking to offer such a business model face prohibitive legal costs associated with structuring business models that address these rules and the financial jujitsu required to attain tax equity for the federal incentive.

## **Visioning New Models for Solar Consumers**

DOER recognized the barrier of easy access to solar loans in the residential market and established the Mass Solar Loan Program which has served roughly 1700 loans in about one year. DOER should look for additional opportunities to encourage alternative models for Commonwealth citizens and businesses to prosper from solar investment, especially in advance of the diminishing federal tax incentives over the coming years.

Business models to bring a diversity of options to ratepayers are emerging, but facing barriers, and other models will remain untapped unless policy and the market enable innovation. With policy encouragement, opportunities such as the following that have been suggested by

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<sup>4</sup> [Comparative Regional Economic Impacts of Solar Ownership/Financing Alternatives](#), September 2013.

stakeholders to the Clean Energy Extension might be fleshed out to meet the interest of many of our energy customers:

- CSS projects by, for and of the community, either direct-owned or flipped from tax equity investors to community members after tax advantages.
- Business-sited projects with ownership options offered to employees through payroll deduction for virtual net metering credits or share in project revenues.
- Low income projects offering asset ownership or share of long-term revenues to low income ratepayers or housing providers, supported by charitable contributions of cash or S/RECs, or tapping savings from displaced low-income utility rates.
- Community-based crowdfunding CSS or standalone projects for long term share of net metering credits or project revenues.
- Municipal projects supported by town residents and businesses through adjustments in local tax bills.
- Use of business or public retirement accounts for solar investment.
- Projects sited on faith-based buildings using investment funds from members.
- Sales to ratepayers of rights to future energy revenue blocks used to buy out equity investors and transition asset value to community entity.

### **Recommendations for Policy Support of Business Plan Innovation**

The Clean Energy Extension recommends that DOER seek measures to effectively encourage financial innovation that maintains significant solar value with our ratepayers. The state can take a national leadership role in this area. Like technical innovation, financial innovation can be encouraged through public research to provide critical common knowledge to innovators, and through financial incentive to encourage the private market to develop and bring forth new opportunities, to compete for the demand of willing participants.

Thereby, we offer the following two recommendations. The first recommendation could be undertaken as quickly as possible with no need to wait for the start of the new program. The second recommendation should be considered for integration into the program design and made available as the program is launched.

1. **Study of Legal and Business Issues Constraining Innovative Business Plans:** DOER should commission a study to fully explore the business and legal issues surrounding investment restrictions and opportunities for small and “unsophisticated” investors. The study should explore state and federal securities law and other areas of financial law, with the goal of illuminating the opportunities for non-profits, small businesses, cooperatives, community investors, and low income advocates and housing developers. The study should consider access to solar value through net metering credits as well as through asset/capital ownership, and through financial rights to energy generation. The study should highlight laws that restrict participation and assess the merits of the law relative to historic rationales and whether such rationales remain justified for the new opportunities that solar distributed generation provide. The study should explore barriers accessing low cost capital and credit worthiness. The study should provide a primer accessible to community, non-profit, small business entities likely to be engaged in this innovation.

2. **Community Value Price Adder:** DOER should incorporate a Community Value price adder to the tariff received by a qualified solar generation unit that achieves certain thresholds for returning financial value of the project to Massachusetts ratepayers including all residential, low income, public and non-profit ratepayers, and those commercial/industrial businesses with a majority of their total global business revenues generated in the state.

A suggested structure is as follows. A typical solar project will provide returns to participants through tax savings and from the sale of renewable energy at the tariff price. A project that seeks qualification with a Community Value price adder must demonstrate to DOER that of these revenues, at least 30% of the undiscounted value of the revenues over the first 10 years must be provided to eligible ratepayers, and that at least 70% is provided over 30 years. The setting of these thresholds should be subject to further analysis and subject to change over time particularly with any changes to the federal solar tax incentives. DOER could consider contracting accounting services to objectively evaluate business plans that seek this qualification.

The price adder for Community Value projects should be sufficient to mobilize sophisticated financial firms, established non-profits, and community-organized partnerships into entrepreneurial efforts to conceive and deploy new business models for particular projects and as a new financial service to other community organized development.

We suggest Community Value be added to the list of Policy Based Adders at an initial rate of \$0.05/kWh. As the DOER design suggests, this adder would be additional to other adders for which a project might be eligible. That said, if DOER provides a Community Value adder, the Department might consider adjustments to the Off-taker Based Adders to appropriately set total incentive values while encouraging the market towards projects with Community Value business plans.

Through the Community Value adder, the state can lead the nation in much needed innovation to better serve the needs and desires of many of ratepayers and citizens, and help realize the promise of solar to offer not only clean energy but local wealth creation, energy democratization, and social economic equity.

Thank you for offering the opportunity to comment on the straw proposal for the next solar program. We look forward to its continued design development and to its success.

Regards,

A handwritten signature in black ink, appearing to read 'Dwayne S. Breger', with a stylized, flowing script.

Dwayne S. Breger  
Director