



1 June 2020

Kaitlin Kelly  
Massachusetts Department of Energy Resources  
100 Cambridge Street 10th Floor  
Boston, MA 02116

**RE: Comments on Solar Massachusetts Renewable Target (SMART);  
225 CMR 20.00 Emergency Regulations and Proposed Revisions**

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Ms Kelly:

Thank you for the opportunity to provide written comment. SunPower is a global technology company involved in every step of the solar system supply chain. SunPower has over 7,000 employees worldwide, the world's highest efficiency solar photovoltaic panel technology, growing development of solar plus storage projects, and an extensive national dealer network mostly consisting of locally-owned small businesses. We have manufacturing facilities in California and Oregon, and we have headquartered our east coast commercial development team in Boston. Our local footprint also includes 28 Massachusetts-based small businesses who are a part of our residential and commercial dealer networks.

SunPower thanks the Department for the modifications and program expansion of the SMART program. This has been a long road, and we recognize the hard work by Department leadership and staff to get this far. It is a good start to unlocking the potential of SMART to deploy solar and energy storage systems across the Commonwealth, while simultaneously directly benefiting energy customers and the distribution grid as a whole. SunPower began investing in Massachusetts because of the SMART program. We decided to base our east coast commercial development team in Boston primarily because of the potential of the SMART program.

We are encouraged by the changes to the program in the emergency regulations, however we believe that there need to be further changes. Our comments are below, organized by specific issue area.

**Expanded Program Capacity**

SunPower supports the addition of 1600 MW to the SMART program. The solar industry is a significant part of the Massachusetts economy, and solar programs in the state are responsible for supporting thousands of jobs. The SREC programs, and the current SMART program, have helped our industry grow and mature. But as successful as the solar industry is, we are not yet at a point where distributed solar generation can thrive without active public programs.

In most of the Commonwealth, this means that Blocks 9-16 will be created. SunPower asks for clarification regarding the additional capacity in National Grid – Nantucket and Unitil. Since those utilities did not have eight blocks due to their small size and load, the next new blocks would be Block 3 (Nantucket) and Block 5 (Unitil). In order to follow the formula for compensation declines block-to-block, SunPower suggests that the Department not skip ahead to Block 9 in those territories. Instead, they should add new capacity starting in Block 3 (Nantucket) and Block 5 (Unitil).

### **SMART Compensation Revisions**

The emergency regulations made minor changes to the Base Compensation Rates for Behind-the-Meter (BTM) systems, reducing the decline block-to-block to 2 percent instead of the previous 4 percent. SunPower supports that change but believes that there needs to be much more extensive revisions to the compensation rates.

Solar project economics are very different today versus when the SMART program regulations were being finalized in 2018 for a variety of factors. The Federal Investment Tax Credit is currently stepping down in value and will be 22 percent in 2021. From the original 30 percent ITC value, the credit will have dropped over 25 percent in total value by 2021. This was not unforeseen during the original SMART implementation, but amidst other rising project costs, the change in Federal policy cannot be overlooked. Import tariffs on solar modules and various balance of system components (ie. inverters, steel) are raising project costs even for those residential and commercial projects utilizing tariff-exempted modules.

Interconnection costs in Massachusetts have skyrocketed in the last two years and have been well documented in proceedings at the Department of Public Utilities. Some utilities are requiring reclosures for BTM systems over 500 kW, adding additional costs to the project. It is important to note that interconnection-related costs are not eligible for the ITC.

Meanwhile, SMART has been moving through the blocks at a faster than expected pace, namely in Massachusetts Electric (National Grid). For commercial systems, the Base Compensation Rate has declined over 25 percent in National Grid and Eversource-West territories from Block 1, assuming that they are currently in Block 9. Small systems in National Grid, currently in Block 5, have seen SMART compensation decline by 15 percent.

None of the above analysis takes into account the impacts of the current economic realities brought on by COVID-19. Due to social distancing, project construction will take longer, resulting in higher total labor costs. The tax equity market is less accessible due to fewer potential partners, since tax equity appetite is based on expected corporate profits. What financial capital will be available will be more expensive. And, insurance costs are rising in this pandemic.

There are new rising costs specific to rooftop and canopy projects. New National Electric Code fire standards for Module Level Shutdown requirements are now required for commercial rooftop projects. This requires AC modules, which add about \$0.07/W to project costs. Canopy costs are also significantly higher. Steel costs have increased by 20 percent since the start of SMART. Additionally, customers generally prefer increased stormwater management capabilities that divert water safely and reduce ice on surface parking lots. These are not only good environmental measures, but also safety measures. These stormwater management measures are not ITC-eligible. Canopies on parking garages have a different cost structure and require much more structural testing to ensure the garage structure can withstand the canopy weight and resulting wind/lift forces.

The solar industry has consistently been reducing project costs over the last decade. SunPower has seen, on average, project cost decreases 10 percent annually. The rising costs described above come from project inputs outside of the developer's control, whether that is through the market price of steel or utility-set interconnection upgrade fees. Solar installation/development costs are influenced more by soft costs than by hardware-related costs. This reality makes future cost reduction trends less likely to reflect the historical patterns.

In Attachment A, SunPower has an Excel spreadsheet showing the different project economics for commercial rooftop and canopy projects from 2018 and 2020. The resulting analysis is input into a non-proprietary financial model to create power purchase agreement energy pricing based on the level of SMART compensation available. The analysis shows BTM commercial solar is mostly uneconomical in Massachusetts. Without SMART, PPA rates are well above the customer's avoided cost of electricity, illustrated by proxy with the SMART Value of Energy calculation. With SMART, the incentive does not do enough to create customer savings. The takeaways from our analysis include:

- BTM rooftop projects under 1 MW are not economical in Massachusetts under current SMART compensation levels. Not economical means that the PPA rate is higher than the customer's avoided cost.
- BTM canopy projects of any size are not economical in Massachusetts under current SMART compensation levels.
- In Eversource-East territory, BTM rooftop project 1 MW and larger are not economical after Block 6. They are currently in Block 4.

Recommendation: SunPower urges the Department to not only think about the current solar economic issues but also the realistic constraints expected through Block 16. SMART is meant to facilitate deployment of solar projects in Massachusetts. That can only happen at scale when energy customers can benefit financially – when they are saving money from the business as

usual case. The Department has also made clear that BTM solar projects are desirable solar development. However, residential and commercial solar customers choose to adopt solar due to the financial benefits. And, in the expected economic downturn, few families and businesses can afford to adopt solar at a premium price.

As such, SunPower proposes that the Department revise SMART compensation levels in the following ways:

- Raise Base Compensation Rates by \$0.035/kWh for all project sizes
- Increase the Building-Mounted Adder to \$0.04/kWh
- Increase the Canopy Adder to \$0.10/kWh, and allow for Parking Garage Canopies to access an additional \$0.03/kWh adder
- Keep the provision where Location-Based Adders will not decline in value.
- Keep the provision where the Public Entity Adder is increased to \$0.04/kWh.
- Apply the BTM Compensation decline of 2 percent block-to-block to the current blocks, and not as of Block 9, for all project types and capacity set-asides.

SunPower believes these compensation changes are necessary to achieve the Department's stated goal of greater BTM solar adoption across the Commonwealth. The data supports this assertion.

### **Energy Storage Mandate**

SunPower respectfully opposes the new SMART requirement that any solar project 500 kW or larger have an energy storage system co-located with it. SunPower fully supports the Commonwealth's goal of achieving 200 MWhs of energy storage deployed by the end of 2020, however we believe there is a better strategy to encourage storage adoption among Massachusetts residents and businesses.

Commercial energy consumers tend to adopt energy storage as part of the solar installation when there is a net financial benefit in the transaction. Energy bill reduction, through demand charge management, continues to be the only reliable way to model storage benefits to commercial customers, at-large. Resiliency value cannot be easily quantified, nor do all customers value resiliency. That savings is limited by the customer's load profile/needs, and the size of the demand charge. The SMART energy storage adder, while meaning to cover marginal project costs of adding storage to a solar project, does not effectively do that for all ranges of distributed storage capacities, even when factoring in forecasted demand charge savings. And now that the storage adder has moved through the tranches, the economics of solar plus storage systems are now questionable for all capacities.

In Attachment A, SunPower provides project-level analysis for different solar plus storage projects across utility territories in order to measure marginal cost of adding storage compared to

marginal value of the applied storage adder. Namely, SMART solar plus storage projects are economical for systems with over 1 MW of solar capacity. For projects under 1 MW, adding storage is not economical and would add net costs to the project. By mandating storage for systems 500 kW and larger, the Department could lower commercial solar adoption since the customer could choose to not move forward altogether.

**Recommendation:** SunPower proposes that the Department increase the base Energy Storage Adder Multiplier to at least \$0.05/kWh as part of the adder value formula as a means of increasing overall energy storage adder values. The Energy Storage Adder should not decline, as part of encouraging storage adoption. If adder value decline were to occur, we recommend that the tranche sizes be based on storage capacity and not solar capacity. The Department is trying to encourage storage deployment, and solar capacity installations are not indicative of the volume of storage deployed.

If the Department feels it is necessary to mandate storage for any solar projects, we recommend only requiring storage (with appropriate exceptions) for those market segments where energy storage is generally economical. The data suggests that the threshold would be at a minimum of 1 MW of solar capacity.

### **Alternate On-Bill Credits for BTM Solar**

Due to the net metering caps, new BTM solar projects across the Commonwealth are unable to complete development in a way that reduces customers' energy consumption and financially benefits them. There is no recourse for these types of customers. The Alternate On-Bill Credit (AOBC) as designed in the 2018 version of the SMART regulations mimics virtual net metering. On-site commercial customers who wish to place the solar behind the meter are left out of this provision in SMART. This oversight, and the net metering caps, has suppressed the on-site commercial solar market and storage adoption generally.

The Department stated its intentions in the September 2019 SMART straw revisions presentation that the new regulations would allow BTM solar projects to be compensated with the AOBC. However, the definition of AOBC in the emergency regulations continued to only apply to Standalone systems.

**Recommendation:** SunPower proposes that the Department expand the definition of AOBC to allow for BTM systems to receive those credits. It appears that other changes in the regulations would allow for a smooth application of AOBC for BTM systems, namely the second Value of Energy calculator.

However, SunPower believes that this regulatory change alone cannot solve the broader issue. The AOBC needs to be structured in a way that mimics net metering for BTM customers,

namely that system generation is netted against the customer's consumption in each billing cycle, typically on a monthly basis. If the Department does not specify this structure in regulations, it will be up to the Department of Public Utilities to resolve in an undetermined amount of time – and only if they decide to structure the AOBC to the billing cycle netting period. A legislative solution, such as H.2866, *An Act Relative to Net Metering for On-site Renewable Energy Facilities*, filed by Speaker Pro Tempore Representative Patricia Haddad would provide greater certainty immediately upon passage from the legislature because net metering has a defined structure. AOBC has no defined structure for this application, and this type of uncertainty is not helpful to commercial solar development – especially during this COVID-induced economic downturn.

### **Capacity Set-Asides**

SunPower supports the concept of an additional set-aside within all SMART blocks. It is especially important for small commercial projects up to 500 kW to have as much certainty around project economics and the customer value proposition because small commercial energy consumers tend to not have energy managers or energy experts on staff. Solar retrofit projects require engineering and design approval from the customer, and contract negotiations can last for weeks or several months before a project is ready to submit interconnection applications and SMART applications.

However, the same is true for on-site commercial projects of all sizes. The project development process is a complicated one, even before the interconnection application is submitted. On-site projects modify a customer's built environment. Developers take time to work with the customer to minimize the disruption that the installation process will bring to the customer's business. The electric line interconnecting the system to the grid also needs to be minimally disruptive to the customer's property. If energy storage is involved, there are siting concerns and accommodations. There can be a host of other site-specific issues.

Recommendation: SunPower proposes that each SMART block have a capacity set-aside for projects 25-500 kW, as well as BTM projects receiving compensation through the net metering tariff. The set-aside would be 30 percent of each utility's block. This is higher than the 20 percent in the emergency regulations in order to accommodate net metered projects up to 2 MW and avoid crowding out smaller projects.

### **Statement of Qualification Reservation Periods**

The COVID-19 pandemic and resulting phased re-openings mean that applying social distancing to the job site will become a new normal in solar construction. The Department recognized this reality amidst the most stringent business activity restrictions, however even as economies

reopen solar project development will take longer. Previously, commercial solar project development could take anywhere from 12-18 months.

Recommendation: SunPower proposes to the Department that the standard Statement of Qualification reservation last 18 months. For Public Solar Tariff Generation Units (STGUs), SunPower proposes that the base reservation period be 24 months. Public STGUs can apply to SMART before the interconnection study process is complete, meaning that the reservation period should account for this additional step in the development process. For non-public STGUs, the interconnection study process is completed before the developer submits a SMART application.

### **Land Use**

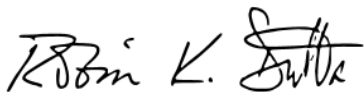
SunPower does not take a position on the revised land use restrictions and greenfield subtractors. We only note that if the Department intends to increase restrictions for solar siting from the 2018 version of the regulations, they should ensure that SMART appropriately supports eligible project types through the setting of Base Compensation Rates, Location-Based Adders, and the Energy Storage Adder.

### **Conclusion**

SunPower thanks the Department of Energy Resources for their work on revising the SMART regulations. This program can continue to support the solar industry by amending the current program rules and compensation levels. Due to rapidly changing realities to solar development, whether related to COVID or not, there is an urgent need to revise SMART further than what the Department has done.

SunPower hopes that the Department finds our comments, and the supporting analysis, helpful when deciding the final regulations. Please feel free to reach out with any follow-up questions or comments.

Sincerely,

A handwritten signature in black ink, appearing to read "Robin K. Dutta". The signature is stylized with a large, looped 'R' and a cursive 'Dutta'.

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