



July 11, 2017

Judith Judson, Commissioner
Massachusetts Department of Energy Resources
100 Cambridge Street
10th Floor
Boston, MA 02116

RE: Solar Massachusetts Renewable Target (SMART) Emergency Regulations, 225 CMR 20.00

Dear Commissioner Judson:

Borrego Solar Systems, Inc. (Borrego Solar) appreciates this opportunity to provide feedback on the Department of Energy Resources' (DOER) Emergency Regulations to establish the Solar Massachusetts Renewable Tariff (SMART). Borrego Solar is one of the oldest and largest installers of commercial and industrial-scale solar in the U.S., and one of the leading commercial/industrial installers in the Commonwealth. To date, we have installed over 205 MW of solar in communities across Massachusetts, with an additional 70 MW currently in design or construction. In 2016, Borrego Solar launched an energy storage division, and we are actively working with a range of customers in Massachusetts to build a megawatt-scale storage market in the Commonwealth.

Borrego Solar was an active participant in the debate over the 2016 legislation that directs DOER to develop a next generation solar program in the Commonwealth, as well as the stakeholder process leading up to the release of these regulations, and we support many aspects of the Emergency Regulations. However, there is still significant work to be done to ensure the new program lives up to its promise—particularly with respect to critical issues such as the method for setting base compensation rates and the inclusion of unnecessary restrictions on certain project types within the program. Borrego Solar is a member of the Solar Energy Industries Association (SEIA), Northeast Clean Energy Council (NECEC), Coalition for Community Solar Access (CCSA), and the Solar Energy Business Association of New England (SEBANE), and urges DOER to seriously consider these groups' recommendations for improving the program.

In addition, we write separately to emphasize the importance of fixing the key problems we see with the program's current design, and to address a handful of technical issues not addressed in the joint solar industry comments that we believe will make the program stronger and more in line with DOER's statutory mandates.

Specifically, we recommend that DOER make the following changes:

- **Address the Following Key Issues to Make the SMART Program Function:**
 - Increase the Ceiling Price for the Competitive Procurement to Facilitate a Robust Auction
 - Eliminate the Adder Cap and Automatic Declines and Replace Them with a Self-Adjusting, Market-Driven Threshold-Decline Mechanism
- **Revise the Following Technical Issues to Align the SMART Program with Statutory and Policy Goals:**
 - Revise the Definition of the “Public Entity” Adder to Facilitate Robust Municipal Participation in the SMART Program
 - Exempt the Storage and Tracker Adders from Any Adder Cap or Threshold
 - Revise the Land Use Subtractor Provisions to Avoid Discouraging Development on Previously Developed Land and Respect Town Zoning Decisions
 - Exempt Projects in Advanced Stages of Development from the Land Use Subtractor Provisions
 - Clarify or Modify Key Definitions in the Land Use Performance Standards
 - Adjust and Clarify Requirements for Agricultural Canopy Projects
 - Clarify the Project Segmentation Rules to Avoid Precluding Campus Projects
 - Clarify the Treatment of Non-Energy Revenues for Storage Projects

I. Recommendations Related to the Competitive Procurement Mechanism

As one of the oldest and largest installers of commercial-scale solar projects in Massachusetts and the U.S., we believe Borrego Solar has a unique view into the economics associated with developing and constructing the types of projects that are eligible to bid into the competitive auction in Massachusetts. Borrego Solar shares the concerns of nearly all other industry stakeholders with respect to the use of a competitive procurement mechanism to establish base prices for the SMART program. As we stated on numerous occasions during the stakeholder process, a poorly structured competitive solicitation risks a non-economic, unrepresentative result that will be skewed toward a few lucky (or risky) inexpensive projects that may never be built. Maintaining this approach—particularly as currently structured—creates a real risk that the SMART program will be unsuccessful in meeting the Administration’s goal of deploying an additional 1600 MW of solar in the Commonwealth.

We also take issue with the unsupported assertions made by certain stakeholders to the effect that a competitive solicitation is the only mechanism that would comply with the Federal Power Act, Public Utility Regulatory Policies Act, or other federal authorities. These and similar arguments have been rejected in numerous federal court cases across the country in recent years, and they have no basis in any credible view of federal energy law. It would be both unnecessary and unwise for the Commonwealth to adopt a competitive procurement approach largely based on an endorsement or acceptance of these fringe legal arguments.

Regardless of our concerns with the overall concept of using a competitive procurement to set base rates for a declining block program, we recognize that DOER has decided to proceed with this approach for now. We therefore offer the following suggestions for further improving the current structure.

A. DOER must adopt a reasonable ceiling price for the competitive procurement to ensure a robust auction.

As one of the most experienced commercial/industrial installers in the Commonwealth, we are seriously concerned that the ceiling prices for the competitive auction will result in a low-turnout, non-competitive auction. Approximately one year ago, DOER engaged an independent consultant, Sustainable Energy Advantage (SEA), to gather cost data from a variety of unbiased sources, and to develop projections of the revenue requirements for different sizes and configurations of solar projects.¹ The SEA Analysis used third party data from GTM Research and the National Renewable Energy Laboratory to develop estimates for revenue requirements for many types of solar projects, including large, ground-mounted projects. This analysis clearly shows that DOER's proposal to cap auction bids at \$0.15/kWh and \$0.14/kWh for 1-2 MW and 2-5 MW projects, respectively, would artificially exclude most projects from participating in the auction and potentially result in a non-competitive auction.

For example, SEA's cost projections for 1 MW ground-mounted projects show that high-cost 1 MW projects could require more than \$0.22/kWh in compensation, whereas even the lowest-cost 1 MW projects could require as much as \$0.18/kWh to be economic (see Table 1, below).

Table 1: SEA Analysis for Large Ground-Mounted Solar (Oct. 11, 2016)

Large-Scale Greenfield (1 MW)						
Hybrid CB/SO & DBI						
High Cost Large-Scale Greenfield (1 MW) (Hybrid CB/SO & DBI, Third Party-Owned, Cost Basis, \$/MWh)						
Installed Capital Cost Trajectory	2017	2018	2019	2020	2021	2022
Low	\$ 139	\$ 132	\$ 126	\$ 126	\$ 124	\$ 126
Base	\$ 178	\$ 171	\$ 164	\$ 165	\$ 163	\$ 168
High	\$ 220	\$ 214	\$ 208	\$ 213	\$ 213	\$ 221
Medium Cost Large-Scale Greenfield (1 MW) (Hybrid CB/SO & DBI, Third Party-Owned, Cost Basis, \$/MWh)						
Installed Capital Cost Trajectory	2017	2018	2019	2020	2021	2022
Low	\$ 127	\$ 120	\$ 115	\$ 115	\$ 113	\$ 115
Base	\$ 162	\$ 155	\$ 149	\$ 150	\$ 148	\$ 152
High	\$ 197	\$ 192	\$ 186	\$ 191	\$ 191	\$ 198
Low Cost Large-Scale Greenfield (1 MW) (Hybrid CB/SO & DBI, Third Party-Owned, Cost Basis, \$/MWh)						
Installed Capital Cost Trajectory	2017	2018	2019	2020	2021	2022
Low	\$ 115	\$ 109	\$ 104	\$ 104	\$ 102	\$ 104
Base	\$ 146	\$ 139	\$ 134	\$ 134	\$ 132	\$ 136
High	\$ 175	\$ 170	\$ 165	\$ 168	\$ 168	\$ 175

For larger (4 MW) projects, SEA's analysis found that these projects could also require as much as \$0.22/kWh for higher-cost projects, or \$0.17/kWh for lower-cost projects (see Table 2).

¹ SEA, Developing a Post-1,600 MW Solar Incentive Program: Evaluating Needed Incentive Levels and Potential Policy Alternatives (October 11, 2016) ["SEA Analysis"].

Table 2: SEA Analysis for Large Ground-Mounted Solar (Oct. 11, 2016)

Large-Scale Greenfield (4 MW)						
Hybrid CB/SO & DBI						
High Cost Large-Scale Greenfield (4 MW) (Hybrid CB/SO & DBI, Third Party-Owned, Cost Basis, \$/MWh)						
Installed Capital Cost Trajectory	2017	2018	2019	2020	2021	2022
Low	\$ 135	\$ 128	\$ 122	\$ 123	\$ 120	\$ 123
Base	\$ 175	\$ 167	\$ 161	\$ 162	\$ 160	\$ 164
High	\$ 219	\$ 213	\$ 208	\$ 213	\$ 213	\$ 221
Medium Cost Large-Scale Greenfield (4 MW) (Hybrid CB/SO & DBI, Third Party-Owned, Cost Basis, \$/MWh)						
Installed Capital Cost Trajectory	2017	2018	2019	2020	2021	2022
Low	\$ 121	\$ 115	\$ 109	\$ 109	\$ 107	\$ 109
Base	\$ 156	\$ 149	\$ 143	\$ 143	\$ 142	\$ 145
High	\$ 192	\$ 186	\$ 181	\$ 185	\$ 185	\$ 193
Low Cost Large-Scale Greenfield (4 MW) (Hybrid CB/SO & DBI, Third Party-Owned, Cost Basis, \$/MWh)						
Installed Capital Cost Trajectory	2017	2018	2019	2020	2021	2022
Low	\$ 107	\$ 101	\$ 95	\$ 95	\$ 93	\$ 95
Base	\$ 137	\$ 130	\$ 124	\$ 125	\$ 123	\$ 126
High	\$ 165	\$ 160	\$ 155	\$ 158	\$ 157	\$ 164

These revenue requirement projections from DOER’s own consultant show conclusively that the ceiling prices proposed in the Emergency Regulation are far too low to support a robust auction for 100 MW of large-scale solar projects. If the goal of the auction is to “discover” the real cost of building these larger projects in Massachusetts, then the ceiling prices should, at a minimum, allow for the full range of possible project costs to be bid, rather than restricting access to the auction to the many projects that may fall outside the highly optimistic view of project cost that is implied by DOER’s choice of the current ceiling prices. To ensure a robust auction, the ceiling prices should create room in the auction for the full range of projects—including high-cost projects and cost decline scenarios. If these higher-cost projects are indeed unrepresentative of the market, the competitive structure of the auction will ensure that the market clears at a lower level that is more representative. This is how a competitive auction is supposed to work.

Unfortunately, as currently structured, only the most optimistic view of project economics has been factored into the ceiling prices—a decision that, if adopted, would pre-determine the outcome of the auction, contradict the very purpose of running a *competitive* auction and, most importantly, raise a real risk of a non-competitive auction.

Moreover, it is worth noting that the SEA Analysis did not account for the following two important factors—both of which are likely to drive the revenue requirements for installing ground-mounted solar in the Commonwealth even higher than SEA estimates: First, the fact that most ground-mounted projects will be subject to the new land use “subtractor,” which will require higher revenue to offset the hit to project economics; and second, the potentially massive impact that the pending Section 201 International Trade Commission Case brought by Suniva Inc. could have on solar module costs.²

² If the relief requested in the Suniva trade case were adopted by the Trump Administration, the result could be an approximately 20-30% increase in installation costs for larger projects.

What this means, in practice, is that DOER and the utilities could very likely end up with a non-competitive auction, comprised of only very-low-cost projects that are not representative of the market. This would result in a “base price” that would be unworkable and would not achieve the Department’s goal of encouraging an additional 1600 MW of solar. Even worse, these low ceiling prices raise the risk that interest in the auction may be so anemic that it would lead to an uncompetitive result—which could be worse for ratepayers, for the solar industry, or both.

Therefore, in order to ensure a robust auction that will drive sufficient participation to indicate an accurate market price for ground-mounted solar, DOER should adopt higher ceiling prices that are in line with the market and DOER’s own consultant’s analysis of the revenue requirements for larger ground-mounted projects. **Our own analysis indicates that a ceiling price of at least \$0.18/kWh for megawatt-scale ground mounted projects would result in a robust auction with sufficient participation to assure DOER and other stakeholders of the accuracy of its result.** We strongly urge DOER to heed the earnest advice that we and the other companies and industry associations who know the market best are providing with respect to this issue.

B. DOER should specify the process it will follow in case the competitive procurement is ruled non-competitive.

As indicated above, we believe there is a very real risk that the auction as currently constructed will be undersubscribed, and that DOER may ultimately rule the auction to have been “non-competitive” for this or other reasons. This possibility raises the concern that an uncompetitive auction result could further delay the opening of the SMART program—a result that could lead to economic stagnation and additional solar job loss in the Commonwealth. **We strongly recommend that DOER clarify that if it rules the auction uncompetitive, the Department will require the utilities to run a second auction with revised ceiling prices or other changes (as necessary) within no more than 2 months of declaring the auction non-competitive.** Two months should be more than sufficient for DOER to consider changes to its auction structure, provide notice of a make-up auction, and accept bids for the second auction.

Furthermore, in the case of a failed auction, DOER should consider returning to its original proposal to set the base price administratively, based on the data provided in the SEA Analysis and further stakeholder feedback. If DOER decides to revert to its original proposal, it should commit to setting the base price as expeditiously as possible, but no later than March 2018.

C. DOER can and should shorten the timelines for conducting the competitive procurement.

DOER has been signaling its interest in setting base tariff rates via a competitive auction since at least January of this year. In light of the large amount of notice that stakeholders will have before the competitive solicitation is conducted, we believe DOER can safely shorten many of the proposed auction timelines.

For example, given that the basic rules and project maturity requirements for the auction will be established in the final SMART regulations, parties will not need 25 business days (five full weeks) to

consider the utilities' RFP for the competitive procurement. **A shorter period—for example, 15 business days (three weeks)—should be sufficient to review the RFP and submit bids to the auction.**

Similarly, we are confused about DOER's proposal to take 30 business days (six weeks) to announce a decision about the auction winners. Since DOER need only stack all bids based on price to determine the clearing price and winners in each utility territory, **we believe DOER should be able to announce the auction results in 15 business days or less. DOER should also clarify that any decision it makes about the competitiveness of the auction will be made within the same timeframe.**

Shortening these timelines will afford the industry and financing parties with greater certainty earlier on with respect to the program's base price, and will thereby enable a smoother transition from the SREC II program to SMART. It will also provide DOER with more time to review and re-run the auction in case it is ruled non-competitive.

D. DOER should clarify what will happen to capacity from the competitive procurement if fewer than 100 MW are awarded or built.

Given the low ceiling prices proposed by DOER, we believe there is a real possibility that fewer than 100 MW would be bid into the competitive procurement. It is also possible that—even if 100 MW of projects are awarded through the competitive procurement—fewer than 100 MW of auction-awarded projects will ultimately be built, due to unforeseen challenges in development or construction. **Consequently, DOER should clarify that any capacity not awarded or not built under the competitive procurement would be returned to the currently open capacity block.** For any capacity not awarded in the auction, the capacity should be added to block 1.

E. DOER should maintain the project maturity, bid security, and no-adder provisions of the competitive auction.

Although we remain concerned with the very concept of using a potentially flawed competitive auction to set base rates for the entire SMART program, we appreciate and support DOER's adoption of certain industry recommendations that we believe will reduce the potential for problems with this program design.

Specifically, **Borrego Solar strongly supports requiring bidders to demonstrate advanced levels of project maturity—including site control, a System Impact Study or Interconnection Services Agreement, and all non-ministerial permits.** These requirements are well-understood by the market, and demonstration of these project maturity criteria indicates that a developer has undertaken sufficient effort to estimate a project's economics to be able to provide DOER with reasonable assurance that the project can be built. These provisions, when combined with a meaningful bid deposit that is refundable upon completion of the solar project, should help to minimize the type of speculative bidding that other renewable energy solicitations have experienced.

In addition, **we support DOER's proposal to exclude adder-based projects from the competitive auction.** If combined with an appropriate ceiling price, this requirement will help ensure that the auction

results provide an accurate signal as to the cost to build basic larger-scale ground-mount projects. Including adders would risk skewing the auction results toward non-representative projects, and would defeat DOER's goal of discovering an accurate base rate for all solar projects.

Finally, **we support applying land use subtractors to projects that bid into the auction.** Because the intent of the auction is to discover a workable base price for the entire SMART program, the auction process should take into account any reductions in base rate that would be imposed by the new land use subtractor provisions.

II. Adder Cap and Automatic Declines

A. Borrego Solar's concerns with the adder cap and declines.

DOER proposes two provisions—the automatic adder decline and the adder cap—that would significantly impact the development of project-types such as solar plus storage, community solar, public off-take, low-income, brownfield, and other beneficial categories that are explicitly called out for support by the enabling legislation for the SMART program.

a. The automatic 4% per block adder decline is unsupported and unwise.

The first problematic provision—originally introduced in during the informal stakeholder process—is a proposed automatic 4% decline in adder values per block. This provision has never been justified by any data provided by DOER or other stakeholders, and appears highly arbitrary and unsupported. A simple review of DOER's own consultant's data for the Community Solar market indicates just how off-base this adder decline provision would be: the SEA Analysis indicates that, for its base case projection, third-party-owned community solar revenue requirements would decline by approximately 1.5% per year for all project types (equivalent to approximately 2% per block). This DOER-consultant projected decline is significantly lower than the decline that would be imposed by a combination of the 4% base rate decline and the 4% adder decline per block. Put simply, neither DOER nor any other stakeholder has provided data or evidence supporting the Emergency Regulations' across-the-board, automatic reduction in adder values.

In fact, there are strong arguments that many of the adders are already too low to encourage robust development of the types of projects that DOER is statutorily required to promote. For example, Borrego Solar has shown DOER data from our own projects indicating that the rooftop adder is likely too low to stimulate the thousands of potential rooftop projects that would require a re-roof to enable solar to be installed. Similarly, we and other stakeholders have made the point numerous times that the landfill and brownfield adders are likely too low to encourage much additional development in sites that have not already been converted to solar. This is because the low-hanging fruit in Massachusetts has largely been picked under SREC II, and any remaining sites will almost by definition require higher incentive rates to offset the risk associated with developing these sites. Moreover, the costs associated with certain adder-based projects could remain flat or increase over time, as land, labor and customer acquisition costs increase, and as the low-hanging fruit in each category is picked. Therefore, **we submit that there is no data or information supporting DOER's proposed across-the-board decline in adder**

values over the life of the program, and recommend this proposal be dropped or modified as we suggest below.

- b. The unvetted “adders cap” concept would artificially limit access to the program to beneficial projects and set the program up to be unworkable in later stages.

The second problematic provision with respect to adders—the 320 MW “adders cap” in 225 CMR 20.07(5)—was never discussed in the stakeholder process, and appears to be a new invention that should be reconsidered or abandoned entirely. This provision is problematic for two reasons: first, because it would artificially limit access to the market for projects that the SMART program is statutorily required to support, and second, because it would likely result in an unworkable program after Block 3.

We understand that DOER chose the 320 MW cap based on an analysis of SREC II projects that showed that the largest single category of project under that program comprised approximately 20% of the total qualified projects—equivalent to 320 MW out of the 1600 MW in the SMART program. In other words, DOER is apparently seeking to limit any one adder-based project type in the SMART program to no more than the largest percentage category in the previous program. This rationale has obvious drawbacks. Specifically, this approach would administratively lock the state’s solar market into the same development pattern that the previous incentive program witnessed—even if new, important sectors such as energy storage, solar canopies, or community solar may have matured significantly since the SREC II program was established. Thus, including such a hard cap would administratively constrain the potential market for these beneficial projects—a policy that we find hard to square with the concept of a market-based compensation program for solar energy that the Administration has been touting.

More importantly, however, this approach would likely result in a rush to the door for certain adder-based projects, caused by the market’s fear of being too late to secure an adder. As a consequence, it is highly likely that by the end of Block 3 (i.e., after approximately 600 MW), many of the adder categories could be depleted, and the remaining un-depleted categories could well be unworkable for most projects. This would have two potentially disastrous effects: first, it would significantly hamper development in the second, lower-cost part of the program; and second, it would drive the market toward a wholesale or qualified-facility model that might benefit utilities and project developers, but that would largely exclude most customers. While we understand that DOER’s intent with the adders cap is to ensure market diversity, we believe the current approach will have precisely the opposite effect.

B. Recommendations for improving the adders cap and automatic declines.

Rather than adopting an adders cap or imposing automatic adder declines that are not justified empirically, and that would risk making the currently unworkable adder rates for some categories even more unworkable, DOER should adopt a modified proposal that would address the policy concerns that are driving these proposals without risking the negative consequences that they would produce.

Specifically, DOER should combine these two proposals into a hybrid approach, in which the value of specific adders would decline after a sufficient number of those adder-based projects has been qualified. For example, DOER could specify that after 320 MW of a specific adder has been reserved, the

value of that adder would decline by some reasonable percentage (e.g., 5%); after the next 320 MW have been reached, a further percentage decline would be implemented, and so on. Other adders would not decline until 320 MW of each specific adder have been reserved. In addition, the adder thresholds should be allocated and applied on a utility-specific basis, based on each utility's pro rata share of retail load. This mechanism would replace both the adder cap and the proposed automatic 4% adder decline.

This approach would serve DOER's goals of constraining costs and encouraging project diversity without risking the negative ramifications of the current proposal. Specifically, by tying a decline in adder value to a specified number of MW that have reserved that adder, DOER would apply the cost decline only to project types that have demonstrated an ability to succeed under the current price structure, while not penalizing adder categories that have not demonstrated the same level of robust uptake. This would drive the most successful adder categories to reduce costs, addressing DOER's ostensible cost concerns in a responsible manner that is more in line with the goals of the SMART program. Also, by reducing the adder value in the high-uptake categories but not the low-uptake categories, DOER will provide the right market incentive for developers to pursue the adder categories that have seen less uptake during the first several blocks of the program, without pulling the rug out from under these less successful categories of projects. This feature would thereby address DOER's apparent goal of ensuring that developers pursue a diversity of project types under SMART. (Though we note that the best way for DOER to ensure project diversity would be to increase the adder rates for the types of projects that are currently uneconomic or difficult to develop.)

III. Additional Recommendations Related to the Adders

A. DOER should revise the definition of "Public Entity Solar Tariff Generation Unit" to include projects sited on private land.

Projects serving towns and public entities provide significant benefits to a broad array of citizens in towns that make the effort to go solar. However, the extended municipal and public entity procurement process can result in higher costs for public entities, longer project development timelines, and the potential for lower compensation rates for projects that are owned or used by public entities. We therefore applaud DOER for adopting an adder to reflect the additional costs and social benefits of projects with public entity offtakers and owners.

However, the definition of projects eligible for this adder is far too narrow to enable towns and cities to make use of this adder. **Specifically, the requirement that Public Entity projects must be located on land owned by the public entity would prevent all but a handful of towns from being able to benefit from this adder.** Many towns do not own sufficient property on which to site solar, and even towns that may own sufficient property may have other more pressing uses for the land. Therefore, imposing this restriction would be detrimental to many towns' abilities to participate in the SMART program.

In order to avoid a result that would largely exclude municipalities from the SMART program, we recommend DOER revise the definition of Public Entity Solar Tariff Generation Unit to read as follows:

Public Entity Solar Tariff Generation Unit. A Solar Tariff Generation Unit ~~sited on property owned by a Municipality or Other Governmental Entity~~ that is either:

(a) is owned or operated by a Municipality or Other Governmental Entity; ~~or~~

(b) has assigned 100% of its output to Municipalities or Other Governmental Entities; or

(c) is sited on property owned by a Municipality or Other Governmental Entity.

B. DOER should exclude the energy storage adder from the adder cap and declines.

Given the manifold benefits of energy storage to the grid and to ratepayers, the newness of the storage market in Massachusetts, and DOER's and the Commonwealth's strong interest in promoting energy storage (as evidenced most recently by DOER's announcement of a near-term 200 MWh storage target), we believe it would be unwise to establish a cap on energy storage paired with solar, or to implement declines in the adder for this important technology (declines that are particularly unsupported, given that SEA did not even evaluate or provide DOER with estimates of the potential declines in these project types).

As solar generation increases in Massachusetts, storage systems can help to shift this generation to peak times, provide ancillary and capacity services, and improve reliability in a number of ways. These benefits—which DOER has recognized in its State of Charge report, as well as other recent regulatory actions—are critical to building a 21st century electricity infrastructure, and they should not be arbitrarily limited by the adder cap or by automatic declines in the adder level.

Just as importantly, the storage adder will not crowd out other project types, because storage can be combined with any other type of eligible project. Therefore, even without a MW-based restriction, the storage adder will not affect project diversity under the SMART program. **For these reasons, we recommend that DOER exempt the storage adder from the proposed adder cap and automatic 4% declines.**

C. DOER should exclude the tracker adder from the adder cap and declines.

We appreciate DOER's inclusion of an adder for tracker systems, and urge DOER to exempt this adder from any final adder cap/threshold or automatic declines. Trackers add cost to solar projects, but they provide societal benefits by allowing solar facilities to produce more energy per acre than fixed-tilt systems. Therefore, the inclusion of an adder to encourage tracker use in Massachusetts is in line with the Administration's land use concerns, and will encourage the development of more efficient solar generation facilities throughout the state. Furthermore, trackers can be combined with most other adder categories, meaning that this adder will not crowd out other types of projects. **For these reasons, we urge DOER to exempt the tracker adder from any adder cap or automatic declines in the final regulations.**

IV. Recommendations Related to the Land Use Performance Standards and Subtractor Provisions

Borrego Solar appreciates the robust dialogue that stakeholders, DOER, EEA, and MDAR have conducted over the past several months related to the land use provisions in the SMART program. Although we and the many farmers and landowners with whom we partner know from experience that solar generation and agriculture are readily compatible uses, we understand the concerns raised by stakeholders and MDAR related to the siting of solar on agricultural land, and offer the following recommendations for making these proposals workable for landowners, towns, and the solar industry.

A. Recommendations related to the land use subtractor provisions.

- a. Borrego Solar supports DOER's definitions of "previously developed" and "acreage of land that a Solar Tariff Generation Unit occupies."

DOER has adopted, clear, workable definitions for the terms "previously developed" and for determining the acreage of land occupied by a solar project. DOER's definition of "previously developed" is appropriately broad, allowing the market to focus on all manner of altered landscapes while excluding from the definition areas that are altered due to "current agricultural use, forestry, or use as preserved natural area." We believe this definition is workable and will help provide clarity to the industry.

We also support DOER's definition of the area affected by a solar project. We interpret this definition to mean that the area affected by a project will be measured based on the square footage of the solar panels themselves. This approach will provide a consistent, objective, easily verifiable metric while avoiding the pitfalls and unintended consequences of attempting to define a project area by some other more subjective or changeable characteristic.

We recommend that DOER adopt these definitions in the final rule.

- b. DOER should clarify that all projects located on previously developed land are Category 1 projects.

As written, the Emergency Regulations would deem projects that are previously developed but located in areas that are not zoned "commercial" or "industrial" to be Category 3 projects subject to a full land use subtractor. There appears to be no justification for penalizing ground-mounted projects located on previously developed land—regardless of the zoning status of the parcel. Furthermore, many municipalities do not employ commercial/industrial zoning categories, and many sites that are previously developed and may be unsuitable for most agricultural uses are located in areas that are not zoned "commercial" or "industrial." **Therefore, we recommend DOER revise this requirement to clarify that all previously developed land shall be treated as Category 1.**

- c. DOER should clarify that all projects sited according to a Solar Zoning Ordinance are Category 1 projects.

Under the State's Green Communities Act, many municipalities have undertaken detailed public processes to plan for solar, and to designate locally appropriate areas and rules for solar development. We believe these communities should be applauded, and their land use planning decisions respected by DOER as it establishes the new rules for the Department's solar incentive program.

However, as currently written, non-canopy projects located on land designated as "Prime Agricultural Land" and land that is currently or was previously enrolled in the Ch. 61A program would be treated as Category 3 subcontractor projects—regardless of whether a municipality has explicitly designated the land as suitable for solar. If adopted in the final regulations, this provision would effectively override municipalities' own zoning decisions, providing a disincentive to development in areas that the local government, in its wisdom and with the input of local stakeholders, has decided to designate as appropriate for solar. We believe this provision, while perhaps well-intentioned, would inappropriately intrude on towns' and landowners' prerogative to determine what to do with their land, and should therefore be modified as shown below.

- d. DOER should exempt projects in advanced stages of development from the Land Use Subtractor provisions.

The land use subcontractor provisions in the Emergency Regulations are the first of their kind in Massachusetts—indeed perhaps in the country. This framework is new, and was the result of significant discussion and evolution during the informal regulatory process that preceded the issuance of the SMART Emergency Regulations. The novelty of this concept and the significant evolution of the concept over the past six months has made it impossible for developers of larger projects to predict what DOER would determine with respect to land use rules for ground-mounted projects.

In light of this uncertainty and the novelty of DOER's proposal, we urge the Department to exempt projects that have expended significant capital on site discovery, interconnection, design, and permitting from the land use subcontractor provisions. Failure to do so would exacerbate the current financial challenges that the delay in issuance of this program has caused for the industry. To address this issue, DOER could introduce a simple amendment to the current land use provisions to specify that projects that have received an interconnection services agreement for the project by August 31, 2017 (or the date of publication of the final SMART regulations) would be considered Category 1 projects. We believe, based on our unique understanding of the large ground-mount market in the state, that very few projects will qualify for this exception. However, the impact on those developers who have been expending time and money to build the next generation of solar projects would be significant. Our recommended revisions to the Emergency Regulations' text are shown below.

- e. Recommended modifications to 225 CMR 20.05(5)(e)(1)(b) to address the above issues.

To implement the previous three recommendations, we recommend the following changes to the language in 225 CMR 20.05(5)(e)(1)(b):

b. Category 1 Non-Agricultural: Solar Tariff Generation Units ~~not located on Land in Agricultural Use or Prime Agricultural Farmland~~ that meet one or more of the following criteria will be designated as Category 1:

- i. ground-mounted Solar Tariff Generation Units with a capacity less than or equal to 500 kW;
- ii. Building Mounted Generation Units;
- iii. Solar Tariff Generation Units sited on Brownfields;
- iv. Solar Tariff Generation Units sited on Eligible Landfills;
- v. Solar Tariff Generation Units that are ground-mounted with a capacity greater than 500 kW and less than or equal to 5,000 kW that are on land that has been previously developed ~~and that is zoned for commercial or industrial use;~~
- vi. Solar Tariff Generation Units that are ground-mounted with a capacity greater than 500 kW and less than or equal to 5,000 kW that are sited within a solar overlay district or that comply with established local zoning that explicitly addresses solar or power generation.
- vii. Solar Tariff Generation Units that obtained an interconnection services agreement for the project on or before August 31, 2017 [or the date of publication of the final SMART regulations].

B. Recommendations related to the land use performance standards - 225 CMR 20.05(5)(e)(5).

Although we appreciate the goals behind the Land Use Performance Standards listed in section 225 CMR 20.05(5)(e)(5), we believe further clarification and revision of these provisions are necessary to avoid confusion and ensure a smooth opening for the SMART program.

First, these provisions generally appear to be appropriate only for projects sited on farmland (e.g., provisions related to soil stripping and maintenance of vegetative cover), but as written, the provisions would technically apply to all types of ground-mounted projects, including those sited on brownfields, landfills, previously developed land, and other landscapes. **To avoid confusion, DOER should clarify that these requirements are only applicable to areas that are not brownfields, landfills, or previously developed land.**

Second, the requirement to avoid soil stripping appears, on its face, unworkable. Nearly all ground-mounted projects require some amount of grading and filling to prepare the site for solar development, and this grading and filling inevitably will lead to some movement of top soil from one area of a site to another. Furthermore, this “no-stripping” provision may not make sense for certain land types—for example rocky areas where significant clearing and earth movement may be necessary. DOER should carefully consider the potential unintended effects of this provision on good site development practice, and calibrate the requirement accordingly. A more reasonable approach that would be more in line with DOER and MDAR’s goals in this regard, would be to limit removal of top soil from the project area. This would ensure that developers do not strip the soil entirely (a practice we believe is anyway quite rare in Massachusetts), but would allow for grading and filling as needed to prepare a site for solar. **Specifically,**

this provision should be revised to read “minimize removal of top soil from the project site.” (This provision also is clearly inappropriate for landfill, brownfield, and previously developed sites.)

Third, the prohibition on concrete or asphalt in the mounting area should also be revisited. Under the state’s electrical code and long-established best practices, ground-mounted projects are required to mount the inverter, transformer, and other electrical equipment in a housing unit on top of concrete. Though the impact on the land area is typically very small, this requirement is driven by safety concerns and is necessary to comply with the electrical code. **We therefore recommend changing this prohibition to read “minimize the use of concrete or asphalt in the mounting area.”** (This provision also is clearly inappropriate for landfill, brownfield, and previously developed sites.)

V. Recommendations on the Agricultural Canopy Provisions

Borrego Solar supports the intent behind the Agricultural Canopy provisions of the Emergency Regulations—specifically, the goal of encouraging responsible development on agricultural land that can facilitate continued dual use of that land for agriculture and solar generation. Although various entities (including Borrego Solar) have experimented with co-locating solar with agricultural use, we agree with DOER that more must be done to encourage this type of approach. We offer several recommendations to improve these provisions.

A. All projects on previously undeveloped land should be eligible.

As written, only projects located on “Land in Agricultural Use or Prime Agricultural Farmland” would be eligible for the Agricultural Canopy adder. In other words, a project located on other land that was not previously developed—e.g., non-prime agricultural land, or land that was not placed in Ch. 61A—would not be eligible for the adder, even if the project met all of the other requirements of the project category. This provision would, paradoxically, prevent the use of these other lands for co-located solar and agricultural use, which appears to be in tension with the goals of this program. In keeping with Department’s goal of promoting dual agricultural and solar use, **we recommend revising this provision to clarify that any land that was not previously developed would be eligible for an Agricultural Canopy adder.** Specifically, the definition of Agricultural Solar Tariff Generation Unit should be revised as follows:

Agricultural Solar Tariff Generation Unit. A Solar Tariff Generation Unit located on land that has not been previously developed (as defined below)~~Land in Agricultural Use or Prime Agricultural Farmland~~ that allows the ~~continued~~ use of the land for agriculture.

B. DOER should increase the eligible project size for agricultural solar projects and exempt projects located in solar zoning areas from the size restriction.

We recognize that DOER and MDAR are interested in keeping Agricultural Canopy project sizes low at the start of the SMART program due to an interest in maintaining the ability to potentially adjust the program requirements before significant deployment has taken place. However, there are currently almost no projects of this type in existence anywhere in the state. In order to scale this program and to

offset the consistent decline in base rates and adders over time, we believe DOER will need to increase the project size to encourage more robust economics for the Agricultural Canopy program over time. **In order to ensure this program gets off to a strong start, we recommend that DOER increase the initial maximum project size to 2 MW to allow for greater economies of scale, and provide for further increases as the base rate declines, as shown below.**

Furthermore, as explained above, we can see no justification for limiting solar development in areas that are designated as appropriate for solar by the local land use authority. We therefore recommend the following changes to the size limit applicable to Agricultural Solar Tariff Generation Unit projects:

- Allow projects in areas designated as appropriate for solar (i.e., “sited within a solar overlay district or that comply with established local zoning that explicitly addresses solar or power generation”) to be as large as 5 MW in block 1 and beyond.
- Gradually increase the maximum project size for Agricultural Canopy projects as the program grows, to:
 - 2 MW in blocks 1 and 2;
 - 3 MW in block 3;
 - 4 MW in Block 4; and
 - 5 MW in blocks 5 through 8.

C. DOER should further clarify the meaning of several terms applicable to agricultural solar projects.

In addition to our recommendations above, Borrego Solar urges DOER to work with MDAR and stakeholders to further clarify the meaning of certain provisions of the Agricultural Canopy requirements. In general, we recommend that DOER be careful not to establish a process that would entail a laborious, case-by-case determination to qualify for this category of adder. Rather, DOER should establish a straightforward checklist for Agricultural Canopy projects that can be easily demonstrated and verified prior to receiving compensation under the SMART program.

More specifically, DOER should clarify what is meant by the requirement that **“crop(s) to be grown to be provided by the farmer or farm agronomist in conjunction with UMass Amherst agricultural extension services”** The phrase “in conjunction with” is too vague to provide meaningful guidance to developers and owners, and could be read to require a case-by-case consultation with agronomists at UMass Amherst whose resources and availability may be limited, or who may not be motivated to work with every developer who contacts them. We recommend further clarifying this requirement. One simple approach may be to direct MDAR to identify and publish a list of pre-approved crops (and livestock) that would be deemed to satisfy this condition.

Similarly, DOER should clarify what is meant by the requirement that **“the maximum shading reduction from the panels on the area beneath shall not be more than 50% of baseline field conditions.”** It is not clear how this provision would be measured or applied—for example, what time of day would the measurement be taken? What time of year? For tracker projects, what angle would be used to determine the shading level? In light of the other robust requirements to ensure agricultural activity

continues on the site of the Solar Canopy installation, we believe this potentially confusing provision can safely be removed from the regulations without significant impact on the efficacy of the program. At a minimum, however, it should be better defined and justified.

VI. Project Segmentation – 225 CMR 20.05(5)(f)

The Emergency Regulations include new provisions limiting the segmentation of SMART Program projects (225 CMR 20.05(5)(f)). These provisions are similar to provisions issued by the DPU to address co-location of net metering projects. Borrego Solar does not take issue with most of these provisions, but we are concerned about the potential impact of this section on campus projects that may involve multiple SMART-eligible projects on different buildings and lots within the same parcel. **Specifically, DOER should clarify that these restrictions will not prevent campus projects employing several building, ground-mount, and carport components, even if these components have different interconnection points.**

VII. Recommendations Related to Energy Storage

The addition of a storage adder to the SMART program is one of the most innovative aspects of DOER's proposal, and we applaud DOER for working with stakeholders to develop an approach that will yield significant benefits to the state's ratepayers and the grid. On the whole, we support the approach taken in the Emergency Regulations, and believe it will send the right signal to developers to combine solar with storage in a range of use cases. We request two clarifications to the Emergency Regulations provisions related to storage.

A. DOER should clarify whether revenues from non-energy wholesale markets would be counted against a solar-plus-storage facility's compensation rate.

First, it is not clear whether revenues generated from capacity, ancillary services, or other non-energy wholesale markets would be counted against a solar plus storage facility's compensation under SMART. We understand DOER's intention to be that only revenues from the sale of electrical energy—but not other products such as capacity or ancillary services—would be counted toward the “value of energy generated” in the formula in 225 CMR 20.08(1). In other words, any revenue received from non-energy wholesale markets (e.g., the ISO-NE capacity and ancillary services markets) would be additive to the SMART tariff rate.

However, this reading of the regulations is not perfectly clear from the language as written. This is an important point—unless capacity and ancillary services revenue from battery storage systems can be additive to the SMART tariff rate, owners of solar plus storage projects will have no incentive to design the battery to participate in these markets and to provide the cost-lowering benefits that would accompany increased supply of these products in the market. **We therefore recommend that DOER add a sentence to 225 CMR 20.08(1) to clarify that any revenues from the sale of electricity products other than energy would not be included in the meaning of “value of energy generated.”**

B. DOER should clarify the treatment of campus-type solar-plus-storage projects.

Second, the Emergency Regulations are not clear about how the storage adder would be calculated in the case of a campus project involving multiple SMART projects that may be linked to a single battery. Specifically, for campus projects, it is not clear which solar PV system's capacity would be used in the formula in 225 CMR 20.07(4)(c)(2) (or if a combination of the on-campus units' capacities should be used). We urge DOER to clarify this issue in the final regulations or in an update to the Energy Storage Guideline.

VIII. Conclusion

We commend DOER and the Administration on issuing the SMART program, and believe that with the key changes recommended herein and in the comments of the other solar associations to which Borrego Solar belongs, the program will continue Massachusetts' position as a leader in clean energy job growth. We appreciate your attention to our views on this important program, and look forward to further dialogue with you and other stakeholders in the coming months.

Sincerely,

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