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July 25 6, 2025

Samantha Meserve
Director, Renewable and Alternative Energy Division
Massachusetts Department of Energy Resources
100 Cambridge Street, 9th Floor
Boston, MA 02114

Re: SMART 3.0 Public Comment by Parallel Products Solar Energy, LLC

Dear Ms. Meserve:

Parallel Products Solar Energy, LLC (PPSE or Parallel) is grateful for the thoughtful and collaborative approach that the Department of Energy Resources (DOER) used to develop the proposed 225 CMR 28.00 Solar Massachusetts Renewable Target (SMART) Program 3.0 regulations. It reflects the thoughtful consideration of stakeholder input, as well as a significant amount of data collection and analysis of the solar photovoltaic (Solar or PV) market in Massachusetts.

Parallel has been actively involved in the discussions and stakeholder sessions that DOER hosted in preparation for the drafting of the current regulations. We have also reached out directly over the last year to DOER to express concerns and provide advice on how to improve the straw proposal shared last summer. We appreciate that some of our input is reflected in the current regulations, and to the degree we have additional suggestions, noted below, we endeavor to provide a fact base and argument that adequately substantiates our recommendations. To the degree that additional data is desired by DOER, including detailed financial modeling, we encourage DOER to follow-up with us for deeper analysis that we may not be able to adequately share in this public comment letter.

Economic Modeling and Adder Values

PPSE notes that most of the quantitative analysis performed by Sustainable Energy Advantage (SEA) was based on data collected in late 2023 and early 2024. The Solar market has experienced some significant changes since then, and Parallel recommends reconsidering / updating some of the data that was used to arrive at the current compensation levels for both base compensation for various system sizes, and Adder compensation. For example, our primary canopy provider notes that their domestic steel prices, and their prices to us, increased a little over 20% in Q1 2025. That is a significant adjustment, and it probably also applies to ground mount racking steel costs equally. Aluminum, the other major racking material, has seen similar tariff effects this year.

Last summer, Parallel noted that the “missing revenue” economic modeling approach used by SEA to determine how to achieve the same required Return on Investment (ROI) that one could achieve for a ground mount system, dependent on system size, for other mounting solutions (e.g., building rooftop, canopy, floating, landfill, etc.). The Adders calculated did not result in an ***incentive*** to produce those other system types, but rather were intended to make an investor indifferent (i.e., achieve the same ROI). At the time, Parallel also noted that the existing Canopy Adder of \$0.06/kWh was not sufficient at the time to even achieve indifference when compare to a similarly-sized ground mount system. In other words, canopy systems were dilutive to ROI results, lowering the profitability of such systems for the average commercial solar investor.

DOER has noted that it prefers and would like to induce more development of PV systems on the built environment or previously disturbed or developed lands (e.g., parking lots, landfills, brownfields). To motivate solar developers like Parallel to pursue those opportunities, we recommend that the Commonwealth establish Adder rates for those kinds of projects that would improve the ROI for the average commercial solar investor, not just make them indifferent.

Given the proposed Location-based Adder rates, Parallel finds that only the Rooftop Adder is able to provide compensation that would **induce** more rooftop development...but only for certain rooftops that do not need additional re-roofing or structural reinforcement, that can currently provided the Developer with at least a 20-year warranty on the roof condition so that the system does not need to be taken down temporarily during the 20-year SMART term to allow for re-roofing. Also, the rooftops would generally need to be relatively clear of major HVAC Rooftop Units (RTUs) and shading. That is a small minority of the technical potential for commercial rooftops that DOER has identified in its solar technical potential study. Most rooftops we investigate still need the building owner to re-roof the surface, it not also “rip & replace” the underlying rigid foam insulation. The Adder is definitely not sufficient to offset this expense, even partially, even on average. This is a challenging issue for the development of solar on commercial rooftops in MA, and it may require additional incentives (e.g., a building owner tax incentive for re-roofing associated with mounting solar on the roof).

Alternatively, DOER might consider an Adder that is increased if re-roofing is required to ensure the integrity of the roof surface for 20 years. The key point is that the proposed Building Mounted Adder is sufficient for a small subset of rooftops that are in good condition, but that excludes most commercial rooftops.

Additionally, the other Location-based Adders make developers **indifferent**, at best, to developing those types of systems. For example, last summer, the increased canopy adder proposed (\$0.08/kWh) made Parallel indifferent to constructing Canopies vs. Ground Mounts, but the recent increase in steel prices, and the significant additional amount of steel required for canopies vs. ground mounts, suggests there is room to increase the Canopy adder if DOER would prefer those types of projects. I would also note that there is a lower cost for large canopies vs. small canopies. Although DOER has refrained from having location-based adders vary by project size, the reality is that canopy projects do—

more so than is reflected in the Base Compensation rates. Parallel recommends that DOER consider a Canopy Adder that varies slightly by project size.

Parallel also notes that the Floating PV Adder should be increased to induce that type of development on man-made ponds in Massachusetts. DOER mistakenly increased that Floating PV Adder in its original straw proposal last summer, and Parallel was excited about the potential for that segment after recently evaluating several of them in southeastern Massachusetts. With the existing \$0.03/kWh Adder, they are not attractive to develop, but with the mistakenly proposed Adder value of \$0.08/kWh, they would be. Given the additional regulations that exist regarding the design and development of floating PV systems, Parallel believes this is a good use of area that is currently underdeveloped, and that it would post little-to-no environmental harm, while potentially significantly benefiting cranberry growers in Massachusetts who could use the additional revenue stream.

Parallel also notes that DOER removed the Raised Racking adder for rooftops that was in last summer's Straw Proposal, but is considering extending the Canopy adder to rooftops. Parallel has investigated using raised racking on rooftops for several projects, but balked each time due to the added expense of installing raised racking that was not offset sufficiently by the increase PV DC capacity that could be installed on the rooftops. Parallel shared last summer that he originally proposed \$0.04/kWh Raised Racking Adder would not have been sufficient to change on our decision. On the other hand, extending the \$0.08/kWh Canopy adder would be sufficient to induce development on rooftops that face several of the issues we noted above concerning the adequacy of the \$0.03/kWh Building Mounted adder. For example, one can re-roof underneath the a PV system mounted on raised racking, so the PV developer does not require a 20-yr roof warranty. Additionally, some commercial rooftops that are unable to support the additional load of a ballasted PV rooftop array might be able to support a raised racking solution that concentrated the loads on existing columns supporting the

roof. Additionally, for rooftops with a lot of vents, piping, HVAC RTUs or other obstructions that might not be conducive to a fixed tilt, ballasted PV system, the space above those obstructions may be ideal if one could afford to construct a raised racking solution. Parallel encourages DOER to explicitly extend the Canopy adder to rooftops without the 75% dual-use criterion underneath the canopy....as long as it is mounted on a rooftop. For example, DOER might modify 225 CMR 28.07(5)(b)2 to say:

2. Canopy STGUs. In order to qualify as a Canopy STGU, the STGU must be located on a raised structure, where:

- a. If mounted on the ground, not less than 75% of the nameplate capacity of the solar photovoltaic modules allowing for the continued use of the area beneath for a secondary function including, but not limited to, parking, pedestrian walkway, transportation infrastructure, storage of equipment, or canal, provided that such secondary function may not be agricultural production.
- b. It is mounted on a building rooftop or parking garage, where canopies mounted on rooftops have a minimum clearance of six feet (or 6'8" – standard door height) to allow roof and mechanical maintenance activities underneath the canopy, and parking garage clearances maintain a minimum height similar to the rest of the parking garage.

Parallel does not believe there is a need for a higher Building Mounted Adder (\$0.04/kWh) for systems over 1 MW AC. There is soon going to be a need for Base Compensation Rates for all systems over 1 MW AC to offset the expected increased costs associated with Transmission Cluster studies. Parallel believes that additional expense should be accounted for in the Base Compensation Rates for all systems over 1 MW AC that would be potentially subject to the ISO-NE Cluster Studies, not in the specific Building Mounted location-based adder.

Although Parallel has yet to construct an Agricultural PV STGU, we investigated the development of several last year. At the time, the \$0.08/kWh Ag PV Adder paired with the Solar Tracking Adder seemed sufficient to induce the development of a raised tracking system. The Agricultural Adder may need to be reconsidered given the 2025 increases in steel prices. Parallel also questions the restriction of tree clearing to create new farmland, especially where the Commonwealth also indicates that that land is considered Prime farmland or Farmland of Statewide Importance or Farmland of Unique Importance. There are many formerly farmed areas in the Commonwealth that have reverted back into forests after a century or more of not being used for agriculture. Sometimes these lands abut existing fields that are currently in agricultural production, and sometimes they do not. Either way, to the extent that a developer and local farmer are willing to put them back into production after clearing the trees, it likely behooves the Commonwealth to reclaim good agricultural lands and put them back into production. Often, given the costs of clearing land, and the limited income achieved by putting them into agricultural production, farmers are not able to reclaim that farmland without the benefit of the additional income stream that they can achieve through dual-use STGUs. Developers are also more likely to have the capital necessary to perform the reclamation of the farmland, and build that into the terms of the arrangement with the farmer. Parallel strongly suggests that DOER allow for the clearing of trees & shrubs, etc. on lots that are classified as having important farmland soils, as noted above. Parallel also notes that almost all current farmland was previously clearcut. DOER does not specify how recently the clearcutting needs to be in order to prevent Ag STGU development. If DOER does maintain this restriction, then it should define the shortest look-back period possible (e.g., one year before site control for the STGU was contracted).

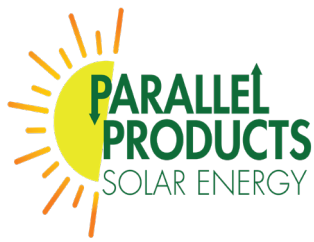
Additionally, Parallel recommends that DOER allow for canopies (a.k.a., “cowports”) in pastures where they can provide shade to livestock. Such raised,

dual-use structures are forbidden under the Canopy eligibility criteria, and the also fail to pass the shading requirement of Dual-use Ag systems. The livestock, however, love the shade on hot summer days...and the cover when it precipitates. DOER might consider eligibility criteria specific to this Ag STGU solution. For example, the percentage of a pasture that it can shade, or the depth of the canopy (e.g., 50 feet) or some size ratio based on the number of livestock to be sheltered.

Finally, Parallel does not understand the reason for the size limits being imposed on Ag STGUs. Capping the size of a system to 7,500 kW DC is not applied to other STGUs. With the ability to use DC-coupled batteries to capture otherwise clipped PV DC energy, Parallel is able to greatly exceed the 1.5x DC:AC ratio being used to limit the size of Dual-use Ag STGUs. Parallel strongly recommend the removal of this constraint on system design and DC capacity for Dual-use Ag STGUs.

Energy Storage Duration and Cycling

At a moment when the Commonwealth is trying to increase the duration of Energy Storage systems in Massachusetts (see the RFP recently issued with the EDCs for 1,500 MWs of mid-duration energy storage), where “mid-duration” is defined as 4-10 hours of energy capacity at full discharge rates. Currently, the Energy Storage algorithm used to determine the value of the ESS Adder in SMART optimizes at around the 2-hour minimum duration, and provides no incremental marginal compensation for durations that exceed 6-hours. As a result, most developers seek the smallest BESS (shortest duration) to complement their PV projects—inducing just the opposite behavior the Commonwealth is trying to establish in battery development elsewhere. The algorithm is not aligned well with the Commonwealth’s goal of incentivizing longer-duration batteries and more MWh of energy storage, generally.



Parallel generally designs DC-coupled batteries into its SMART PV projects that require a co-located battery. DC-coupled batteries provide several benefits, including: requiring only one inverter for both the batteries and PV array; having the ability to store and later discharge otherwise clipped PV energy; enabling higher DC:AC ratios that maximize the amount of clean energy that can be exported to the grid for any given kW AC interconnection capacity. PPSE suggests that DOER encourage DC-coupled battery designs that generally result in longer-duration batteries being integrated into the STGU. For example, for a 2.5x DC:AC ratio, an STGU will need a 6-7 hour duration battery to ensure that it is able to capture all of the otherwise clipped PV energy during long and sunny days. For some of our optimally oriented ground-mount systems with bifacial panels, the expected PV output might require batteries with 8-10 hours of duration depending on the DC:AC ratio, typically limited by EDC circuit capacity. Given the limit of 6-hours in the ESS Adder formula, we are likely to reduce the PV system size in order to achieve an acceptable ROI.

For a co-located BESS in SMART, the SMART revenue stream caused by the battery represents by far the most important return on investment. The 70% discount on Clean Peak revenue, and the meager ISO-NE FCM revenue pales in comparison. In other words, in order to encourage the investment in more MWh of batteries and longer-duration batteries, DOER should adjust the ESS Adder algorithm so that it does not reduce the value of the adder marginally as duration is extended, and it should not limit the value of the adder to 6-hours of duration. Parallel recommends that the duration limit be removed entirely, and that the marginal value of each additional hour of duration not decrease, all else equal. Parallel would be happy to collaborate with DOER on the formulation of a replacement algorithm if it is interested in considering these suggestions.

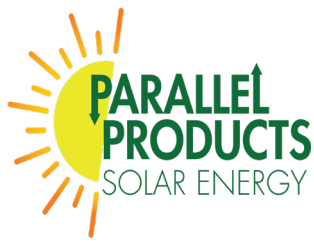
Parallel shared its opinion last summer that a cycling requirement of 156 cycles per year is much too high. We have detailed 8760 x 20 year models for DC-coupled batteries participating in Clean Peak. Please consider some of the

following insights that came about from our in-depth modeling of DC-coupled batteries:

- 1) With the 70% Clean Peak discount, it is not economical to “Charge to Discharge) the battery during the Spring and Fall Clean Peak seasons. In other words, the roundtrip energy losses of unnecessarily charging the battery (i.e., if it is not clipped energy) makes the loss of potential SMART kWh more costly than the value of the incremental Clean Peak revenue that can be generated. For clipped energy, it makes sense to buffer the PV energy in the batteries for discharge later, but it we would lose money if forced to additional store energy to meet cycling goals during the spring and fall seasons. It also obviously follows that it makes absolutely no economic sense to “charge to discharge” on non-Clean Peak days. Recall, Clean Peak certificates can only be generated during non-holiday weekdays during the 4-hour peak seasonal windows.
- 2) There are only 145 non-holiday weekdays during the Winter and Summer Clean Peak seasons. Even if we cycled the battery every day during the Winter and Summer Clean Peak seasons, we would not reach the 156 **minimum** cycling requirement proposed by DOER for SMART 3.0. Due to weather conditions, we do NOT cycle the battery daily due to clipped energy recovery during the Winter and Summer Clean Peak seasons. Given the short days, snow cover and low sun angle during the winter, we typically only cycle our batteries due to clipped energy a few times during the entire Clean Peak Winter Season...for a system with a 2.5:1 DC:AC ratio...which is very high for the average DC-coupled STGU in MA. During the summer, when the battery cycles the most, we still cycle the battery only about 50% daily on Clean Peak days.

- 3) Our DC-Coupled batteries, primarily for interconnection reasons, are not allowed to charge from the grid according to the terms of our ISAs. The only way to force additional cycling the battery more to reach the 156 cycle requirement proposed is to force PV energy to flow through the battery when it is not economical (i.e., when we would lose money doing it). Please also keep in mind that our batteries are typically longer than 4 hours duration, so even if we discharge to the maximum amount during a Clean Peak 4-Hour Window, we are still left with additional SOC in the battery. As a result, the requirement to cycle the battery 156 times penalizes longer duration batteries by making them charge to discharge uneconomically—on top of having a lower average ESS Adder per kWh of capacity.
- 4) DOER never explained how it came up with 156 cycles per year. It used to be 52 cycles per year under SMART 2.0. It appears that someone suggested increasing the cycling rate three times without much consideration for what that means for system owner economics. All else equal, a larger duration battery will cycle fewer times per year. Please do not penalize longer-duration battery owners with the proposed cycling requirement.

DOER might consider modifying the required cycling rate by some aspects of the system design. For example, to encourage not designing for the minimally sized battery, DOER might impose an annual cycling requirement that is modified by the DC:AC ratio. For example, DOER could divide the annual cycling requirement by the DC:AC ratio, which might result in an annual cycling requirement of 62.4 for a system with a 2.5x DC:AC ratio. Doing so would encourage both higher DC:AC ratios and longer duration batteries.

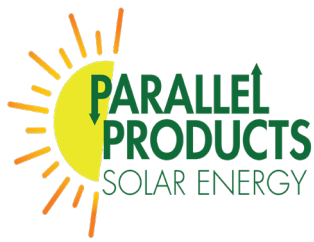


Community Solar

Parallel respects and supports DOER's goal of ensuring that Low Income customers realize significant (e.g., 20%) savings on their annual utility bills when they participate as offtakers in a SMART Community Solar offering. Achieving that goal does not require ensuring that the value of the bill credit allocated from a developer to a low-income customer equal 20% of a R-1 customer's value of energy (i.e., modified net metering credit value using a 3-yr Basic Service average). DOER can and should distinguish between the annual bill reduction value targeted, and the value of the bill credit allocated to the Low Income customer. Otherwise, using the proposed bill credit allocation formula, DOER will see very little Community Solar developed in Massachusetts because it is the value of the residual CSS Adder that is retained by the developer is insufficient to offset the expense and risk of operating a CSS STGU under the SMART 3.0 regulations. Parallel would pursue the Public Entity offtaker adder instead, to the extent that it was feasible in a particular municipality.

By far, the better approach is to require a percentage discount of the bill credit allocated to the CSS offtakers (i.e., either 10% or 20%, minimum), but for residential customers only. Commercial off-takers do not require minimum discounts, and DOER should not dictate them. And the bill credit value should be the AOBC rate (current Basic Service rate of the generator), not the quasi-net metering credit rate based on the R-1 rate class.

Parallel also supports Sunwealth's alternative proposal regarding the approach to allocating benefits to Low Income. Rather than requiring a 20% discount to 40% low-income offtakers, allow CSS STGUs to offer 100% discounts to 10% low-income offtakers. The Sunwealth proposal both allocates more total value to the low-income offtakers of a CSS STGU, and it reduces some of the offtaker counter-party risk and expense that prevents many investors from considering low-income CSS in any form.



Parallel recognizes that essentially reverting to the SMART 2.0 approach to allocating AOBs for CSS may require a lowering of the CSS Adder. Similarly, it may require adjusting the percentage pass-through rate for Municipal Aggregation alternative LICSS programs. Parallel recommends that DOER host a technical session on this matter, asking attendees to propose explicit formulas and values in advance of the meeting for sharing and consideration.

And for emphasis, Parallel repeats that not only would it not pursue any Muni Agg LICSS arrangements under the proposed SMART 3.0 terms, it is unlikely that Parallel would pursue CSS in any form unless utility rates declined dramatically—a highly unlikely scenario.

Greenfield Mitigation Fee

Parallel finds the value of the Mitigation Fee to be very high based on the assessment of some ground mount projects in our development pipeline. It adds significantly to the development risk of a greenfield, ground mount project. Parallel asks that DOER consider lowering the \$/acre maximum fee by 50%.

Having attempted to score several projects, Parallel also requests a new Guideline and integrated web-based GIS toolset to be made available ASAP. For developers without in-house GIS skills and tools, it is a cumbersome and lengthy process.

2025 & 2026 Capacity Available, Capacity Exemptions and Set Asides

Parallel supports making STGUS over 25 kW AC and up to 250 kW AC exempt from the annual SMART 3.0 capacity limit, both for the 2025 program year and for all future program years.

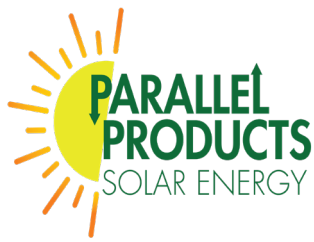
Parallel also recommends that DOER combine the 2025 and 2026 capacity years and make the program capacity unlimited for these program years. Our reasoning is twofold:

- 1) There is significant pent-up demand for SMART 3.0 given the delay in its initial capacity allocation, initially expected at the end of 2024. DOER does not want to repeat the SMART 1.0 scenario where Unitil reached its limit in the first week and National Grid reached its limit several months later.
- 2) The recent actions of the Administration in Washington has put the Federal ITC at risk, including developers' ability to "safe harbor" having "begun construction." Most projects that will seek to apply for SMART 3.0 in October have been in development for years, dependent on certain federal tax incentives to progress. If we are unable to secure (i.e., safe harbor") those expected tax credits before next July, then almost all those projects will be cancelled, and millions of dollars will have been wasted on their development. The Commonwealth will also have no chance of meeting its clean energy development goals and its 2030 emissions reduction goals.

DOER should do everything it can to clear the queue, which currently has an unknown size of eligible projects, to allow as many projects to progress and attempt to capture federal tax incentives for the benefit of the Commonwealth. They likely total in the hundreds of millions of dollars. At a minimum, the uncapped capacity at the initial compensation rates should be open through June 2026.

Parallel is also considering how long it will take DOER to process the initial deluge of SMART 3.0 applications. It may take months.

An alternative approach would be to have an oversized January 2026 capacity allocation, providing DOER an opportunity to refresh rates based on its 2025 data collection efforts and its experience with the October applications to ensure it is



seeing the mix of applications it desires. If DOER does pursue a subsequent January 2026 capacity round, it should be uncapped, and DOER needs to ensure that its staffing and processes will allow it to process all new applications before the end of March 2026.

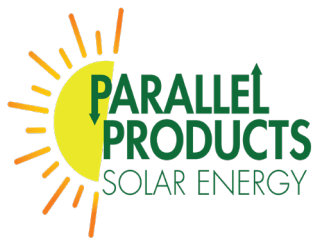
Once a developer has a PSOQ it can take months to secure the financing required to ensure the project will move forward...which is also necessary to Safe Harbor the ITCs through Beginning Construction (often done with large purchase orders with penalties for cancellation). There is significant risk to pushing off securing Safe Harboring until Q2 2026, however, because the supply chains may be empty, and previously the IRS has wanted to see the purchased materials delivered within a certain period of time. Companies are reserving allotments for 2026 and beyond already. Perfecting Safe Harboring of the ITCs after Q1 2026 may be impossible for some projects. We need our SMART 3.0 PSOQs ASAP.

Review Process

Building on our concern about initial SMART 3.0 capacity constraints, Parallel believes that 90 business days (4.5 months) to review the applications is much too long. Parallel encourages the reviewing parties to prepare (staffing, procedures, automation, elimination of redundant reviews) to reduce the time to no more than half of that. Again, we are running against a clock that Washington already started.

Base Compensation Considering ITC Changes

Another major concern, but perhaps for a future review of SMART 3.0 Compensation rates, is whether DOER can make up for the elimination of the federal tax incentives to provide for economics that keep developers interested in PV development in Massachusetts. Parallel has already started to ramp down its



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PV development efforts given the Executive Order to tighten the rules on Safe Harboring tax credits. We should know more about the changes to be employed by the end of August. If they are draconian and near-term, Parallel suggests that DOER prepare a Plan B for the launch of SMART 3.0...because we may need help sooner than later. If we are still able to achieve Safe Harbor by next July, with a reasonable time window for performing construction and achieving PTO, then the discussion can be delayed.

DOER and the DPU also needs to keep in mind that the initial CIP construction that was approved in 2024 may not be ready until mid-2028 for certain substations. If the Administration does not give us 4-years to complete construction, as Safe Harboring currently allows, many projects will be at risk of cancellation. The ability to expedite the EDC's upgrades should be a topic of discussion should the Administration shorten the 4-year window

Parallel also believes that the Commonwealth should consider in this legislative session adding tax credits for PV projects beyond STGUs installed on primary residences to offset the elimination in federal tax credits. This would take some of the burden off of EDC ratepayers that are currently shouldering the SMART programs, although all citizens of the Commonwealth benefit from the PV development supported by the program.

Thank you for your consideration. We are available for follow-up and deeper discussion on any of the topics discussed above.

Sincerely,

Russ Aney

Sr. Project Developer

Parallel Products Solar Energy, LLC