

October 31, 2025

Ms. Samantha Meserve

Director of the Renewable and Alternative Energy Division Massachusetts Department of  
Energy Resources

100 Cambridge Street, 9th Floor

Boston, MA, 02114

Dear Ms. Meserve,

My comments are submitted as feedback to DOER for its proposed base compensation rates for STGUs in the SMART program, in particular the flat incentive rate for prospective <25 kW rooftop solar owners.

As a class of solar, <25kW rooftop currently represents a substantial share of installed solar in Mass as of 2024. Given the renewable energy targets of the 2050 Decarb Roadmap and announcements by the Healey administration of 10GW target for 20230 (8.5 GW in Roadmap/CECP) and its parallel objective to preserve 30% of Mass lands as N&WL also by 2030, Mass. must be confident it has the right financial incentives and regulatory signals in place to harvest the commonwealths rooftops for solar energy.

The SMART 3.0 Annual Program Report states that “The purpose of the Annual SMART Program Assessment is to ensure that the program remains responsive to current market conditions and can support solar development at the pace needed to achieve the Commonwealth’s decarbonization mandates.”

My concerns are about the sufficiency of the Flat Rate Incentive payment of \$0.03/kWh as the mechanism that will allow prospective residential rooftop projects to achieve the needed LCOE (in conjunction, of course, with the 2025 Net Metered Credit values).

I have studied and tested a range of CREST model calibrations using SEA (2024), Program Report 2025 and Program Report 2026 inputs and assumptions. The model outputs show, assuming implementation of the proposed \$.03/kWh Flat Incentive Rate (FIR), that <25 kW rooftop projects contemplated for 2026 will fall short of their LCOE by between \$0.05-\$0.15/kWh (the latter after factoring in 30% higher installed costs due to end of solar ITC). If accurate, this represents a serious challenge for Massachusetts’ efforts to hoist the solar deployment rate to 500 MW in 2026 (and thereafter).

- **Stark Contrast in Program Analyses of LCOE from 2024 to 2026**

According to the SEA 2024 Task 1 Final Report Evaluation of Solar Costs and Needed Incentive Levels Across Sectors from 2025-2030,

*“Current BCRs available in each EDC service territory remain dramatically below cost, at about 50%-60% of total 10-year Base Cost levelized requirements, even without the inclusion of energy storage.” (SEA, p.33)*

Applying its Mass. customized CREST model – SEA arrived at LCOEs for a 7.7 kW rooftop (DO) system of between \$.31 and \$.42/kWh. TPO rooftop of the same size LCOEs were between \$.43 and \$.54/kWh. Low income TPO rooftop solar LCOEs were \$.03 higher than non-low income.

Now comes the 2026 Annual Program Report which states: “To simplify program participation for residential participants, 225 CMR 28.05(7) establishes a flat \$/kWh incentive rate for all STGUs ≤25 kW AC.”

For certain, there had been a consensus concerning the important practical purposes served by the shift from unpredictable SMART 2.0 block compensation rates to the locked in 20-year flat rate incentive (reviewed each year by annual assessment of LCOE). But the SMART 2.0 incentives for <25 kW rooftop – a product of the market auction pegged BCRs minus the VOE – nevertheless bore some relationship to the full cost of energy for those solar owners. The FIR itself is not the problem, but the scale and indexing of the FIR seems to be.

Rather than providing incentives which are “responsive to current market conditions and can support solar development at the pace needed,” SMART 3.0 now merely *“compensates the (<25kW) system owner for the Renewable Energy Certificates that the EDC retains from their system.”* And where is the analysis of empirical data on the value of Renewable Energy Certificates to be found in any of the SMART Program Analyses to be found?

### **The Flat Incentive Rate (FIR): Its Relation to Net Metering Credit Value and LCOE**

*“Based on the Program Year 2026 analysis, DOER found that the Flat Incentive Rates for Program Year 2026 varied in whether they should be reduced or kept the same. ....As with the Base Compensation Rates and Compensation Rate Adders, based on the overall SMART Program Assessment, DOER made the decision to maintain the value of the Flat Incentive Rates.”*

How is the FIR defined? There are 2 official explanations. Which is correct?

From Page 4 of the DOER SMART 3.0 Overview slide presentation:

*The FIP of “≤25 kW systems: Levelized Revenue Requirement - Average Residential Net Metering Credit Value in Previous Year”, (also Ch. 28.05 (6),*  
**OR**

From page 14 of the 2026 Annual Program Report:

*“Flat Incentive Rates were developed by calculating the difference in the levelized cost of energy between rooftop systems  $\leq 25$  kW AC relative to the cost per kW for systems  $>25$  and  $\leq 250$  kW AC”*

It might make sense that the second of these is not about defining what the FIR is but rather about how the LCOE in the FIR definition is derived. But this requires explanation. What is it about the relationship between the LCOE of the much larger class of rooftop projects and that of the much smaller class which suggests that the product of subtracting one from the other will generate the boost needed to achieve the LCOE of the smaller. In any case, it is inconceivable that the result of this calculation can have anything to do with the DOER’s stated purpose: *“to compensate the ( $<25$  kW) system owner for the Renewable Energy Certificates that the EDC retains from their system.”*

**So, focusing instead on the first definition:**

Average Net Metering Credit Values (NM)<sup>1</sup> for mid-2025 ranged among the various EDCs from \$.28-\$.30/kWh LCOE values for an SEA modeled 7.7 kW rooftop solar in 2024 (also applied to the 2025 Annual Report) were: \$.32-\$.42,

Applying averages for the above - at \$.29/kWh for NM credit value, and \$.37/kWh for LCOE, and then subtracting the NM value from the LCOE value leaves \$.08/kWh. After crediting the proposed \$.03/kWh FIR – there remains \$.05/kWh. In other words, an 8-kW rooftop project owner will be left \$.05 short of their calculated LCOE.

Yet, based upon new market survey data and supporting national solar databases (NREL, LLBL, Lazars), the 2026 Annual Assessment concludes that the FIR should be lowered \$.01/kWh. This, in a time of high borrowing rates (accounting for 1/4% drop-in federal prime rate?), high priced labor, highest materials/equipment costs in 5 years and widespread economic uncertainty. Where is the evidence to support simply maintaining, never mind lowering, compensation rates (FIR) for small rooftop solar? SEA market participant surveying secured 14 survey responses from developer/installers covering  $<25$  kW rooftop systems – among them were 7 of the top 10 volume installers in the state.

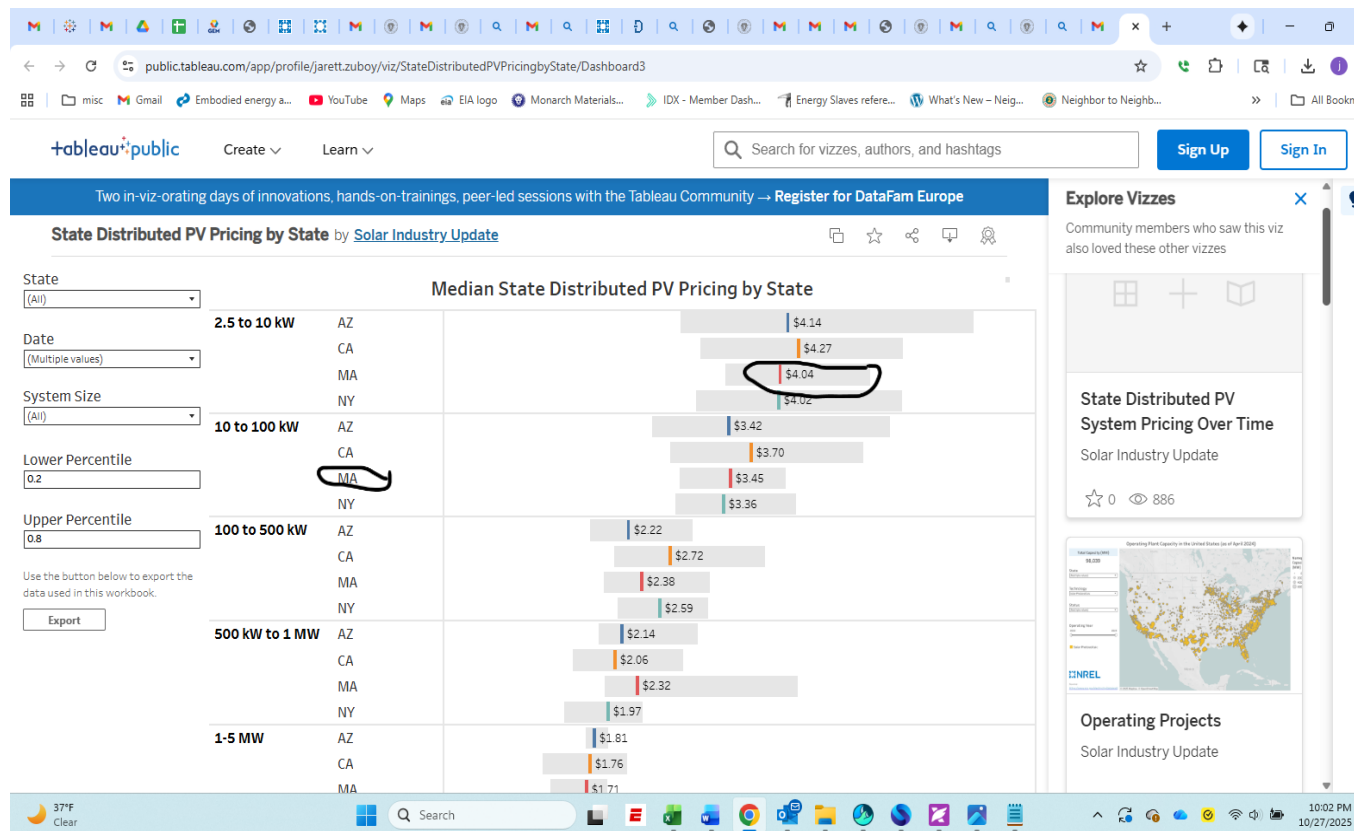
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<sup>1</sup> CMR 225 Chapter 18.04 (a) definition of Net Metering Credit Value as:

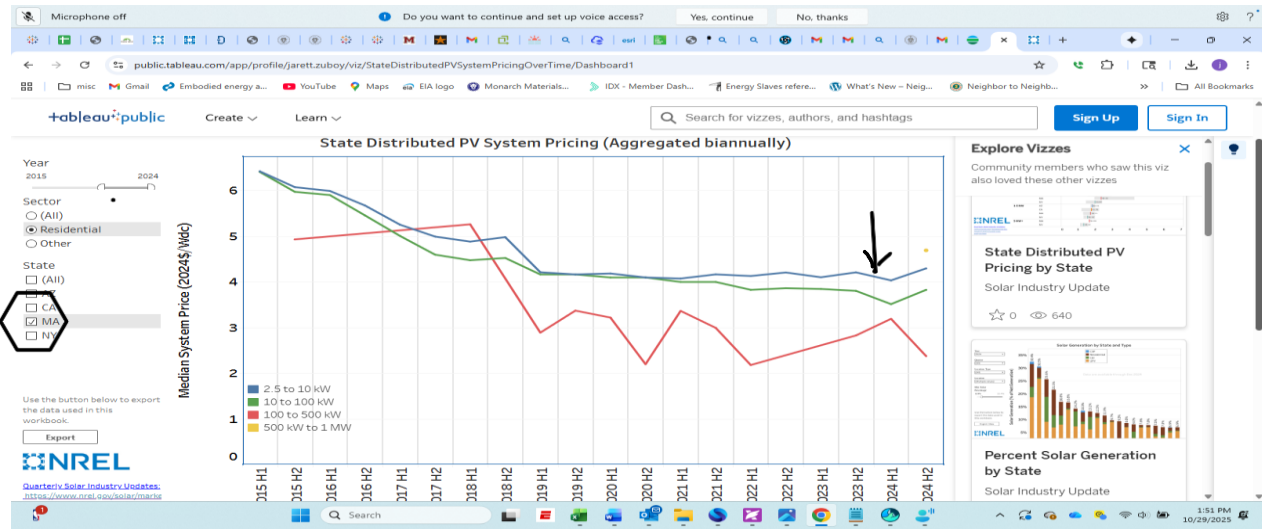
*100% of the net excess kilowatt-hours, by time-of-use, if applicable, multiplied by the sum of the following Distribution Company charges applicable to the rate class under which the Host Customer takes service: 1. basic service kilowatt-hour charge in the ISO-NE load zone where the Host Customer is located; 2. distribution kilowatt-hour charge; 3. transmission kilowatt-hour charge; and 4. transition kilowatt-hour charge;”* This is not the same value as the Avoided Retail electricity cost for solar owners which is currently \$.38-\$.39/kWh. Instead, it is closer to the Value of Energy at \$.28-\$.29/kWh. The only difference between the VOE and the Net Metering Credit Value is that the latter uses only the current Basic Services kWh rate and the former takes the most recent 3 year average for Supply costs.

The latest BW Research survey results can be found in online Baseline Scenario Results excel sheet. The sole 10 data points for  $\leq 25$  kW rooftop projects were identical in kWdc size (8.8), module & inverter brand and other factors – suggesting that these 10 projects were all reported by a single developer/installer. The BWR methodology (to the extent one can be deciphered), would've called for a low weighting of these minimal data points – probably 20% weight towards the LCOE value vs 80% weight placed upon on other regional/national data sources relevant to Mass. The interesting thing is that usable/relevant data from these non- Mass. sources should have pushed the LCOE calculation for this rooftop class considerably higher.

**The graph below (Public Tableau/NREL) shows Massachusetts 2024 solar installed cost at \$4.04/Wdc**



## And from the NREL Solar Industry Update (Colorado) Quarterly



## Additional Weighting Against the Presumption for Validity of BWR Sample of 10 Projects:

How much weight might have been placed in determining small rooftop solar CAPEX and LCOE on readily available Mass. data for recent (2024 only) solar installations of between 5 and 13kW.

A sort of data from the MASSCEC Production Tracking System produced 141 small/residential rooftop projects placed in service in 2024. The median cost value for these 141 projects was \$3.92/kW. The average value was \$4.33/kW.

In addition, the SMART database for 2024 rooftop solar projects shows the following average \$/Wdc installed for several relevant size classes.

### SMART 12-6-24 (Data for only Units Approved in 2024)

Range	Sites	\$/watt	Aver Watts/class
5-7kWdc	48	\$4.56 Watt	6.6
8-10kWdc	69	\$4.50 Watt	9.3
11-13kWdc	46	\$4.36 Watt	12.3

The last point in this effort to deconstruct the 2026 Annual Assessment methodology and outcome by BWR concerns the results produced when one applies the key value inputs found in its **Baseline Scenario** Results (CAPEX, system capacity, debt %, interest %, loan term, etc.) to the CREST model (NREL website).

Whereas the model inputs and assumptions from the **Baseline Scenario** worksheet tab - **PV Only** - generated an average LCOE of \$.18/kWh for ≤25 kW rooftop sites, when applied (with minor adjustments) to the SEA CREST model - result in \$.325/kWh. This makes sense

considering the results of the other scenarios run in this effort (see attached CREST Excel file)

The image shows two overlapping screenshots of a Microsoft Word document. The top screenshot displays a 'CREST Summary' table with the following data:

CREST Summary		Current Model
Net Year-One Cost of Energy (COE)	\$/MWh	22.26
Annual Escalation of Year-One COE	%	0.0%
Percentage of Tariff Escalated	%	0.0%
Does installed project meet minimum DSCR requirement?		Yes
Does installed project meet average DSCR requirement?		Yes
Does the customer meet all requirements required to qualify for green closed credit?		
Net Nominal Levelized Cost of Energy	\$/MWh	22.26

The bottom screenshot shows a smaller table with the following data:

Other Grants or Incentives	\$	0
Total of Grants or Incentives	\$	0
Revenue Depreciation assumed?		Yes
Assumed Cash Outlay for Owner		\$10,354
Notes: CRE at 10% and 10% permit 1/2% project loan at 0% interest and 10% fee item		

## End of the IRA -ITC: Elephant in the Room - What's the impact?

The 2026 Annual Program Report, somewhat opaquely, states:

“Additionally, DOER considered the pending phase-out of federal Investment Tax Credits for solar projects that do not reach certain construction or investment milestones prior to July 2026, as it is critical to ensure there is sufficient capacity (p5)”

The results of running the CREST model (as available at NREL website vs a “customized CREST for Mass.”) with a 30% increase in the net installed cost for a given solar installation are approx. \$.10/kWh. It is perplexing to me how the 2026 Annual Rpt. “considered the pending phase-out of federal ITC” in its calculation of the relevant LCOE. Was this simply the apparent choice, in the face of data indicating a decreasing LCOE from FY25 to FY 26, to roll back the cuts to BCRs and FIR by half? If so, this suggests that DOER considered the

loss of the 30% federal ITC for home energy improvements and then dismissed its severe impacts as a relevant concern.

Thank you for the opportunity to provide comment on SMART 3.0 compensation rates for 2026! I understand the enormity of your charge and the difficult choices you and we face. In my view, you are doing remarkable work.

John Pepi

Easthampton





