

## Solar PV + Battery Energy Storage System Request for Information

### Questions and Answers

September 12, 2019

*Thank you to everyone who submitted questions about Cape Light Compact's (CLC or the Compact) Request for Information (RFI) regarding solar photovoltaic (PV) systems paired with battery energy storage systems (BESS). Below are the questions about the RFI that were received by the Compact and the Compact's responses to each question.*

*The Compact has scheduled an optional conference call for respondents on **Monday, September 16<sup>th</sup> at 2:00 p.m.** The purpose of the call is for respondents to clarify their understanding of the answers below, if needed. If you wish to participate, please email [austin.brandt@capelightcompact.org](mailto:austin.brandt@capelightcompact.org) to receive the dial-in information for the call.*

*Please note that, as stated in the RFI, the CVEO design has not been finalized and is subject to change. Therefore, answers provided below should be considered in the context of this RFI only.*

### Questions and Answers

1. How would this program be funded?

**Answer:** The Cape Light Compact proposes to fund this program through the ratepayer-funded energy efficiency programs it administers on Cape Cod and Martha's Vineyard.

2. Should respondents presume that the PV + battery systems will be enrolled in the SMART program?

**Answer:** Yes. Please refer to the example system provided on page 4 of the RFI.

3. What is the source of funds for the moderate income PV incentive of \$5,000?

**Answer:** The proposed moderate income PV incentive would be funded by ratepayers through the Compact's energy efficiency programs. As such, all CVEO funding will require approval by the Department of Public Utilities (DPU).

4. Would be OK to assume that moderate income systems could take advantage of both the SMART program and the proposed \$5,000 incentive?

**Answer:** Yes.

5. Would CLC be interested in expanding the size of the program if it did not affect its planned budget?

**Answer:** Yes – if this can be achieved, please describe how so in response to question 12 of the RFI.

6. Will CLC be the primary recruiter for CVEO participants?

**Answer:** The Compact has not yet determined to what extent each party will be responsible for CVEO participant recruitment (respondents' answers to question 5 of the RFI will help the Compact determine its approach to customer recruitment). To reiterate, the Compact is not asking for total system pricing in this RFI (which would be solicited through a future RFP), but rather, is seeking to understand the cost impacts of doing recruitment in-house or via a separate vendor versus recruitment by the installer(s) and/or third-party owners.

Please see the answers to question 10 below for more information on customer recruitment assumptions for purposes of this RFI only.

7. Will participant recruitment include any screening of rooftops for adequate solar resource and/or checking on the space inside the building for a battery?

**Answer:** Please see the answer to question 10 below.

8. Will tree felling be allowed to reduce shading, if applicable?

**Answer:** Participants with roofs that are too shaded for a PV system to attain a Total Solar Resource Fraction of at least 70% will not be eligible. Homeowners may make their own choices about tree trimming or felling, but the Compact will not provide any incentives for such activities, nor will selected vendors be allowed to as part of any kind of third-party ownership arrangement.

9. Is there a plan for re-surfacing roofs or taking down trees to create the conditions for an otherwise good candidate for solar?

**Answer:** See the answer to question 8 above for information on taking down trees. Regarding resurfacing roofs, respondents should not assume any costs for roof replacements or resurfacing for purposes of responding to this RFI and should also assume that selected participants are otherwise good candidates for solar.

10. What recruitment/vetting roles will CLC actually assume beyond simply providing a list of qualified LI & MI ratepayers who have expressed interest? How qualified will the candidates be, and what time and expense should we budget for a site assessment?

**Answer:** As stated in the answer to question 6 above, the Compact has not yet determined to what extent each party will be responsible for CVEO participant recruitment.

However, for purposes of this RFI, respondents may assume the following relative to customer recruitment:

Compact's roles/responsibilities (some or all of which may be done through separate vendors selected by the Compact):

- All CVEO program marketing and customer recruitment, including identification of customers potentially eligible for CVEO
- All initial eligibility screening, including income and property deed restriction verification and verification that current heating source is eligible for replacement through CVEO

Vendor roles/responsibilities:

- Site assessments of homes that are identified by the Compact as eligible based on initial screening described above in order to determine site suitability for PV + BESS installation, including, but not limited to, assessment of:
  - Roof suitability (orientation, condition, etc.)
  - Shading
  - Home electrical system
  - Suitable space for BESS
- For unsuitable sites, providing a brief written report to the Compact and customer on the reason(s) it the site is unsuitable for solar PV, a BESS, or both, and if/what remedial steps could be taken to make the site suitable.

11. Has CLC considered acting as a guarantor, using its CVEO funding to act as a reserve/escrow, similar to how the Mass Solar Loan reserve pool works?

**Answer:** Thank you for flagging this for consideration. For purposes of this RFI, please assume that the Compact would not be a guarantor for any loans. Also refer to the answer to question 36 below.

12. Would it not be beneficial to have most of the budgeted installations completed by June 2021 so that they would be eligible to participate in the ConnectedSolutions DR events that summer? Why is the assumed installation rate accelerating in 2021? What are the assumptions/reasons for those projections?

**Answer:** Generally speaking, the sooner systems are installed, the better. The estimated timeline is based on the expectation that it will take some time to get the program up and running, even if approval is obtained in Q1 2020, and therefore, more installations will be completed in 2021 than in 2020. The timeline would be used for budgetary

purposes but would be flexible.

13. Would Cape Light Compact be performing the BESS installation? If not, would Cape Light Compact be subcontracting it?

**Answer:** The Compact does not intend to directly perform any installation of battery energy storage systems. All PV and BESS installations would be performed by the vendor(s) selected by the Compact through a future RFP process.

14. Does Cape Light Compact have a preference regarding the use of local installers?

**Answer:** All other factors being equal, the Compact prefers to use local vendors where possible. The Compact would weigh the pros and cons, including cost implications, of using local installers as part of a future RFP.

15. Has Cape Light Compact been awarded funds for the CVEO?

**Answer:** No. The CVEO will be a ratepayer-funded program, and therefore the budget will require approval by the Massachusetts Department of Public Utilities (DPU).

16. Will Cape Light Compact pre-determine the number of direct ownership v. third-party owned customers? If so, what is the mix or will the all either be direct ownership or third-party owned?

**Answer:** All installations within a customer income group would be implemented under the same ownership model, e.g., all low-income systems may be third-party owned while all moderate-income systems would be customer-owned, or both low-income and moderate-income installations would all either all be third-party owned or customer-owned.

17. On page 4, for the illustrative customer where they are participating in Connected Solutions, is Connected Solutions participate to show the dispatch profile or should we understand that to mean the customer is actually in ConnectedSolutions and receiving that value stream?

**Answer:** In the instance of third-party ownership, please assume that the BESS' are being dispatched and incentivized in accordance with the ConnectedSolutions program. In the instance of direct ownership where the Compact provides an upfront incentive to the customer for the BESS, please assume that the batteries are being dispatched in accordance with the ConnectedSolutions program, but not receiving an incentive for at least the first 5 years after installations.

18. Would it be permissible for RFI respondents to respond with estimates based on actual PV + storage systems in order to provide accurate information?

**Answer:** Yes, but please list at least the information provided for the example system on page 4 for the system used for the estimates.

19. To what extent does Cape Light Compact intend to acquire customers for this program?

**Answer:** Please refer to the answer to questions 10 above.

20. For the direct ownership model, should we assume that the CVEO Program will offset its incentives by claiming all or the incentives associated with the system components for which it provides 100% of the funding?

**Answer:** Yes, under a direct ownership model, the Compact would claim all non-tax benefits associated with the system components for which the Compact is providing a 100% incentive (e.g., SMART incentive payments, Clean Peak Energy Certificates, Alternative Energy Credits for heat pumps, battery dispatch rights, etc.) to offset the ratepayer cost of the incentives provided. For moderate-income participants for which the Compact is not proposing a 100% PV incentive, under a direct ownership model, the participant would keep the rights to all benefits associated with the PV system including the SMART Storage Adder (also see the answer to question 25 below), but would not keep the other storage benefits (i.e., Clean Peak Energy Certificates or ConnectedSolutions incentives and dispatch rights).

21. Does CVEO have a net cost, or \$/kWh price target, or a monthly bill discount goal for the Moderate Income PV system solution?

**Answer:** The Compact's goal for the PV systems installed for both low- and moderate-income CVEO participants is for the PV production to cover as much of their annual electricity usage as possible without producing excess electricity year-over-year.

22. If the "Moderate" CVEO customers were able to qualify for the Mass Solar Loan (MSL) "Low Income" loan incentives, *and* were able to qualify for a loan through one of the participating lenders, would the CVEO \$5,000 incentive still be available in addition to any accessible MSL incentives?

**Answer:** Yes, at this time, the Compact is not proposing that the \$5,000 incentive eligibility would be impacted by eligibility for other available incentives. However, as noted above, the CVEO program design, including the proposed \$5,000 moderate-income incentive, has not been finalized.

23. Also, please note that the MSL program does not currently finance attached batteries; it only considers the PV system to be an eligible expense for MSL financing.

**Response:** Thank you for flagging this for our consideration.

24. CVEO proposes a Moderate Solar Incentive of \$5,000 to reduce the cost of the PV system. If CVEO does not utilize a TPO offering for this segment, and the Moderate customer purchased the system through the Mass Solar Loan program, should we assume that the SMART PV production incentive would be claimed by the customer and not be claimed by the CVEO program?

**Answer:** Yes, for moderate-income participants under a direct ownership model, the participant would keep the rights to all available incentives associated with the PV system, including the SMART Storage Adder (see the answer to question 25 below for further explanation).

25. Would the SMART Storage Adder go to the customer or to whomever paid for the BESS (i.e., either CLC or a TPO)? We recommend that the Storage Adder go to the party that pays for the BESS, and this would require an agreement that the customer forward the storage adder payments to the organization that owns the BESS. A third-party owner arrangement for the BESS would also require a service level agreement for use of the inverter/charger for DC-coupled systems, as well as an agreement to prioritize charging the BESS with any PV generation. In these situations, it may be simpler to have an AC-coupled BESS.

**Answer:** Regarding the Storage Adder payment, it is CLC's understanding that it is not possible for the utility to issue a separate SMART incentive payment for the Storage Adder. Therefore, the SMART Storage Adder would need to go to the same party that is claiming the rest of the SMART incentive in order to avoid the ongoing burden of a customer calculating and sending a separate payment for the Storage Adder over the term of the contract or SMART eligibility period. If CLC's understanding is not correct, please so state in response to question 12 of the RFI.

Regarding required contracts, it would be helpful for the Compact if respondents could elaborate on contract structures required in response to question 17 of the RFI, and on the pros and cons of AC-coupled vs. DC-coupled systems in response to question 7 of the RFI.

26. May we assume a PV inverter size of 7.6 kW-ac? (We believe the 13 kW-dc assumption was an error) A 7.6 kW-ac inverter size is a standard size for a residential inverter, and is a good match for an 8 kW-dc PV system.

**Answer:** Thank you for flagging this. Yes, respondents may use any system assumptions

they would like, but please list at least the information provided for the example system on page 4 for the system used for the estimates.

27. When modeling the Clean Peak Standard and ConnectedSolutions incentives, the tilt, azimuth, shading, soiling and snow cover assumptions affect the results. Are there standard assumptions that CVEO would like to specify for those system parameters, or should we just make our assumptions explicit?

**Answer:** Thank you for flagging this. Respondents should please list their own assumptions and list them. This request has been added to the revised RFI.

28. What Storage Adder Tranche should we assume? Currently, we are at Tranche 4, which equates to an adder of \$0.0505/kWh for the provided system specifications (8 kW-dc array; 5 kW/13.5kWh DC Battery; 13.5 kW Battery Capacity). For Tranche 8, the adder would be \$0.0429/kWh for the same system parameters. If not specified otherwise, we will assume the current Tranche 4 (similar to using the current SMART Compensation Block 3).

**Answer:** Respondents are welcome to use either the current storage adder tranche (Tranche 4), or if they wish to assume a different tranche, please list the tranche assumed. The Compact has inserted the Storage Tranche 4 adder assumption in Page 4 of the revised RFI.

29. The RFI suggests a battery size of 5 kW / 13.5 kWh DC. If we are able to offer a DC-coupled battery at the same price point, but with different characteristics that might better optimize the available incentives, would that be okay? Similarly, would it be okay to propose an AC-coupled battery at the same price point?

**Answer:** Yes, respondents may use any system assumptions they would like, but please list at least the information provided for the example system on page 4 for the system used for the estimates. In addition, it would be helpful to the Compact if respondents could discuss any advantages of DC-coupled systems in response to Question 7 of the RFI. To reiterate, the Compact is generally not looking for system pricing in response to this RFI, but rather is looking for information on aspects of CVEO program design that would affect pricing. System pricing proposals would be solicited as part of a future RFP.

30. The expected price for a Clean Peak Energy Certificate (CPEC) is very hard to estimate and comes with a significant amount of uncertainty. The maximum price is \$30/CPEC, and the minimum price is \$0/CPEC; there is no floor or auction price. The price will be dependent on how rapidly the market develops storage capacity given all of the available incentives (SMART, CS, CPS, Tax Credits). Currently, the CPS incentive at its

maximum incentive rate of \$30/CPEC is the incentive that provides the least amount of value over the initial 10 years of the system's life. We recommend that you request not only the expected value of the CPS incentive, but also the number of CPECs that respondents expect are produced so that you can infer the \$/CPEC prices assumed. We also suggest that you request that respondents offer a risk-adjusted value of this incentive (or \$/CPEC) given its significant price risk. The value that many potential investors will assume may be close to zero.

**Response:** Thank you for flagging this. The Compact understands the uncertainty involved with the CPEC value estimation. Please see question 3 of the RFI as revised, which seeks further information about CPEC value estimation. Note that respondents may submit redacted RFI responses in accordance with Section X of the RFI.

31. Does CLC plan to perform some of the "customer acquisition," as implied by some of the questions? Please note that it may help to ask respondents what they define as "customer acquisition," or it may be helpful for the CLC to list what customer acquisition tasks it intends to assume. There are a number of pre-sales steps. Respondents may consider different pre-sales steps in their definition of "customer acquisition." Some respondents may also perform certain pre-installation steps "pre-sale," while others may perform them after an agreement has been signed. It would be helpful to clarify what tasks are considered in anyone's estimates of "customer acquisition" or "pre-sales" activities. A lists of income-eligible names and addresses of people who have expressed an interest in participating in the program would only represent a small fraction of the total "customer acquisition" expenses from our perspective. It may also be helpful for CLC to ask which steps respondents believe the CLC can best perform, and which steps the installer would prefer to perform. For example, an installer may not want to depend on a 3<sup>rd</sup>-party's on-site assessment and measurements.

**Answer:** Please refer the answer to question 10 above for information on customer acquisition role assumptions that should be used in responding to this RFI. In addition, the Compact has incorporated a question on respondents' preferences with regard to site assessments to question 5 in the revised RFI.

32. Can you confirm that systems placed in service by 12/31/2021 will be eligible for the current 5-Yr incentive rates being offered through the ConnectedSolutions Residential Battery program, assuming that the DPU authorizes the continuation of the program at the current rates at the end of 2019? We are concerned that systems placed into service after the 2021 summer demand response season events end will not be allowed the same 5-year terms that are currently being promoted. This is an important source of incentive income. What does Eversource believe will be the application cut-off date in 2021 to maintain eligibility at the currently proposed rates for 5 years?

**Answer:** For purposes of this RFI only, please assume that systems placed in service by 12/31/2021 would be eligible for the 5-year ConnectedSolutions incentive rate lock.

33. For Question #11, when you ask for the “system interconnection costs and system integration costs,” are you asking for:
- a. **Interconnection:** the sum of the SMART application fee, the Eversource SMART metering fees, and the Eversource Simplified Interconnection Application fees? Are you also asking for a range of fees associated with permitting the project through the local municipality? Are you also asking for the labor/overhead costs associated with preparing and submitting the various applications and for managing the permitting, incentive and interconnection processes (which would also include the Clean Peak Standard qualification process and the ConnectedSolutions application process)? Please be specific regarding what information you need.
  - b. **System Integration:** the labor and materials cost to install the system, or only the cost of the labor and materials associated with the electrical integration of the inverter(s) to the host’s electrical system? Note: we normally do not break out costs this discretely. What information and insight do you seek and why?
  - c. Please clarify what information or cost estimates you are trying to glean (and why).

**Answer:**

- a. To be more specific, the Compact is seeking a range for any costs that installers usually directly pass through to customers as a line item (e.g., electrical inspection fees, SMART application fee) rather than build in to the installed cost of the system (e.g., overhead costs associated with preparing and submitting applications, project management, etc.). Depending on the installer, this may include different items. Respondents are welcome break out the cost/fee by each line item, or to provide one number (or a range) and list the costs/fees they’ve included.
- b. The Compact is not seeking information on costs associated with site-based electrical work behind the utility meter, which the Compact expects is included in the price of the installed system. Please see question 11 of the RFI as revised.
- c. The Compact is seeking interconnection cost information to inform its proposed budget for the CVEO.

Note that respondents may submit redacted RFI responses in accordance with Section X of the RFI. Please also note that the Compact has revised question 11 of the RFI.

34. How does CLC currently engage with the targeted Low-income and Moderate-income communities? For example, does CLC have any form of existing contractual relationship (e.g., as an energy supplier) with the targeted customers?

**Answer:** Cape Light Compact is comprised of the 21 towns of Cape Cod and Martha's Vineyard via a joint powers agreement. The Compact was authorized by town meeting or town council vote of each town to implement the energy efficiency programs for all electric ratepayers, offer a default power supply program, and advocate for electricity consumers on the Cape and Vineyard. As a Mass Save energy efficiency program administrator for its member towns, the Compact has energy efficiency programs tailored to low- and moderate-income customers, and marketing strategies specifically designed to reach these customers. In addition, the Compact has worked closely with local affordable housing organizations on energy efficiency implementation and solar deployment. The Compact provides default power supply service to any electric utility customer on Cape Cod or Martha's Vineyard; however, the Compact does not have power supply products specific to income level, nor do Compact power supply customers enter into any contract with the Compact or its supplier in order to participate. Note that participation in the Compact's power supply program impact eligibility for participation in the Compact's energy efficiency programs.

35. If CLC does have a contractual relationship with the targeted community, does it also have administrative capabilities that could be utilized to help lower the cost of serving this community through the CVEO program?

**Answer:** The Compact is a governmental organization comprised of its member towns, and therefore has name recognition and a positive reputation on the Cape and Vineyard through our work in energy efficiency, power supply, and consumer advocacy. Other than the participant trust and recruitment benefits that come with being an organization known and trusted by the community, the identification of potential low-income-eligible participants and in-house verification of income eligibility are two specific ways in which the Compact can help lower the cost of CVEO implementation.

36. Does the CLC believe that it could provide some type of credit enhancement to lower the risk of serving this community? For example, could a vendor have its agreement directly with the CVEO program for any payments required, or could CVEO guaranty payments? Lowering the perceived risk of long-term agreements would help in lowering the financing costs for these projects, either directly or indirectly.

**Answer:** Thank you for raising this idea for consideration. The Compact is considering how a payment guarantee arrangement might be made in order to reduce the perceived risk of long-term agreements with low- and moderate-income customers. However, for

purposes of responding to this RFI, please assume that the Compact will not be a guarantor of any payments or incentives due through the CVEO agreements with participants. Please note that the Compact would not consider any third-party ownership arrangement for low-income customers in which a payment is due directly from the participant.