CPR Comments - CEC Solar Equipment Lists RFI

Additional submitted attachment is included below.

April 7, 2023

California Energy Commission
Docket Unit, MS-4
715 P Street
Sacramento, CA 95814

Re: Docket No. 18-SOLAR-01 – Request for Information - CEC's Solar Equipment Lists

Dear Commissioners:

Clean Power Research (CPR) appreciates the opportunity to provide information as part of the subject docket. We are pleased to share our perspectives on the use of the Solar Equipment Lists that the California Energy Commission (CEC) maintains.

CPR has served the energy and utility industry with software, research, and consulting services for over 25 years, with an emphasis on automation and digitization of customer application processing workflows. More than 75 utilities and agencies across the United States—including Southern California Edison, Sacramento Municipal Utility District, Pacific Gas & Electric, City of Colton Electric Utility, Glendale Water and Power, Pasadena Water and Power, Lodi Electric Utilities, Liberty Utilities, Silicon Valley Power, Center for Sustainable Energy (on behalf of the CA Solar on Multifamily Affordable Housing (SOMAH) Program), Consolidated Edison, Eversource Energy, PacifiCorp, NV Energy, Ameren, DTE, Portland General Electric, Arizona Public Service and Avangrid, among others—actively use our cloud-based software solution to address a wide range of DER-related challenges. Notably, our partner utilities collectively have processed more than 2 million customer applications for over 100 DER interconnection and incentives programs using our workflow automation software, PowerClerk®.

Below is CPR's response to the questions included in the RFI. We would like to thank the Commission for the opportunity to comment on this matter, and look forward to answering any questions the Commission may have.

Sincerely,
/s/ Jeffrey S. Ressler
Chief Executive Officer

1. What entity, if any, do you represent or are you affiliated with?

    Clean Power Research (CPR)

2. What is your/your organization's primary use of the Solar Equipment Lists?

    For nearly 17 years, CPR has relied on various incarnations of the CEC's Solar Equipment Lists to provide curated, detailed DER equipment information as part of our workflow automation software, PowerClerk. Today, many utilities and energy agencies use PowerClerk to automate their DER-related workflows, including processing of interconnection applications as well as rebate and incentive applications. Our customers rely on the software's DER equipment list—which is based on CEC's PV Module, Grid Support Inverters, Batteries, and Energy Storage Systems (ESS) lists—to fulfill their programs' calculation and data requirements. As a general practice, CPR updates PowerClerk's database within one business day of any CEC List updates. Since those early days when the California Solar Initiative (CSI) was run on the original version of PowerClerk, we have appreciated our constructive and efficient relationship with the dedicated and helpful Commission staff who have maintained and evolved these lists during a period of great change in the energy landscape.

3. How often do you download or reference the Solar Equipment Lists from the Solar Equipment Lists website at https://solarequipment.energy.ca.gov/Home/Index?

    c. More than 3 times per month

4. Please provide information on how the Solar Equipment Lists assist you/your organization with everyday business needs:

    a. How do they integrate with your operations?
        11 utilities within California and more than 50 utilities and energy agencies outside California use CPR's PowerClerk software to administer DER application programs. Using CEC-approved equipment within automated applications allows utilities and energy agencies to ensure that the equipment is accurately represented using standardized metrics.

    b. How would you describe the value of the lists to your efforts?
        The list provides value by enabling our California-based utility partners, who use PowerClerk to manage interconnection applications, to ensure that the approved interconnection applications contain PV equipment certified to meet national safety and performance standards. Additionally, by referencing these lists, we ensure that the equipment selected has been validated to meet the equipment interconnection requirements of these utilities, including Rule 21. Furthermore, the Equipment List data is a key input for PowerClerk to calculate CEC-AC PV performance for PV interconnection applications, which utilities use to prevent system oversizing. Similarly, many non-utility programs, such as California's SOMAH Program, use the system specification data based on the CEC Equipment List data to calculate incentive amounts (e.g., EPBB and performance-based incentives) associated with each application.

        The standardized format of the data from the CEC lists allows us to present the equipment options in drop down lists in the PowerClerk user interface. This significantly reduces errors

and missing information and notably decreases application processing time because users are not manually typing equipment model numbers or specifications. Southern California Edison (SCE) is on record with the dramatic time improvement in interconnection application processing they observed with PowerClerk, in part because of the equipment lists. See our response to Question #5 below for details.

c. **If applicable, approximately how many interconnection applications/permits to operate do you process, on a monthly basis, using the data on the Solar Equipment Lists?**
Our utility and energy agency customers collectively utilize PowerClerk to automate approximately 30,000 interconnection and incentive applications per month. Worldwide, SCE is the largest user of PowerClerk by application volume.

5. **Roughly how much time do you save on a weekly or monthly basis by using the data on the Solar Equipment Lists, as opposed to not having the lists as a reference?**

PowerClerk delivers significant time savings, both in terms of the lead time for interconnection applications as well as labor hours associated with the application review process.

In terms of application lead time, a [2016 SCE case study](1) demonstrated an average reduction of over 95% in application lead time—from 73 days to 3 days—due to a series of improvements on their net-metering interconnection process which included the introduction of PowerClerk. SCE has since processed over 570,000 applications within PowerClerk. While not all of this reduction can be attributed to PowerClerk's use of the CEC Equipment Lists, even assuming 10% of this reduction is related to the lists would equate to a reduction of 4 million lead-time days since 2015, or over 40,000 lead-time days per month, within SCE's service territory alone.

In terms of labor hours associated with application processing, more than 90% of all DER-related applications that PowerClerk has processed in the past have benefited from the CEC Equipment Lists. For instance, nine California-based utilities used PowerClerk to process over 140,000 DER interconnection applications in 2022. Assuming a conservative reduction of 0.5 labor hours per project due to the availability of these lists, we would estimate that the Equipment Lists contributed to a savings of approximately 70,000 total labor hours in 2022 alone, or roughly 5,900 labor-hours per month.

These approximations indicate that the Solar Equipment Lists significantly contribute to systems, which in turn supports one of California's core state goals of accelerating the move towards cleaner energy.

6. **Is there a format that would improve the effectiveness of the lists or ability to use them?**

Format-wise, downloading Excel files from the CEC Solar Equipment website has been acceptable for Clean Power Research. We do suggest that DC – AC solar-to-grid roundtrip efficiency, DC – DC battery roundtrip efficiency, and usable energy capacity be considered as additional fields for the ESS lists.

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[1] Accessible at https://www.cleanpower.com/2016/sce-interconnection-journey-webinar/.

We are seeing an increase in applications where the PV system is DC-coupled with storage and where the inverter is *integrated within* the energy storage system. In this scenario, the inverter may not be separately listed in the CEC's Grid Support Inverters list. Currently, the ESS list does not provide enough data to accurately estimate CEC-AC system performance for this PV+ESS installation scenario because, without a PV inverter, there is no weighted efficiency value listed. Arguably, weighted inverter efficiency may not be the appropriate value for this installation scenario. Instead, adding DC – AC solar-to-grid roundtrip efficiency and DC – DC battery roundtrip efficiency to the ESS list could allow utilities in this scenario to accurately estimate PV performance and protect against PV system oversizing.

Adding usable capacity would provide utilities with a more consistent basis for comparison between different equipment that is interconnected. One of our California utility customers, SMUD, requested the inclusion of Usable Capacity in our battery and ESS listings. While the CEC Equipment Lists currently include Nameplate Capacity, usable capacity is more relevant to our utility customers for their DER and distribution system planning purposes.

7. **Can you substitute the data from the Solar Equipment Lists with another data source? How would your program(s) be impacted without this resource?**

   CPR has yet to find a suitable substitute for the Solar Equipment Lists. Without the CEC Solar Equipment Lists, we would likely turn to multiple NRTL listings to ensure the applicable UL safety certifications have been satisfied. However, this approach does not provide the level of comprehensiveness that the CEC Equipment Lists offer, which in turn would significantly degrade the user experience of PowerClerk, both for applicants submitting the DER-related applications, as well as for our utility and energy agency customers that process these applications. For the applicants, we expect their manual data entry burden would increase with the reduced availability of drop-down user interface elements. For utilities and energy agencies, the resulting data entry errors, omissions, and verification burden would increase application processing time.

8. **As an equipment manufacturer (if applicable), what are the benefits of having your equipment listed on the Solar Equipment Lists?**

   NA

9. **Please share any other feedback you would like us to consider.**

   As described above, nearly half of the nation's distributed solar interconnection requests flow through PowerClerk and utilize the CEC Solar Equipment Lists. If the CEC decides to make substantial changes to these datasets or their availability for commercial use, CPR would ask for advance notice and collaboration to ensure an alternative solution and smooth transition for our utility and energy agency customers.