

**DOCKETED**

<b>Docket Number:</b>	18-SOLAR-01
<b>Project Title:</b>	Solar Equipment Lists Program Implementation
<b>TN #:</b>	224558
<b>Document Title:</b>	Solar Equipment Workshop - Pre-Workshop Email Comments
<b>Description:</b>	From August 16, 2018 workshop
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<b>Organization:</b>	California Energy Commission
<b>Submitter Role:</b>	Commission Staff
<b>Submission Date:</b>	8/21/2018 3:26:41 PM
<b>Docketed Date:</b>	8/21/2018

## Solar Equipment Workshop

August 16, 2018

### Pre-Workshop Email Comments

**Topic #1: Should the California Energy Commission consider updating and maintaining advanced-inverters (compliant with UL 1741 SA) on the Energy Commission's equipment list, thereby revising our equipment listing.**

**From:** Robert White

**Sent:** Wednesday, July 18, 2018 12:19 PM

I will state that I believe it would be helpful for the CEC to continue hosting the list even if there are no more incentives which I believe were the main driving force for this website. Perhaps the requirement for CEC specific efficiency testing could be dropped as a requirement if the industry and IOU's are specifically interested in compliance with Rule 21. I think that the current list form is working well. Perhaps some minor modifications could enhance the effectiveness of the list, but I have no specific suggestions at this time.

**From:** John Berdner

**Sent:** Thursday, July 19, 2018 11:51 AM

I am one of the Vice Chairs of IEEE 1547 and P1547.1. I am leading the Sub group on Reporting of Results in P EEE 1547.1. My sub-group is developing requirements which will standardize the reporting of NRTL testing results for DER units.

This format will become the mandatory National format for validation of DER evaluations.

In addition, the formats we are developing in IEEE 1547.1 are being mirrored by a project at EPRI which will develop a standardized format for utilities to specify their grid interconnection requirements and to conduct modeling of advanced inverter performance.

Although the specification of utility requirements is out of scope of IEEE 1547 there is very broad support amongst the utilities in the 1547 Working Group to standardize formats for specification and modeling as well.

The overarching goal it to develop a single consistent data set in a defined format which will speed and simply creation of utility requirements, verify compliance with those requirements, and conduct modeling of DER units programmed with the utility required settings. I recommend CEC look at, and ideally harmonize with the work underway in the IEEE P1547.1 Reporting of Results sub group and consider developing processes and procedures using that standardized format.

This would allow simple, automated evaluation of DER units for compliance with California's requirements, (Rule 21).

An example of a spreadsheet showing all of the values and parameters needed to demonstrate compliance with IEEE 1547 (2018) / CA Rule 21 / HEI Rule 14H is attached.

This spreadsheet is a work in process but it serves as an example of the way the data can be used and automated tools developed to verify compliance.

The actual file format proposed in IEEE P1547.1 is a CSV file with checksum. This format was chosen for broadest transportability which maintaining traceability back the NRTL certificates of compliance. A tool such as this excel spreadsheet can then be used for validation, i.e. comparison to the Rule 21 Requirements. Simple conditional formatting statements can then flag non-compliant or missing values.

In advance of the workshop I would be glad to do a presentation or come down to the commission (I live in Grass Valley so it is relatively close by) to give an overview to staff. This would bring Staff up to speed on what is developing at the National level at IEEE and EPRI prior to the meeting so they could see the workshop discussion in the larger National context. I can also present materials at the workshop if needed.

**From:** Chase Sun

**Sent:** Monday, August 06, 2018 2:10 PM

I saw that the topic was to de-list non-certified inverters. How about the listing of non-PV certified inverters? It would help out the industry to have a central repository for all certified inverters, and not just PV inverters. Thanks.

**From:** Chase Sun

**Sent:** Monday, August 06, 2018 5:15 PM

So, you are looking into de-listing the existing certified inverters. Since our process is on a going forward basis and the old inverters are considered grandfathered at this time, de-listing may be OK and may simplify the list. But some people may want to have the non-smart inverter listing for some reason. So, we will find out at the workshop. All new inverters are required to be certified to UL-1741 SA and classified as smart inverters.

We advocate for an active list for smart inverters and an archive list for non-smart inverters.

**Topic #2: How can the California Energy Commission best present and organize information posted on the Go Solar California's solar equipment homepage located at:**

**<http://www.gosolarcalifornia.ca.gov/equipment/index.php>**

**From:** Robert White

**Sent:** Wednesday, July 18, 2018 12:19 PM

I believe input regarding Topic #2 should come from the users of the list such as the IOU's and installation firms.

**Topic #3: Should the California Energy Commission consider expanding the current lists of solar equipment to include battery storage technologies?**

**From:** Robert White

**Sent:** Wednesday, July 18, 2018 12:19 PM

If the main direction moving forward is to support CA Rule 21 compliance then my answer to Topic #3 would be yes, BESS should be added, at least for behind the meter applications where NEM integrity is a concern for the IOU's. New UL 1741 requirements are currently being drafted by a working group to

address electronic current limiting which will address certification of these types of equipment for non-export or self-consumption. applications.

**From:** Chase Sun

**Sent:** Tuesday, July 17, 2018 5:45 PM

I believe having a single repository of certified inverter list is very beneficial for the industry. Expanding the list to all inverters will also facilitate the review/approval process as well. This is a very dynamic and evolving area. So, setting up the new inverter database to be expandable to include other functionality, such as storage, microgrids, fuel cells, microturbines, wind turbines, etc, will also be beneficial.