Mr. James Kwon
Climate Protection Partnerships Division
U.S. Environmental Protection Agency
Washington, D.C. 20460

September 26, 2019

Subject: ENERGY STAR® EVSE Version 1.1 Final Draft Test Method

Dear Mr. Kwon:

This letter contains comments from Pacific Gas and Electric Company (PG&E), San Diego Gas and Electric (SDG&E), and Southern California Edison (SCE) on the ENERGY STAR Electric Vehicle Supply Equipment (EVSE) Version 1.1 Final Draft Test Method. We thank the United States (U.S.) Environmental Protection Agency (EPA) for the opportunity to participate in this process.

The signatories of this letter, collectively referred to herein as the California Investor-Owned Utilities (CA IOUs), represent some of the largest utility companies in the Western U.S., serving over 32 million customers. As energy companies with an extensive portfolio of efficiency programs, we understand the potential for equipment efficiency specifications and standards to cut costs and save energy while maintaining or increasing consumer satisfaction. We have a responsibility to our customers to advocate for sensible test procedures, specifications, and standards that accurately reflect the climate and conditions of our respective service areas, to maximize the positive effects of these efforts. We strongly support EPA's efforts to develop a direct current (DC)-output EVSE test method and offer the following comments on the final draft test method.

General Comments

<u>The CA IOUs recommend continued harmonization with the Society of Automotive Engineers (SAE) J2894.</u>

The CA IOUs thank EPA for harmonizing the DC-output EVSE Test Method terminology with relevant SAE standard definitions. The CA IOUs continue to encourage EPA to participate in the SAE J2894 Power Quality Requirements for Plug-In Electric Vehicle Chargers working groups, including the current SAE J2894/2 working group. Additionally, the CA IOUs further encourage EPA to continue to work to facilitate harmonization between ENERGY STAR and SAE J2894.

Section 4 - Scope

<u>DC-output EVSEs with an output power up to 150 kilowatts (kW) should have operational efficiency benchmarks to evaluate performance.</u>

The CA IOUs agree that the proposed scope of the Test Method should include DC-output EVSE up to 350 kW. However, as noted in the CA IOUs' previous comment letter, the table provided in Section 4 notes that units with greater than 50 kW and with less than or equal to 350 kW of DC-output power will report operational efficiency, but that no operational efficiency benchmarks will apply when a specification is developed. The CA IOUs again encourage EPA to reconsider setting performance

benchmarks for units up to 150 kW if data are available to evaluate their performance. There are currently over 5,700 DC-output EVSE installations with a rating between 50 and 150 kW, and an additional 700 units are planned for deployment in the next several years based on market data collected by the CA IOUs and summarized in Appendix A: DC-output EVSE Market Data.

Section 5 – Test Setup

The CA IOUs support the updates to the ambient test temperatures for DC-output EVSE systems.

The CA IOUs support testing all DC-output EVSE systems under cold, temperate, and hot conditions regardless of whether or not they have active cooling or heating. The CA IOUs thank EPA for taking previous comments about the temperature effects on operational mode efficiency into account.

Section 6 – Test Conduct

The CA IOUs recommend amending some test conditions for clarity and consistency.

Section 6.1(E) states that automatic brightness control (ABC) shall be disabled in operational mode, if possible, or else the EVSE will be tested in very dark conditions with illuminance less than or equal to one lux. EPA noted that they received feedback that temperature chambers may be small and unable to physically accommodate the test setup required for testing products with ABC enabled by default. However, the CA IOUs still believe that this will result in inconsistent test conditions since EVSE with ABC disabled may result in higher screen energy use than units with ABC enabled and tested under very dark conditions (which would tend to minimize screen energy use). The CA IOUs recommend testing all units with ABC under consistent conditions, leaving ABC enabled will provide consistent testing conditions for different models, since models that are not capable of disabling ABC will have to still be tested in temperature chambers.

The CA IOUs also recommend modifying the current requirement which requires testing with the default image that appears as-shipped. Although EPA noted that they believed that showing the default image as-shipped during testing will provide comparable results, the CA IOUs still believe it may be more representative to instead require displaying the image that appears after the unit is configured, since each unit is likely to be configured in the field.

The CA IOUs thanks EPA for addressing previous comments and supports EPA removing the requirements pertaining to the accuracy of the power meter in Section 6(H) since the accuracy is already addressed in Section 5(H)(5).

Section 7 – Test Procedures for All Products

The CA IOUs support EPA's intent to pursue education for companies that market EVSE with battery storage.

The CA IOUs previously encouraged EPA to informally educate companies that market EVSE with battery storage about the need to obtain interconnection permits from their local utility. The CA IOUs appreciate EPA acknowledging this request and look forward to their pursuit of this after the Version 1.1 Specification is complete.

The CA IOUs recommend more stringent power controls of loading conditions.

Allowable loading conditions that can vary +/- 2 percent result in too much variability, for instance: +/-1 kW at 50 kW, +/- 3 kW at 150 kW, or +/- 7kW at 350 kW. This loading condition will ultimately dictate the input and output power, which determines efficiency of the given DC-output EVSE. The CA IOUs recommend better control of input power levels based on the accuracy of the power meter (+/- 0.1 percent of reading plus +/- 0.1 percent of full scale for power measurements). Additionally, the CA IOUs

recommend EPA rely on test data to ensure that the +/- 2 percent tolerance on the loading condition has minimal effect on the efficiency as EPA predicts.

The CA IOUs recommend a longer testing period for actively cooled units.
The CA IOUs recommend revising the testing period to capture the power overhang for actively cooled units by continuing to measure the energy and elapsed time after power stops flowing into the vehicle until the unit returns to the energy use level that occurred prior to the test initiation. EPA stated their concern that this would increase test duration by a significant amount of time. The CA IOUs recommend relying on data to determine both whether the power overhang is significant enough to justify this longer test period and whether that longer test period is overly burdensome to manufacturers.

Line Edits and Specific Comments
In addition to the overarching comments discussed above, we urge EPA to consider the more specific suggested edits outlined in Table 1. The CA IOUs appreciate the previous recommendations that EPA incorporated into the Final Draft, including lines 13, 40, 43, 141, 252, 461, and 476 (line references from the Draft 2 Test Method).

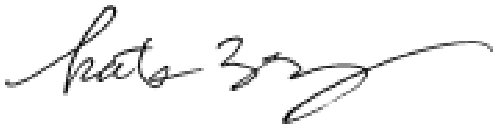
Table 1: CA IOU Recommended Edits.

LINE NUMBER	EDIT/COMMENT
43	The CA IOUs recommend deleting the definition for wireless/inductive EVSE in Section 3(A)(4) for simplicity as it is not used in the draft test method. If needed, it can be defined later and can reflect the state of technology at that time.
116	The CA IOUs recommend removing the language that reads "with the shortest cable possible" in favor of setting a minimum length for the cable based on realistic conditions for real world installations.
176	The CA IOUs recommend including a space between "Table 4" and "have." The lack of a space appears to be a typo.
176 & 178	Sub-sections (a) and (b) should be changed to (1) and (2) for consistency with other sections of the draft.

Source: CA IOUs.

In conclusion, the CA IOUs wish to reiterate our support for EPA's efforts to expand the ENERGY STAR program for EVSE to include DC-output EVSE.

Sincerely,



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Appendix A: DC-output EVSE Market Data

Table 2 is a summary of publicly available information regarding current and planned DC-output EVSE.

Table 2: DC-output EVSE Installations, Plans and Demand Forecasts

	Source	Type	49 States	California	Canada	Total
Current and Planned Installations	**AFDC [a] Database of Existing DC-output EVSE**	120 kW (Tesla)	4,209	1,352	208	5,769
		25 kW to 50 kW (non-Tesla)	2,800	1,501	641	4,942
	CA IOU Passenger Vehicles Programs [b]	DC Fast Chargers	N/A	284	N/A	284
	California Energy Commission	DC Fast Chargers	N/A	352	N/A	352
	New York Power Authority Plan	150 kW	200	NA	N/A	200
	Porsche Fast Network [c]	250 kW	NA	NA	N/A	500
	Electrify America January 2017-June 2019 [d]	150 kW to 350 kW	240	50	N/A	290
	Electrify America July 2019-December 2021 [d]		153	75	N/A	228
	Total Installations	**All DC Fast Chargers**	**7,602**	**3,614**	**849**	**12,065**
Projected Demand	**Massachusetts Demand by 2025**	All DC Fast Chargers	200 to 2,000	N/A	N/A	200 to 2,000
	California Demand by 2025	50 kW to 105 kW	N/A	9,000 to 25,000	N/A	9,000 to 25,000
	U.S. Demand by 2030	50 kW to 150 kW	N/A	N/A	N/A	100,000

Sources: Electrify American Investment Cycle 1 and Cycle 2 Investment Plans; DOE Alternate Fuels Center Database, February 19, 2019; CA IOU September 6, 2018, letter to ENERGY STAR; NY Power Authority, November 19, 2018, https://www.nypa.gov/news/press-releases/2018/20181119-evolve; CNET, "Porsche's EV fast-charging network will go way beyond dealerships", April 16, 2018, https://www.cnet.com/roadshow/news/porsche-ev-fast-charging-network-500-chargers; California Energy Commission Staff Report - California PEV Infrastructure Projections 2017-2025 (August 2018); NREL - Regional Charging Infrastructure for Plug-in Electric Vehicles: A Case Study of Massachusetts (January 2017); Institute for Electric Innovation/Edison Electric Institute - Electric Vehicle Sales Forecast and the Charging Infrastructure Required Through 2030 (November 2018).

[a] AFDC means Alternative Fuel Data Center.
[b] Estimated; does not include potential medium/heavy duty vehicle DC-output EVSE.
[c] Charge rate based on assumption of three miles per kilowatt-hour; charge rate listed in miles/minute (250 miles/20 minutes).
[d] Electrify America could also include 50 kW DC Fast Chargers as part of metropolitan development.