



**Pacific Gas and
Electric Company**[®]



Ms. Abigail Daken and Ms. Taylor Jantz-Sell
Climate Protection Partnerships Division
U.S. Environmental Protection Agency
Washington DC 20460

May 3, 2019

Subject: ENERGY STAR[®] Smart Home Energy Management System v1 Draft 1

Dear Ms. Daken and Ms. Jantz-Sell:

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[®] Smart Home Energy Management System Version 1.0 Draft 1. 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 efficiency and demand response 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 encourage U.S. EPA to continue evaluating a potential ENERGY STAR program for smart home energy management systems (SHEMS) and offer the following comments to improve the draft Method to Determine Field Savings and Eligibility Criteria.

General Comments

Customer Privacy and Security

Customer privacy and security are extremely important priorities for the CA IOUs. While we understand that U.S. EPA has not yet been able to identify published standards for security that could be referenced in the draft eligibility criteria, we have two recommendations. First, we encourage U.S. EPA to identify and work with appropriate organizations for the development of customer security and privacy standards. Second, we recommend requiring that service providers report on the standards and/or processes they implement to protect customer privacy and security as noted below in the comments on Eligibility Criteria. We recognize that U.S. EPA cannot require implementation of any specific published standards before they are available.

SHEMS and Potential Energy and Cost Savings

We appreciate U.S. EPA's efforts to leverage SHEMS to develop a program that will save consumers energy and money. We believe that SHEMS may have the potential to save

consumers money by reducing energy use and/or shifting load based on time of use rates. However, we also note that the ability for SHEMS to save consumers energy and money today and metrics for evaluating individual SHEMS are not well established. We recommend that U.S. EPA consider how to effectively address this question in the context of the proposed SHEMS program and only move forward if the available evidence establishes a strong presumption that SHEMS are likely to provide savings on consumer energy bills. We also encourage U.S. EPA to continue your efforts to develop a metric that could be used to evaluate whether specific SHEMS offerings achieve these savings.

Verification

The CA IOUs recommend developing a verification method for the SHEMS program (we also recommend adding verifications procedures for connected thermostats, one of the key components of the SHEMS package, as noted in our earlier comment letters regarding development of that program). An option specific to SHEMS could include revising the program to require that service providers meet some or all of the following requirements:

- maintain production and/or purchase records to verify that sufficient components have been produced or purchased to supply the claimed number of installations;
- maintain materials demonstrating that the package is marketed and sold to consumers with the required components; and
- maintain records containing sensitive information (such as customer privacy data) on-site, with a digital signature to be used in the case of future audit(s) by a third-party auditor that has signed non-disclosure and customer privacy agreement(s).

Detailed Comments on the Draft Method to Determine Field Performance

Section 4. Demonstrating Field Performance

Section 4.3(a) would require submittal of data from a six-month period. The CA IOUs recommend requiring a full year of data (to avoid distortion due to the effect of seasonal vacations) when U.S. EPA establishes the planned performance-based metric for SHEMS. For instance, savings from July 1 through December 31 will likely be significantly higher than other time periods due to holidays when homes are more often vacant. We also recommend requiring that the service providers submit complete calendar months of data to reduce the potential for manipulation to include specific holidays.

Section 4.3(c)(ii) of the current proposal would exclude devices with poor data collection (less than 90 percent) from the sample that is analyzed to determine field savings. The method should be revised to set performance standards and collect data on the number of devices that fail to meet a minimum data collection standard since installations failing to meet a minimum data collection threshold will very likely have reduced or no potential for energy or cost savings.

Appendix A, Section 2. Program Performance

The CA IOUs recommend that the U.S. EPA revise the method to require that service providers determine and report lighting nighttime/vacation load to verify compliance with the limits in Section 4.1(G) of the Eligibility Criteria.

U.S. EPA should also add an idle or standby power reporting requirement for all products in the SHEMS package that are not ENERGY STAR certified, including smart plugs, smart power

strips, sub metering devices, smart lighting controls, and SHEMS hubs or control panels. This information will be important to verify compliance with limits in Eligibility Criteria section 4.3(B) and will also help determine whether SHEMS save consumers energy and/or money. We understand that U.S. EPA does not have information on how to compare on-site hubs with cloud-based analytics and we recommend setting the hub-based energy consumption limit based on data for other similar products as noted later.

Appendix A, Section 3. Savings Metric Development

Section 3(a) excludes product installations with poor levels of connectivity. As stated above, we recommend tracking how reliably SHEMS achieve connectivity.

Certain data that U.S. EPA plans to request on a voluntary basis will very likely be necessary to develop the energy savings metric (and may also be required on a mandatory basis once that metric is completed). Therefore, the CA IOUs recommend moving the following information from the voluntarily reporting list to the mandatory reporting list:

- Reporting of installations in each of five climate zones: This information should be reported on a mandatory basis because this data may be necessary to determine whether a given service is likely to save energy. For example, energy savings in mild climates will typically be significantly less than in climates with greater cooling and heating loads.
- Away hours by month: This data may be necessary to account for seasonal variation when developing a metric.

Detailed Comments on the Eligibility Criteria Draft 1 Version 1.0

Section 1. Introduction

The CA IOUs agree with the proposed restrictions that a service provider cannot offer competing ENERGY STAR and non-ENERGY STAR SHEMS services. We believe that this restriction will avoid customer confusion since individual SHEMS offerings are not tangible products that consumers could more easily differentiate by looking at a label.

Section 2. Definition

The CA IOUs recommend that U.S. EPA revise the definition of Demand Response (DR) as follows to better reflect how these programs are implemented (~~strikethrough~~ indicates deleted language, and underline indicates added language):

“Demand Response (DR): Changes in electric usage by demand-side resources from their normal consumption patterns in response to changes in the price of electricity over time, or to ~~incentive payments~~ event signals designed to induce lower electricity ~~use~~ demand at times of high wholesale market prices or when system reliability is jeopardized.”

Section 4.1 Required Base Services

The CA IOUs support U.S. EPA’s proposal to include a base set of capabilities, such as controlling load based on occupancy data and direct commands.

We also recommend revising the Section 4.1(B)(d) description of product functionality in response to occupancy data as follows: “~~act on it by sending~~ commands to reduce lighting loads to the levels specified in 4.3(G) and turn off any smart power strips or smart plugs and potentially also other products connected to the SHEMS package.”

We also recommend that U.S. EPA consider two additional requirements. First, we recommend considering a requirement that a SHEMS system has the ability to implement a DR event. Second, we recommend considering a future requirement that the SHEMS can connect to one or more commercially available electric vehicle supply equipment (through the device level, or via the cloud if device-level connection is not offered) once this capability is readily available in the marketplace.

Section 4.2 Additional Required Platform Capabilities

The CA IOUs recommend requiring that service providers report on what standards they implement to protect customer privacy and security as noted earlier in our General Comments. We also recommend considering future requirements that service providers meet specific published standards once they are available.

Section 4.3 Connected Device Requirements

Section 4.3 (A) states that the required elements of the SHEMS “may be sold separately and integrated in the field” instead of sold as a package by the SHEMS service provider. The CA IOUs are concerned that SHEMS service providers selling systems that are complete for other services but not for ENERGY STAR do not have control over whether customers would add additional components. In addition, the ENERGY STAR program can review whether service providers market complete ENERGY STAR systems, but likely cannot check whether installers would fill in missing pieces for individual installations.¹ Therefore, the CA IOUs recommend allowing only SHEMS packages that are sold and installed as a package by revising the draft to state: : “The following devices are required to be a part of a certified SHEMS package, and these devices must be marketed and sold, installed and maintained as a package, not separately though these devices may also be sold separately and integrated in the field.”

Section 4.3 (B) The CA IOUs support establishing idle and standby power limits for required components of the SHEMS package that are not covered by the ENERGY STAR program, such as smart plugs, smart strips, and SHEMS specific hubs. Given the small volume of data available for idle power limit for smart plugs, smart strips, and submetering equipment, the CA IOUs support the 1.0 watt (W) idle power limit as a starting point for the first version of the specification. Once U.S. EPA has collected more data on the idle power draw of these products, this limit should be revisited and set to promote efficient products.

Although data may be limited, U.S. EPA should also set an initial idle power limit on SHEMS hubs to prevent the inclusion of products with egregiously high-power draw. This limit might initially be set as high as 10.0 W (most products that have similar types of functionality and are listed on the smart network equipment qualified products list could meet this limit), with the understanding that this level will be lowered to an appropriate level once data is available. If ENERGY STAR determines that there is a significant risk that cloud-based services will overall increase energy use, ENERGY STAR could also re-consider allowing them to qualify for ENERGY STAR branding or defer allowing branding for all SHEMS.

¹ We recognize that U.S. EPA could require that manufacturers self-certify, and that they check that installers complete systems as needed, but note that this self-certification likely could not be independently verified.

Section 4.4 Grid Service Criteria

The CA IOUs recommend mandating that service providers report under section 4.4(c)² whether their services can be addressed to the API (application programming interface), and which open standards they support, rather than recommending that SHEMS providers report this information. The information is necessary to help verify that SHEMS providers meet the mandatory requirements in section 4.4(a) for grid communication and access. This information will also help customers, utilities, and other stakeholders understand how the product could be used for DR and other potential opportunities.

Section 5. Test Requirements

The CA IOUs support U.S. EPA's goal of configuring non-ENERGY STAR edge devices and hubs in a manner similar to how a consumer would use them in a SHEMS. We recommend the following modifications to the test requirements to better represent real world use:

- Section 5(D): The note in this section uses the term “energy harvesting.” We recommend deleting this term as we do not believe that any products that are planned or in the market contain this feature, and the term is not defined. Section 5(D)(b): Rather than instructing the test facility to determine the lowest power state and place the product in that state for testing, as stated in draft step 5(D)(b)(2), the product should be tested according to how customers will actually use it. For example, the instruction should require that the testing facility activate the device (section 5 (D)(b)(1)), wait five minutes without any further occupancy detection or user interaction, and measure energy use without manually setting the service to a low power mode.
- Section (5)(D)(b)(6) refers to “step 2.b.” for additional repetitions of the test method. We recommend clarifying this reference to state “step 2.b(1)”, which is the first step in the test method.

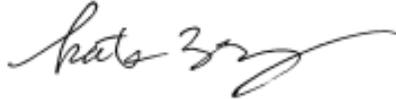
² We note that subsections are capitalized in other sections but not in this section – i.e. 4.3 (A) vs 4.4 (a)

In conclusion, we wish to reiterate our support for U.S. EPA's efforts to determine whether an ENERGY STAR program for SHEMS is appropriate at this time and to develop potential test methods and criteria.

Sincerely,



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