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December 16, 2016

Abigail Daken  
United States Environmental Protection Agency  
Climate Protection Partnerships Division  
Washington DC 20460

Subject: ENERGY STAR® Final Draft Connected Thermostat (CT) Eligibility Criteria – Version 1.0

Dear Ms. Daken:

This letter comprises the comments of the Pacific Gas and Electric Company, San Diego Gas and Electric Company and Southern California Gas Company in response to the United States Environmental Protection Agency (U.S. EPA) request for comments on the Connected Thermostats (CT) Final Draft Eligibility Criteria Version 1.0. The signatories of this letter, collectively referred to herein as the California Investor Owned Utilities (CA IOUs), appreciate the opportunity to provide feedback on this draft.

The CA IOUs represent some of the largest utility companies in the western United States, serving over 35 million customers. As energy companies, we understand the potential of energy conservation and energy efficiency programs to cut costs and reduce consumption while maintaining or increasing consumer utility of products. We have a responsibility to our customers to advocate for voluntary program requirements that accurately reflect the climate and conditions of our respective service areas, so as to maximize their positive effects.

The CA IOUs appreciate that U.S. EPA has undertaken a significant challenge to develop an effective ENERGY STAR specification for CT products. We are very supportive in concept of U.S. EPA's attempts to create an innovative new data-driven methodology to verify that using a control system (i.e., CT products) can result in real-world energy benefits. Since the main benefits of these devices are highly dependent on real-world usage, collecting field data offers significant potential benefits. While we are encouraged to see U.S. EPA working to develop voluntary specifications, we recommend that U.S. EPA address several issues explained below before finalizing the Eligibility Criteria Version 1.0 and launching the ENERGY STAR program for CT products.

**1) The CA IOUs recommend that U.S. EPA clarify the definition of product family.**

The product family definitions contained in sections 1.M and 4.A of the Final Draft Eligibility Criteria should provide utilities and their customers assurance that individual CT products offered by a CT service provider will provide energy savings equal to or greater than the ENERGY STAR benchmarks. The Final Draft Eligibility Criteria does not specifically limit how broadly a CT service provider could define a CT product family. Thus, a CT service provider

could potentially qualify a product(s) with low savings by aggregating it with products that achieve higher savings. Therefore, the CA IOUs recommend adding the following clarifications to Section 4.A of the Final Draft as shown below in underline/strikeout:

Examples of allowable variations within a product family:

- For CT products that derive savings from automatic temperature changes without prompting users, the user interface differences of CT devices would be irrelevant.
- For CT products that rely on occupancy detection (including occupancy sensors and smart phone tracking) to deliver savings, any CT device with similar occupancy detection sensors can be in the same product family. Products without similar occupancy detection would fall into a different product family.
- For a CT products ~~with variations based on electricity rates~~ that provides different services in different utility service territories based on utility program offerings, (e.g. precooling is available in areas with time of use rates), as long as this is not one of the major savings strategies, the variations can be within the same product family.
- For CT products that offer a basic energy-savings service that is certified but can add other services that may increase energy savings, the basic service can be used to qualify all variations with additional energy savings services may be in the same product family. However, products with additional energy savings features such as adaptive learning cannot be used to qualify a basic product without these features.

We recognize that some refinement of the product family definition may require evolution over time, especially for products that have different services for which energy savings data is not readily available.

## **2) The CA IOUs recommend that U.S. EPA continue evaluating the metric and benchmark.**

The CA IOUs appreciate that U.S. EPA will compare the modeled CT product energy savings estimates against modeled energy savings from expected baseline temperature set-back behavior as noted in U.S. EPA's response to comments on Draft 3. We look forward to working with U.S. EPA in the continued effort to evaluate the program metrics and benchmarks, and make improvements as necessary.

## **3) The CA IOUs recommend that U.S. EPA reduce allowable stand-by energy use.**

The CA IOUs agree with U.S. EPA that the stand-by energy use limit of three watts does not represent the best practices as noted in U.S. EPA's response to comments on Draft 3. While U.S. EPA does not intend to reduce this limit in Version 1.0, we believe that the following language will encourage the use of best practices as soon as possible and clarify that three watts should not be considered a precedent for best practices.

Section 6.0 Future Criteria Revisions...U.S. EPA recognizes that the three watt stand-by power limit does not represent best practices. U.S. EPA encourages partners to implement best practices for stand-by power use as soon as possible and intends to reduce this limit in a future revision.

We also support reporting measured stand-by energy use as part of the qualified product list.

**4) The CA IOUs recommend that U.S. EPA clarify the thermostat static temperature accuracy standard.**

The CA IOUs recommend clarifying the proposed static temperature accuracy standard. The Final Draft Eligibility Criteria contains a 2.0 °F standard in Table 1 but a 1.0 °F standard in sub-section 3.B.4.h. U.S. EPA should revise the Draft Final Eligibility Criteria to include a consistent standard such as 1.6 °F. A product with true accuracy of 1.0 °F, which we understand is U.S. EPA's goal, should consistently pass a standard of 1.6 °F because the total inaccuracy of the current test procedure is 0.6 °F.<sup>1</sup>

We also recommend that US EPA develop a standard protocol to capture higher precision digital thermostat data and tighten the standard to 1.2 °F or better.<sup>2</sup> If U.S. EPA cannot implement this change before December 31, we recommend implementing this change during the first revision.

In conclusion, the CA IOUs appreciate U.S. EPA's efforts to develop the ENERGY STAR CT Eligibility Criteria. We thank U.S. EPA for the opportunity to be involved in this process. We also encourage U.S. EPA to carefully consider the recommendations outlined in this letter and take steps to address the remaining issues with the Final Draft Eligibility Criteria Version 1.0.

Sincerely,



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<sup>1</sup> Rounding off the thermostat temperature to the nearest whole degree could lead to 0.5 °F inaccuracy and the allowable tolerance for the reference measurement is 0.1 °F (section 4.F.1).

<sup>2</sup> Digital temperature data reported to the nearest 0.1 °F combined with allowable tolerance for the reference measurement of 0.1 °F would allow U.S. EPA to set a 1.2 °F specification without risk that units with 1.0 °F accuracy would fail due to uncertainties in testing results.