



May 17, 2019

Abigail Daken
U.S. Environmental Protection Agency
Climate Protection Partnerships Division
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Subject: Draft 1 Version 3.3 ENERGY STAR® Water Heaters Product Specification

Dear Ms. Daken:

This letter comprises the comments of the Pacific Gas and Electric Company (PG&E), San Diego Gas and Electric (SDG&E), and Southern California Edison (SCE) in response to the Draft 1 Version 3.3 ENERGY STAR Water Heaters Product Specification released on April 16, 2019.

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 United States (U.S.), serving over 32 million customers. As energy companies, we understand the potential of the ENERGY STAR program to cut costs and reduce energy consumption while maintaining or increasing consumer utility of the products. We have a responsibility to our customers to advocate for sensible test procedures, specifications, and voluntary certifications that accurately reflect the climate and conditions of our respective service areas to maximize the positive effects of these efforts.

The CA IOUs support the addition of optional criteria for connected functionality for water heaters including the U.S. Environmental Protection Agency (EPA) efforts to harmonize with existing efforts to define the performance of connected water heaters. Also, we support the requirement to meet communication and equipment performance standards for CTA-2045A or OpenADR 2.0 for demand response (DR) communication. The CA IOUs made similar comments to the Smart Home Energy Management Systems (SHEMS) Discussion Guide and appreciate that EPA continues to push for open standards within the connected criteria specifications.¹

The CA IOUs appreciate this opportunity to provide the following recommendations about the Draft 1 Version 3.3 ENERGY STAR Water Heaters Product Specification.

- 1) The CA IOUs recommend that U.S. EPA, in Section 4)B.a., update the “mode that uses more energy” to the “mode that overrides the heat pump and only activates the electric resistance element.”**

¹https://www.energystar.gov/sites/default/files/CA%20IOU_SHEMS_Discussion%20Guide_Comments_7%2027%2018.pdf

We recognize that there is a need for consumers to occasionally have higher than normal hot water demands for unique situations, such as weekend visitors, and therefore need a setting that increases usage of the electric resistance element to meet hot water demands. This high energy setting, however, should not remain activated if the consumer forgets to revert to the lower energy setting after the unique event. The terminology clarification we recommend allows a unit to have a small increase in electricity use to meet hot water demand if needed but limits the highest energy use of the resistance element to the already specified 72 hours. Overall, we would like to see the currently specified 72-hour time window reduced, to decrease the potential energy usage of the product, but we recognize the value of consistency across existing water heater performance criteria. Therefore, we do not recommend changing the 72-hour time window in the specification but would like the EPA to consider adding the feature for a water heater to allow a consumer to shorten the default time window to revert to the locally set mode to within 48 hours if no additional user input is received.

2) The CA IOUs recommend that U.S. EPA update 4)C.b. to ensure permanent override of demand response events is not an available setting or operating mode.

It is important to provide the consumer with the ability to override a DR event on occasion to allow for unique situations, but there should not be an option to permanently override all DR events. If a permanent override option was available, it would be too easy for the DR potential of a product to be permanently disabled, and the product would no longer meet the criteria for connected functionality. A consumer should instead be able to override DR events on an event by event basis. We recommend adding the following sentence to the current Override Section: “Permanent override shall not be available as an operating mode or as an option in the primary menu.”

3) The CA IOUs recommend that U.S. EPA update 4)C.d. to clarify and add examples for the definition of “Current Available Energy Storage Capacity” and “Current Total Energy Storage Capacity.”

The current definitions for “Current Available Energy Storage Capacity” (required) and “Current Total Energy Storage Capacity” (optional) are similar in wording. We want to ensure all manufacturers are clear on the DR messaging definition so that there is consistent implementation of this specification. Clarifying these definitions will also allow for the comparison of DR messaging data across manufacturers if we are confident the same metrics are included in the DR messaging fields.

4) The CA IOUs recommend that U.S. EPA update 4)C.e. to add clarity to DR operational mode functionality terminology and definitions.

We recommend updating the required operational mode functionality *terminology* in Section 4)C.e. to remove “Emergency” and “Critical” since these terms cause fear in consumers in how their products are being controlled and would create resistance to DR operational modes. One option is to align with the currently proposed California’s Building Energy Efficiency Standards, Title 24, Part 6 Draft Joint Appendix 13 (JA13)² TN #227876 on Water Heater Demand Management as outlined below: (EPA term → Joint Appendix 13 term).

- General Curtailment (Shed) → Light shed

² <https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=19-BSTD-01>

- Emergency Curtailment (Critical Curtailment) → Deep shed
- Grid Emergency (Off Mode) → Full shed

EPA could consider modifying these terms, for example “shed,” to be clearer for consumers. We look forward to working with EPA to ensure terminology is consistent with existing requirements and industry practices, while also clear for consumers.

Additionally, we recommend updating the operational mode functionality *definitions* for General Curtailment, Emergency Curtailment, and Grid Emergency in Section 4)C.e. to align with JA13 to ensure clarity and consistency in implementation. The current definitions allow too much flexibility in implementation and potential range of level of response. We prefer the JA13 definitions that specify if the electric resistance element and compressor can be used and what level of recovery can take place during an event. These definitions will also contribute to reduced energy consumption, such as during Critical Curtailment/Deep Shed the JA13 definition allows for compressor operation, to allow some recharge if needed, and therefore less use of the electric resistance element after the event is over.

5) The CA IOUs recommend that U.S. EPA add a searchable designation in the ENERGY STAR certified products list such that consumers and/or utility programs can locate and specify connected water heaters that also have the operation mode of “Relative Price Signals.”

The ability for connected products to receive and respond to time-of-use (TOU) rates and pricing signals is an important feature for the CA IOUs. The 2015 California Demand Response Potential Study found that TOU is the most cost-effective DR option and could contribute substantially to overall DR potential.³ Although the “Relative Price Signals” operational mode functionality is optional, it will be very useful to create utility program and/or building energy code requirements that include this optional feature.

6) The CA IOUs recommend that U.S. EPA consider how to encourage synergies between SHEMS and water heaters.

We encourage the EPA to consider how the draft SHEMS specification could leverage this specification. For instance, we encourage EPA to ensure that the proposed connected water heater communications capabilities are compatible with SHEMS systems. We also encourage EPA to consider how to measure whether SHEMS increase energy savings from water heaters when implementing plans to create a SHEMS energy savings metric and benchmark.

³ <https://drrc.lbl.gov/project/2015-california-study>

In conclusion, we wish to reiterate our support to EPA for developing the Draft 1 Version 3.3 ENERGY STAR Water Heaters Product Specification which includes new optional connected criteria, and we encourage EPA to carefully consider our comments.

Sincerely,



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