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CA IOU Comments - FDAS Proposed Language

Additional submitted attachment is included below.



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Electric Company[®]

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November 1, 2021

California Energy Commission
Docket Unit
715 P Street
Sacramento, CA 95814

Topic: California Investor-Owned Utility Codes and Standards Enhancement Team Joint Comments on Pre-Rulemaking Draft of the Proposed Language for Flexible Demand Appliance Standards

Docket Number: 20-FDAS-01
TN Number: 239896

Dear Commission Staff:

This letter comprises the comments of the Pacific Gas and Electric Company (PG&E), San Diego Gas & Electric (SDG&E), and Southern California Edison (SCE) in response to the California Energy Commission (CEC) Pre-Rulemaking Draft of the Proposed Language for Flexible Demand Appliance Standards (FDAS).

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, we recognize that flexible demand appliance standards could help support California's renewable energy goals, reduce greenhouse gas emissions, and improve grid reliability, and we have a responsibility to our customers to advocate for standards that accurately reflect the climate and conditions of our respective service areas, so as to maximize these positive effects.

We appreciate this opportunity to provide the following comments on this draft regulatory language and look forward to continued engagement with the CEC and stakeholders on this topic.

- 1. The CA IOUs commend the CEC on their effort to promote demand flexibility in appliances and recommend the inclusion of communication and testing requirements in future iterations of these standards.**

In general, the CA IOUs commend the CEC for their effort to promote demand flexibility in appliances. We look forward to a full staff proposal on these proposed regulations to better evaluate the proposed regulatory language. We note that the draft regulations do not specify a communications protocol by which appliances can directly or indirectly receive demand response (DR) signals and energy price information. Without standardized communication, there could be a proliferation of different proprietary protocols, making it more difficult to aggregate and manage FDAS-capable appliances for the purpose of providing services to the grid. Therefore, the CA IOUs would support the addition of an open communications protocol such as OpenADR 2.0 to the standards as early as feasible so that appliances can receive signals and information directly or indirectly from utilities or third parties in an efficient

manner. As noted in the CA IOU comments on the FDAS RFI, OpenADR 2.0 functionality could be supported either in the appliance locally or at a central cloud (such as an online platform managed by a device manufacturer or third-party aggregator).

Additionally, the draft standards do not require testing to verify the functionality of the mandatory appliance features. Defining basic features is helpful, but testing the functionality of those features would be necessary to support compliance enforcement. Without test procedures, enforcement may be near impossible. Therefore, we recommend that the CEC consider requirements to test functionality (e.g., by using applicable ENERGY STAR® test methods) where feasible. The CEC could specify test procedures and reserve the right to test units to verify functionality, even if not a requirement for certification to the Flexible Appliances Database. Comments on specific sections of the draft regulatory language follow in the sections below.

2. The CA IOUs offer comments on the scope of the flexible demand appliance standards.

For Section 1686 (a) and (b), we understand that the intention of this regulatory language is to focus on consumer products only; therefore, the CA IOUs recommend that the scope clearly be limited to “consumer electric clothes dryers” and “consumer dishwashers.” Commercial electric clothes dryers and dishwashers are intended for different use cases than consumer products. These use cases necessitate different operations depending on the priorities of the end-user (e.g., speed and ability to handle a large number of loads for commercial products and noise for consumer products).

For Section 1686 (c), the CA IOUs also recommend limiting the scope of pool pump control regulations to consumer products, as opposed to commercial products. Additionally, we suggest more detailed scoping that includes differentiating between integrated and non-integrated controls as well as between single speed pumps with on/off controls and variable speed pumps. Differentiating between single speed and variable speed pumps would facilitate the development of future connectivity and demand response requirements. Existing connectivity and demand response criteria for pool pumps, such as the ENERGY STAR Connected Criteria for Pool Pumps¹ are designed around the unique needs, capabilities, and challenges of the variable speed pool pump product.

3. The CA IOUs offer comments on flexible demand appliance standard definitions.

For the definition of “consumer product,” the CA IOUs recommend that the CEC align with the U.S. Department of Energy (DOE) definition for consumer products at 42 U.S.C. 6291(1),² which applies to all DOE covered products under the Energy Conservation Program for Consumer Products Other Than Automobiles (including both electric clothes dryers and dishwashers). The CEC could align with this definition either by using the same language or by directly referencing 42 U.S.C. 6291(1) to avoid any market confusion about what products are considered consumer products under CEC rules as opposed to DOE rules. As the definition at 42 U.S.C. 6291(1) is intentionally broad, DOE published a document detailing the distinction in 2010.³ If the CEC adopts DOE’s definitional language, it would be helpful for the CEC to clarify their position based on DOE’s 2010 publication.

For the definition of “connected device,” we suggest broadening the definition to include being capable of direct or indirect connection to the Internet and removing other technology-specific requirements to avoid hindering the adoption of new technologies. If specific technologies are included in the definition, we suggest eliminating reference to the device Internet Protocol (IP) address, since devices do not come with an IP address pre-assigned. An IP address is associated with the communication network installed at a home or facility. Additionally, we note that this definition does not explicitly require that the connected capability is able to be used for demand flexibility functionality (e.g., delay timer, programmable

¹ [ENERGY STAR Pool Pumps Specification, Version 3.1](#)

² [42 U.S. Code § 6291 - Definitions](#)

³ [Consumer/Commercial Distinction under EPCA](#)

schedule, etc.). This discrepancy could result in a scenario where a device can connect to the Internet but cannot use that connection to execute load changes remotely. Devices with delay timers, for example, were initially designed as a customer amenity; this existing capability (and new required capabilities) could now be leveraged to provide grid services using connectivity. Therefore, we recommend adding a more specific definition of device connectivity for grid services to clarify that the device is capable of connection to the Internet for the purposes of enabling flexible demand functionality and providing grid services. We recommend that the CEC refer to the ENERGY STAR Connected Criteria Overview, which describes an expanded definition of connectivity that elaborates on the role of connected functionality to deliver both customer amenities and grid benefits.⁴

For the definition of “flexible demand,” we suggest that the CEC revise this definition to clarify that in this context, customer demand changes occur in response to factors such as DR events, energy rates, or real-time pricing signals, as follows:

- “Flexible demand” means the capability to schedule, shift, or curtail the electrical demand of ~~a load-serving entity’s customer~~ one or more connected appliances or devices through direct action by the customer or, with the customer’s consent, through direct action by a third party, the load-serving entity, or a grid balancing authority, ~~with the customer’s consent in response to an event, dynamic tariff, or market pricing communication from a third party,~~ the load-serving entity, or a grid balancing authority.

Revising the definition in this manner would account for the important roles of connectivity and external communications in achieving demand flexibility. The current definition allows many existing appliances to potentially qualify as capable of flexible demand because customers could manually turn off appliances at any time to curtail demand without the appliances being connected. The suggested definition could include examples of the types of communication that could be sent to appliances to trigger a change in demand: a DR event communication gives the date, time, and potentially the level of response requested (e.g., normal, high, or critical); a dynamic tariff communicates the time-of-use (TOU), critical peak pricing, or hourly rate charged to the customer based on the customer’s enrolled rate plan. In the future, this information could be transmitted directly or indirectly to devices from a system such as the CEC’s Market Informed Demand Automation Server (MIDAS) database.

For the definitions of “electric clothes dryer” and “dishwasher,” we note that DOE has existing definitions for these products located at 10 CFR 430.2.⁵ The CEC’s proposed definitions align with DOE’s definitions except for the CEC’s addition of the words “...consumer product and a...” at the start of the definitions. The CA IOUs recommend that the CEC remove these words from the product definitions as a product does not need to be a consumer product to be an electric clothes dryer or dishwasher. The limitation to consumer products relates to the scope of this regulation. To avoid any product coverage confusion, we suggest combining the consumer product and individual product definitions within the scope section to achieve the intended result of limiting the focus of these regulations to consumer products while maintaining consistent definitions at both the state and federal levels.

For pool pump controls, we support the exemption of pool pump controls for integral cartridge filter pumps and integral sand filter pumps as included in the CEC’s proposal. As noted in the scope section, we suggest adding clarity to the definition of these products by splitting the control types into those integral versus external to the pump, and to those with on/off control versus those with variable speed control.

Regarding integral versus external pump controls, external on/off controls that can be disconnected from the filtration/auxiliary pump with the pump remaining operational (e.g., relay or timeclock controls) have additional considerations in that these units can often control devices other than pool filtration and

⁴ See for example: [ENERGY STAR’s Connected Criteria for Partners page](#).

⁵ [10 CFR § 430.2 – Definitions](#)

auxiliary pumps. For example, these products could control a variable speed pool pump as well as an auxiliary pump, pool heater, lights, and salt chlorine generator. We encourage the CEC to revise the requirements for external pump controls such that the device is aware of the end use equipment type on each relay (i.e., pump or not a pump) as part of the field installation process. Many of these products are already capable of discerning flow-dependent equipment pad devices.

Pool pumps with variable speed control capabilities have additional use cases to consider compared to those with more limited on/off control, for example:

- Pool pump filtration speed, measured as flow in gallons per minute at the skimmer, should remain above minimum flows for the pool skimmer and minimum equipment pad operation needs during filtration operation.
- Variable speed pool filter pumps typically run a high-speed cleaning cycle as part of the daily schedule. The time when this cycle is run may be flexible, and the cycle may be curtailable in grid emergency scenarios. However, this cycle is important for pool maintenance, so shifting cycle operation outside of peak pricing hours or notifying the consumer if operation is during peak pricing hours would be the most practical strategy for day-to-day operational benefit.

Conversely, scheduling with on/off controls in the pool equipment pad requires some care to ensure that no downstream equipment, such as pool heaters, chlorinators, ozone generators, pressure cleaner booster pumps, or water feature pumps, are accidentally operated while receiving no flow from a schedulable filtration or auxiliary pump. Additional specificity in the definitions would allow the CEC to better target future requirements to the capabilities of different pool pump control products. Various DOE definitions related to pool pumps can be found at 10 CFR 431.462.⁶

For thermostats, in general, we support the CEC’s definitions of “Class 2 circuit,” “low voltage thermostat,” and “thermostat” with some clarifications. We suggest that the definition for “Class 2 circuit” incorporate the relevant National Electric Code (NEC) definition by reference.⁷

4. The CA IOUs offer comments on appliance specific requirements for flexible demand appliance standards.

For all proposed standards listed in Section 1690, the CA IOUs recommend that the CEC revise the requirements that appliances be connected devices to align with the definition of connectivity for grid services described above. The connectivity requirement for individual appliances could identify the specific demand flexibility functions that are needed. For example, an appliance might be required to use the connectivity to access rate information (e.g., in MIDAS), to schedule operation to align with TOU rates, to enable delay start, etc.

Regarding electric clothes dryers, for Section 1690 (b) (1), we note that the CEC is not proposing to require any testing requirements to verify the presence or function of connectivity or of a delay timer. A test procedure would be beneficial to specify the testing requirements and process to support the CEC’s verification of manufacturer compliance. If the CEC were to pursue verification of the functionality associated with the connectivity and delay start features, the methodology outlined in the ENERGY STAR Clothes Dryers Specification Version 1.1 Connected Criteria⁸ test method would be a starting point. The ENERGY STAR Connected Criteria details two test conditions to verify different flexible load actions (i.e., Delay Appliance Load Capability and Temporary Appliance Load Reduction Capability). In addition to the two demand response functionalities tested in the ENERGY STAR Connected Criteria, a third beneficial operation could be to delay the most energy intensive operations for a specific period of time while allowing less energy intensive states to continue operation (e.g., disabling a resistance heater but maintaining a tumbling motion for a clothes dryer). This would significantly reduce the unit’s demand

⁶ [10 CFR § 431.462 - Definitions](#)

⁷ NEC Section 725.121(A)

⁸ [ENERGY STAR Clothes Dryers Specification, Version 1.1](#)

while still maintaining some functionality. Similarly, regarding Section 1690 (c) (1) for dishwashers, future products could be tested to verify demand response capabilities such as those outlined in the ENERGY STAR Residential Dishwashers Specification Version 6.0.⁹ Adding requirements like these could strengthen the ability of the standards to deliver load impacts and corresponding test procedures would aid in compliance enforcement.

For pool pump controls, in Section 1690 (d) (1), the CEC could consider connectivity verification similar to the DR verification procedures outlined in the ENERGY STAR Pool Pumps Specification, Version 3.1.¹⁰ This validation method has the testing facility connect the product following manufacturer instructions and exercises the functionality of interest to confirm the device would be operational in the field under typical installation conditions. For Section 1690 (d) (2), regarding the ability to store electric rate information, the CA IOUs recommend that connected pool pumps be able to leverage their connectivity to download rate information from a central repository (i.e., MIDAS) and update rate information within the device rather than just storing static rate information that may not be specific to the end-use customer. We support the alignment of the number of saved TOU schedules for this regulation with the requirements in Title 24, Part 6 Joint Appendix (JA)13. In addition to the proposed requirements, we suggest that the CEC incorporate different requirements to utilize the advanced capability of variable speed products, whereas non-variable speed products will likely rely on on/off strategies.

Similarly, in Section 1690 (e) (1) regarding thermostats, the CEC could consider similar validation of connectivity as described above as well as the ability to use the connectivity feature to enable demand flexibility. Furthermore, we suggest an additional requirement in alignment with Title 24, Part 6, JA5 for an override function, in which occupants shall be able to change the event responses and thermostat settings or setpoints at any time, including during price events or DR periods.¹¹

5. The CA IOUs suggest clarifications to the proposed reliability and cybersecurity standards.

Regarding cybersecurity standards in Section 1691, the CA IOUs suggest that the CEC clarify which National Institute of Standards and Technology reliability and cybersecurity protocols would apply to these standards. Similarly, we suggest that the CEC clarify which North American Electric Reliability Corporation Critical Infrastructure Protection standards would apply to these standards. Furthermore, we suggest the addition of the following language regarding software/firmware updates:

- If the device repeatedly fails to operate with critical cybersecurity updates, the appliance manufacturer may remotely disconnect the device from the network to preserve network safety. In this case, the appliance manufacturer must enable a local update method as a fallback.

We note that without specific test procedures, it may be difficult to enforce compliance with reliability and cybersecurity standards. OpenADR 2.0 certification would ensure that a minimum level of cybersecurity compliance is met.

6. The CA IOUs offer considerations on the proposed consumer consent requirements.

For consumer consent requirements in Section 1692, we recommend that the CEC leverage the lessons learned from prior efforts around connected devices and appliances (e.g., occupant-controlled smart thermostats). Furthermore, we suggest the following additional requirements:

- Users shall be able to define and modify default responses and override event response settings, if desired.
- The appliances (and supporting cloud services) shall allow for customer electronic consent to opt-out at any later time after initial setup, including deleting the customer's personal information.

⁹ [ENERGY STAR Residential Dishwashers Specification, Version 6.0](#)

¹⁰ [ENERGY STAR Pool Pumps Specification, Version 3.1](#)

¹¹ [Title 24, Part 6 JA5 - Technical Specifications for Occupant Controlled Smart Thermostats](#)

7. The CA IOUs recommend improvements to the proposed certification requirements.

Regarding certification requirements in Section 1693, the CA IOUs support the creation of a Flexible Appliance Database (FAD). We recommend that the CEC improve the database’s searchability (compared to the Modernized Appliance Efficiency Database System) to facilitate matching appliance model numbers reported on manufacturer websites to those in the FAD (e.g., in cases where manufacturers use wildcards) to make it easier for distributors, retailers, designers, and other users to verify model numbers for compliance. Additionally, we suggest initial and ongoing cybersecurity compliance of devices and connectivity systems including certifying that the design, manufacturing, logistics, and connectivity systems are cybersecure, and recertification of cybersecurity status on an ongoing basis.

8. The CA IOUs offer potential additions to the proposed data submittal requirements.

In Section 1694 (a) (1), the CA IOUs suggest additional data submittal requirements for all appliances to increase the utility of the FAD dataset and to inform future regulatory activities. For Table A-1, we recommend the addition of the following information:

Required Information	Permissible Answers
Certified OpenADR 2.0A/B Virtual End Node	True, false
Compliant OpenADR 2.0A/B Virtual End Node	True, false
OpenADR 2.0 profiles supported	None, 2.0A, 2.0B, Other (free text)

In Section 1694 (a) (2), we suggest additional data submittal requirements for all connected devices (Table A-2).

Required Information	Permissible Answers
Communication methods supported	Examples: Wi-Fi 802.11, Bluetooth, Zigbee or other 802.15.4, < 1 GHz RF (e.g., 433 MHz), etc.
Expandable communication supported	Examples: None, CTA-2045 port module DC format, CTA-2045 port module AC format, RS-232 port, RJ11 port, USB, etc.

In Section 1694 (b) and (c), we suggest the submittal of the following additional data for electric clothes dryers and dishwashers (Tables B-1 and C-1).

Required Information	Permissible Answers
Minimum delay timer increment	
Connected functionality can schedule when a cycle starts	True, false
Connected functionality can control cycle settings	True, false
Connected functionality can provide cycle/operation updates or introduce new cycle options	True, false
Connected functionality can change the default cycle settings	True, false
Connected functionality can account for dynamic (e.g., time-of-use) rate schedules and recommend operation outside of peak periods	True, false

In Section 1694 (d), we suggest the submittal of the following additional data for pool pump controls (Table D-1).

Required Information	Permissible Answers
Additional demand response application layers supported	Examples: CTA-2045-A, CTA-2045-B, etc.
Device relays (if applicable) are aware of connected equipment type	True, false, N/A
Supports variable speed pool pump functionality	True, false
Control device is integral to one product	True - integral, false – not integral

In Section 1694 (e), we suggest the submittal of the following additional data for thermostats (Table E-1).

Required Information	Permissible Answers
Compliant with Title 24, Part 6 JA5	True, false

In conclusion, the California IOUs commend the CEC’s effort to adopt flexible demand appliance standards in California, and we hope that the CEC considers the recommendations in this letter. We thank the CEC for the opportunity to respond to this request, and we look forward to future opportunities for engagement.

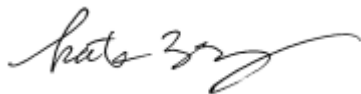
Sincerely,



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