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Additional submitted attachment is included below.

GE APPLIANCES
a Haier company

John T. Schlafer
Senior Counsel

Appliance Park - AP2-225
Louisville, KY 40225

T: (502) 452-7603
F: (502) 452-0347
john.schlafer@geappliances.com

February 3, 2021

Via Online Submission (Docket No. 20-FDAS-01)

J. Andrew McAllister
Commissioner
California Energy Commission
1516 Ninth Street
Sacramento, California 95814-5512

Re: Comments in Response to the December 14, 2020 Lead Commissioner Workshop on Flexible Demand Appliance Standards

Dear Commissioner McAllister:

GE Appliances, a Haier company ("GEA"), respectfully submits the following comments in response to the December 14, 2020, Lead Commissioner Workshop on Flexible Demand Appliance Standards, Docket No. 20-FDAS-01.

GEA supports the February 3, 2021, comments filed on this docket by the Association of Home Appliance Manufacturers ("AHAM") and the February 3, 2021, comments filed by the Air-Conditioning, Heating, and Refrigeration Institute ("AHRI") and makes these further comments in response to the Lead Commissioner Workshop.

GEA is a leading, US manufacturer of home appliances and equipment. GEA offers a full suite of major and portable household appliances across seven brands, a line of residential and commercial space conditioning products, and a line of residential water heaters. GEA has been a participant in and contributor to federal and California state energy regulatory programs for over 40 years.

GEA is a leader in providing connected features in the home appliance industry. Indeed, GEA has the largest number of connected major appliance products available to consumers today. GEA offers connected appliances in all major appliance categories including those with a built-in connected function as well as the ability to purchase adaptors to add connected features after purchase of an appliance. Connected appliances offer meaningful opportunity for reduction of energy consumption, which occurs both through greater consumer control over appliance operation and the incorporation of demand-response, or flexible demand, features.

GEA urges the commissioners to incorporate the feedback below as it develops Flexible Demand Appliance Standards ("FDAS") for the state of California.

1. CEC Must Ensure it Adheres to Statutory Authority and Direction

   Senate Bill 49, the authorizing legislation for CEC's regulatory activities here, provides specific direction to CEC regarding the nature of the flexible demand standards CEC develops. Specifically, the standards must:
   - be centered around consumer interests and benefits;
   - be limited to opt-in participation;
   - prioritize open-source standards; and
   - maintain privacy and security.

   These requirements are not just legislative requirements. They are best practices that will help ensure the success of a flexible demand standards program and obtain maximum buy-in from consumers, industry, and utilities.

   Just as there are legislative requirements for what CEC's FDAS must do, there are legal restrictions limiting what CEC may require as a part of FDAS. CEC may not, through this rulemaking, establish energy efficiency requirements or energy performance or construction requirements under the guise of flexible demand standards. Such standards are outside of the legislative intent of the authorizing statute and risk running afoul of federal preemption limitations.

2. An API-Based Cloud to Cloud Framework Is Best

   A cloud-to-cloud, API-based framework is the best model for flexible demand appliance standards. The cloud-based model is best for many reasons.

   - Allows for over the air updates to appliance operating systems and regular upgrades to cloud software. Remote updates provide improved performance over time, and, importantly, fast and effective response to security concerns.

   - Accommodates a wide range of communications protocols, which allows for lower cost and greater compatibility.

   - Can limit the reach of a cybersecurity flaw to critical infrastructure to a single, cloud-based interface so it can be more easily monitored, detected and remediated. Security patches within the cloud are easier to implement across a fleet of devices and can be implemented such that they do not rely on consumer intervention.

- Allows for interoperability of a range of smart home and device management systems, including GEA's SmartHQ system along with those from other providers such as Amazon, Google, and Apple.

- Ensures device functionality is not limited or degraded by flexible demand communications needs.

- Allows for a much wider range of information to be communicated to and from an appliance than more limited, hardware specific technologies such as a standard based solely on use of the CTA 2045 port.

- Allows for information communicated to and from an appliance and an appliance's reaction to information received from a utility to change over time more easily than more limited, hardware specific technologies such as a standard based solely on the CTA 2045 port.

- A mature, straightforward framework for utility to product connection in the cloud already exists. This framework, known as OpenADR, has already been implemented by manufacturers such as GEA in connection with the Energy Star connected appliance program. Further, OpenADR has been successfully incorporated into industry consensus standards, such as AHRI 1380.

3. Flexible Demand Standards Must Not Interfere with a Consumer's Ability to Connect to Their Appliance

As connected appliances proliferate, a consumers' ability to remotely connect to their appliances is essential. A consumer's remote connection allows for features such as energy management capabilities beyond demand response, meaningful consumer convenience features, and the ability for each appliance to effectively integrate into whole house automation and management systems. It is important that any flexible demand standards promulgated by CEC do not limit or interfere with a consumer's ability to connect remotely to their appliance. This is particularly true for appliances that have expansion ports that allow for connectivity feature to be added after purchase.

Standards that rely on limited, proscribed design requirements, instead of flexible performance standards, risk blocking access to expansion ports, such as RJ-45 jacks, and risk blocking a consumer's ability to remotely connect to an appliance. Standards using a cloud-to-cloud, API-based framework eliminate this issue and give consumers and manufacturers flexibility in how to connect to demand-response systems while also remotely connecting to their appliances.

4. The Energy Star Connected Appliance Standards are an Effective Model

   The Energy Star connected appliances standards incorporate both of the above principles and are a strong model for the CEC Flexible Demand Appliance Standards. The Energy Star requirements are already in place at a federal level, and they have been successfully incorporated and proven to be effective in home appliances currently on the market.

   Notably, the Energy Star requirements are flexible and technology neutral, which are key attributes if FDAS are to be successful. They allow for the cloud-to-cloud API-based frameworks that are most likely to be effective and secure and allow for improvement over time, while also allowing for a wide range of communications technologies and manufacturer implementations. This includes options such as adaptors using the CTA-2045 port technology, low power or mesh network communication to further connected hubs, or connection to a utility provided smart meter.

   The proposed Energy Star Specification Version 4.2 for Room Air Conditioners is also an excellent model for testing and verification of the functionality of flexible demand functionality. Given the shared ecosystem approach most manufacturers are likely to take in implementing flexible demand features, a testing and certification program that relies on technology and component-based testing should be prioritized over model-by-model testing and certification. The latter system increases cost substantially while adding minimal additional assurance of proper functioning.

5. Mandatory Inclusion of FDAS Capability in all Appliances Will Harm Lower Income Consumers

   GE Appliances agrees that FDAS may work for certain appliances, based on their functionality and consumer usage patterns. Nonetheless, certain appliances would not be appropriate for inclusion in this framework.

   For example, not all appliances use electronic controls that would allow for effective flexible demand response. Many lower-cost home appliances use electro-mechanical controls. These controls are simpler and allow manufacturers to produce appliances that distributors may sell to lower income consumers at prices significantly lower than those offered for higher cost models with electronic controls. GEA currently sells many such appliances, including top-freezer refrigerators, clothes washers and dryers, dishwashers, water heaters, and ranges. If CEC were to mandate FDAS capability in all appliances sold or installed in California, it would have a significant impact on the availability of lower cost appliances in the State of California.

   Flexible demand appliance standards that are not drafted consistent with GEA's comments also have the potential to add significant additional cost to lower-cost

electronically controlled appliances. Standards other than the API-based cloud-to-cloud solutions advocated for by GEA run the risk of requiring additional proprietary components and software or at a minimum, additional radios or other hardware that would not be necessary under GEA's proposal. These costs likely would be borne by consumers, disadvantaging those less able to afford the marginal cost.

Moreover, mandatory inclusion of FDAS capability on all appliances sold in CA is not supported by the state of demand response capability from electricity providers. Not all utilities in California have immediate or future plans to offer demand responses programs, and even in those that do, it will likely require many years of work by those utilities to prepare for implementing a DR system. CEC should not force consumers to purchase more expensive appliances when such utilities are not capable of providing the benefit of the DR bargain. Instead, CEC should limit its appliance regulations to only those appliances marketed as FDAS or DR capable.

6. Robust but Flexible Cybersecurity Standards Are Essential

GEA is a leader in connected appliance cybersecurity. Indeed, GEA is the first appliance company to receive a Gold IoT security rating from UL. GEA believes that cybersecurity standards are essential to the success of a flexible demand system in California. Connected device security is essential not just to the functioning of the system but also consumer trust.

CEC should allow reliance on existing product cybersecurity standards that provide robust security, and which are appropriate for each device type and function in the broad flexible demand ecosystem of products it appears CEC envisions. For instance, the NERC Critical Infrastructure Protection Standards referenced in CEC's Introduction to Flexible Demand Standards paper are appropriate for ensuring protection of the electrical grid infrastructure, but not for all devices in the flexible demand ecosystem. And no single standard or set of requirements will be appropriate for the range of involved devices, which will include everything from low-cost sensors to communications hubs to phones, tablets, computers, and voice assistants, to major household appliances and equipment, to electric service provider equipment.

Fortunately, there is broad consensus within the appliance and equipment manufacturer industry regarding a model for effective cybersecurity. GEA supports the proposed cybersecurity language in the AHAM and AHRI comments.

7. Appliance Specific Standards Are Required; Should Be Prioritized Based on Impact

Finally, it is clear from GEA's experience as a contributor to the development of the Energy Star connected product specifications that category specific standards will be needed for each category of home appliance or equipment. Different appliances

have different functions, different risks for consumer dissatisfaction, and different abilities to impact the electricity generation and delivery infrastructure in California. For instance, refrigeration has a critical role in preserving food and protecting human health and its ability to offer precise temperature control is essential. A refrigerator's ability to provide a flexible response to demand signals is significantly different than a dishwasher or clothes washer, and different in other ways to hot water heaters, electric car chargers, and pool pumps. Further, there may be appliance categories that because of consumer usage and utility are inappropriate for inclusion in a flexible demand approach such as, for example, cooking appliances.

While a general flexible demand standard framework is required, CEC should recognize that individual standards are necessary for appliance categories and create a roadmap for development of appliance specific standards over time.

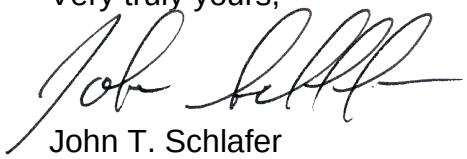
Because a roadmap for appliance specific standards is needed, so is a method to determine which appliances should have the first standards. CEC appears to have already done this work in its "Introduction to Flexible Demand Appliance Standards" document, and GEA believes the list on page 10 of the paper appropriately sets priorities for the first flexible demand standards:

- electric water heaters;
- electric heating, ventilation, and air conditioning;
- pool pumps; and
- electric vehicle service equipment.

These home appliances and equipment consumer more energy than other appliances in the home and are most capable of load shifting without impacting product performance or consumer comfort. Prioritizing these appliance categories for flexible demand standards makes sound policy sense. GEA produces products in the first two categories and looks forward to working with CEC on development of both a general FDAS framework and product specific standards.

GEA appreciates the opportunity to provide these comments. Please do not hesitate to contact me with any questions or concerns.

Very truly yours,



John T. Schlafer