

**DOCKETED**

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**on California Energy Commission's Flexible Demand Appliance  
Rulemaking**

*Additional submitted attachment is included below.*



February 3, 2021

Commissioner J. Andrew McAllister, Ph.D.  
California Energy Commission  
Dockets Office, MS-4  
Re: Docket # 20-FDAS-01  
1516 Ninth Street  
Sacramento, California 95814

**Re: Opening Comments on California Energy Commission’s Flexible Demand Appliance Rulemaking (Docket # 20-FDAS-01)**

Dear Commissioner McAllister and California Energy Commission Staff:

These comments are submitted by the A. O. Smith Corporation (“A. O. Smith”) in response to a staff report introducing flexible demand appliances published by the California Energy Commission (CEC) on December 9, 2020 and the subsequent public hearing. Senate Bill 49 (SB 49, Skinner, Chapter 697, Statutes of 2019) gives CEC the authority to set flexible demand appliance standards and labeling requirements after going through the rulemaking process and meeting the statutory criteria. A. O. Smith’s comments focus on water heaters, both residential and commercial, and their role as flexible demand appliances.

A. O. Smith Corporation, with global headquarters in Milwaukee, Wisconsin, applies technology and energy-efficient solutions to products manufactured and marketed worldwide. Listed on the New York Stock Exchange (NYSE), the company is one of the world’s leading manufacturers of residential and commercial water heating equipment and boilers, as well as a manufacturer of water treatment and air purification products.

**Water Heating as a Flexible Demand Appliance**

Heat pump water heaters and electric water heaters offer a natural ability to provide forms of thermal storage serving as a battery for the grid in both residential and commercial applications. Flexible demand water heaters are conventional electric or heat pump water heaters that have additional controls that simply allow the utility or third-party aggregator to control their energy use during the course of the day. Within a given local territory, a fleet of water heaters can be controlled to be a flexible energy storage system that can adjust the load on the grid. Given that every home in the state has a water heater, smart water heaters can play a key role in load management within the built environment and should be considered by the California Energy Commission in this rulemaking.

Not all heat pump water heaters and electric storage water heaters will be able to provide the same level of load flexibility. It is important that the CEC work with manufacturers to understand the different technologies and applications and take a measured approach when setting any specific requirements that individual water heaters must meet in order to comply with any standards resulting from this rulemaking effort. For example, residential duty cycles look very different than certain commercial duty cycles throughout the 24-hour day and may be able to provide significantly different levels of grid benefits from their load shifting and shedding functionality. The CEC must ensure that the performance of the water heater and its ability to meet the needs of consumers and commercial customers is not compromised, while being used as a grid asset and helping California meet its greenhouse gas policy reduction goals. Since water heating technology and equipment differs in customer design applications, it may be necessary for the CEC to consider product specific specifications. A one-size-fits-all specification across appliance types or even within the water heating industry may not be a feasible way to ensure optimal product performance. In addition, A. O. Smith hopes that the CEC considers simple specifications that allow multiple design pathways for compliance that will not restrict further innovation in the emerging flexible demand market. To this end, A. O. Smith would be happy to work with CEC to identify some of the nuances with differing water heater technologies that may help inform further specifications within the rulemaking.

### **Current Regulatory and Building Code Landscape**

Certain demand response functionality is already regulated for water heaters in the State of Washington (WA) and will soon be regulated in Oregon (OR). The CEC has adopted an alternative compliance method (i.e., Joint Appendix 13) allowing builders to install heat pump water heaters with demand response and time-of-use scheduling functionality as part of the new construction residential building code performance pathway. It is of the utmost importance that states wanting to adopt demand response functionality be aligned so that the technical requirements be fully harmonized allowing manufacturers to offer products that will seamlessly meet regulatory requirements in multiple jurisdictions as well as assist the market for these products in reaching scale without the additional costs associated with maintaining different state-specific models. Manufacturers have spent considerable time and resources over the past year working with a cross-sectional group of stakeholders, including the CEC, to identify specifications for load flexible water heaters. A. O. Smith has invested in bringing new products with additional load flexible functionality to market, including Joint Appendix 13 compliant models for the State of California, and strongly encourages the CEC to leverage established specifications when setting up requirements for water heaters under this rulemaking.

### **Connectivity Pathways**

A. O. Smith strongly recommends that the CEC consider a minimum connectivity that requires a CTA-2045A port and the associated application layer requirements from that standard. CTA-2045 is a standard that governs basic energy management and is used to harmonize hardware and software commands for water heaters. It is currently referenced by the Washington State regulations, the proposed Oregon regulations, the ENERGY STAR Specification that is currently in development, and Joint Appendix 13. The CTA-2045 standard contains basic demand response commands such as shedding load,

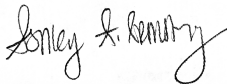
loading up, and grid emergency signals. It is imperative that the CEC lean upon the CTA-2045 standard when developing requirements, both hardware and software, for water heating equipment.

### **Air Conditioning Heating and Refrigeration Institute (AHRI) Standard 1430**

AHRI is in the process of developing a standard for demand response water heaters. While this process is still in the development phase, the committee developing this standard represents a large cross-section of stakeholders including industry, utilities, energy efficiency organizations, governments, and program administrators. One of the primary goals of AHRI Standard 1430 is to provide a singular standard that harmonizes requirements across voluntary programs, regulatory standards, building code compliance pathways, and programmatic rebates, which all slightly vary right now. Harmonized requirements allow manufacturers to reach scale with demand flexible water heaters quicker due to consolidation of models. A. O. Smith strongly urges CEC to consider and cross-reference AHRI 1430, once completed, as its source for defining specifications for load flexible water heaters.

In conclusion, A. O. Smith appreciates the opportunity to provide opening comments to the CEC and supports the efforts to adopt flexible demand requirements for certain water heating equipment as part of this rulemaking effort. While there are many additional details to work out about addressing the specific of such standards, A. O. Smith stands ready to work with the CEC to offer its technical expertise in helping develop meaningful specifications that preserve customer satisfaction and help California further its policy goals. Please do not hesitate to contact us further if you have any questions.

Sincerely,



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