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AHAM Comments on Appliance Efficiency Pre-rulemaking for General Service Lamps (Expanded Scope)

Additional submitted attachment is included below.



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September 14, 2018

Commissioner Andrew McAllister
California Energy Commission
Docket Unit, MS-14
Re: Docket No. 17-AAER-07
1516 Ninth Street
Sacramento, CA 95814-5512

Re: Docket No. 17-AAER-07 – *Appliance Efficiency Pre-rulemaking for General Service Lamps (Expanded Scope)*

Dear Commissioner McAllister:

The Association of Home Appliance Manufacturers (AHAM) would like to comment on the *Appliance Efficiency Pre-rulemaking for General Service Lamps (Expanded Scope)* (Docket 17-AAER-07). AHAM represents manufacturers of major, portable, and floor care home appliances, and suppliers to the industry. AHAM's membership includes over 150 companies throughout the world. In the U.S., AHAM members employ tens of thousands of people and produce more than 95% of the household appliances shipped for sale. The factory shipment value of these products is more than \$30 billion annually. The home appliance industry, through its products and innovation, is essential to U.S. consumer lifestyle, health, safety and convenience. Through its technology, employees and productivity, the industry contributes significantly to U.S. jobs and economic security. Home appliances also are a success story in terms of energy efficiency and environmental protection. New appliances often represent the most effective choice a consumer can make to reduce home energy use and costs.

Current CEC regulations do not properly account for lamps operating in high temperature environments. This is creating problems for appliances such as lighting in new and existing ventilation hoods. Current regulations also create problems for consumers when they need to find a replacement lamp for an oven or dryer. These problems exist because, in short, LED lighting just does not work properly in high temperature settings.

Like all lamps, LEDs convert electrical energy to light, and, like all lamps, this process generates heat. One reason LEDs are more efficient than other bulbs is that LEDs do not generate heat in the form of infrared radiation, but they still produce heat. Unlike other light sources, however, the heat generated by LEDs must be channeled away from the LED into the ambient environment through a heat sink. Without their integrated heatsinks, LED chips, lamps, modules, semiconducting elements and fixtures would have major issues due to high temperature. These heatsinks are designed only to provide heat dissipation for heat generated by the lamp, not for additional heat from the environment.

Heat often has a significant negative effect on the performance and life span of LEDs. In general, LED lamps perform well in temperatures up to between 35 °C and 40 °C. Each 20 °C increase above that temperature will typically drop the life span by 10,000 hours, which is approximately 10 percent of the expected life of LED lamps. Further, as temperatures rise, an LED's lumen output decreases along with

its wavelength output, which affects its color quality. The damage caused to LEDs by excessive heat is permanent and cannot be reversed by moving the LED to a cooler environment.

There are several categories of home appliances that operate in heat capable of damaging LEDs. In these appliances heat is integral to the appliance's function and integrated light sources provide a significant benefit to consumers. Examples of such appliances include ventilation hoods (including those integrated into over-range microwaves), oven lights, and dryers. An option such as R20 bulbs would not work in most applications in appliances because they are too big. Space is needed to allow heat sinks especially when those heat sinks need to be large. In ventilation hoods the whole hood environment is elevated in temperature so it complicates matters.

The CEC's rationale behind encouraging the use of LED lamps is to save energy and increase efficiency. Forcing the use of LEDs in high temperature applications completely undercuts this goal. Because LED lamps in high-temperature environments do not last as long as CEC expects, CEC's calculated energy savings are not accurate. Further, CEC's energy standards should increase energy efficiency without substantially reducing the quality and function of products available for consumers. Forcing the use of LEDs in appliances with high-heat applications will certainly do just this. There are currently three separate standards on GSL, SDDL and LED. The latter two do not include clauses for appliance lamp exclusion. All three standards should include an exclusion for appliance lamps, especially appliances with high temperature applications.

In addition to the practical concerns of CEC's policies furthering their stated goals and the need to ensure standards do not unreasonably reduce function, CEC's failure to include an exclusion for appliance lamps in the SDDL and LED standards creates a legal issue. Energy standards for many home appliances are set by the U.S. Department of Energy and further regulation of energy standards for appliances is preempted under 42 U.S.C. § 6297. In order to avoid this issue, like the GSL standard, the SDDL and LED standards should include an exclusion for appliance lamps.

AHAM appreciates the opportunity to comment on this pre-rulemaking proceeding. We understand and appreciate CEC's stated commitment and willingness to address this matter and look forward to continuing to work with CEC to resolve it.

Sincerely,



Kevin Messner
Senior Vice President, Policy & Government Relations