



September 14, 2018

Online via: <http://www.energy.ca.gov/appliances/2017-AAER-06-13/17-AAER-12.html>

Ms. Soheila Pasha
California Energy Commission
Docket Unit, MS-4
Re: Docket No. 17-AAER-12
1516 Ninth Street
Sacramento, CA 95814-5512

Joint Trade Association Comments on CEC Title 20 Phase 2 Pre-Rulemaking Low Power Mode & Power Factor 17-AAER-12

Dear Ms. Pasha,

We the Joint Commenters, as identified at the end of this document, provide the following responses with respect to the CEC's request for public comments regarding Title 20 Pre-Rulemaking Documents for Low Power Mode and Power Factor. These comments are submitted on behalf of our Member companies.

1. Liability: Delays on startup when coming from a reduced power mode are not uncommon in connected/connectable devices. Many devices potentially in the scope of this proposed rulemaking could provide or participate in functions relating to safety and security sensing, including, but not limited to: smoke and fire detection, carbon monoxide detection, video surveillance systems, alarm systems, temperature control, infant monitoring and alarm systems, and home appliances that consumers depend on for air quality, food safety and home cleanliness. Many of these are real time, continuously functioning devices whose intended use does not allow for cessation of network, or entering low power mode with limited functionality. The CEC's emerging, but poorly defined, potential scope of covered products for this rulemaking does not exclude these devices. Placing these devices into limited power modes or limited operating modes may not allow the devices to deliver the intended use by the consumer in a timely manner, or at all. Requiring specific low power mode functionality may cause unintended consequences through inaction of the device or its network.

Discussions of potential consumer hazards relating to "Connected Devices" or "IoT" have only just begun in the CPSC. While the discussion in CPSC is currently focused on active mode operation injuries, future considerations will include IoT taking too long to recover from a sleep or low power mode, or other failures as a result of taking too long to recover from the modes proposed in this proposed CEC rulemaking. Because network functionality is of a customized and variable content depending on on-the-spot application, a device that is part of a network but restricted in its timely function due to CEC requirements could pose a risk to consumer safety. Has the CEC considered the legal implications of mandatory low-power functions (or lack of or delayed of functions)?



The issue of liability and safety must be addressed before mandatory requirements are placed on industry and on consumers.

2. IEC Standards: The subject of low power and standby mode power consumption of connected equipment is being addressed in the IEC¹, as evidenced by CEC's heavy reliance on IEC Standard 62301 in the draft test procedure, the subject of this comment period. We believe the IEC is the best body to address these deeply technical topics and to develop robust, carefully written test procedures to ensure that products in scope are not unfairly disadvantaged or hampered in terms of availability and innovation. We agree the CEC should encourage this work, and could even become party to the IEC's working groups, but we disagree that CEC is the best place to address this subject broadly.

Our comments and concerns that follow are intended to illustrate the depth and breadth of our concerns, and they are not intended to recommend or encourage a path towards revising the current draft into a Title 20 regulatory requirement. Rather, we espouse a completely different approach and justify it in our comments below.

3. Scope: As written, the draft test procedure and the regulatory language that would evolve from it are much too broadly worded. The broad scope in the current draft would not only be difficult to interpret, comply with, and enforce, it would also run afoul of Federal preemption. Any definition of scope must account for Federal preemption and include a clear exemption for categories of Federally regulated products. Additionally, the energy savings and cost-benefit calculations required by the Warren-Alquist Act would be nearly impossible to satisfy without a very clear scope.
4. Testing: The draft test procedure seeks to employ a one-size-fits-all approach for the myriad equipment types and sectors it might apply to. We understand the desire for simplicity, and the lack of broad selection of references on this topic to build on, but we do not believe a single approach will suffice. We have had numerous technical calls with our Members and have not been able to identify sufficient commonalities to support a single test procedure. As the CEC has noted in past proceedings, one challenge with a one-size-fits-all requirement is that sector- or product-specific needs result in long lists of exemptions to mitigate unintended consequences. Such exemptions can then contribute to unclear requirements, enforcement challenges and reduced compliance success. The scope of this proposal is broader than the extent that available test procedures and experience allow, which would result in some kind of limited, iterative approach. The focus of the draft materials on Small Network Equipment (SNE) and Edge Devices implies that these are the only equipment types that will be addressed in this iteration. If

¹ Currently IEC 62301, "Household electrical appliances - Measurement of standby power", and draft IEC 63103, "Lighting equipment - Non-active mode power measurement"



this assessment is correct, it must be publicly clarified for the benefit of all parties involved.

5. Exemptions: Any standard for standby and low power modes should exempt certain equipment from being required to enter into power modes that limit its capability. Some examples (not all inclusive) include: security systems, emergency lighting systems, emergency exit systems, video surveillance systems, access egress control systems, home appliances that consumers depend on for air quality, food safety and home cleanliness, and so forth.
6. Definitions: The CEC must clearly define both scope and the types of product it intends to examine and eventually regulate. There are several international versions of definitions for the products and power states discussed in the pre-rulemaking solicitation. If the CEC pursues SNE and edge devices, then they need to be clearly defined. The CEC's proposal references the IEA 4E Standby Annex paper, which describes these products, but never defines them. We suggest the following definitions, adapted from said paper:

Small Network Equipment (SNE) means household devices that have as their primary function the provision of the network itself. Common examples of SNEs include network routers, switches, modems, network access points, and IoT hubs/gateways.

Edge Devices means household devices that utilize two-way communication with SNE to perform its functions, but that do not provision the network itself. Battery-powered devices are not Edge Devices.

Furthermore, the CEC should define the following overarching terms as they apply to the aforementioned scope of products: Standby, Non-Active, No-Load, Off-Mode and Off-State. Devices which rely on sensors of some kind can never be truly off, and neither can their sensors.

It is also important to note that IEC has purposefully separated standby and network modes recognizing the innovations in connected products and keeping in mind that acceptable definitions for one product category might have a very different meaning and impact to other product categories.

7. Applicability/Accuracy of existing references: We contend that sufficient references for the CEC to build on, such as IEC standard 62301, are not ready to be used in the manner intended by CEC. For example, IEC 62301 and similar approaches make the mistake of treating connected products like compute devices. Many/most connected products are not compute devices, and so should have different definitions for their modes of operation. This approach is likely a vestige of having first begun as stand-alone devices with local power management situations, and not as connected products. The title of IEC 62301, "Household Electrical Appliances" was clearly meant to address only a certain subset of standalone devices when first written. Many of the devices the CEC will be addressing are only intended to operate in the connected environment. They have completely different needs and situations as compared to standalone devices.

8. Applications and Uses: Building on the preceding comment, our concern with the scope of the proposed test procedure (and resulting regulation) is that the intended application and use of the device are not described as criteria for the determination of power consumption or standby power in that device. The addition of edge capabilities to appliances provides owners/operators with better visibility of the operation and utilization of these devices and appliances. In many cases; connected devices are intended to operate 24/7, as are the networks they connect to. The descriptions and definitions provided in the CEC's solicitation suffer from having been lifted from references that apply to compute devices (i.e. computers or other data manipulation devices). Most of the network and edge devices that might be in scope are not compute devices, and as such their function is sufficiently different from the original devices that their definitions do not transfer over well. While some computation might take place in SNE and Edge Devices, they are supportive rather than part of the primary function or intended use of the device. In many cases devices operating 24/7 will have no on/off button, or specific off-State and will never enter a no-load state, which is the domain of power systems. These challenges with definitions applicability indicate that the CEC must invest more time in understanding the technical and market transitions that are occurring. Poorly scoped and defined regulations will inhibit the marketplace rather than allow it to grow and provide the features, functionality, and energy saving intended and envisioned. We note that all documentation provided by the commission to date does not provide any indication or justification that the amount of energy consumed by SNE/Edge Devices is excessive. Instead, the evidenced opinion of the commission is that these devices require some kind of regulation, without providing underlying justification that the regulation is supported by economic fact and data.
9. Systems Level Savings and Performance: the draft documents do not adequately account for system needs, and focus on a single device in application. This device-specific approach is necessary for regulation under the Title 20 process, but it ignores the attributes and needs of the system along with its benefits. This myopic approach risks severe limitations of system performance by constraining its nodes and end-use devices. We propose focusing the objective of this draft on the Power Supply function (PS in the IEC document) and exempting the control unit (CU) or Additional Function (AF) elements related to the actual communication (radios, beacons, etc.) and energy savings functions (occupancy sensors, thermostats, etc.) that comprise each mode (note that the lighting is already covered by existing requirements). Practically, two means are needed for this separation: (a) allowing the programming of the device to disable all non-PS related functions (careful description is needed to ensure that the testing agency has access to the means to accomplish this), (b) providing an alternate allowance for devices that do not have separable functions.

For a hypothetical example to expand on multi-function devices, consider one room of a building where because of the expected occupancy type/configuration (semi-private offices with high partitions, etc.) eight limited-function discrete sensors might be required to detect motion, while in another room of the same building one occupancy sensor with advanced detection can cover the same square-footage. Both of these use cases are valid and necessary to provide the necessary amount of light in an energy-efficient



manner. Logically the single advanced detection sensor will not require more power than the sum of the limited-function sensors.

This presents a paradox when attempting to limit the power from individual devices: if a level is set too low, then the more energy-efficient (and cost-effective) advanced sensors will be disallowed in the market, but if the level is set too high, then the objective of limiting the aggregate power consumption of the limited-function sensors will not be met. A system-approach can accommodate the needs of the system and balance the power consumption of the sensors used. The challenge in this example is that the system design and installation will dictate the bounds of the energy consumption of the connected components rather than a device-level limit. This pushes management and regulation of the devices into the Building Energy Efficiency regulatory process (e.g. Title 24) rather than a point-of-sale regulation like Title 20.

10. It is our shared hope that the above comments illustrate the depth of the issues at hand. The CEC needs to continue a careful approach that encourages and uses the development of robust standards in the appropriate international bodies, rather than establishing California-unique and conflicting references that could cause conflicting standards. All our Members and organizations will continue to work internally, internationally and with regional bodies like the CEC to ensure reliable, useful performance of connected products in the emerging Internet of Things world.
11. Our Associations will respond to the numbered technical questions asked by CEC in separate individual correspondence.



The Joint Commenters:

The National Electrical Manufacturers Association represents nearly 350 electrical equipment and medical imaging manufacturers that make safe, reliable, and efficient products and systems. Our combined industries account for 360,000 American jobs in more than 7,000 facilities covering every state. Our industry produces \$106 billion shipments of electrical equipment and medical imaging technologies per year with \$36 billion exports. Please find our detailed comments attached.

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.

A handwritten signature in blue ink that reads "Philip A. Squair". The signature is written in a cursive, flowing style.

Philip Squair
Vice President, Government Relations
NEMA

A handwritten signature in blue ink that reads "Kevin Messner". The signature is written in a cursive, flowing style.

Kevin Messner
Sr. VP, Policy & Government Relations
AHAM