

DOCKETED

Docket Number:	19-OIR-01
Project Title:	Load Management Rulemaking
TN #:	231729
Document Title:	AHRI Comments to California Energy Commission's Load Management Standards Proceeding
Description:	N/A
Filer:	System
Organization:	Air-conditioning, Heating, and Refrigeration Institute
Submitter Role:	Public
Submission Date:	1/24/2020 4:18:17 PM
Docketed Date:	1/24/2020

*Comment Received From: Air-conditioning, Heating, and Refrigeration Institute
Submitted On: 1/24/2020
Docket Number: 19-OIR-01*

AHRI Comments to California Energy Commission's Load Management Standards Proceeding

Additional submitted attachment is included below.

January 24, 2020

Commissioner Andrew McAllister
California Energy Commission
Docket Unit, MS-4
Re: Docket No. 19-OIR-01
1516 Ninth Street
Sacramento, CA 95814-5512
(submitted electronically to Docket 19-OIR-01)

Re: AHRI Comments to California Energy Commission's Load Management Standards Proceeding [*Docket Number 19-OIR-01*]

Dear Commissioner McAllister:

These comments are submitted in response to the California Energy Commission (CEC) January 14, 2020 stakeholder meeting on the scope of the 2020 Load Management Standards Proceeding and the CEC draft Load Management Rulemaking Scoping Memo.

AHRI represents over 315 air-conditioning, heating, and refrigeration equipment manufacturers. In North America, the annual output of the HVACR and water heating industry is worth more than \$44 billion. In the United States, the industry supports 1.3 million jobs and \$256 billion in economic activity annually. AHRI member's products are installed in every residential and nonresidential building in California. AHRI's members are continuously working to review and design new higher efficiency equipment that improves consumer comfort, without compromising consumer choice, product quality, or safety. In fact, AHRI members offer the most technologically advanced and efficient HVACR and water heating equipment available anywhere in the world. AHRI and its members support the reduction of greenhouse gas (GHG) emissions and will continue to collaborate with stakeholders to work toward that goal.

AHRI appreciates CEC's work on the scoping memo to date and on the presentations made on January 14, 2020. The memo presents adequate background on the legislated mandates¹ directing CEC to investigate and pursue opportunities for reducing GHGs through demand flexibility in buildings, appliances, and water pumping;

¹ Assembly Bill 3232, Friedman. Zero-emissions buildings and sources of heat energy., Chapter 373, Statutes of 2018 and Senate Bill 49, Skinner, Chapter 697, Statutes of 2019

however, we have several important comments for consideration to improve the Scope of the Load Management Rulemaking and resulting measures.

Concrete water heater proposals have not been made

At the stakeholder meeting, several panelists presented research and case studies on connected water heaters; however, no proposals have been made for consideration. Water heaters were directly identified as a product to be considered for amendments to the existing load management strategies, and these proposals must be made public for review.

Indeed, as the second round of utility-sponsored stakeholder meetings is about to commence, and the California Statewide Codes and Standards Enhancement (CASE) Team acknowledges that heat pump water heater (HPWH) load shifting measure is intended to build on work that is currently in process under the 2019 Title 24, Part 6 code development. The CASE Team notes that this work is not finalized, and the exact scope and direction of the 2022 effort is not fully defined. It notes that the scope could include review and modifications to the current draft JA13 Appendix (Qualification Requirements for Heat Pump Water Heater Demand Management Systems) and potential modification of the HPWH load shift modeling algorithm in the compliance software. AHRI has not located any draft of JA13 published by either CEC or the CASE team.

In a letter dated April 26, 2019, responding to the 2019 proceedings of Title 24, the Natural Resources Defense Council submitted Draft Joint Appendix 13 Qualification Requirements for Heat Pump Water Heater Demand Management System, outlining a compliance option and credit for heat pump hot water heaters. Many heat pump hot water heater manufacturers participated in drafting the proposal. AHRI is generally supportive; however, we have several important comments to improve the safe application of the compliance option. If CEC intends to adopt JA-13 proposed by NRDC, stakeholders need to see CEC-vetted draft language and technical support documents. We request that the CEC unambiguously clarify its intent and define its proposal regarding load shifting for heat pump water heaters.

Clarification on AHRI Standard 1380

During Tony Koch's, Bonneville Power Association, presentation of the flexible demand water heater pilot, he erroneously stated that OpenADR was misapplied in AHRI Standard 1380-2019, Demand Response through Variable Capacity HVAC Residential and Small Commercial Applications. We are commenting to correct the record. AHRI Standard 1380 fully supports the correct application of both OpenADR and CTA-2045 communication protocols for demand management of residential HVAC systems. The standard does not seek to limit either manufacturers or utilities from choosing the optimal protocol for their needs, while supporting competition and innovation. To comply with the standard, manufacturers' descriptive and technical literature for DR-ready HVAC System are required to reference Standard 1380 and designate which DR communication protocol(s) the system is capable of supporting. Further, while conformance with this

standard is voluntary, conformance cannot be claimed or implied for products or equipment within the standard's purpose and scope unless such product claims meet all of the requirements of the standard, and all of the testing and rating requirements are measured and reported in full compliance with the standard. AHRI 1380 is explicit: any product that has not met all the requirements of the standard shall not reference, state, or acknowledge the standard in any written, oral, or electronic communication. This means that products claiming compliance with 1380 using OpenADR, will be able to be used in utility programs employing OpenADR, as intended.

Questions for Stakeholders

In the scoping memo, CEC ask for recommended additions or modifications to this draft scope. AHRI suggests that here, and in Title 24-2022 proceedings, CEC should make proposals more suitable to nonresidential buildings.

Responding to the California Statewide Codes and Standards Enhancement (CASE) Team's Stakeholder Meeting on Title 24-2022 Grid Integration Topics held on September 10, 2019, AHRI questioned several aspects to the nonresidential building load management proposals. Specifically, the proposal lacked technical justification and supporting research for the proposal for direct compressor control for commercial central air conditioners. AHRI opposed this proposal. This load management scoping document, and the presentations made on January 14, 2020, did not adequately cover nonresidential buildings.

In comments dated September 24, 2019, submitted to the CASE team, AHRI noted that a new demand response control strategy was implemented in the 2019 edition of Title 24. This measure was implemented at the zone-level by requiring the temperature setpoint to adjust by four degrees Fahrenheit in non-critical zones whenever a demand response signal is received. The 2022 non-residential measure proposed to add variable speed compressor control functional testing to the automated demand shed controls acceptance test procedure under NA 7.5.10. While an alternative strategy, the proposal sought to add an option for direct control of variable speed compressors. AHRI expressed concern with this proposal.

We noted that introducing direct control of the compressor will likely void the manufacturer's warranty and void UL safety approvals. Interfering with the internal operation of a commercial central air conditioner may override safeties and controls, such as oil return management, refrigerant management, and operation limits like high discharge gas temperature control. AHRI suggested the CASE Team consider the implication of such a proposal with new, mildly-flammable refrigerants entering the market as this could impact the safety of the system. Any demand control strategy needs to be implemented and maintained at the HVAC-unit through the thermostat or specific control interface points defined by the manufactures or building level to avoid significant, and potential unintended consequences.

This CASE proposal was also vague in that “programmed percentages” were not proposed in the “Functional Test for Refrigerant Compressor Capacity Limit Adjustments” section, under “Step 1. (a).” AHRI seeks clarification on whether the CASE team intended to propose levels for “programmed percentages,” and, if so, what levels.

For the purposes of this rulemaking, nonresidential proposals should be made clear, supported by research, and presented to the public. Many commercial buildings have central controllers that provide the interface between the building system and the utility demand limiting signals. As most of the HVAC equipment is multiple stage, these building manage load smartly through both hardwired and communicating interfaces. For example, in most HVAC equipment there are redline and load limit options. The redline is a load not to exceed and a load limit is a percentage of full load operation. Also, there are several approaches that use the building mass for load management, such as pre-cooling. CEC should evaluate current load management requirements in nonresidential buildings and make separate proposals for this category.

In the scoping memo, CEC also asks what economic impacts should be considered. AHRI notes one of CEC’s mandates is to investigate the impact of proposals on low income housing. AHRI urges CEC to quantify all current DR programs and pilots and evaluate economic impact on consumers and energy savings for utilities. AHRI has expressed concern in other rulemakings that high upfront costs can trigger fuel-switching. Upgrades to electrical panels may be a significant contributing factor to low income residents being able to comply with heat pump water heater requirements if not properly supported by necessary compliance credits. As has also been noted when responding to other rulemakings, consumers are impacted by a shortage of skilled tradespeople capable of effectively installing or maintaining these products. As such, consumers can be adversely impacted by higher costs or longer lead time projects. To support provision from AB 32, “the state board shall evaluate the total potential costs and total potential economic and noneconomic benefits of the plan for reducing greenhouse gases to California’s economy, environment, and public health, using the best available economic models, emission estimation techniques, and other scientific methods.” Economic evaluations need to be included in the memo and should be made available to stakeholders for review and comment. Indeed, all aspects of conversion from gas-fired water heaters to electric heat pump options should be covered in CEC’s analysis and presented to the public for review.

AHRI has general concerns about the availability of the data used to support the proposals. Consumer research is vital to the quality of CEC’s proposals. Market penetration is vital to the success of any DR program. Noel Crisostomo’s presentation on electric vehicles raises red flags regarding consumer buy-in. When NREL staff were asked to participate in a data-collection exercise that would drive better load management, less than half of the staff participated. Moreover, the participating staff members demonstrated “range anxiety” by overestimating their demand for electric charge. NREL staff are more sophisticated and better informed about load management and electricity use than the average consumer. The results of the NREL study raise significant concerns about consumer buy-in that is necessary for demand response and

load management programs to success. AHRI encourages CEC to carefully evaluate the data and real-world penetration that such programs will have when assessing the economic impact on consumers, manufacturers and utilities.

AHRI appreciates the opportunity to provide these comments. If you have any questions regarding this submission, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'LPG', written in a cursive style.

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