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AHRI Comments to California Energy Commissionâ€™s Building Decarbonization Assessment 2-27 FSSAT Staff Workshop

Additional submitted attachment is included below.

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March 13, 2020

Mr. Heriberto Rosales
Mr. Nicholas Janusch
California Energy Commission
Docket Unit, MS-4
Re: Docket No. 19-DECARB-01
1516 Ninth Street
Sacramento, CA 95814-5512
(submitted electronically to Docket 19-DECARB-01)

Re: AHRI Comments to California Energy Commission's Building Decarbonization Assessment February 27, 2020, Staff Workshop on the Fuel Substitution Scenario Analysis Tool *[Docket Number 19-DECARB-01]*

Dear Messrs. Rosales and Janusch:

These comments are submitted in response to the California Energy Commission (CEC) January 27, 2020, stakeholder meeting on the Building Decarbonization Assessment Project on the Fuel Substitution Scenario Analysis Tool (FSSAT).

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 appreciates the work done to develop a tool intended to calculate and provide outputs for fuel substitution scenarios; however, we have several important comments for consideration to improve the FSSAT and resulting measures.

CEC Should Share its R Source Code with the Public.

AHRI appreciates CEC's use of the R programming language in its Fuel Substitution Scenario Analysis Tool (FSSAT) tool. R is a powerful and flexible language that will enhance CEC's regulatory efforts. AHRI urges CEC to make the R source code used in the FSSAT public. As noted by Lessig (1999)[1], social systems are regulated by four forces: market, law, social norms, and code. Code has the potential to negatively

[1] Lessig, L. *Code and Other Laws of Cyberspace*. New York: Basic Books, 1999.

affect consumers and business if not properly used. In the case of CEC's FSSAT, the code used to build the tool deserves scrutiny from stakeholders to ensure its robustness and success.

While quantitative methods and modeling provide a veneer of objectivity, working with data and writing code to manipulate that data is still subjective[2]. AHRI encourages CEC to share the code used in its tool to allow public comment and review of the methods used. This will help CEC ensure that:

1. The code does not discriminate against any population affected by future regulation;
2. CEC's entire analysis has been properly vetted by all stakeholders in the regulatory process; and
3. State of the art techniques can be identified and implemented in the tool.

Sharing the R source code will also help to answer questions surrounding the underlying probability distributions, libraries used, and variable assignment in the FSSAT tool.

Fuel switching draft report and FSSAT should be made available for public review

Prior to the planned Commissioner Workshop on Draft Building Decarbonization Assessment (Assessment), AHRI urges CEC staff to make the FSSAT and fuel switching draft report available to the public. Public input is necessary to evaluate the baseline, assumptions, and calculation methodology for emissions. This is a critical aspect to building decarbonization and stakeholders need a chance to review and comment on this aspect prior to finalization of the Building Decarbonization Assessment.

Upon making the model public, AHRI urges CEC to answer several key questions regarding the analysis:

- Where can stakeholders find the assumptions and model for the renewable portfolio standard?
- Does the Assessment consider emissions that cannot be reduced like the projected increase in demand for natural gas?
- What time series analysis will CEC use for forecasting?
    - How will it account for lag between years?
- What sort of optimization parameters will drive policies that target emission reduction opportunities?

Stakeholders should be given the opportunity to review and comment on the model after the key questions, above, are answered by the CEC staff.

[2] Danah Boyd & Kate Crawford (2012) CRITICAL QUESTIONS FOR BIG DATA, Information, Communication & Society, 15:5, 662-679. Accessed from: http://dx.doi.org/ 10.1080/1369118X.2012.678878

CPUC's Proposed Building Decarbonization Pilot Program

As referenced in the CEC workshop announcement, SB 1477 (Stern, Chapter 378, Statutes of 2018) directed the California Public Utilities Commission (CPUC) to establish programs incentivizing the installation of low or zero GHG appliances in homes. Indeed, on February 12, 2020, CPUC issued a proposed decision establishing two building decarbonization pilot programs – the Building Initiative for Low-Emissions Development (BUILD) program and the Technology and Equipment for Clean Heating (TECH) initiative pursuant to Senate Bill (SB) 1477 (Stern, 2018). While AHRI is generally supportive of incentive programs for HVACR and water heating equipment, CPUC's proposals may be premature. For industry to meet the shared goal of compliance of a 750 GWP limit on stationary air-conditioning equipment (excluding chillers) by 2023, and to ensure a safe and orderly transition to low-GWP refrigerants, the building codes in California must adopt consensus safety standards – UL 60335-2-40 Edition 3 and ASHRAE 15 (2019 Edition) – that enable the use of the new low-GWP refrigerants. These code modifications must be made far enough in advance that manufacturers, which work with a three- to five-year design cycle, have the certainty necessary to design and produce compliant equipment. AHRI's comments to CPUC are attached as Exhibit-1.

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

Sincerely,

Laura Petrillo-Groh, PE
Senior Regulatory Advisor, Cooling Technology
Direct: (703) 600-0335
Email: LPetrillo-Groh@ahrinet.org

Exhibit:

1. AHRI Comments to CPUC's Proposed Decision Establishing Building Decarbonization Pilot Program (R.19-01-011) dated March 3, 2020

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Exhibit 1

March 3, 2020

Commissioner Liane Randolph
California Public Utilities Commission (CPUC)
505 Van Ness Avenue, Room 2000
San Francisco, CA 94102
(Submitted via Docket R.19-01-011)

Re: AHRI Comments to CPUC's Proposed Decision Establishing Building Decarbonization Pilot Program (R.19-01-011)

Dear Commissioner Randolph,

On February 12, 2020, the California Public Utilities Commission (CPUC) issued a proposed decision establishing two building decarbonization pilot programs – the Building Initiative for Low-Emissions Development (BUILD Program) program and the Technology and Equipment for Clean Heating (TECH Initiative) initiative pursuant to Senate Bill (SB) 1477 (Stern, 2018).

AHRI represents over 300 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.

For more than a decade, AHRI has been working around the world to support regulations to reduce consumption and production of hydrofluorocarbons (HFCs). Industry would prefer to see a federal initiative address low global warming potential (GWP) refrigerants. AHRI will continue to provide technical expertise and practical solutions to states that have announced an intent to regulate HFCs, in an effort to ensure that laws and regulations are implemented consistently across jurisdictions.

With the passage of Senate Bill 1013 – the California Cooling Act – in 2018, the California Legislature directed the California Air Resources Board (CARB) to promulgate regulations to phase down the use of HFCs for specific end uses and achieve a goal previously mandated by the Legislature of a 40 percent reduction in HFC emissions from 2013 levels by 2030. In CARB's October 2017 stakeholder meeting, the agency proposed a transition date of 2021 for air conditioning (AC) equipment.[1] In response to that

[1] PUBLIC WORKSHOP ON RULEMAKING PROPOSAL: HIGH-GLOBAL WARMING POTENTIAL REFRIGERANT EMISSIONS REDUCTIONS California Air Resources Board October 24, 2017 Sacramento (slide 31)
"Stationary Air-Conditioning Measures In 2021: Refrigerants with a GWP of 750 or greater prohibited in new air-conditioning systems containing 2 or more pounds of refrigerant."
https://ww3.arb.ca.gov/cc/shortlived/meetings/10242017/public_workshop_snap-california_10-24-17_presentation.pdf?_ga=2.167905505.196109006.1571070312-276427812.1565094831

proposal, AHRI, the Natural Resources Defense Council (NRDC), along with several manufacturers, sent a letter to CARB proposing the agency align the transition to low GWP refrigerants for stationary air conditioning equipment with new energy efficiency requirements developed by the U.S. Department of Energy that will be effective January 1, 2023.

For industry to meet the shared goal of compliance by 2023, and to ensure a safe and orderly transition to low-GWP refrigerants, the building codes in California must adopt consensus safety standards that enable the use of the new low-GWP refrigerants. These code modifications must be made far enough in advance that manufacturers, which work with a three- to five-year design cycle, have the certainty necessary to design and produce compliant equipment.

The consensus safety standards that need to be adopted into code are:

- UL 60335-2-40 Edition 3
- ASHRAE 15 (2019 Edition)

Status of Necessary Modifications to the California Building Codes

The HVACR industry is in a challenging situation in the State of California. At the end of September 2019, the International Association of Plumbing and Mechanical Officials (IAPMO) declined to update the Uniform Mechanical Code (UMC) to enable the use of low GWP refrigerants by adopting the necessary safety standards – UL 60335-2-40 Edition 3 and ASHRAE 15 (2018 Edition). California traditionally utilizes the UMC as its model code, adopting the latest version of the UMC on a three-year cycle and then making modifications as needed.

While industry strongly advocated for the UMC to be updated to include the relevant safety standards during this cycle, ultimately, the modifications did not receive the necessary votes. Since the UMC, California's model code, will not contain the critical safety standards, it is imperative that the code modifications be made through an alternative pathway by the end of 2020 for manufacturers to meet a January 1, 2023 transition date.

The 2022 CBSC code cycle, the next available pathway for the industry to ensure safety standard adoption, will not be effective until January 1, 2023. These delays mean that the earliest new building codes available for review by manufacturers will be January/February 2022. With the design changes necessary to transition to low-GWP refrigerants, January/February 2022 is too late for the HVACR industry to prepare. Code-compliant equipment must be designed, tested, certified, and shipped to fill the supply chain, including California warehouses, prior to any regulatory compliance deadline. One year is simply not enough time to ensure compliance.

CalFIRE has convened a working group to discuss the safety standards and the changes needed to the building codes to enable the use of low-GWP refrigerants. The

first meeting was held in January 2019, and the second meeting is scheduled for March 16, 2020. Unless this process can be completed prior to the CARB Board meeting in July 2020 and be concluded with a commitment by California to adopt the safety standards needed to allow manufacturers to proceed with a design process, it is unlikely that manufacturers would be able to comply with the January 1, 2023 transition deadline.

Industry Recommendations Regarding CPUC Building Decarbonization Pilot Programs

AHRI is concerned that the Staff Proposal for the BUILD Program, specifically the "kicker incentive" for technologies using low-Global Warming Potential (GWP) refrigerants, is premature. Large-scale transitions are unlikely to occur due to the status of the California building codes as each project will require the approval of an Authority Having Jurisdiction (AHJ).

Currently, refrigerants used in the space and water heating appliances of building projects funded by the BUILD Program or incentivized by the TECH Initiative would not be available below the 750 GWP threshold except as approved by AHJs, and there would be very few projects that will be eligible for incentives prior to building codes adopting the relevant safety standards. Rather than incentivizing specific projects AHRI would appreciate support of the CPUC to update the building codes to enable the use of lower-GWP refrigerants so that these projects would be eligible for incentives.

AHRI also suggests CPUC support the transition by offering training or engaging with relevant stakeholders. AHRI would welcome a conversation with CPUC regarding options and opportunities. We appreciate the opportunity to provide these comments and look forward to further engagement with CPUC to provide any additional information or clarification of the above proposals. Should you be available for a discussion, please contact me and Helen Walter-Terrinoni, hwalter-terrinoni@ahrinet.org.

Respectfully,

Laura Petrillo-Groh, PE
Senior Regulatory Advisor, Cooling Technology
Direct: (703) 600-0335
Email: LPetrillo-Groh@ahrinet.org

cc:
H. Walter-Terrinoni, AHRI