AIR-CONDITIONING, HEATING, & REFRIGERATION INSTITUTE
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July 30, 2020

Elizabeth Scheele
California Air Resources Board
1001 I Street, Sacramento, CA 95814
P.O. Box 2815, Sacramento, CA 95812

Re: AHRI Comments Regarding California Air Resources Board Draft Proposed Regulation*: Prohibitions on Use of Certain Hydrofluorocarbons in Stationary Refrigeration, Stationary Air-conditioning, and Other End Uses*

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Dear Ms. Scheele,

On behalf of the Air-Conditioning, Heating and Refrigeration Institute (AHRI) I respectfully submit the following proposal in response to California Air Resources Board (CARB) Draft Proposed *Regulation: Prohibitions on Use of Certain Hydrofluorocarbons in Stationary Refrigeration, Stationary Air-conditioning, and Other End Uses.*

AHRI is the trade association representing manufacturers of heating, cooling, water heating, and commercial refrigeration equipment. More than 300 members strong, AHRI is an advocate for the industry and develops standards for and certifies the performance of many of the products manufactured by our members. 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 worked to support regulations to reduce the consumption and production of hydrofluorocarbons (HFCs). Our members strongly supported the agreement to amend the Montreal Protocol on Substances that Deplete the Ozone Layer to phase down HFC production and consumption as a proven, predictable, and practical approach to a transition away from refrigerants with high global warming potential (GWP). We have worked cooperatively with state regulators and environmental non-governmental organizations (E-NGOs) in an attempt to harmonize regulations, and we are working closely with both foreign and domestic governments to prepare and successfully execute the safe and orderly transition to low-GWP refrigerants.

We thank the CARB technical staff for working with AHRI and for addressing many of our concerns during the rule-making process.

The California state legislature mandated a reduction of emissions of hydrofluorocarbons by 40% by 2030 compared to 2013 through Senate Bill (SB) 1383 signed into law in September 2016. Although the California state legislature mandated specific HFC transitions (SB-1013 enacted in 2018), those provisions were insufficient to reach this ambitious goal, which requires a transition faster than the timeline included in the Kigali HFC Amendment to the Montreal Protocol. As a result, CARB has included a provision in the draft regulation (July 22, 2020) limiting the use of air conditioning refrigerants having a global warming potential of 750 or greater on January 1, 2023.[1]

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[1] Proposed Regulation Order Prohibitions on Use of Certain Hydrofluorocarbons in Stationary Refrigeration, Stationary Air-conditioning, and other end uses https://ww2.arb.ca.gov/sites/default/files/2020-07/DRAFT%20CA%20SNAP%20Amendments-Reg%20Text.pdf

*"Air-conditioning (new) equipment, residential and nonresidential Refrigerants with a GWP of 750 or greater Prohibited as of January 1, 2023"*

In 2018, AHRI and the Natural Resources Defense Council (NRDC), along with several individual companies, requested CARB to adopt a January 1, 2023 transition date in response to CARB's 2017[2] workshop proposing a transition date of January 1, 2021. The January 1, 2023 date was proposed to align with the date of a Department of Energy (DOE) efficiency standards change which mandated a transition in the same timeframe to enable manufacturers to make a single transition.

This transition will require the use of refrigerants with a different flammability classification than the incumbent refrigerant (R-410A). Although the suitable alternatives are considered as having lower flammability (Class A2L) according to the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE),[3] a modification to the building codes is required to enable the use of these alternatives. Code modifications must be made far enough in advance that manufacturers, who 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:

- Underwriters Laboratories (UL) 60335-2-40, which is a product listing standard
- ASHRAE 15, which describes installation requirements for equipment
- ASHRAE 15.2 (proposed), which extracts the residential installation requirements from ASHRAE 15.

It is important to note that industry's proffer of a 2023 transition date was premised on the expectation that safety standards and building codes would be timely, and orderly, updated to reflect changing technology. That did not occur.

**The building codes do not yet enable the use of low GWP refrigerants.**

The air conditioning industry is now in a challenging situation in the State of California. In 2019, the Uniform Mechanical Code (UMC) was not updated through the International Association of Plumbing and Mechanical Officials (IAPMO) process to enable the use of low GWP refrigerants by adopting the necessary safety standards. California traditionally adopts the UMC on a three-year cycle and then makes modifications as needed. Although AHRI strongly advocated for the UMC to be updated to include the relevant safety standards during this cycle, the modifications did not receive the necessary votes in favor of the proposed changes.

California normally adopts modifications to the building code on a triennial cycle, but the state also has an off-cycle process for proposing and adopting modifications to the building codes, known as the intervening code adoption cycle, between each triennial code update. A handful of state agencies, including California Department of Forestry and Fire Protection (CalFIRE), have the authority to propose code changes during the intervening code adoption cycle. Neither CalFIRE, nor any other agency, submitted a proposal to adopt the relevant safety standards into the California building code update that will go into effect in July 2021.

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[2] Public Workshop on Rulemaking Proposal: High Global Warming Potential Refrigerant Emissions Reductions California Air Resources Board October 24, 2017
https://ww3.arb.ca.gov/cc/shortlived/meetings/10242017/public_workshop_snap-california_10-24-17_presentation.pdf?_ga=2.182187808.621576105.1573738237-276427812.1565094831

[3] ASHRAE 34 documents refrigerant classifications.

The next available California Building Standards Commission (CBSC) code cycle to ensure safety standard adoption, will have an effective date of January 1, 2023. These delays mean that the earliest new building codes will be available for review by manufacturers will be January 2022. With the design changes necessary to transition to low GWP refrigerants, January 2022 is too late to prepare for the transition.

There are over 4 million products listed in AHRI's Directory of Certified Product Performance with over 9 million new products sold and installed annually in homes and businesses maintained by over 400,000 technicians. All products are regulated by the US Department of Energy and must meet federal energy standards Federal regulations recognized complexities in stationary air conditioning products by requiring 5-year lead times from promulgation of final efficiency regulations versus 3 years for other regulated products to allow for sufficient time to redesign, test, manufacturer, distribute, educate, and install equipment. Twelve months[4] is simply not enough time to design, build, certify and bring a compliant product to market.

**AHRI has worked tirelessly to develop and disseminate information related to the safe transition to low GWP refrigerants.**

Over the past five years, AHRI, in cooperation with the U.S. Department of Energy (DOE), CARB and other concerned stakeholders have invested nearly $7 million in research[5] into the behavior and safe use of next generation refrigerants. This research has been used in the development of the safety standards as well as in development of training and in preparation for the transition.

In 2019, AHRI also launched the Safe Refrigerant Transition Task Force[6,7] to address concerns related to the transition evaluating the end-to-end supply chain for conversion readiness, to identify needs, and resolve issues or make recommendations to enable the safe use of low-GWP refrigerants in a timely manner to meet regulatory requirements.

AHRI has provided significant information to CalFIRE, which 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 in hopes that harmonizing legislation would have enabled the necessary code changes by year end to comply with the January 2023 transition.

However, due to the pandemic, legislation is no longer a practicable option, and the best outcome from CalFIRE's working group is a code change that will be only be finalized by January 2022.

**The entire supply chain is facing the challenge of the COVID-19 pandemic.**

The pandemic has disrupted businesses and preparations for the 2023 transition. Based on an AHRI member survey, with representation from the entire industry of essential heating and cooling equipment manufacturers, the pandemic had directly led to at least temporary closures of manufacturing facilities for sixty percent of

[4] Unions and contractor organizations have indicated to AHRI that they need eighteen to twenty-four months for training prior to the transition.
[5] Research results can be found at this website. http://www.ahrinet.org/Resources/Research/AHRI-Flammable-Refrigerants-Research-Initiative
[6] Differences in the properties of next generation refrigerants (e.g., flammability and toxicity) may require changes to current practices to minimize risk while meeting regulations. Some new refrigerants are historic products that have not been used in some time or that will be used with larger charge sizes (e.g. ammonia and hydrocarbons)
[7] More information about the AHRI Safe Refrigerant Transition Task Force see the following website.
http://www.ahrinet.org/SafeRefrigerant

members by April 2020 and over eighty percent of members are experiencing reduced manufacturing capacity. Most members have been forced to furlough staff to address the economic impact of the COVID-19.

The pandemic has also changed the long-term outlook of the industry. Half of the industry has experienced lower availability of resources for research & development, resulting in the postponing of 2020 investment for new products as planned. Some resources have been reallocated to address supply chain disruptions (e.g. qualification of alternate components). Other resources have been unavailable for other reasons (e.g. furlough or social distancing requirements). Over 80 percent of respondents are experiencing supply chain disruptions. By mid-April, one-third of AHRI members were already unable to consistently source parts, components, and supplies needed to manufacture equipment. Additionally, almost half of the respondents were experiencing delays in equipment safety and performance certifications.

To combat COVID-19, manufacturers have taken important steps like social distancing, moving to remote work, and providing additional healthcare support to ensure the safety and wellbeing of their employees, prevent the spread of illness, and comply with state requirements. These steps, however, have led to reduced staffing and resources.

**AHRI proposes that CARB delay the 750 GWP limit until January 1, 2025 with the following provisions and commitments**.[8]

As a result of the challenges related to the building codes and the pandemic, AHRI is seeking a delay in the January 1, 2023 transition date limiting GWP of refrigerant to below 750 to January 1, 2025 with a limit of 750 GWP. AHRI understands that CARB still needs to meet the statutory mandate and makes the following proposal to compensate for a delay until January 1, 2025.

**AHRI Proposal**

- January 1, 2025
  - 750 GWP limit for newly manufactured stationary air conditioning equipment, understanding that safety standards and the California codes need to be aligned
  - Prohibit the sale, re-sale, transfer and/or import for use in California of newly produced R-410A, except for export from California
- Require the collection of all refrigerants at end-of-life
- Require reclaimed refrigerant to meet purity requirements of AHRI 700 standard
- Allow nationally reclaimed R-410A to be used in California[9]
- Equipment manufacturers will promote and encourage the recovery of R-410A through education of their service and dealer networks

A "Seller" of R-410A must report sales to CARB as a registered seller. Registered "Reclaimers" of R-410A must also report sales to CARB. Any "Reclaimer" or "Seller" must keep records of any sales to end-users. This should provide a mechanism to check reports from both "Sellers" and "Reclaimers"[10] which should ease the enforcement burden and ensures compliance and attainment of necessary emission reductions.

[8] AHRI made this proposal in a meeting on July 22, 2020 to CARB and is formalizing the proposal through this correspondence.
[9] If we assume an average lifetime of air conditioning equipment of approximately 20 years, then 5% are replaced annually and that refrigerant can be reclaimed for use which precisely matches the need for servicing refrigerant if leak rates approximately 5% (including emissions during servicing equipment). Although, this seems like a perfect match, there are additional losses during the reclaim process, so additional reclaim will be needed from other states to support California.
[10] An initial and ending inventory could also be reported annually to further check transactions.

Reclaim would be used for servicing equipment instead of new equipment because of the logistical challenges regarding equipment manufacturing facilities which are not designed to use multiple types of refrigerants. Also, equipment sales are not segregated by state. Generally, equipment is sold to wholesale distributors and the location of final installation is unknown to manufacturers which could result in newly produced refrigerant entering California. This also prevents concerns of labeling units as "new" while containing reclaimed refrigerant.

This proposal more than compensates for the two-year delay requested by AHRI. In addition, the required use of reclaimed refrigerant for servicing also encourages best practices necessary for a safe transition to lower GWP refrigerants and to prepare for the Kigali HFC phase-down nationally. It also broadens industry engagement in the effort to reduced HFC emissions to those most able to reduce them.

Finally, AHRI thanks CARB for the continued dialogue to find a practical way forward to meet California's ambitious climate goals. Please contact Helen Walter-Terrinoni at hwalter-terrinoni@ahrinet.org or 302-598-4608.

Sincerely,

*Helen Walter-Terrinoni*

Helen Walter-Terrinoni
Vice President, Regulatory Affairs
Air-Conditioning, Heating, and Refrigeration Institute