AIR-CONDITIONING, HEATING, & REFRIGERATION INSTITUTE
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Elizabeth Scheele
California Air Resources Board
1001 I Street, Sacramento, CA 95814
P.O. Box 2815, Sacramento, CA 95812

Electronic submittal: https://www.arb.ca.gov/lispub/comm/bclist.php.

Re: AHRI Comments Regarding California Air Resources Board Draft 15 – Day *Proposed Amendments to the Prohibitions on Use of Certain Hydrofluorocarbons in Stationary Refrigeration, Chillers, Aerosols-Propellants, and Foam End-Uses Regulation*

Dear Ms. Scheele,

On behalf of the Air-Conditioning, Heating, and Refrigeration Institute (AHRI), I respectfully submit the following comments and proposal in response to California Air Resources Board (CARB or Board) Draft 15 – Day *Proposed Amendments to the Prohibitions on Use of Certain Hydrofluorocarbons in Stationary Refrigeration, Chillers, Aerosols-Propellants, and Foam End-Uses Regulation* and subsequent discussions with CARB regarding the direction given from the Air Resources Board on December 10, 2020.

AHRI is the trade association representing manufacturers of heating, ventilation, air conditioning, and refrigeration (HVACR), and water heating 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 and its members have 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) 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.

Air Conditioning

Due to the pandemic and the status of the building codes necessary to enable low global warming potential refrigerants for air conditioning (AC), at the December 10, 2020 California Air Resources Board meeting, the Board set the transition dates for packaged terminal air conditioner (PTAC) and refrigeration and air

conditioning (RAC)[1] equipment as January 1, 2023; all other stationary air conditioning equipment, except variable refrigerant flow (VRF) equipment as January 1, 2026; and other air conditioning (AC) quipment as January 1, 2025.
This was the result of an historic agreement between CARB and the HVACR industry that not only included the agreed upon transition dates but also included a commitment:

- To focus this rulemaking on the Original Equipment Manufacturers (OEMs) that use HFCs and address the other parts of the distribution chain in a subsequent rulemaking focused on the recovery and reclaim of refrigerants.
- To kick start and provide a base for a state, and ultimately national, reclaim market by OEMs committing to purchasing or taking ownership of at least 10% of the refrigerant OEMs sell in California for installation in California in 2023 and 2024.
- To work together to ensure that California's safety standards and building codes are updated to allow the use of lower-GWP technologies to meet the agreed to timelines.

Before directly addressing CARB staff's 15-day language proposal, we need to recognize that the ground shifted significantly on December 27, 2020 when the American Innovation and Manufacturing (AIM Act) became federal law. In addition to a long-awaited national phase-down of HFCs, the AIM Act provides for a process to establish nation-wide sector-based controls to supplement the phase-down goals. AHRI has already embraced the sector-based controls and has submitted petitions to the U.S. Environmental Protection Agency (EPA) while working alongside with all jurisdictions to adopt the necessary safety standards into building codes. This effort will result in an additional 500 million tonnes CO_2 reduction in the same time frame.

AHRI appreciates CARB's ability to use reclaim through OEM service organizations in existing equipment.

AHRI appreciates CARB's adherence to the 10% reclaimed refrigerant requirement for AC and opposes the increased requirement for VRF equipment of 15% for 2023 and 2024, and 25% for 2025. We request that VRF have the same 10% reclaim goals as AC equipment, with 15% in 2025 only.

AHRI members also appreciate the exclusion of field charge requirements. Currently, manufacturers charge equipment as a service to their customers (contractors and distributors) and that charge on average, is the amount used in an average line-set. Accounting for any additional (or removed) amount is impossible for an OEM to track and will yield little to no additional environmental benefit.

CARB has recognized that VRF equipment faces an additional challenge in the safety standards and building codes. VRF is a growing market in California with a proven track record in energy efficiency but remains very small, meaning the additional, seemingly punitive, requirements will have little overall impact on results. Increasing the requirement seems unwarranted for VRF OEMs who are working to upgrade UL 60335-2-40 Edition 4 and ASHRAE 15 to solve remaining issues for this product..

AHRI asks that the more accurate growth factor projections in line with other air conditioning equipment should be applied to VRF.

[1] AHRI believes confusion remains as to which products will be allowed in the building codes in 2023. CARB needs to clarify which products will be allowed in the building codes in 2023.

CARB provided clear growth rates for specific end uses, including 4% for air conditioning and 10% for VRF. However, due to uncertainty of supply and the challenges of creating a strong new market for reclaimed refrigerants, AHRI believes a lower number should be applied. ~~Daikin~~ Members believe more accurate growth factor projections in line with other air conditioning equipment should be applied.

AHRI strongly supports CARB's decision to allow for the sourcing and use of reclaim outside of the state of California and the U.S. so that additional costs and greenhouse gas penalties are not incurred.

Limiting the use of reclaimed refrigerant for equipment destined for installation in California would have added unnecessary cost and complexity to the supply chain by forcing the creation of special "California" models. It would also have created greenhouse gas emissions as the unintended consequence of shipping reclaimed refrigerant from California to manufacturing sites which are nearly all located outside of the state, with some located outside the U.S. borders.

The use of reclaimed refrigerant obtained locally near the OEM manufacturing locally will minimize the greenhouse gas (GHG) footprint. Any policies necessary to enable local sourcing should be implemented such that the allowance for reclaimed refrigerant from U.S. certified reclaimers assets outside the country will be allowed for use.

AHRI strongly requests that CARB allow for Optional Early Action Credit for Refrigerant with a GWP less than 750 used in new equipment entered into commerce in *any state* prior to January 1, 2025.

CARB has a unique opportunity to lead by encouraging nationwide early action. Early action in advance of the AIM Act simply will not take place without the proper incentive. The federal transition under the AIM Act is likely to occur on January 1, 2025. Low GWP AC units are not in demand anywhere in the country today. California has an opportunity to incentivize manufacturers into early action nationally by transitioning to low GWP refrigerants in states where building codes allow it, such as Florida, Washington, and Texas. A full transition across the nation could be worth the equivalent of one-quarter of a billion tonnes of carbon dioxide impact in 2023 and 2024. There is significant environmental benefit if California does not limit or discourage early action in other states. California is in a unique position to drive early action in other states.

AHRI requests that CARB allow for Optional Early Action Credit for use of reclaimed refrigerant used prior to January 1, 2023.

Some OEMs may be willing and eager to comply early by meeting their obligation related to reclaimed refrigerant and may be willing to start this work as early as when the regulation is finalized.

AHRI strongly requests the mandate that OEMs attest that no reclaimed refrigerant is purchased, used or counted to comply with any other government requirements is removed. The AIM Act mandates are now under development and requirements are not yet clear. Other states may create mandates that conflict with the intent of the California regulation.

CARB proposes that "an attestation, certifying under penalty of perjury, signed and dated by a responsible official with authority, that under the R4 Program, the certified reclaimed refrigerant is not being purchased, used, or counted to comply with any other government requirement(s), private or voluntary program(s), or any other credit(s) or incentive(s)."

At this time, there is no clarity as to potential future regulations that may take shape around the country or by the federal government. Alternately, industry could develop voluntary agreements with other agencies. This California-centric requirement again discourages industry from supporting additional regulation which reduces the environmental benefit - the stated purpose of this program.

A successful reclaim program will jump-start the supply, demand, availability, and market viability of recycled refrigerants. CARB should not be overly prescriptive but rather encourage innovative solutions to grow the market for recycled refrigerants.

OEMs support reporting the amount of reclaim refrigerant purchased or take ownership of annually as a percentage of their total requirement subject to requests for further substantiating records upon CARB's request.

OEMs agree to provide an annual update on their progress with respect to this program by July 1st of the following calendar year as a percentage of the total requirement from 2018 to 2019 for use in California. Additional substantiating documentation such as receipts could be made available at CARB's request.

AHRI strongly requests that CARB remove recordkeeping requirements to maintain documentation as to which specific equipment (number and types) are distributed containing certified reclaimed R-410A refrigerant.

OEMs will pump reclaimed refrigerant into a tank and fill equipment possibly across various production lines. There may be no precise visibility around which equipment and types contain reclaimed refrigerant. There will be no way to create accurate records regarding which specific equipment contains some reclaimed refrigerant or how long reclaimed refrigerant volumes will be mixed in a bulk refrigerant tank.

AHRI believes that CARB seeks precise, auditable records of the refrigerant purchased or taken ownership of rather than guesses as to which equipment may contain varying amounts of reclaimed refrigerant. Companies simply will not have any visibility as to which equipment contains varying amounts of reclaimed refrigerants.

AHRI requests CARB treat all reporting information as confidential business information and not publicly disclose.

It is imperative that CARB treat all reporting information as confidential business information as it may impact competitiveness and contain vital information regarding individual company supply chains and market share.

AHRI opposes prescriptive requirements beyond reporting the purchase or taking ownership of reclaimed refrigerant by OEMs.

CARB's policies should be solely focused on creating and expanding the market for reclaimed refrigerant. Overly prescriptive regulations that increase cost, increase burdens, and limit use will significantly reduce the environmental benefit and ultimately the success of the program.

The program should not limit the use of reclaimed refrigerant in only new equipment. If the program limits the use of reclaimed refrigerant to only new equipment, then the program will effectively end in 2025 and the

program will have done nothing to create and grow the market for the servicing sector. If OEMs are allowed broader use in both application and geography, then a larger market will increase demand and drive the need for greater supply. Greater supply and demand reduces the cost of reclaimed and recycled refrigerant over time and thus creates a much larger environmental benefit.

The overly prescriptive program as currently designed, unnecessarily limits OEM's viable options for reclaimed refrigerants and increases the demand and use of virgin refrigerant. This is simply short-sighted.

The concern that OEMs will destroy, or stockpile recycled refrigerant is unfounded. OEMs are not chemical wholesalers and have no desire to carry a multi-year inventory of chemicals. It simply isn't their business model. There is a significant cost to purchasing an inventory of reclaimed and recycled refrigerants. Reclaimed and recycled refrigerants are a commodity that will be quickly deployed in the market, whether it be in new equipment or sold to contractors for servicing. Instead of sitting on an inventory of costly chemicals, OEMs have every incentive to deploy the reclaimed and recycled refrigerant volume into the market as soon as possible.

If the desired outcome is to maximize environmental benefit, then CARB should strive to ensure the program is flexible, cost-effective and grows. If the desired outcome is to punish manufacturers and limit the program to 10% volume over two years, then the program should stand as currently designed.

AHRI supports the use of 2018 and 2019 as the basis for the total reclaim requirement.

2018 and 2019 were strong volume, pre-pandemic sales years for air conditioning units; using these dates ensures undisputable volume targets that prevents inaccurate forecast or manipulation via manufacturers dry charging systems prior to 2023 and 2024. *First Tuesday* forecasts in the year 2023 before the housing market reaches pre-pandemic levels.[2] Additionally, there is no guarantee as to when the pandemic or additional shelter-in-place requirements may end.

AHRI also supports extending the timing for meeting the reclaimed refrigerant requirement until July of 2025 for AC and July of 2026 for VRF.

AHRI supports additional time for meeting the reclaim commitment as this effort is meant to "kickstart" a national market for reclaimed and recycled refrigerants. In addition, in the near-term, until a market is well-established, reclaimed refrigerant is likely be the highest cost refrigerant that an OEM will hold in its inventory.[3] The timing of the purchase of reclaimed refrigerant will be predicated on many variables specific to businesses strategies especially in the tumultuous period after the pandemic.

The additional time also allows for accounting for the use of reclaimed refrigerant.

AHRI Has Significant Legal Concerns About the Breadth and Scope of the February 19th Proposal

On February 19, 2021, CARB's workshop presentation suggested that proposed 15-day language would include provisions that are beyond the intended scope of the 45-day language. For example, at the California Air Resources

[2] "*The Slowing Trend in California Construction Starts*." First Tuesday Journal, May 7, 2021. https://journal.firsttuesday.us/the-rising-trend-in-california-construction-starts/17939/

[3] It is AHRI's belief that the cost of reclaimed refrigerant will be more similar to newly produced refrigerant in the future as the market grows.

Board meeting in December 2020, the Board voted to implement a prohibition on the installation of stationary AC (other than small-charge sized products) that use refrigerant greater than 750 GWP starting on January 1, 2025. In addition, the Board directed staff to generate 15-day language encouraging the use of certified reclaimed refrigerant. To this same policy end, AHRI had previously encouraged CARB to implement a ban on servicing equipment with virgin 410A refrigerant, but CARB was not amenable to this suggestion because it required the input of stakeholders, including distributors and contractors, that had not been given adequate notice of potential obligations in the 45-day language. However, the February 19 proposal suggested that recordkeeping requirements could extend through the distribution chain—from OEMs to distributors and contractors—making the OEM a de facto regulatory body executing an *ultra vires* reclaim program. CARB expressly acknowledged that it was unauthorized to mandate distributor and contractor compliance in this rulemaking.

CARB's recordkeeping requirements exceed its legal authority in two key ways: 1. the proposal purports to make OEMs legally responsible for the actions of an entity outside of its control. Third-party liability is de facto arbitrary decision-making. 2. The scope of the requirements implicate contractors and distributors, and any legal requirements extending beyond the OEM are beyond the scope of the initial proposal and require additional 45-day language. If CARB intends to issue 15-day language instead of 45-day language, AHRI supports requirements that attach exclusively to the verification that OEMs purchase or take ownership of 10% of certified reclaimed refrigerant. OEMs can only control what is in scope of their legal authority—once the product is distributed in commerce in the first instance, the OEM loses legal control and ownership, and CARB cannot require the OEM be aware or accountable of the downstream distribution channel, *see e.g.* 42 U.S.C. 6291(16) (The Energy Policy and Conservation Act binds the OEM to regulations that attach to products that they *manufacture* and sell in the first instance—no requirements attach once a distributor owns the products; downstream enforcement lacks due process because OEMs cannot be accountable for what they do not control).

AHRI asks CARB to make the following upgrades to the proposed definitions in the regulation.

The definition of "Certified Reclaimed Refrigerant" should be updated to maximize the use of reclaimed refrigerant by allowing for the use of reclaimed refrigerant that cannot be brought to proper blend concentrations using no more than 15% new refrigerant.

(1) Meets all specifications in 40 C.F.R. Part 82, Subpart F, Appendix A (Specifications for Refrigerants) (January 1, 2017), which is incorporated herein by reference;
(2) Must have results of the analysis conducted to verify that reclaimed refrigerant meets the necessary specifications as required in (1) above; and
(3) Contains no greater than fifteen percent (15%) new (virgin) refrigerant by weight to meet AHRI 700 standard refrigerant specifications. The certified reclaimer must have documentation that supports it has not exceeded the maximum allowable virgin refrigerant content.
(4) **Any reclaimed refrigerant that contains more than 15% and up to 50% new refrigerant would be discounted to 50% reclaim.**

The definition of "new air-conditioning equipment" should not inadvertently add burdensome recordkeeping requirements for homeowners and technicians to estimate the cumulative replacement over a three year period. It should be noted that OEMs cannot manage this as they have no visibility into this calculation.

"New Air-conditioning Equipment" means any air-conditioning equipment or system that is one of the following:

(1) First installed using new components, or used components, or a combination of new or used components; or
(2) An existing system with a single new exterior condenser and single evaporator that has a new exterior condenser, condensing unit, or remote condensing unit; or
(3) a new complete refrigeration circuit in an existing **commercial or industrial** system. An existing system having more than one condenser and/or more than one evaporator that is modified such that the system has experienced cumulative replacements, within any three-year time period, of 75 percent or more of indoor evaporator units (by number), and 100 percent of air source or water source condensing units.

To avoid confusion, a definition for "New VRF Equipment" should be added and used throughout the regulation.

"New VRF Equipment" means any VRF equipment or system that is one of the following:

(1) First installed using new components, or used components, or a combination of new or used components; or
(2) a refrigeration circuit in an existing system is modified such that the system has experienced cumulative replacements, within any three-year time period, of 75 percent or more

Refrigeration Applications Definition

During the February 19, 2021 public meeting, CARB posed a question surrounding the definition of "evaporator temperature" as used to support classification of industrial process refrigeration chillers. AHRI previously commented that CARB should consider the evaporator fluid leaving temperature as the determining factor for IPR and cold storage chillers. The design evaporator fluid leaving temperature was intended to be the chilled fluid temperature leaving the chiller and not the evaporator temperature. The term evaporator temperature does not have a specific industry definition especially with the development of high glide refrigerants. Bubble, mid, or dew point would need to be specified to truly define evaporator temperatures, but this was not the intent of the initial proposal for chiller GWP thresholds and would potentially change based on pressure or refrigerant. AHRI does not believe that the proposed clarifications in CARB's presentation address this issue.

CARB presented multiple options in their presentation in February 2021. Option B on slide 24 – 'the temperature of the cooled fluid leaving the evaporator', is closer to the initial intent of AHRI's October 2020 proposal but is not a definition for evaporator temperature. AHRI would further ask that CARB consider using either chilled fluid leaving temperature or chiller fluid leaving temperature to clarify that the designation is based on the designed chilled fluid temperature leaving the equipment. AHRI suggests this change be made to the table itself to avoid confusion. This would remove any ambiguity with the evaporator temperature mid or dew point, without incorrectly defining evaporator temperature.

AHRI EPA Petition Submission		
Chillers[4]	**AR4 GWP Limit**	**Transition Date**

[4] This table covers both comfort cooling chillers and those used to cool industrial processes discussed under EPA's Industrial Process Refrigeration category.

Chillers (designed for chilled fluid leaving temperature > +35 ° F)	750	January 1, 2024
Chillers (designed for chilled fluid leaving temperature ≤+35 ° and > -10° F)	1500	January 1, 2024
Chillers (designed for chilled fluid leaving temperature ≤-10 ° to -50 ° F)	2200	January 1, 2024
Chillers (< 20lbs charge) (designed for chilled fluid leaving temperature <+35 ° F)	2200	January 1, 2024
Exceptions: Chillers <-50 F, Medical, Scientific and Research Applications		

In fact, EPA requested clarification on the low end of the Chillers temperature range. The petition submitted to EPA differs slightly from others submitted petitions and CARB draft regulations for the following reasons. The temperature was intended to be the leaving fluid temperature and not the evaporator refrigerant temperature. This distinction is important as with a -58°F minimum temperature of the refrigerant temperature there is typically a 10°F difference between the evaporator temperature and the fluid temperature leaving the evaporator, so the fluid leaving a -58°F evaporator would be -48°F. For good refrigeration machine design using 410a refrigerant, the evaporator refrigerant temperature should be designed for -58°F or higher, yielding a leaving fluid temperature of -48°F or higher. The concern here is that a -58°F fluid leaving temperature would require an evaporator refrigerant temperature of -68°F, which would yield 3 psi of vacuum, which would not be good practice for chiller operation. Due to this concern, and the intent to use chilled fluid leaving temperature and not evaporator refrigerant temperature, AHRI and the petition signatories would like to clarify the request to use -50°F and not -58°F.

AHRI supports the concept of the variance process and asks that it be simplified.

AHRI members have recently been impacted by supply chain disruptions due to the pandemic and severe weather (ice storms) in the deep south over the winter. Several members are still struggling to recover from these issues. A process for relief for matters outside of their control is welcome; however, the process should be simplified given the time needed to complete the currently defined forms and that these situations are normally emergency situations.

AHRI asks CARB to provide VRF and chiller equipment with an exception to the effective date as allowed for commercial refrigeration equipment related to permitted installations.

CARB provides for an exception for approved building permits for refrigeration equipment– citing Table 3 of section 95374(c) of this subarticle on page 36 – but does not do the same for VRF or chiller equipment. AHRI requests that CARB provide for an exception for all end-uses listed in *Table 3 of section 95374(c)* in the effective date. It is important that VRF and chiller equipment receives an exception to the effective date of the regulation based on approved building permits. These projects, like refrigeration systems, have long lead times and construction cycles. A commercial building design can take 1-5 years to plan and designing a system around HFC-410A or an A2L could significantly change the building layout and construction requirements. If this exception not put in place, it could add an unnecessary cost burden on the building owner for design and possible construction changes to the building.

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
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