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Comments on the California Air Resources Board's Proposed Amendments to the Prohibitions on Use of Certain Hydrofluorocarbons in Stationary Refrigeration, Chillers, Aerosol Propellants, and Foam End-Uses Regulation Staff Report: Initial Statements of Reason

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The Natural Resources Defense Council (NRDC) appreciates the opportunity to comment on the California Air Resources Board (CARB)'s October 20th, 2020, Proposed Amendments to the Prohibitions on Use of Certain Hydrofluorocarbons (HFCs) in Stationary Refrigeration Chillers Aerosol Propellants and Foam and Uses Regulation Staff Report: Initial Statements of Reason ("the proposal; the regulation"). We welcome CARB's groundbreaking work to reduce HFC use and emissions through this and other initiatives.

HFCs are a rapidly growing global climate threat and California, as an important environmental leader, is in a strong position to spur the market's transition to climate-friendlier alternatives. With these first-of-their-kind regulations, CARB is taking an important step to reduce the climate impact from the majority of air conditioners and heat pumps – a major sector of HFC use that has not yet been addressed in any other U.S. jurisdiction – and further reduce HFC emissions from stationary refrigeration sources. This regulation's successful adoption is crucial to California meeting its SB 1383 goal of reducing HFC emissions by 40% below 2013 levels in 2030.

Air Conditioners & Heat Pumps

NRDC supports CARB finalizing a 2023 compliance date for the main compliance pathway for covered products. As CARB is aware, NRDC – joined by the Air-conditioning, Heating, and Refrigeration Institute (AHRI) and American Standard, Carrier, Daikin, Goodman, Lennox, Nortek, Trane, Chemours, and Honeywell – wrote CARB a letter of support for a 2023 deadline in September 2018.

Regrettably, needed modifications of California's Building Mechanical and Fire Codes are not yet complete. These codes should be updated to incorporate the latest safe use requirements for lower global warming potential (GWP), 2L-flammability-rated refrigerants, which are developed in industry consensus standards UL 60335-2-40 3rd edition and ASHRAE 15 2019 (and subsequent editions).

Alternative Compliance Pathway

In the interim until the code modifications are finalized, we recommend that CARB add an alternative compliance pathway to this regulation that would permit continued use of high-GWP refrigerants such as R-410A until such code modifications are completed if HVAC manufacturers make up the lost emissions reductions by other means. In the proposal CARB indicates that it is considering an alternative pathway in which HVAC manufacturers must "offset the CO_2 equivalent amount of refrigerant equal to the initial

refrigerant charge size through the purchase and use of reclaimed refrigerant in equipment placed on the market in California during the delay. If reclaimed refrigerant is not used in equipment during the delay then manufacturers would need to offset the initial charge plus the anticipated additional service gas for the lifetime of the exempted equipment within five years." Several other formulations of this idea are included in Annex D of the proposal and were submitted by the Environmental Investigation Agency (EIA) and AHRI.

NRDC urges CARB to adopt the 2023 regulation with a refrigerant reclamation requirement as an interim alternative compliance pathway. We suggest that each HVAC manufacturer be accountable to reclaim (or purchase reclaimed) refrigerant from within California to offset the excess emissions from continued use of R-410A, measured as the excess GWP-weighted tons of refrigerant relative to the 750 GWP cap. The amount of reclaimed refrigerant required should be equal to the initial charge of the unit plus a quantity to account for the industry average leak rate of the type of unit according to CARB's greenhouse gas inventory modeling over the estimated lifetime of the unit. We are flexible with regards to CARB's proposal to waive the latter service emissions portion of the reclamation requirement should an HVAC manufacturer physically consume the reclaimed gas by charging new model units with it and placing them on the market in California during the period of the delay.

Further, a manufacturer's reclaim obligation should be in addition to the amount of refrigerant that is reclaimed independent of this requirement, which we believe is being modeled in California's greenhouse gas inventory as a rate of 30%. In other words, a manufacturer would be able to claim 70% of the amount of refrigerant it actually reclaims (or purchases reclaimed) towards its alternative compliance obligation.

NRDC strongly recommends that each manufacturer be required to demonstrate compliance with this requirement for each calendar year starting in 2023, with compliance determined promptly after the end of the year. That is to say, a manufacture required to reclaim X pounds of refrigerant in calendar year 2023 must demonstrate that it has reclaimed X pounds of HFC within the calendar year 2023 in the first months of the following year. CARB should not allow inter-year trading of these compliance credits or allow a company to defer compliance into the future; deferred reductions may not be delivered. Should there be a limit on the physical availability of reclaimable refrigerant in the amount needed for compliance with this regulation, CARB should allow manufacturers to reclaim HFCs other than R-410A to meet the compliance requirement. CARB should not permit out-of-state reclaim to meet the requirement unless in-state options prove unavailable, and in the latter case should only do so to the extent necessary.

Alternative Compliance Pathway – Duration & Applicability

CARB should strictly limit the duration of this alternative compliance mechanism to no longer than January 1, 2025, for the majority of air conditioners and heat pumps covered under this regulation; NRDC concurs with EIA and AHRI that after January 1, 2025, the 750 GWP cap should be the sole eligible compliance path for these products. The list of products in this category should be defined as those for which UL Standard 60335-2-40 3rd ed. and ASHRAE 15 2019 include the necessary safe use requirements for 2L refrigerants. For these products the underlying safety standards have been published and state officials need only to incorporate them, adapting them as needed, into California's state building code.

There are system types, however – notably including variable refrigerant flow (VRF) systems – for which these underlying safety standards have not yet been updated to allow 2L alternatives. For these products,

additional work is needed to develop the undergirding UL and ASHRAE standards before California can begin the process of incorporating and adapting them. For those products, NRDC recommends that the alternative compliance mechanism sunset on January 1, 2026. VRF systems are capable of heating and cooling without relying on fossil fuel combustion and, in theory, can be highly energy efficient. As such, they have a potentially crucial role to play in decarbonizing California's buildings. These regulations should not unreasonably infringe on manufacturers' confidence in their ability to grow the VRF market in California provided they too transition to lower-GWP alternatives.

VRF systems use larger volumes of refrigerant and a more extensive network of refrigerant piping in buildings than conventional HVAC system types, which could potentially lead to higher refrigerant leakage rates. At the same time, as noted, VRF systems can be an important technology to help decarbonize buildings if leakage rates can be truly minimized. Currently there is a lack of robust data on field leakage rates and energy performance, so we urge VRF manufacturers to work with advocates and governments to better assess these characteristics of the products and, in particular, demonstrate that they do not pose an unreasonable risk of refrigerant emissions.

Refrigeration

NRDC supports CARB's dual proposal to 1) cap the GWP of new commercial refrigeration systems and 2) to require a graduated reduction in the GWP intensity of refrigerants used across existing fleets of commercial refrigeration systems. We applaud CARB and the various stakeholders that cooperatively devised these requirements and followed through to this stage. Like the air condition and heat pump requirements, these regulations are first-of-their-kind in the nation and will cut deeply into major HFC emissions source.

NRDC also appreciates CARB's proposal to differentiate the pace of the transition between large store fleet owners and smaller fleets and/or independent grocers. We agree that the extra time provided to the smaller companies will make for a more equitable transition away from high GWP HFCs in these systems and lessen the likelihood that there are unintended consequences for communities facing food availability challenges and more.

In sum, NRDC supports CARB finalizing this regulation this year and, in so doing, ring in the next generation of air conditioning, heat pump, and commercial refrigeration appliances at large scale.