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May 28, 2021

Chair Liane M. Randolph  
Executive Officer Richard Corey  
California Air Resources Board  
P.O. Box 2815  
Sacramento, CA 95812

### **BY ELECTRONIC TRANSMISSION**

RE: Comments to CARB Hydrofluorocarbon Rulemaking: 15-Day Changes

Dear Chair Randolph and Executive Officer Corey:

Daikin U.S. Corporation is pleased to submit these comments to the California Air Resources Board's 15-day language on hydrofluorocarbons used in stationary air conditioning equipment (the "HFC Regulations"). Daikin U.S. Corporation ("Daikin") is a subsidiary of Daikin Industries, Ltd., the world's largest air conditioning equipment manufacturer.

#### **VRV Heat Pump System Considerations**

As the pioneer of Variable Refrigerant Volume ("VRV") heat pump systems – also known as Variable Refrigerant Flow ("VRF") – Daikin believes these products are critical to helping California achieve its building electrification goals. Our comments on the 15-day language aim to ensure that this technology can most effectively assist the state to achieve its goals:

**15%-15%-25% VRV Reclamation Percentages:** We believe that the 25% reclamation requirement for VRV systems in 2026 misapplied to this technology. While Daikin recognizes that CARB has reduced this amount from earlier proposals, it still remains too high. We note that low-GWP VRV technology already faces a significant delay in the introduction to the marketplace due to the fact that current codes and standards do not address the technology. VRV manufacturers seek to provide these solutions to customers as soon as possible and so we ask CARB to provide VRV a level playing field with other cooling technology to ensure Californians can select the best product for their needs from a robust offering. Additionally, Daikin is concerned that there could be difficulty in obtaining reclaimed refrigerant in 2026. ***We ask CARB to reduce the required reclamation percentages for VRV technology.***

**Effective Date as defined in §95374(c)(2)(D):** It is important that VRV, as well as chillers, receive an exception to the effective date of the regulation based on prior approval of building permits. VRV projects, like refrigeration systems, have long lead times and construction cycles. A commercial building design can take 1-5 years to plan, and accordingly designing a system around HFC-410A or an A2L refrigerant could significantly change the building layout and construction requirements. CARB provides for an exception for "refrigeration equipment" but does not provide the same for VRV or

chillers. *Daikin requests CARB amend §95374(c)(2)(D) to provide for an Effective Date exception for all end uses in Table 3 of section 95374(c).* Without such an exception, there would be an unnecessary cost burden on a building owner to account for design and construction changes to the building.

### **Other Reclamation Questions and Comments**

For this rulemaking and for future rulemakings, we ask CARB to align its language on reclamation with that of the U.S. Environmental Protection Agency. Additional considerations for the reclamation aspects of the 15-day language include:

Growth Rates: CARB has provided clear growth rates for specific end uses, including 4% for air conditioning and 10% for VRV. However, due to the uncertainty of supply, and the challenges of creating a strong new market for reclaimed refrigerants, Daikin believes a lower number should be applied for VRV products. *Daikin also believes more accurate growth factor projections – in line with other air conditioning equipment – should be used.*

Definition of “Early Action Credit”: Daikin supports the use of credits to incentivize Early Action to reduce emissions. We request, however, that CARB provide a more explicit definition of these “Early Action Credits,” and the requirements for earning them. Daikin also urges CARB to adopt an appropriate definition to allow for the shipment of DX equipment to locations outside of California as those markets are preparing for a similar refrigerant transition. Several states, including Washington and Florida, have updated their building codes to allow for the use of larger A2L refrigerant charge sizes.

Refrigerant Accounting: *Daikin requests that Early Action Credits should account for the actual volume of low-GWP refrigerants needed for the same performance level as an HFC-410A unit.*

Member Company Interaction: In North America, Daikin provides HVAC solutions to customers through several unique member company subsidiaries. CARB’s 15-day language does not provide information as to whether there can be intra-company transfers of reclaimed refrigerants or Early Action Credits. *Daikin requests guidance on this matter.*

Recordkeeping: *Daikin requests that the “record of sale” of a reclaimed refrigerant is the only required documentation.*

### **Additional Comments**

Definition of “Chillers”: *We ask that CARB amend the definition of Chillers as follows:*

“Chiller” means a water or heat transfer ~~fluid~~ liquid-chilling or liquid-heating equipment package custom built in place, or a factory-made and prefabricated assembly of one (1) or more compressors, condensers and evaporators, with interconnections and accessories including controls, designed for the purpose of cooling or heating water or a heat transfer

~~fluid liquid~~. A chiller is a machine specifically designed to make use of a vapor compression refrigeration cycle or absorption refrigeration cycle to transfer heat from a cold water or heat transfer ~~fluid liquid~~ circulating system to the air, a heat transfer ~~fluid liquid~~, or other heat exchange media. Chillers can be water-cooled, liquid-cooled, air-cooled, ~~or evaporatively cooled, or adiabatically cooled~~. ~~Chillers include but are not limited to rotary chillers, centrifugal chillers, and positive displacement chillers, including reciprocating, scroll, and screw chillers.~~ Chillers using the vapor compression refrigeration cycle utilize but are not limited to the following types of compressors: centrifugal, screw, scroll, rotary, and reciprocating. For the purpose of this regulation, “chiller” includes those used for comfort cooling, space and area cooling, or industrial process cooling. A chiller used for refrigeration in a retail food facility is considered an indirect type of “supermarket system.”

Definition of “New Equipment”: Daikin supports the definition of New Equipment included in the 15-day language.

Reclamation and Field Charge: The 15-day language identifies the use of reclaimed refrigerants in factory charge. Daikin supports the exclusion of field charge.

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We thank CARB and its staff for your continued engagement and collaboration throughout this regulatory process. We look forward to further cooperation with the agency, the California Energy Commission, and other agencies on policies and rules to meet your climate change goals.

Thank you for the opportunity to provide these comments.

Respectfully submitted,



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