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Joint Letter of Support for GFO-24-305 Next-Generation Heat Pumps Using Low-GWP Refrigerants

Please see the attached comment letter of support signed by the Carbon Containment Lab, Environmental Investigation Agency US, Institute for Governance & Sustainable Development, Natural Resources Defense Council, North American Sustainable Refrigeration Council, and Refrigerant Emissions Elimination Forum.

Additional submitted attachment is included below.

Date: May 23, 2025

California Energy Commission
715 P Street
Sacramento, CA 95814

CEC Docket 23-ERDD-01: (Joint) Letter of Support for GFO-24-305: Next-Generation Heat Pumps Using Low-GWP Refrigerants

Dear Commissioners,

We, the undersigned, are representatives of national non-profit advocacy, education, and climate action organizations. With this letter, we express our strong support for the California Energy Commission's (CEC) Electric Program Investment Charge (EPIC) solicitation, GFO-24-305, which seeks to accelerate the development of next-generation, all-electric heat pumps using low-global warming potential (GWP) refrigerants.

We applaud the CEC for recognizing that a multi-pronged strategy is needed to meet California's ambitious greenhouse gas (GHG) reduction targets. This includes not only improving operational energy efficiency of refrigerant-containing equipment but also reducing the climate impacts of refrigerants themselves. This solicitation is a vital step in enabling viable alternatives to high-GWP refrigerants, while promoting heat pump solutions that can also support grid load shifting and long-term decarbonization.

The timing of this initiative is also crucial. The State's climate goals—particularly its 7.5 million metric ton CO₂e reduction target for high-GWP hydrofluorocarbons (HFCs) by 2030—require immediate investments in both lab-scale validation and real-world field demonstrations. We strongly support demonstrations of technologies that employ alternative refrigerants that have ultra-low climate impact or global warming potential (GWP) values and simultaneously avoid incurring additional environmental harms, e.g., adding to the already growing per- and polyfluoroalkyl substances (PFAS) pollution burden.¹ Leading options for ultra-low GWP, non-PFAS refrigerant alternatives include carbon-dioxide (R-744) and propane (R-290) which have been deployed for other segments of the cooling / heating equipment market in the U.S. (e.g., commercial and industrial refrigeration) and are currently being deployed in residential and light commercial space conditioning and water heating applications overseas. International safety standards already enable the use of 'A3'² refrigerants like propane and demonstration projects can complement efforts to harmonize U.S. standards and codes with the international market. We hope to see a suite of demonstration projects supported by states like California covering the full range of common residential and light commercial equipment types that are common in the U.S. market. We also hope that these demonstrations help facilitate additional coordination between

¹ For more information on issues related to refrigerants and PFAS, please see <https://www.nrdc.org/bio/anna-reade/pfas-no-forever-exemptions-forever-chemicals>

² A3 is a safety classification for refrigerants under ASHRAE's Standard 34. This classification is given to refrigerants that are considered flammable and non-toxic. https://www.ashrae.org/file%20library/technical%20resources/standards%20and%20guidelines/standards%20addenda/34_2019_f_20191213.pdf

various state agencies as well as state and local building code officials and help promote workforce upskilling and development programs to safely handle the next generation of refrigerants.

Apart from these options, we also support research and further investigation into the benefits and any potential risks / challenges associated with nascent “not in kind” technologies, which is an umbrella term for non-vapor compression technologies.

We are happy to engage with the CEC and the larger stakeholder community to enable this market transformation and a sustainable decarbonization of California’s (and ultimately the nation’s) building sector.

Sincerely,

Richie Kaur, Ph. D

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