9 November 2020

RE: **Phase Down of High-GWP HFCs in Refrigeration and Air Conditioning**

IGSD applauds CARB again for your thoughtful, well-reasoned amendments to the hydrofluorocarbon (HFC) regulation to adopt global warming potential (GWP) limits for new refrigeration and air conditioning equipment. IGSD agrees with CARB staff that the proposed regulations "will ensure that industry not only shifts away from the highest GWP refrigerants, but swiftly transitions to technologies with the lowest GWP that is technologically and commercially feasible." The proposed amendments will certainly help California meet its HFC and climate pollution objectives, including those required by SB 32, AB 32, SB 1383, SB 1013, and the 2017 Short-Lived Climate Pollutant Reduction Strategy. IGSD also appreciates that other state and local jurisdictions crafting HFC regulations trust in the expertise and creativity of CARB and will likely duplicate the most important provisions. Furthermore, California's leadership will likely also be duplicated at the federal level, making your decisions in December all the more important.

IGSD applauds AHRI for proposing a ban on the sale of newly-manufactured R-410A for servicing beginning in 2025 (*see* page 10 of AHRI's proposal). IGSD strongly encourages CARB to consider implementing such a ban.

As CARB staff themselves note on page 5 of the staff report: "AC systems are used in very large numbers and tend to have high refrigerant release rates due to poor end-of-life recovery of refrigerant." Federal bans on venting refrigerant have done little to prevent this release. A ban on the sale of virgin refrigerant, however, could create a viable incentive for HVAC technicians to actually recover and re-use refrigerant at equipment end-of-life. The California Refrigerant Calculator,[1] developed for the California Public Utilities Commission in cooperation with CARB, quantifies the environmental and economic impacts of this HFC pollution: the calculator estimates that each residential unitary air conditioner using R-410A releases 0.738 tonnes of CO_2-eq emissions each year from "regular" leakage, plus a whopping 10.778 tonnes of CO_2-eq at the equipment's end-of-life when it is replaced.[2] The social cost of these emissions, using the California refrigerant calculator, is $1,169.75 per unit.

That bears repeating. By California's own estimates, each residential unitary AC sold with high-GWP R-410A refrigerant imposes $1,169.75 in costs: a burden that is currently borne by society, instead of by the manufacturers and chemical companies responsible for this pollution. CARB should do everything in its power to eliminate this unjust subsidy.

CARB has been signaling for the better part of a decade that this phase-down was imminent. With dangerous climate feedbacks and tipping points fast approaching, delay is dangerous and not warranted. CARB has already delayed its air conditioning HFC rules once: CARB had originally proposed 1 January 2021, and agreed, after industry pleaded and struck a deal with NRDC, to delay that to 1 January 2023. Responsible companies are ready. CARB staff acknowledge this, explaining in the staff report dated 20 October 2020 that "some AC manufacturers and stakeholders have conveyed support for the 2023

[1] The California Refrigerant Calculator allows program administrators to calculate the annual, end-of-life, and cumulative emissions resulting from refrigerant use in each end-use application. It also calculates the societal cost of these emissions, in net present value , using California's established discount rates and social cost of carbon. It is available at: https://www.cpuc.ca.gov/General.aspx?id=5267

[2] The calculator uses 20-year GWPs, in line with CARB's short lived climate pollutant strategy, in recognition of the short atmospheric lifetimes of HFCs.

compliance date." IGSD applauds CARB for the proposed 1 January 2023 GWP limit of 750 GWP for AC systems. CARB identified no technical barriers to commercialization of alternatives necessary to meet the deadline in California, but did identify administrative actions not yet accomplished by government that can delay climate protection and increase the cost of the transition to low-carbon solutions.

IGSD cautions CARB not to reward irresponsible companies that did not take the phase-out date seriously. By delaying AC HFC regulations until 2025, CARB would give foot-dragging companies and those that would block progress on codes and standards bodies an unfair competitive advantage over responsible companies who invested in alternatives to meet the agreed 2023 deadline. Delaying this would send an unfortunate signal to industry that CARB will bend to the laggards' demands, not once, but time after time.

IGSD urges CARB to approach industry claims about financial hardship with scrutiny. While AHRI may plead pandemic-related poverty, trade publications are telling a different story: on 19 August 2020, ACHR News published a story titled "HVAC Sees High-End Sales Boom due to COVID-19," that enthused about a large increase in profit: "*Despite the most significant quarterly plunge in U.S. economic history, HVAC sales are booming — and not just any sales, but high-end, top-dollar residential HVAC systems in particular. It's part of a national trend."* This effusiveness over a sales boom is not the sign of a struggling industry, but one that is doing quite well, all things considered.

IGSD also urges CARB to take claims about R-466A being "just around the corner" with a healthy dose of skepticism. R-466A, while low-GWP, still contains CF3I, which is an ozone depleting substance. The United States Environmental Protection Agency's (EPA's) Significant New Alternatives Policy (SNAP) program has prohibited its use in residential applications before due to cardiac sensitization concerns. *See*, for instance, EPA's 1996 rulemaking on fire protection alternatives, which stated "Because of the low cardiac sensitization values, EPA is prohibiting the use of [CF3I] in consumer residential applications…."[3]

IGSD encourages CARB to retain the 1 January 2023 date. We are optimistic that California's regulatory authorities will resolve any outstanding issues pertaining to building codes by that date. Indeed, the clear regulatory signal from CARB may be just what is needed to force industry and code officials to take these long-overdue changes seriously. For ease and simplicity of enforcement, any companies not meeting the 1 January 2023 date could be made to pay the full social cost of carbon associated with their products, as determined by the California Refrigerant Calculator, using 20-year GWPs. This would be significant enough to spur companies that delayed investments in low-GWP alternatives to speed low-GWP products to market. Monies collected under this simple scheme could be deposited into the F-gas Reduction Incentive Program Fund. This could help to reduce F-gas emissions from some of California's highest-emitting sources, like older supermarkets. Funds could be distributed in a manner consistent with California's prioritization of environmental justice and underserved communities.

IGSD supports CARB's efforts to work with relevant authorities within California to assure that consensus safety standards are adopted into Title 24 of California's Code of Regulations, including ASHRAE Standard 15-2019 and UL-60335-2-40 3rd Edition.

Finally, if CARB does consider offsets to the damage caused by delay in the 750 GWP limit, IGSD suggests that up to half of the offset be allowed to be satisfied by agreement of industry to market higher efficiency equipment. Additionally, CARB should assure that any 'offset' allowance generated by refrigerant containment, recovery, reuse and destruction is above and beyond what is currently required by federal and state law. Consider also the simplicity of enforcement of only allowing offset by certified and audited

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[3] Federal Register, Volume 61, No. 100, May 12, 1996. Page 25590.
Available at: https://www.govinfo.gov/content/pkg/FR-1996-05-22/pdf/96-12625.pdf#page=1

refrigerant destruction rather than dealing with the complications of illegal imports of refrigerant into California.

Thank you for the opportunity to comment. And thank you CARB for your leadership in building back better from the COVID-19 recession with sustainable technology and lower ownership costs achieved by energy efficiency, low-GWP refrigerants, and reduced refrigerant emissions.

Sincerely,

Durwood Zaelke
President
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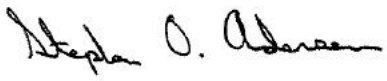

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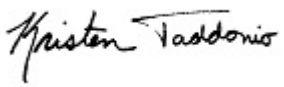

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