

DATE: October 30, 2023

TO: California Air Resources Board (CARB)

FROM: Lindsey Rowell, Chief of Energy, Sustainability & Transportation  
Rachel Patterson, University Engineer

SUBJECT: Senate Bill 1206 Assessment Report for Transitioning Hydrofluorocarbons (HFCs) to Ultra-Low Global Warming Potential (GWP) and/or No-GWP Alternatives

The purpose of this memo is to provide a response to CARB's Request for Information on potential implementation pathways and challenges for SB 1206. As the nation's largest public university system comprising of 23 campuses in the state, California State University anticipates being one of many heavily impacted facility owner entities.

Section 2 Stationary Air Conditioning & Space Conditioning Heat Pumps

Question 5: There are limited ultra-low-GWP and/or no-GWP technologies for this sector. How can technological innovation be encouraged?

[Offer grants and incentives to suppliers and facility owners for product adaptation.](#)

Question 6: What types of ultra-low GWP technologies for this sector are available in other markets globally, but not in the US? What do you see as the primary market barriers to the adoption of these technologies in the US?

[We see multiple hurdles to adoption, including economics and education around products and the subsequent technology transition process, especially for facility owners; lack of market technology; lifespans of existing equipment not aligning with state regulatory timelines; overall uncertainty around eventual transition to ultra-low GWP equipment and risk of stranded assets.](#)

Question 11: What mechanisms, policies, and or incentives can be used to increase recovery and reuse of high-GWP HFCs from existing AC or HP systems, particularly in the residential sector?

[Two tools that would be critical to the success of refrigerant transition is building a network of certified refrigerant reclaimers and educating owners on how to access this network, as well as a statewide program for low-cost, no-cost, or incentivized disposal of high GWP refrigerants. High-impact owners such as university campuses will have regular need for these services as equipment fails or is otherwise phased out.](#)

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**CSU Campuses**

Bakersfield  
Channel Islands  
Chico  
Dominguez Hills  
East Bay

Fresno  
Fullerton  
Humboldt  
Long Beach  
Los Angeles  
Maritime Academy

Monterey Bay  
Northridge  
Pomona  
Sacramento  
San Bernardino  
San Diego

San Francisco  
San José  
San Luis Obispo  
San Marcos  
Sonoma  
Stanislaus

## Section 6 Recovery and Reclamation

Question 24: Despite venting prohibitions, refrigerant recovery rates are low, especially in the residential sector. What practices and processes can be put in place to ensure proper recovery?

Make recovery easy. Provide city-run periodic disposal events structured similarly to e-waste collection, annual curb-side pickup, or drop off of jugs at home improvement stores. Incentivize residents with rebates.

Question 25: What incentives can be provided to technicians for investing their time and effort to properly recover HFCs from equipment, especially from the residential sector?

Provide rebates for low-GWP refrigerants if technicians bring high-GWP refrigerants to reclamation facilities.

Question 26: What are some of the barriers that technicians face in transporting recovered HFCs to reclamation facilities and how can those barriers be addressed?

A private sector technician's time is a commodity and needs to be incentivized. There is no motivation to take the refrigerant to the reclamation facility if they can re-use the refrigerant as-is.

Question 29: How can the State enable financial and/or regulatory mechanisms, like extended producer responsibility schemes or other fees, to improve the recovery and reclamation of HFC refrigerants? Are there successful examples from international markets that can be applied in California?

The State may consider setting up a rebate program, such as the one for copper.

## Section 7 Workforce Training

Question 34: What is the role of the State, equipment manufacturers, and/or other industry stakeholders in providing and standardizing training and best practices, and how could this be enhanced?

The State could offer training programs for technicians by partnering with the private sector and utilities. There is also an opportunity to build this education into existing AC&R certification programs.

## Section 10 Overarching Questions

Question 40: Are there additional control measures for refrigerant management, such as requirements for maintenance, servicing, and leak detection/repair, that could support California's climate goals?

Investigate and verify leakage rates of VRF and other refrigerant-using systems. ASHRAE has reported up to 10% average annual leakage rates for VRF.

Question 41: Do you have any suggestions for legislative, or regulatory changes that are needed to transition away from HFCs and to ultra-low GWP and/or no-GWP alternatives?

Alignment and coordination with ASHRAE 15 process, as well as Title 24 so mechanisms are in place for compliance verification. It would also be helpful to have more transparency around how and which suppliers are certified to provide reclaimed refrigerant. Provide rebates or tax incentives for replacing high-GWP HVAC units (and/or natural gas HVAC units) for low-GWP refrigeration units.

Question 42: Do you have any other comments that would support the SB 1206 assessment report?

Please work with commercial and industrial facility owners, such as ourselves, to continue to identify implementation challenges and opportunities as the market moves toward low to no-GWP refrigerants.

Please contact Lindsey Rowell, [lrowell@calstate.edu](mailto:lrowell@calstate.edu), or Rachel Patterson, [rpatterson@calstate.edu](mailto:rpatterson@calstate.edu), with any questions.