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IEPR Workshop on Building Decarbonization Session 2: Refrigerants, August 26, 2021

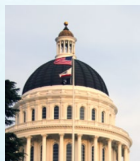
California: HFC Refrigerant Policy & Regulations

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California Air Resources Board

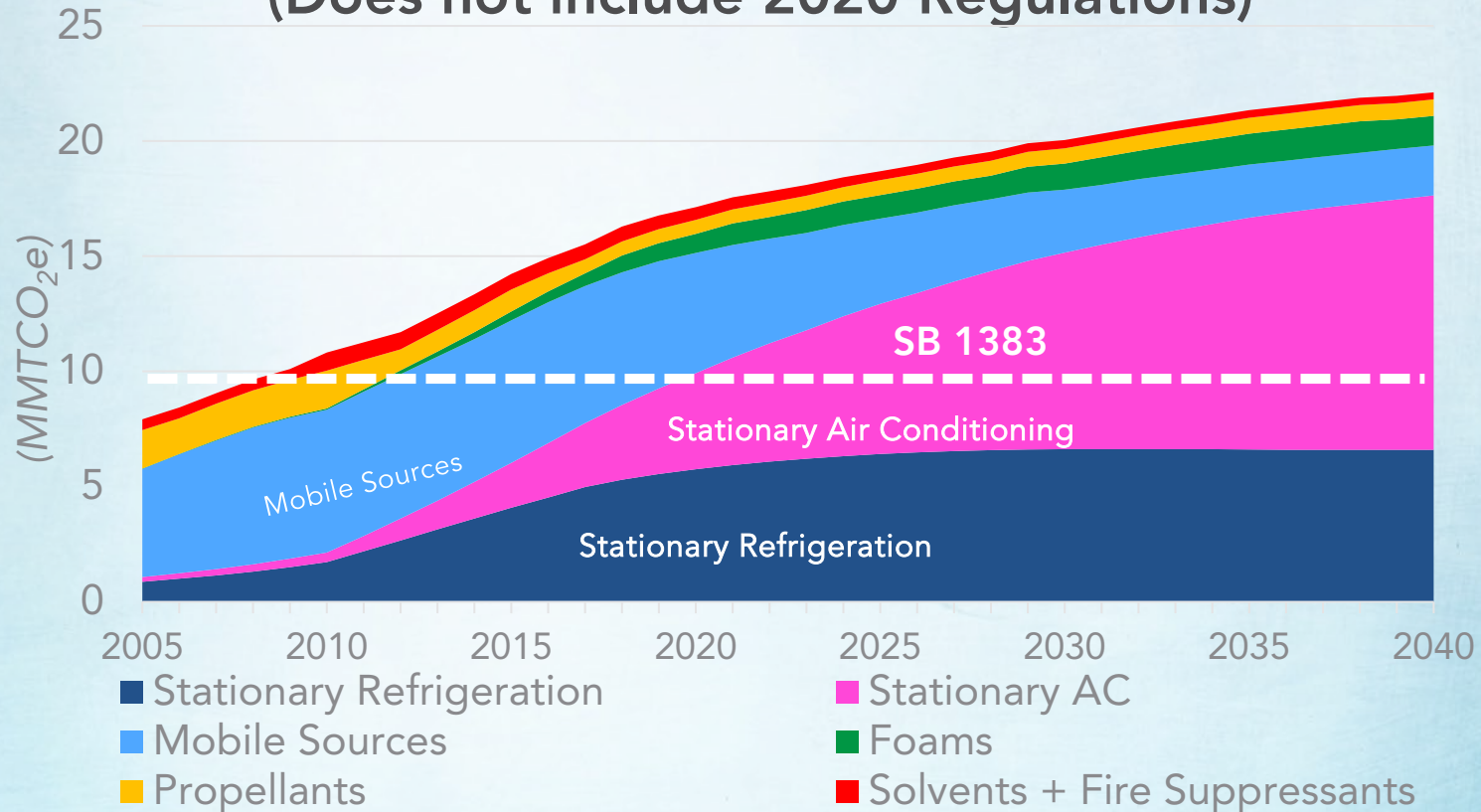
Background on Hydrofluorocarbons (HFCs)

Hydrofluorocarbons (HFCs) are potent Short-Lived Climate Pollutants

- HFCs used as refrigerants in air conditioning and refrigeration, and other uses
- HFCs fastest growing GHGs in California, nationally, and globally
- Common HFCs used today have very high global warming potentials (GWPs)
1 lb of refrigerant R-507 (GWP 3,985) = 3,985 lb of CO₂



Baseline HFC Emissions Trends and Sources (Does not include 2020 Regulations)



Existing and Proposed Regulations National Action on HFCs

Refrigerant Management Program (RMP)

- Track refrigerant use in large commercial and industrial refrigeration systems
- Requires leak inspection and prompt leak repairs
- Largest refrigerant use database

Retail & Commercial



Cold Storage



Industrial Process



CA adopted Vacated Federal HFC Rules

- The California Cooling Act, SB 1013 (2018)
- High-GWP HFC prohibitions in new equipment for a range of end uses:
 - Supermarket systems, Vending machines,
 - Residential refrigerators, Cold Storage, Chillers,
 - Foam Insulation, Aerosol Propellants



HFC Regulation (2020)

Stationary Refrigeration

- New equipment containing more than 50 lb of refrigerant, GWP < 150, starting January 1, 2022 (>90% reductions per facility)
- Company-wide reduction targets for supermarkets and grocery stores by 2030 (>50% reductions statewide)

Retail & Commercial



Cold Storage



Industrial Process



HFC Regulation (2020)

Stationary Air-Conditioning

- **New AC and Space Conditioning Heat Pumps, GWP < 750**
 - Room AC and other small equipment: January 1, 2023
 - Other residential and commercial AC: January 1, 2025
 - Variable Refrigerant Flow Systems: January 1, 2026



HFC Regulation (2020) R4 Program

- Refrigerant Recovery, Reclaim and Reuse (R4)
- AC manufacturers to use at least 10% reclaimed refrigerant
 - New equipment and/or servicing existing equipment
- First of its kind - promotes end-of-life recovery



International and National Action

- American Innovation and Manufacturing (AIM) Act 2020
 - National HFC Phasedown
 - Refrigerant Management
 - Technology Transitions
- Global HFC Phasedown: Kigali Amendment to the Montreal Protocol, effective 2019

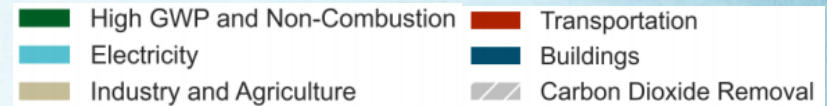
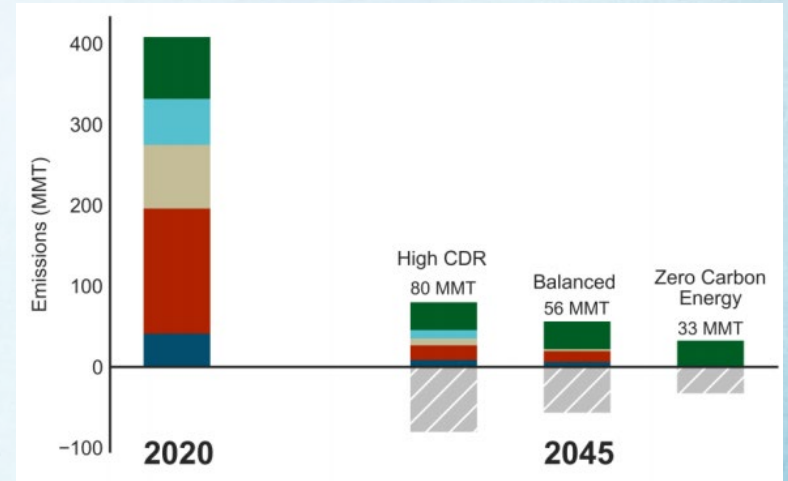


Building Decarbonization

Reducing HFCs is Critical for Carbon Neutrality

- By 2045, HFCs among the largest remaining GHG sources
- HFC reductions integral for achieving state's long-term climate goals
- HFC emissions expected to increase with building electrification through adoption of heat pump technologies

Greenhouse Gas Emissions by Sector in 2020 and 2045



Incentives

Incentives for Low-GWP Refrigerant Technologies

- The California Cooling Act (SB 1013)
 - Established an incentive program for low-GWP refrigerant technologies
 - CPUC, CEC and CSD required to consider low-GWP refrigerants in existing programs
- Coordination on incentives for building decarbonization

Next Steps

- CARB is evaluating additional measures to meet CA's short-term and long-term climate goals
- Upcoming SLCP Scoping Plan Workshop on 9/8/2021

Register for the Scoping Plan Workshop: [Registration \(gotowebinar.com\)](https://gotowebinar.com)

Subscribe to the HFC Listserv: [California Air Resources Board \(govdelivery.com\)](https://govdelivery.com)

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