

Proposed Regulation for Prohibitions on Use of Certain High Global Warming Hydrofluorocarbons in Stationary Refrigeration Equipment and Foams



Overview

- Background
- Proposed Regulation
- Staff Recommendation

Background



Why Regulate Hydrofluorocarbons (HFCs)?

- Potent short-lived climate pollutants (SLCPs)
- High global warming potentials (GWPs)
- Lower-GWP alternatives commercially available

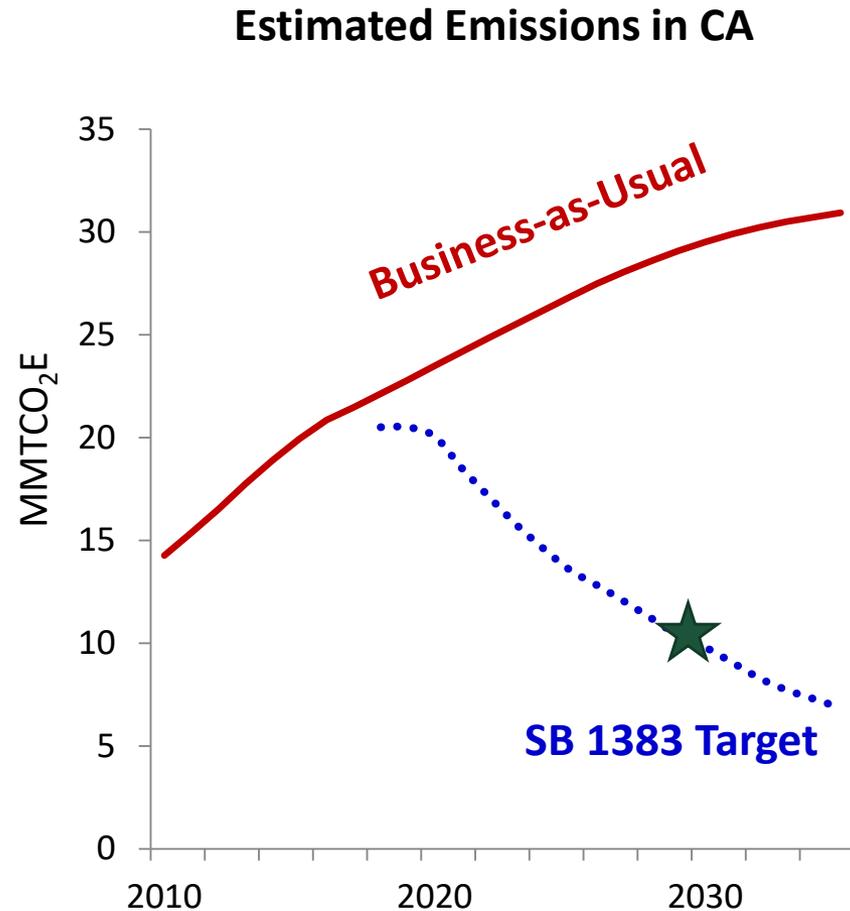
Just 1 pound of R-404A
= *3,922 pounds of CO₂*
→ ***4,200 vehicle miles***



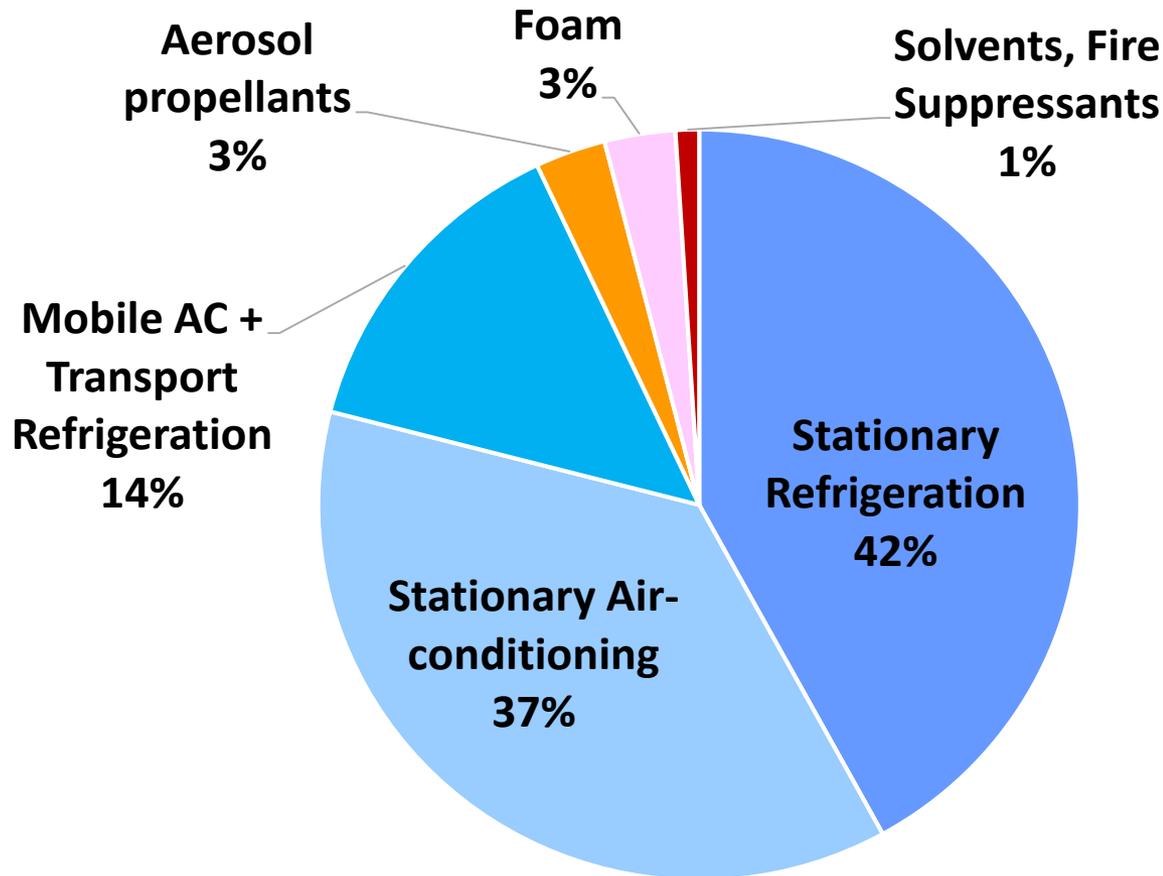
(GWP of 3922)

Fastest Growing Source of Greenhouse Gases

- Currently 4% of California GHG emissions
- Emissions projected to double over 20 years
- SB 1383 reduction goal: 40% below 2013 levels by 2030



HFC Emission Sources in California (2030)



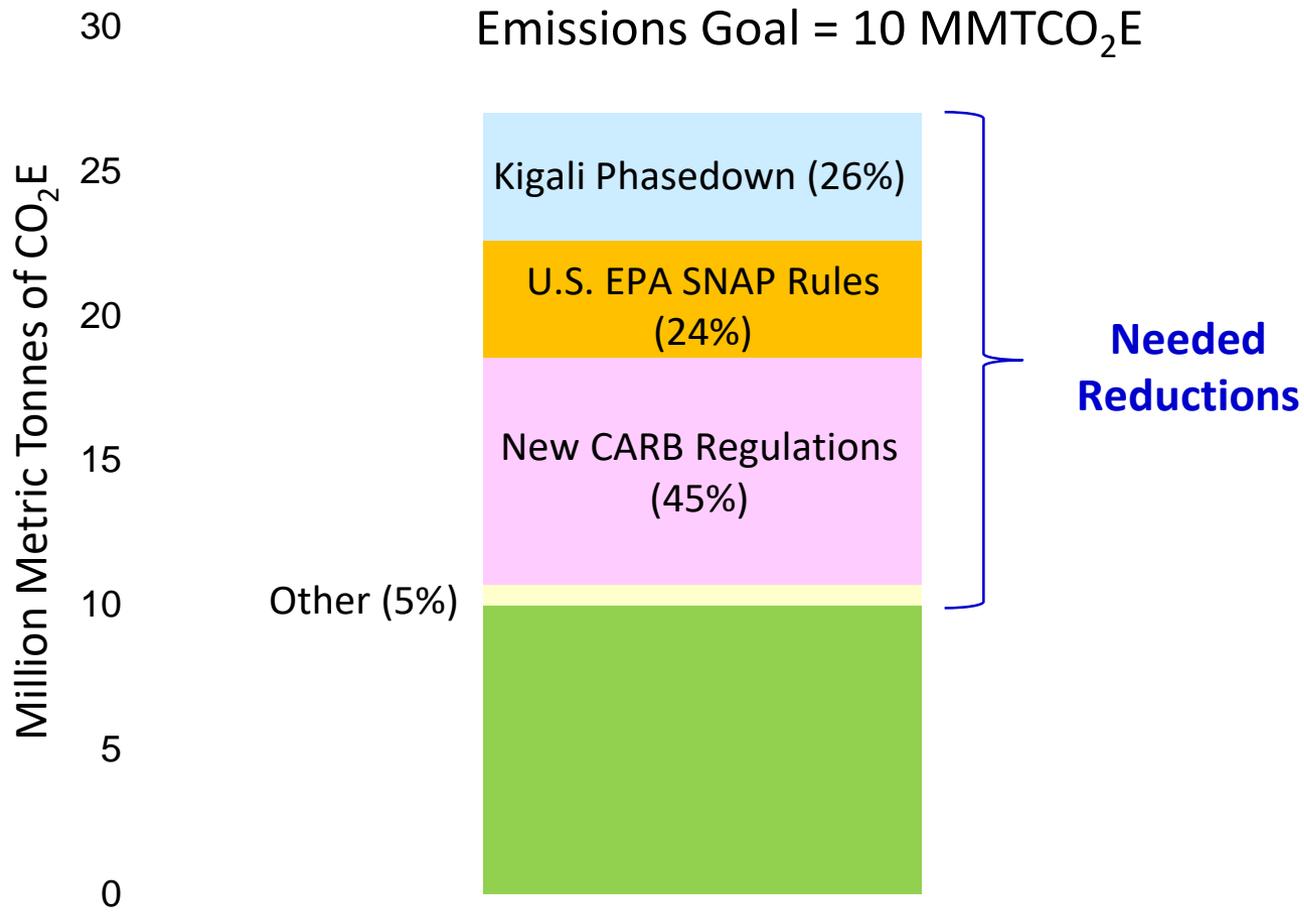
Business-as-Usual
27 MMTCO₂E (100-year GWP)

SLCP Strategy for HFC Reductions

HFC Emissions in California, 2030

Business-as-Usual = 27 MMTCO₂E

Emissions Goal = 10 MMTCO₂E



International HFC Phasedown

- The “Kigali Amendment” to the Montreal Protocol is a global HFC production phasedown
- Begins January 1, 2019 for developed countries
- Amendment must be ratified by the U.S. Senate, followed by legislation or rulemaking by U.S. EPA

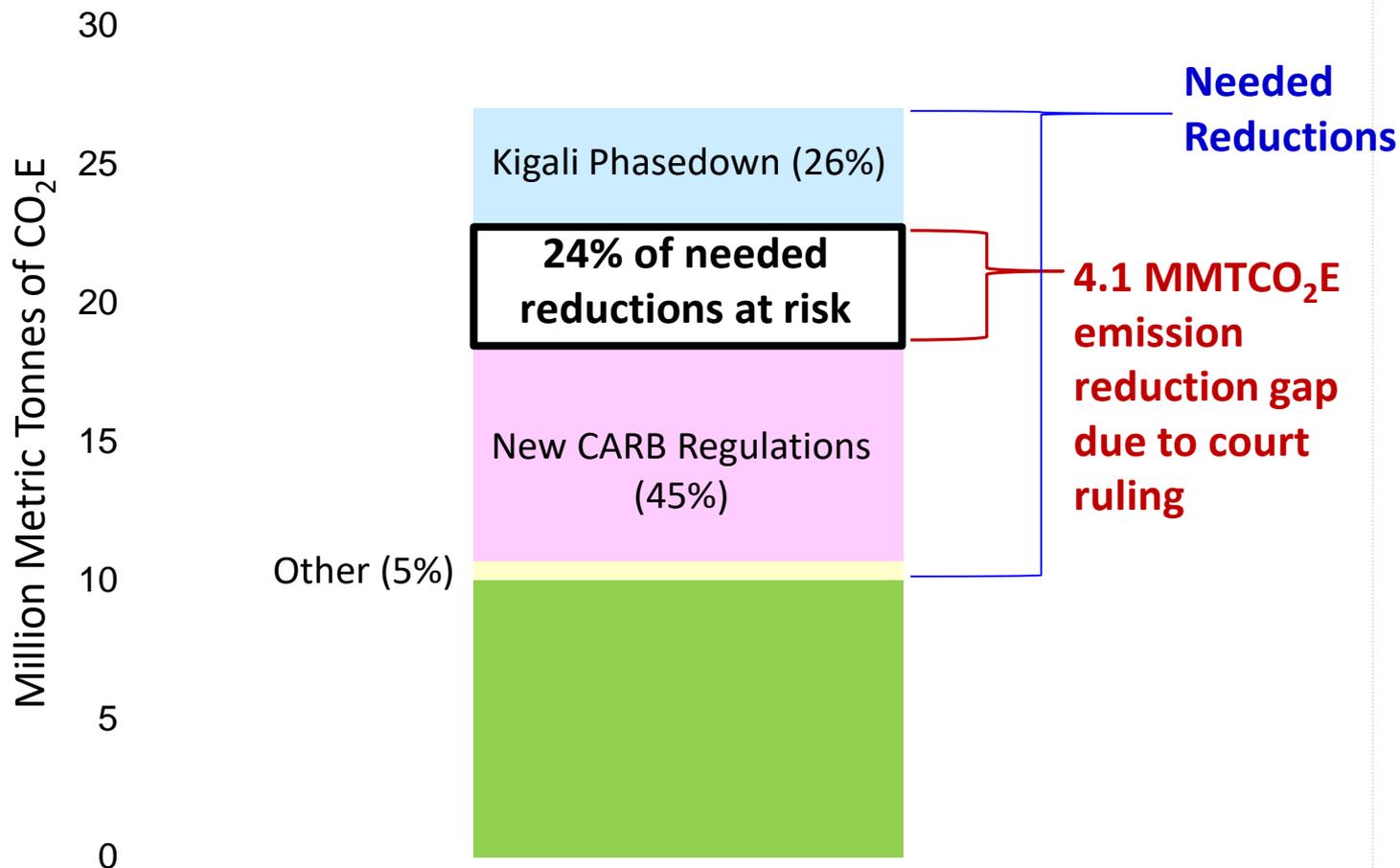


U.S. EPA SNAP HFC Reduction Rules

- U.S. EPA Significant New Alternatives Policy (SNAP) regulates ozone-depleting substances and their replacements (HFCs)
- Prohibited high-GWP HFCs as viable alternatives became available
- U.S. EPA cannot require replacement of HFCs in many circumstances because of a recent federal court decision

Emissions Impact of Court Decision

HFC Emissions in California, 2030



Preserving SNAP Benefits

- SB 1013, Lara – Backstop all SNAP HFC prohibitions into State law
- CARB's Proposed Regulation – Preserves emission reductions from sectors with past or shortly upcoming effective dates
- CARB's Future Rulemaking – Will cover additional measures identified in the SB 1383 SLCP Strategy approved by Board last year

Refrigeration Technology Goes Green



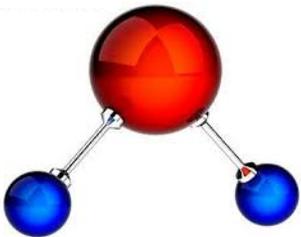
- ✗ Ozone-Depleting
- ✗ Global Warming

- ✗ Less Ozone-Depleting
- ✗ Global Warming

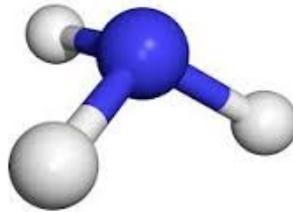
- ✓ Non-Ozone-Depleting
- ✗ Global Warming

- ✓ Non-Ozone-Depleting
- ✓ Low-Global Warming

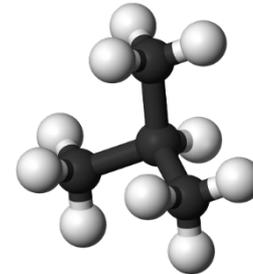
“Natural” Refrigerants: Non-Ozone-Depleting, Low-GWP



Carbon Dioxide
(GWP = 1)



Ammonia
(GWP = 0)



Hydrocarbons: Propane,
Isobutane (GWP < 4)

Used in Thousands of Retail Food Stores Worldwide Today

The global transition is underway...

- European Union currently implementing more ambitious HFC reduction measures than SNAP
- Canada recently adopted HFC reduction measures similar to SNAP
- Australia and Japan also have HFC reduction programs
- Affected industries serve global market and are preparing for one solution
- Many manufacturers/users in U.S. have already adopted lower GWP technologies

Proposed Regulation



Purpose of Proposed Regulation: Backstop Partially Vacated SNAP Rules

- Focus on “end-uses” with past and shortly upcoming compliance dates (an end-use is a specific type of equipment or material)
- Prevent backsliding—most of these end-uses have already transitioned to low-GWP
- Make SNAP prohibitions enforceable in California
- 3.4 MMTCO₂E reduction annually by 2030

Who is Affected?

Applies mainly to equipment manufacturers



Supermarket Refrigeration
& Remote Condensing Units



Refrigerated Food
Processing & Dispensing
Equipment



Stand-alone
Refrigeration
Units



Refrigerated
Vending
Machines



Foams

First Prohibitions Apply Starting this Year

End-Use (Equipment or Material)	Prohibition Date for New Equipment and Retrofits	Current Industry Status
Supermarket Refrigeration & Remote Condensing Units	September 1, 2018 (Federal prohibition date was January 1, 2016 - 2018)	Industry has already transitioned
Stand-Alone Refrigeration Units	January 1, 2019 - 2020	Approved alternatives are currently in use in some applications
Refrigerated Vending Machines	January 1, 2019	Approved alternatives available now; preferred alternative not currently allowed in some locations
Refrigerated Food Processing & Dispensing Equipment	January 1, 2021	Approved alternatives are available now
Foams (certain uses)	September 1, 2018 (Federal prohibition date was January 1, 2017)	Industry has already transitioned

Rule Requirements

- Listed HFCs are prohibited in new and retrofit equipment and materials
- Manufacturer recordkeeping
- Disclosure statement certifying that the product uses only compliant substances

Cost Impacts

- Total statewide cost of \$4.25 million over 20 years
- Annual cost of \$210,000 across all affected manufacturers
- Less than \$1.00/MTCO₂E reduction

Key Themes of Stakeholder Input

- Support

- Provides more industry certainty
- Many manufacturers have already made investments
- Recommend adopting SNAP Rules in their entirety

- Concerns

- Clarify recordkeeping requirements
- Clarify effective date of HFC prohibitions - applies to date of manufacture
- Minor clarifying edits
- Some manufacturers want additional time

Staff's Recommendation

Approve proposed regulation
with 15-day changes

