

HFC Sustainability and Regulatory Outlook

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Agenda

- **Context for regulation of HFCs**
 - Global
 - U.S.
- **DuPont's actions to address Climate Change**
- **HFC regulatory update**
 - Why we engaged in regulatory process
 - What was accomplished
- **Implications to the Fire Protection Industry**
- **Summary**

The UN Framework Convention on Climate Change (UNFCCC)

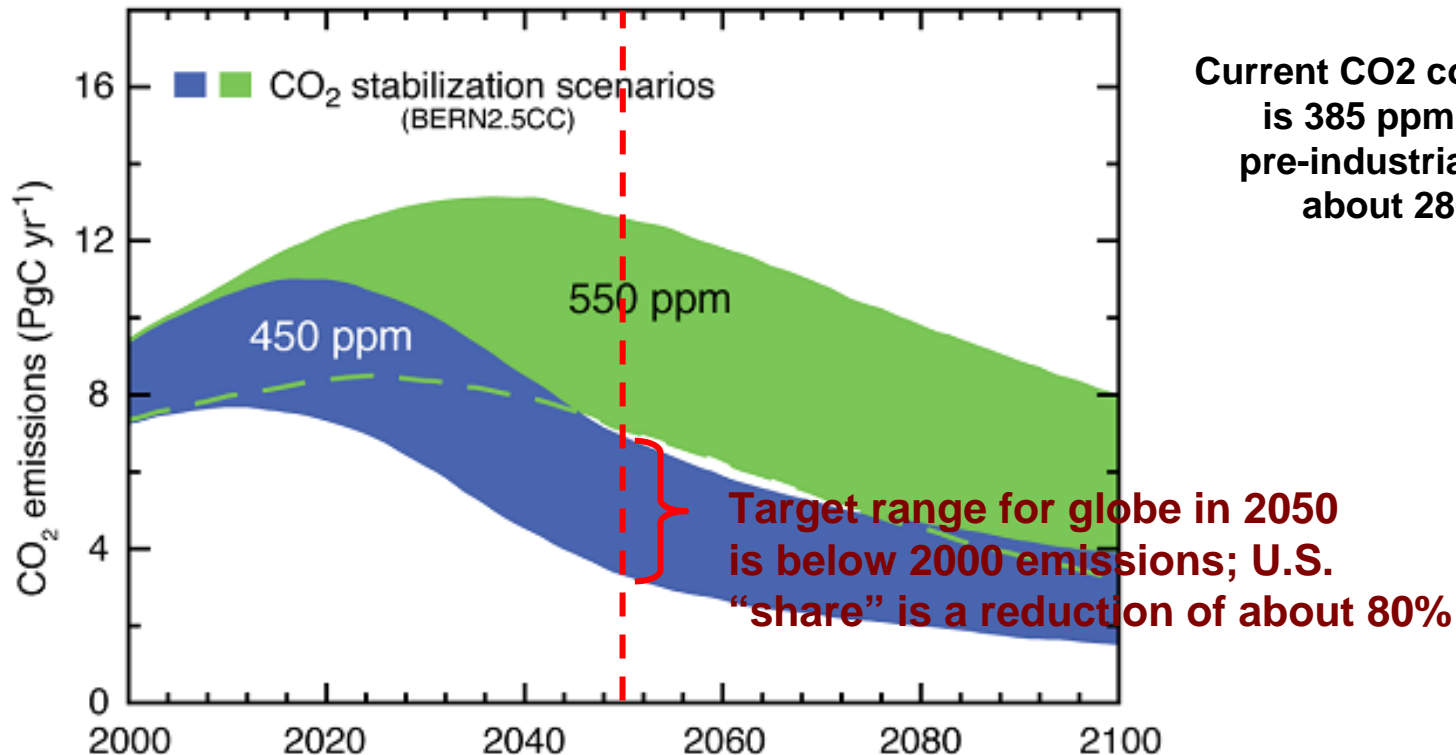
UNFCCC ARTICLE 2: OBJECTIVE

The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, **stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.....**

What does it take to meet the objective?

Global per capita carbon dioxide emissions must be about 1/10th current level in U.S.(1/5th level in EU or Japan) in about 75 years, and falling rapidly, to achieve stabilization of concentrations at 1.6 times pre-industrial concentration, **the stated target of many governments (450 ppm)**

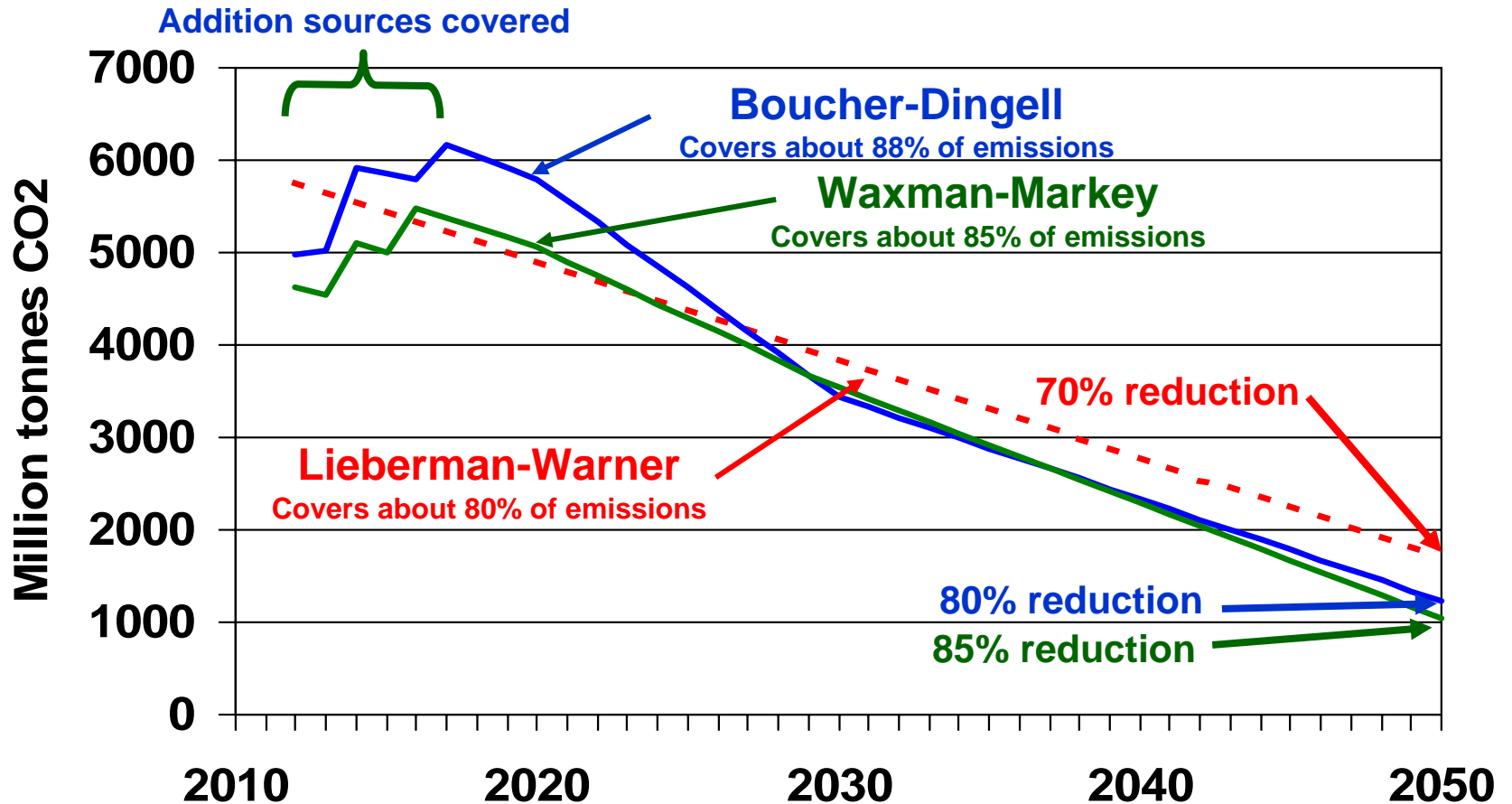
Global CO₂ Emissions Required to Achieve Targets



Adapted from Figure 10.22 from IPCC AR4 WG I

Bottom line – Very Significant reductions in all greenhouse gas emissions will be required to meet stated targets

HFCs Treatment is in Line with Overall GHGs



DuPont's Actions to Address Climate Change (1)

- **Voluntarily and unilaterally set greenhouse gas emissions reduction goals in 1991 and again in 1999**
 - Exceeded both goals
 - Achieved 72% reduction from 1990 base by 2003
 - Fluorochemicals contributed significantly to achieving those goals
- **In 2006 Voluntarily and unilaterally set 2015 Sustainability Goals**
 - **Goals include:**
 - Reduce greenhouse emissions 15% from base year of 2004
 - Provide products that will result in emissions reductions by customers and consumers of 40 million tons carbon dioxide equivalents
 - Progress is being made toward both goals
 - Fluorochemicals is a major contributor toward both goals

DuPont's Actions to Address Climate Change (2)

Founding member of U.S. Climate Action Partnership



<http://www.us-cap.org/>

- **USCAP is a unique and diverse alliance of 26 major businesses and 5 leading NGOs**
- **The goal is rapid enactment of federal legislation to slow, stop and reverse the growth of greenhouse gas (GHG) emissions**
- **USCAP recently issued a “Blueprint for Legislative Action”**
 - **Includes greenhouse gas emission targets:**
 - **97% - 102% of 2005 levels by 2012**
 - **80% - 86% of 2005 levels by 2020**
 - **58% of 2005 levels by 2030**
 - **20% of 2005 levels by 2050**

Why we engaged

- All proposed legislation before Lieberman-Warner put HFCs in “basket of gases”

- Carbon price on fire extinguishants at \$25/tonne CO₂e

FM-200 \$80.59/kg = \$36.60/lb

FE-25 \$87.50/kg = \$39.75/lb

What was accomplished with Waxman-Markey

- HFCs controlled separately

- Modest fee on HFCs; non-auction fees = \$1.00, \$1.20, \$1.40/tonne CO₂e in 2012, 2013, 2014 respectively

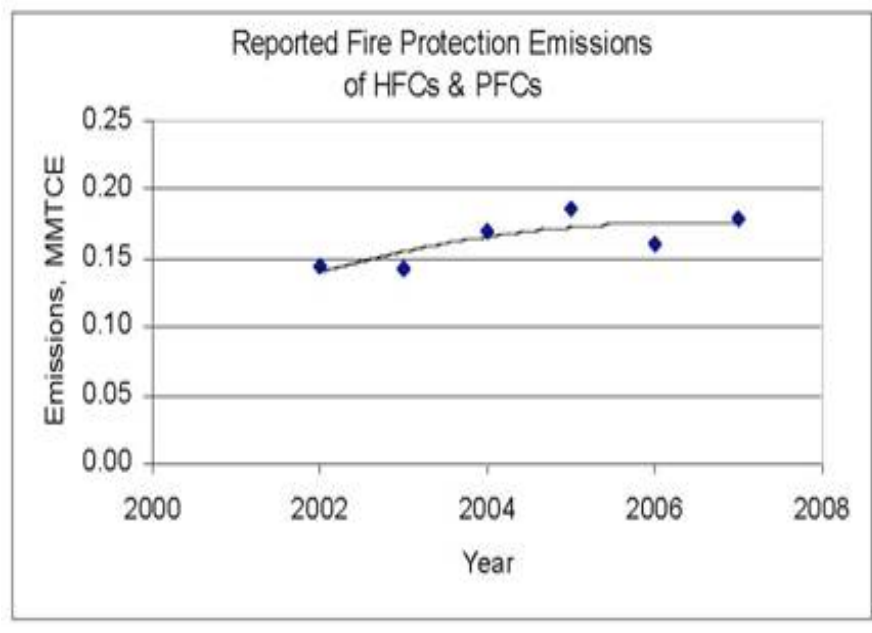
	2012	2013	2014
FM-200	\$1.46/lb	\$1.75/lb	\$2.05/lb
FE-25	\$1.59/lb	\$1.91/lb	\$2.23/lb

- Adequate supply for orderly transition in sectors where alternatives are developed

Fire Protection Industry Has Acted Responsibly

Estimates of emissions of HFCs/PFCs for fire protection from the EPA vintaging model are 0.18 MMTCE in 2005, 0.21 MMTCE in 2006, and 0.23 MMTCE in 2007.

EPA estimates of 2007 emissions for other applications are as follows: 26.59 MMTCE from refrigeration and air conditioning, 1.70 MMTCE from aerosols, and 0.71 MMTCE from foams.



U.S. average annual losses from fire protection “bank”

Includes leakage, testing, accidental discharge, and fire extinguishing

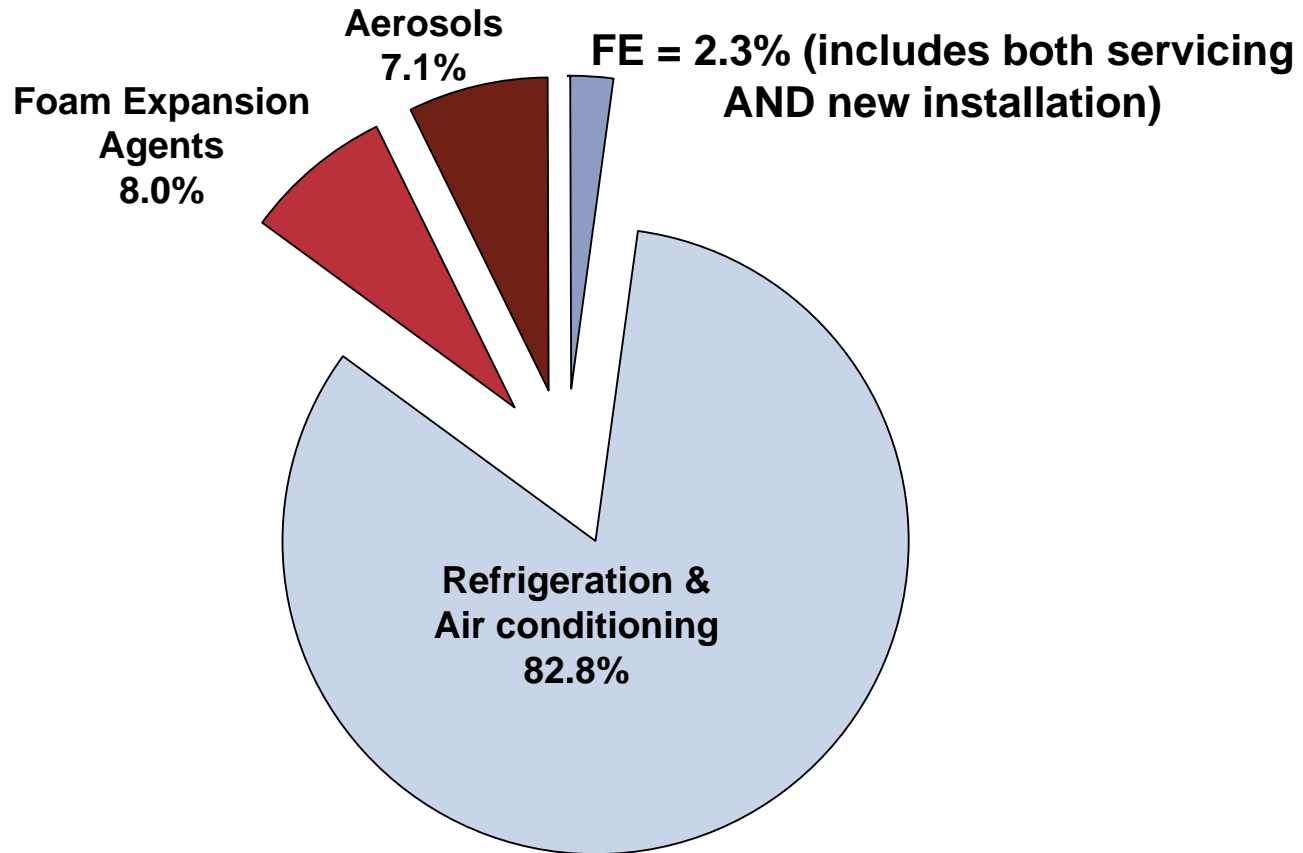
Also includes recycling losses (Halons only)

Market continues to grow while emissions are reduced from leaks and accidental discharges.

Emissions of HFCs are due to activated releases as a result of fire events.

HFCs in FE are Small Percentage of Total

HFC Sales in EU for 2007 in Tonnes CO₂e

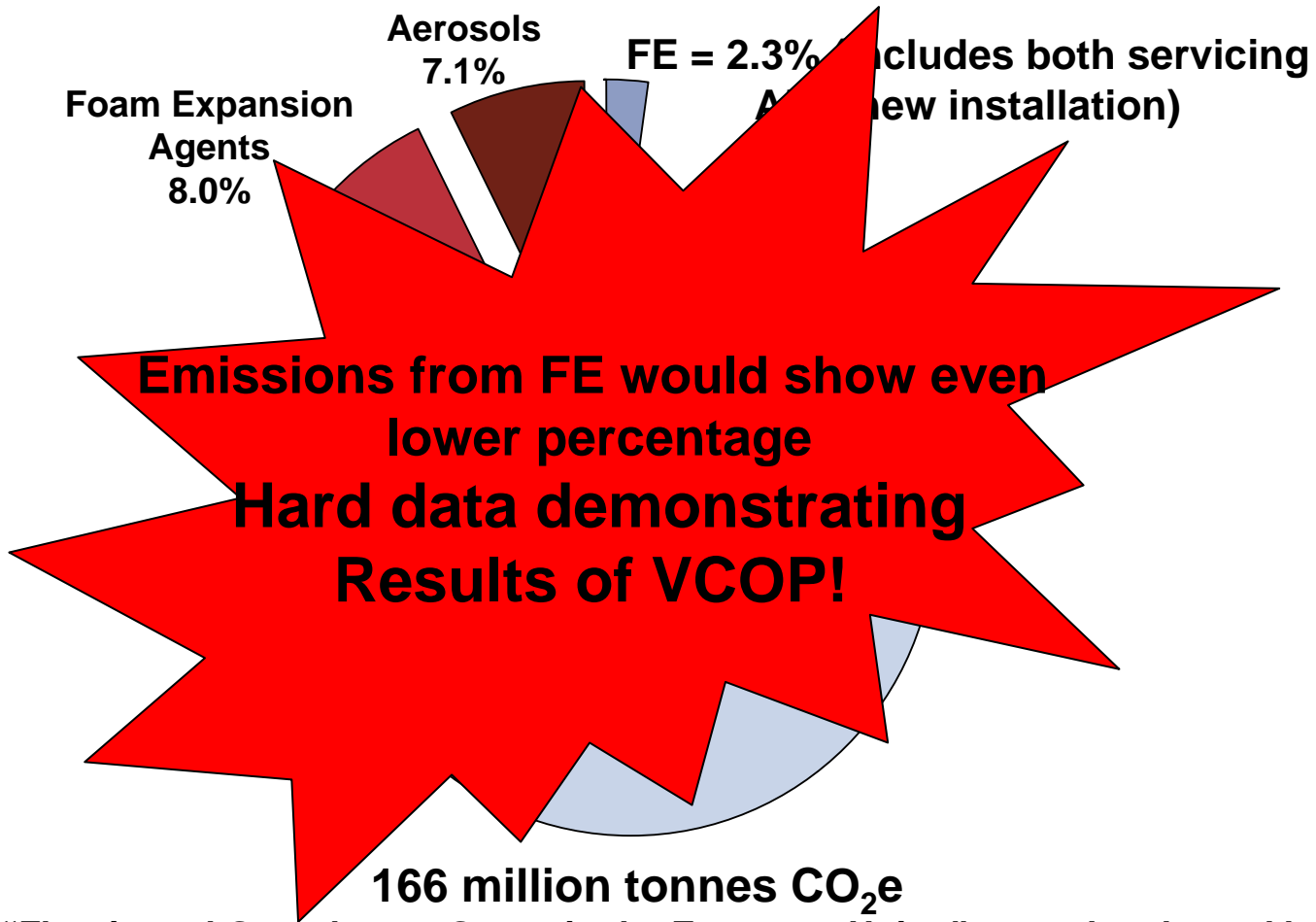


Total = 166 million tonnes CO₂e

From: "Fluorinated Greenhouse Gases in the European Union" recently released by EC

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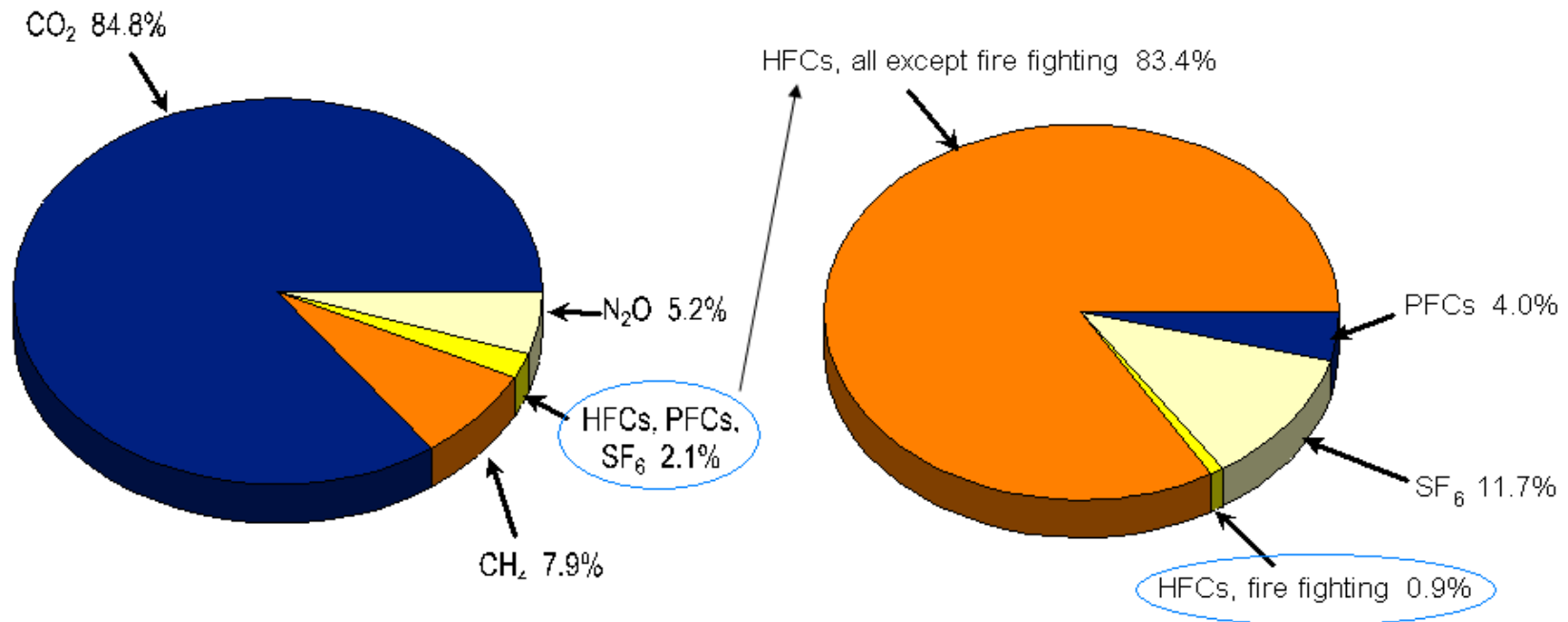
HFC Sales in EU for 2007 in Tonnes CO₂e



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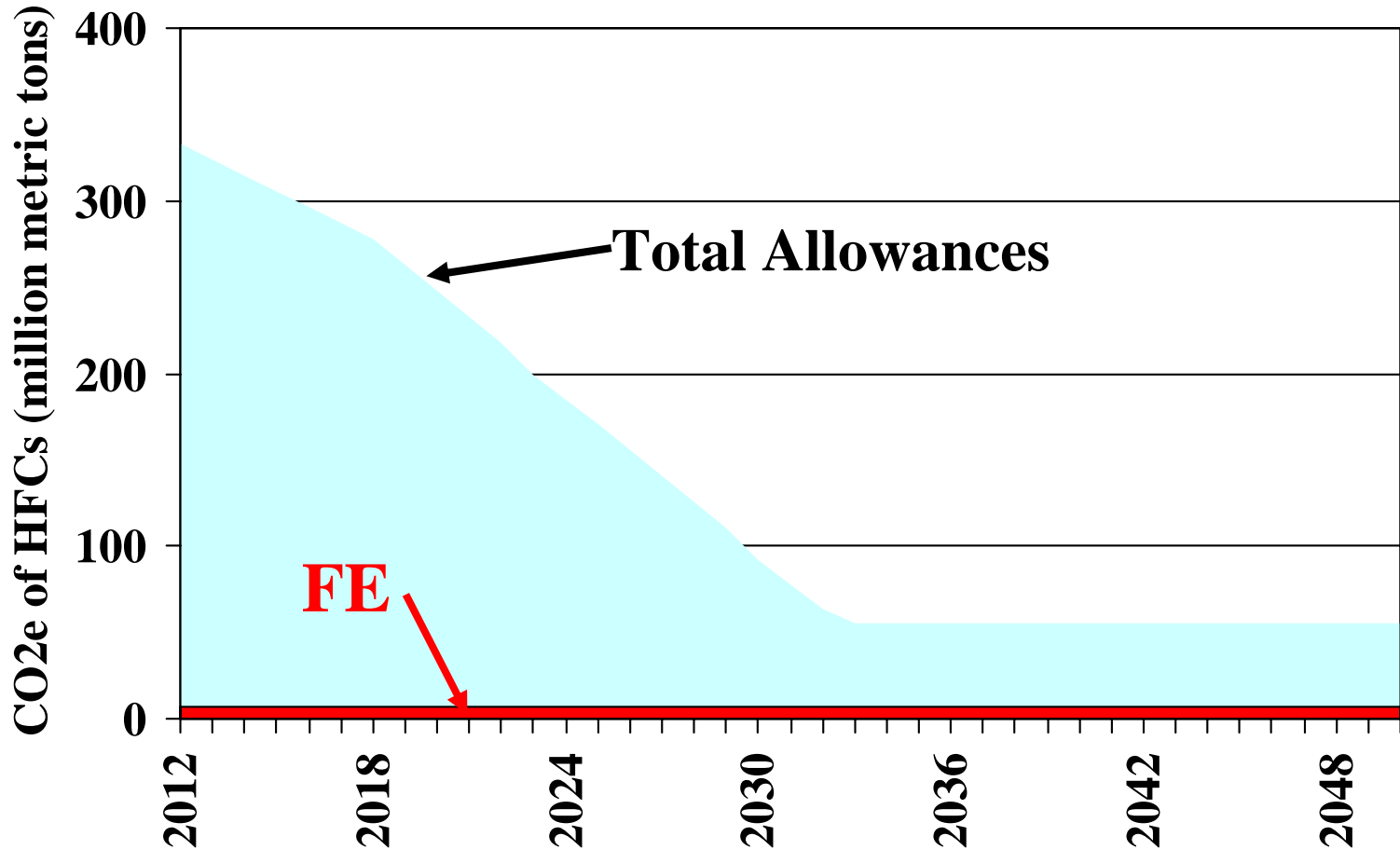
HFCs in Firefighting: Environmental Footprint

Emissions of HFCs from fire fighting represent less than 1% of total HFC emissions worldwide, which is less than 0.02% of all GHG emissions.



US EPA, 2008

Waxman-Markey HFC Reduction Schedule



Summary

- **Regulatory action is increasing**
- **Regulation of HFCs in a separate “basket” is the best approach**
- **HFC Fire Extinguishants will continue to be the leading clean agent under this approach**
- **Industry should speak out to ensure appropriate treatment in legislation**