



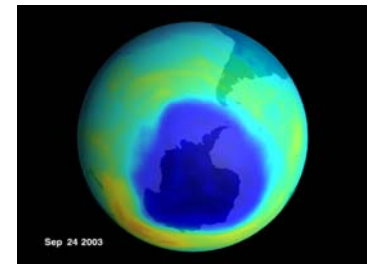
faster to market

natural refrigerants

**U.S. EPA Policy
Acceptability and Use of “Natural” Refrigerants**



**United States Environmental Protection Agency
Office of Air and Radiation
Office of Atmospheric Programs
Stratospheric Protection Division**





Introduction



Julius Banks, Team Lead

Refrigerant Recycling Programs for Stationary and
Motor Vehicle Refrigeration and Air Conditioning
Programs

U.S. EPA Office of Air and Radiation
Stratospheric Protection Division
www.epa.gov/ozone/strathome.html



Overview



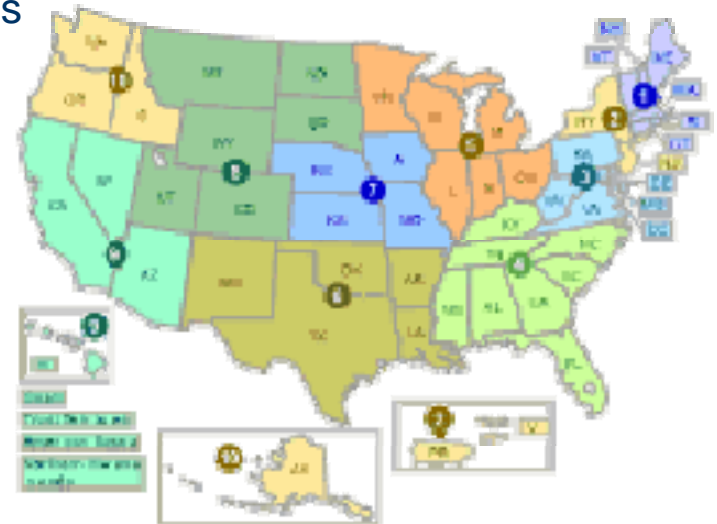
- EPA Overview
- U.S. Clean Air Act—applicability to “natural” refrigerants
- Role of Industry
- Role of Government
- Role of Environmental Advocates
- Future Collaboration



EPA Structure



- EPA has multiple offices covering different media (air, water, waste, enforcement, etc.)
- 10 Regional offices, each of which is responsible for the execution of the Agency's programs within several states and territories
- Within Office of Air and Radiation different offices dealing with
 - Air quality and control
 - Voluntary Climate Initiatives
 - Climate Protection
 - Radiation and Indoor Air Quality
 - Stratospheric Ozone
 - Transportation and Air Quality
 - Laboratories





Title VI of the U.S. Clean Air Act



- The Montreal Protocol ratified via U.S. Clean Air Act amendments of 1990 for protection of Stratospheric Ozone Layer

- Title VI of the CAA is the law granting EPA authority to regulate
 - Sections 604/605 phaseout (phasedown) production and consumption of ODS
 - Section 608 reduce use and emissions of ODS during service of HVAC/R, also ban intentional venting of ODS and alternatives, including HFCs
 - Section 609 service requirements to reduce emissions of CFCs and alternatives during service of MVAC
 - Section 612 authorize alternatives (SNAP) for ODS



2007 Montreal Protocol Agreement Added Significant Climate Protection



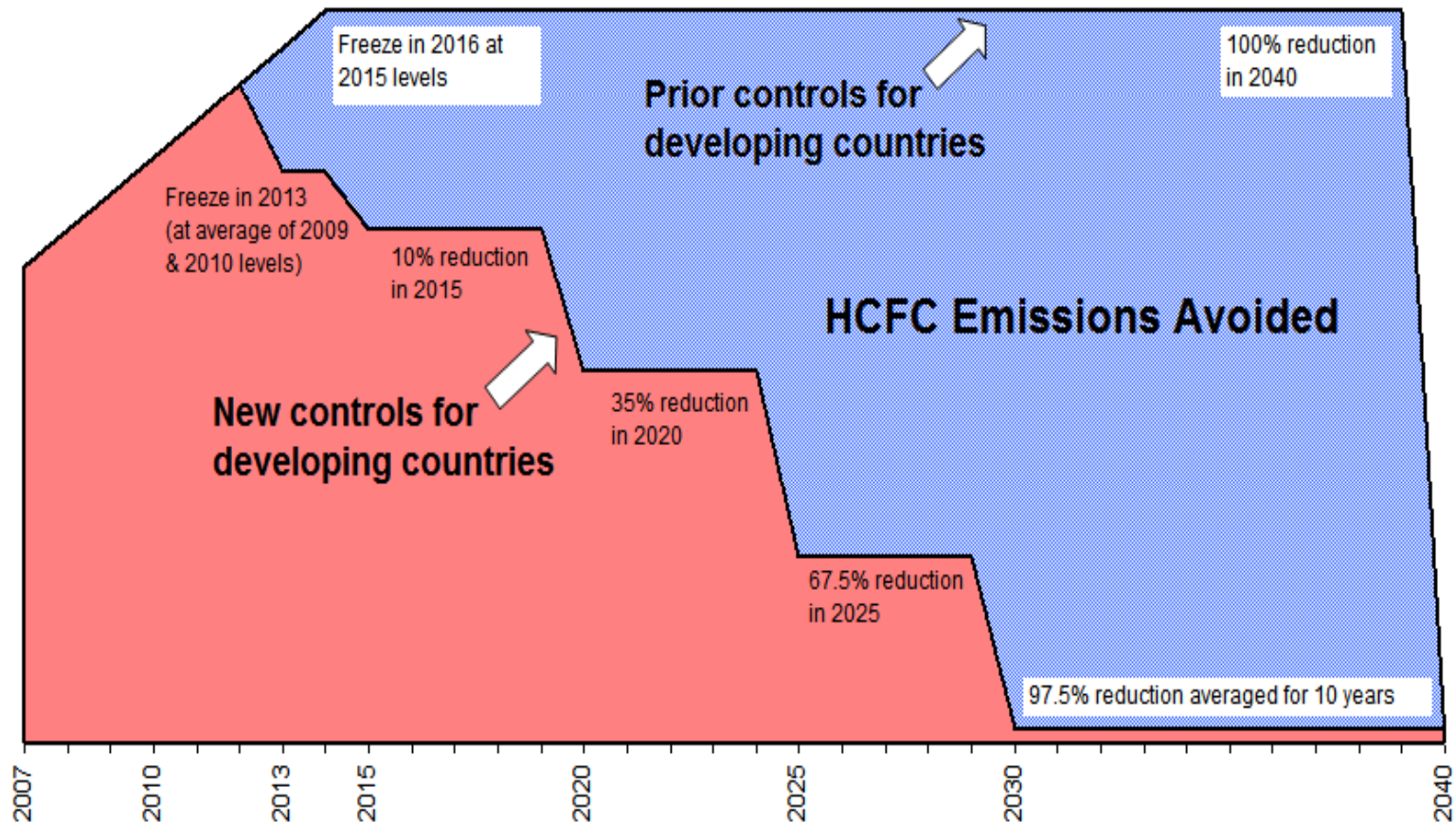
- With U.S. leadership, Parties agreed to more aggressive phaseout for ozone-depleting hydrochlorofluorocarbons (HCFCs)
- Overall, dramatic HCFC reductions 2010-2040 compared to prior commitments, strengthening ozone layer protection
- Climate benefit 2010-2040: 3,000-16,000 MMTCO₂E
 - ***Approximate midpoint is equivalent to eliminating climate emissions from 50% of all U.S. passenger cars each year for next 30 years***



HCFC Phaseout

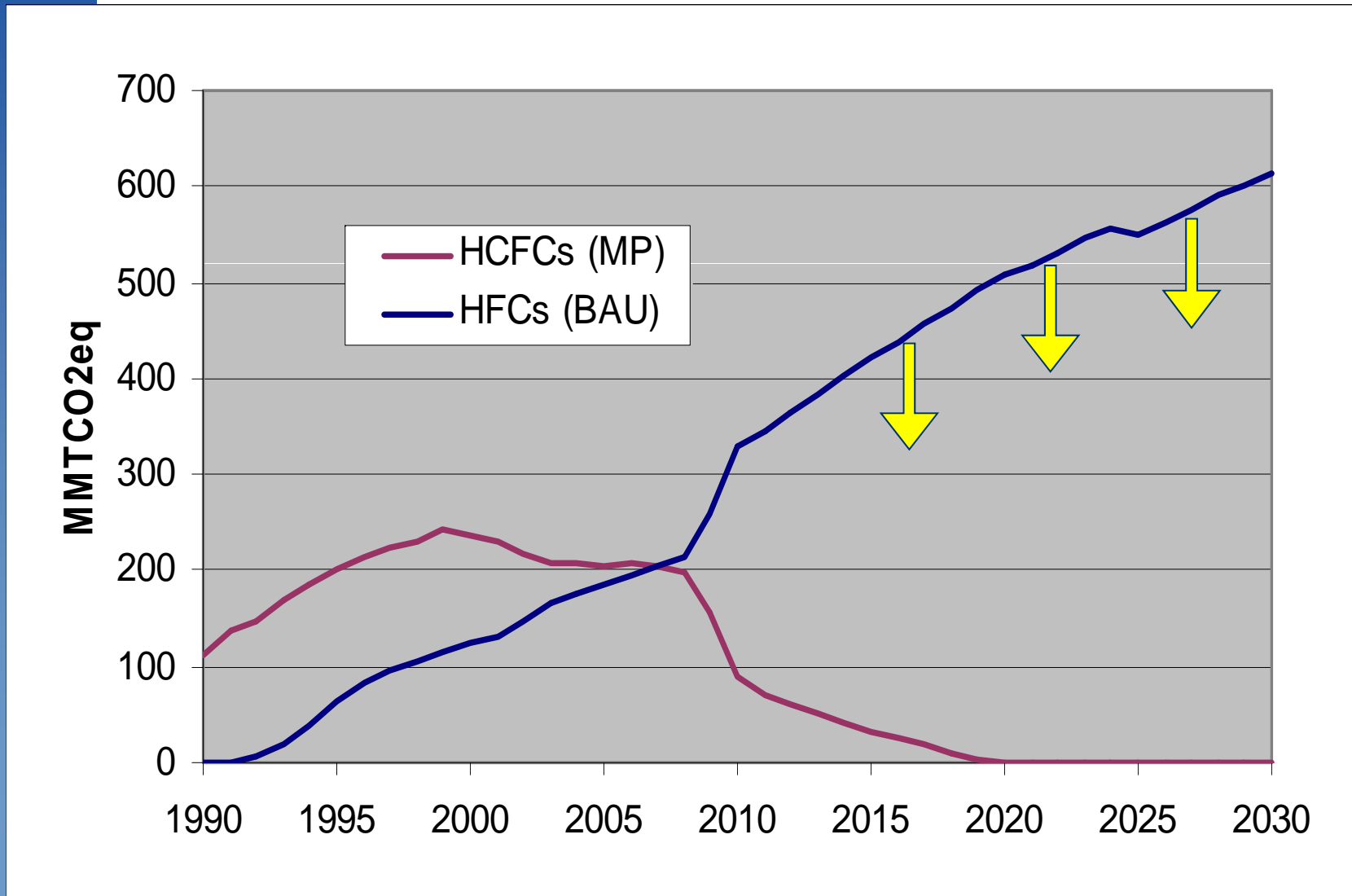


New Stronger Montreal Protocol Controls Reduce Developing Country HCFC Emissions about 58 Percent



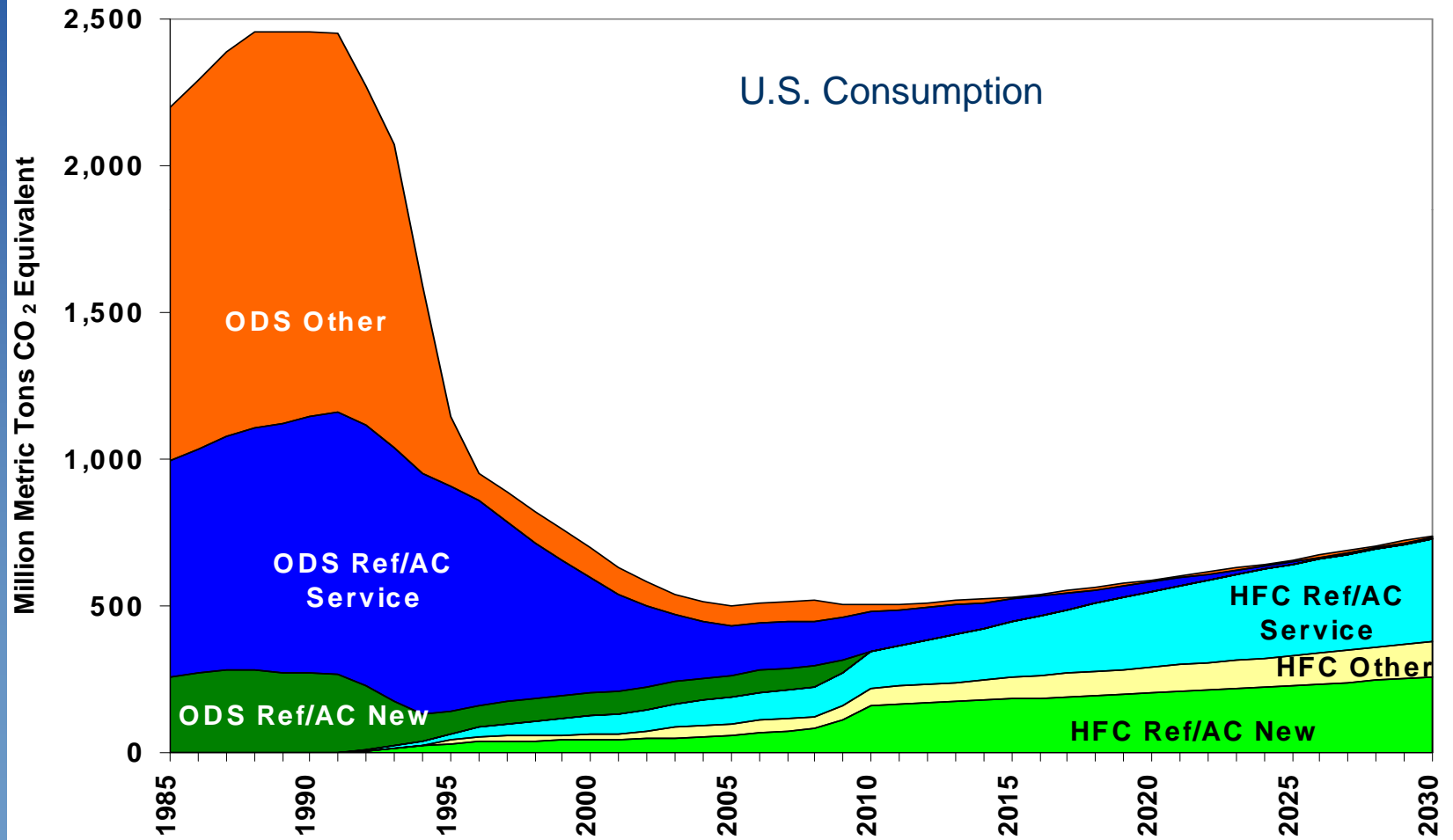


Montreal Protocol HCFC Transition Will Create Additional HFC Use





Montreal Protocol Caused Switches to New Chemicals With Significant Environmental Benefits





“Natural” Refrigerants in the U.S.

- **Rule 17-** *Listing of hydrocarbon refrigerants as substitutes for household refrigerators and freezers and retail food refrigeration*
Effective Date: N/A
 - Proposed Rule (May 10, 2010; 75 FR 25799)
- **Rule 14-** *Alternatives for the motor vehicle air conditioning sector* Final Rule (June 12, 2008; 73 FR 33304)
- Supermarket CO₂ cascade systems
- Industrial Applications



Significant New Alternatives Policy

The Significant New Alternatives Policy (SNAP) Program is EPA's program to evaluate and regulate substitutes for the ozone-depleting substances that are being phased out under the the Clean Air Act

- The purpose of the program is to allow a safe, smooth transition away from ozone-depleting substances by identifying substitutes that offer lower overall risks to human health and the environment
- EPA is authorized to identify and publish lists of acceptable and unacceptable substitutes for industries that have historically relied upon ozone-depleting substances.



Significant New Alternatives Policy

- EPA has determined a large number of alternatives exist that reduce overall risk to human health and the environment, in multiple end-uses
 - Refrigeration & Air Conditioning
 - Foam Blowing Agents
 - Cleaning Solvents
 - Fire Suppression and Explosion Protection
 - Aerosols
 - Sterilants
 - Tobacco Expansion
 - Adhesives, Coatings & Inks



Significant New Alternatives Policy

- EPA reviews and lists alternatives that reduce overall risk to human health and the environment by evaluating:
 - Physical and Chemical Properties
 - Atmospheric Information (ODP, GWP, atm lifetime, etc)
 - Other regulatory requirements/restrictions for a particular end-use
 - Costs and availability of alternative (components undergoing U.S. phaseout)
 - Toxicity and Hazard information including flammability
 - Environmental Release and Disposal at Manufacture
 - Occupational Exposure at Manufacture
 - Occupational and Consumer Exposure during use and service
 - Environmental Release and Disposal during service and end-of-life
 - General population exposure-relationship to other regulatory entities



EPA Servicing Requirements

- Sector approach for service and end-of-life emissions
- NO venting law in the U.S., unless EPA determines that the release does not pose a threat to the environment
- Therefore recovery is required during service and at end-of-life
- Restrictions on sales, technician training, mandatory recovery



Role of EPA

EPA takes a “MENU” Approach to Alternative Refrigerants

- There is no government mandate to use any particular refrigerant
- EPA does not promote or solicit the use of any particular refrigerant
- EPA reviews applications for new refrigerant alternatives and technologies
- Submissions by chemical manufacturers, equipment manufacturers, academia, private organizations
- EPA makes findings of unacceptable, acceptable, or acceptable with use conditions
- Findings are specific to individual end-uses, specific end-use restrictions may apply



Know the Regulatory Process

- EPA does not issue laws, but issues notices and rulemakings based on Congressional authority
- Notices and rules, are published in the Federal Register (www.gpoaccess.gov)
- For Proposed Rules, EPA takes notice and comment from the public
- Final rules are published after all comments have been considered and addressed
- Recognize the interagency review process



Role of NGO and Industry Groups

- Programs such as *Refrigerants Naturally* are commended for their progress
- Why not in the U.S.?
 - Engage in partnership
 - Share lessons learned, including data
 - Acknowledge risk and address mitigation strategies
- Learn the regulatory process and engage
- Voluntary partnerships with Government, Industry, and OEMs



Closing....

Thank you for your attention. EPA staff look forward to ongoing collaboration!