Update on EPA Activities

FAA International Aircraft Systems Fire Protection Forum Meeting
April 21, 2021

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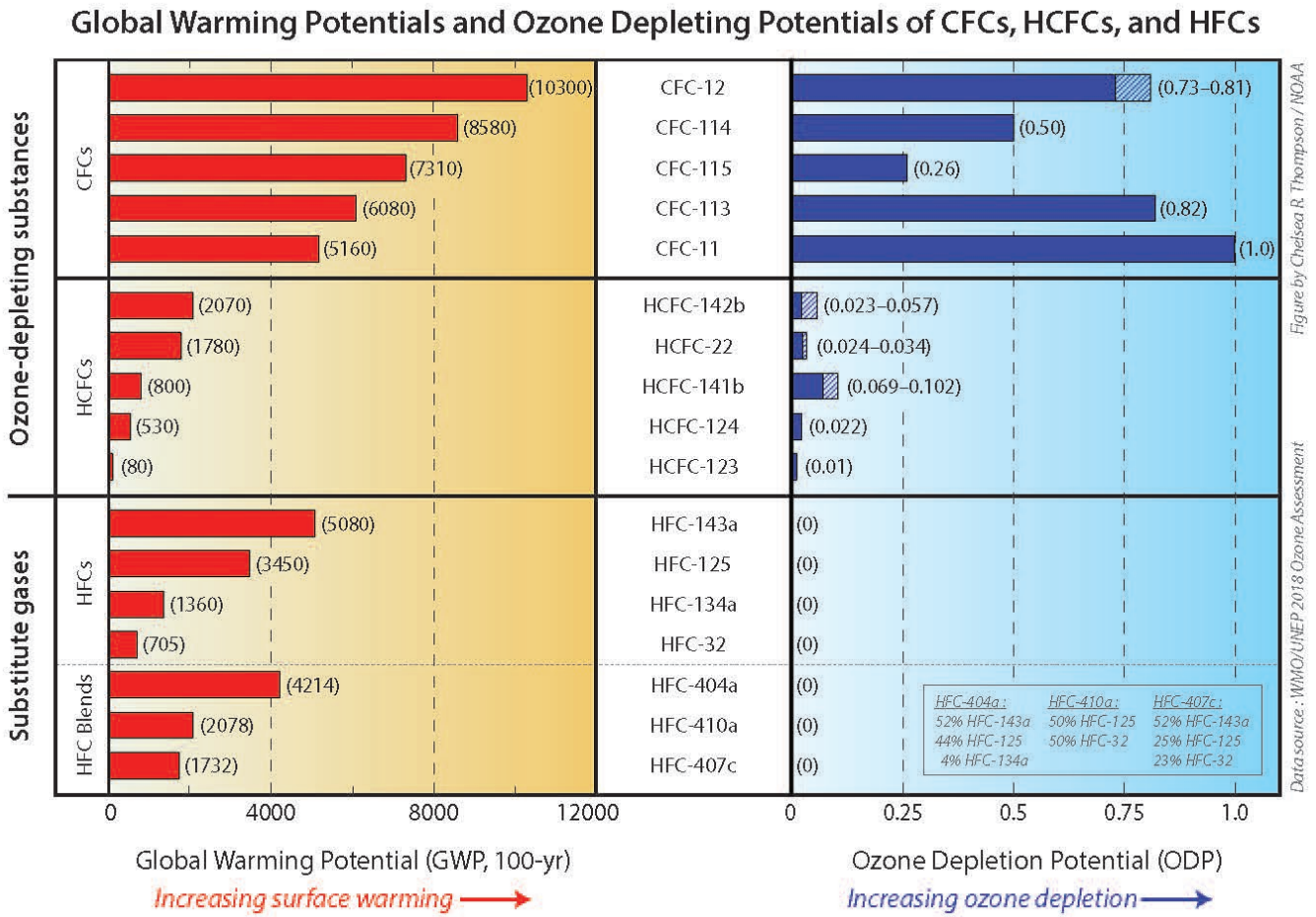
Outline

- The American Innovation and Manufacturing Act (AIM) Act and First Actions
- Significant New Alternatives Policy (SNAP) Program updates

Hydrofluorocarbons (HFCs)

- HFCs are used as replacements for ozone-depleting substances (ODS) in sectors including refrigeration, air conditioning, foam blowing, and fire suppression
- HFCs are potent greenhouse gases with global warming potentials (GWPs) hundreds to thousands of times higher than carbon dioxide (CO_2)
- HFC use is growing rapidly worldwide



The American Innovation & Manufacturing (AIM) Act

- The AIM Act establishes three main types of regulatory programs:
  - Phase down HFC production and consumption
  - Facilitate transition to next-generation technologies
  - Management of HFCs
- Certain provisions are similar to provisions in CAA Title VI, but there are clear differences, including:
  - Application-specific allowances
  - Technology transition petitions
- Additional information available at: https://www.epa.gov/climate-hfcs-reduction

HFC Phasedown Schedule

- Important 2021 statutory deadlines:
  - 270 days after enactment EPA to issue phasedown regulations = **September 23**
    - Less than **170** days to go
  - **By October 1st** allocate allowances for 2022

Date	Caps: Consumption & Production
2022–2023	90 percent
2024–2028	60 percent
2029–2033	30 percent
2034–2035	20 percent
2036 & after	15 percent

HFC Phasedown Allocation Rulemaking

- Rule will stand up allocation program
- Provides the methodology for distributing allowances
- Account for application-specific allowances listed in the Act:
  - metered dose inhalers
  - defense sprays
  - structural composite preformed polyurethane foam for marine & trailer use
  - etching of semiconductor material or wafers & cleaning of chemical vapor deposition chambers
  - mission-critical military needs
  - **onboard aerospace fire suppression**

Next Generation Technologies

- EPA authorized to restrict use of HFCs on a sector or subsector basis to support transition to next-generation technologies
- Specified timelines:
  - grant or deny petitions within 180 days
  - promulgate final rules within 2 years from granting a petition
- As of April 13, 2021, EPA has received five petitions from industry and environmental organizations
  - These petitions seek faster action for various HFC applications

Management of HFCs

- EPA will establish a program for maximizing reclamation and minimizing releases of HFCs and their substitutes from equipment, and ensuring safety of technicians and consumers
  - Establish regulations to control, where appropriate, practices, processes, or activities regarding the servicing, repair, disposal, or installation of equipment
  - Consider using authority to increase opportunities for reclaiming HFC refrigerants
- EPA may coordinate with any other similar regulations (e.g., CAA 608 regulations)
- Subject to appropriations, EPA shall establish a grant program for small businesses for purchase of recycling, recovery, or reclamation equipment for HFC substitutes (e.g., HFO-1234yf), including for servicing motor vehicle air conditioners

First Actions: Allocation Rule

- Notice of Data Availability (NODA) published 2/11/21; provided information on:
  - HFC production and consumption reported to the GHGRP and identified potential data gaps
  - Provided preliminary information on specific applications allowed under the AIM Act for allocations
- Stakeholder engagement
  - Public meeting with over 200 participants held 2/25, sector workshops 3/11-12
  - Participating in industry forums and individual meetings with industry and ENGOs
  - Meeting with other federal agencies
- Notice of proposed rulemaking (NPRM) provided to OMB 3/26

HFC Phasedown Allocation Rulemaking

- EPA requested expedited review, planned signature late April/early May
- Planning for a 45-day comment period
- Rule will stand up allocation program, list entities receiving allowances, and set up methodology for distributing allowances
- Amounts of application-specific allocations to be issued
- EPA will issue a regulatory impacts analysis that includes the benefits-costs and environmental justice and other technical support documents

Onboard Aerospace Fire Suppression

EPA SECTOR WORKSHOP

MARCH 12, 2021

Background

- Onboard aerospace fire suppression is considered to be use in fire suppression equipment on board commercial and general aviation aircraft (private and business jets) and space vehicles; excludes military aircraft covered under "mission-critical military needs"
- Fire suppression systems on board commercial aircraft include total flooding systems (engine nacelles, auxiliary power units, lavatory trash receptacles, baggage/crew compartments) and streaming applications (handheld extinguishers)

Background (cont'd)

- "Space vehicles means a man-made device, either manned or unmanned, designed for operation beyond earth's atmosphere. This definition includes integral equipment such as models, mock-ups, prototypes, molds, jigs, tooling, hardware jackets, and test coupons. Also included is auxiliary equipment associated with test, transport, and storage, which through contamination can compromise the space vehicle performance." (40 CFR 82.3 and 40 CFR 82.62)
- Limited data available on HFC use in fire suppression systems onboard space vehicles

Commercial Aircraft HFC Use

- Commercial aircraft fire suppression systems installed on passenger and freighter aircraft have historically used halons
- HFC-236fa and HFC-227ea replaced halon 1301 lavatory trash receptacles systems in new and existing commercial aircraft
- In 2020, industry estimates that 0.38 metric tons (MT) of HFC-227ea and 0.30 MT of HFC-236fa were installed in new lavatory fire suppression systems on commercial aircraft
  - This is estimated to be 0.009% of the total fire suppression market and 0.0004% of the total HFC use in the United States
- In 2025, EPA estimates that, absent transition to alternatives, 1.1 MT of HFCs are estimated to be installed in new commercial aircraft lavatory fire suppression systems

Questions for Discussions

- Is the estimated amount of HFCs for onboard commercial aviation fire suppression reasonable? What has been the trend in the past (e.g., last five years)?
- What are HFC uses for onboard general aviation fire suppression? What are the estimated amounts of HFCs and trends in use?
- What are the specific HFC uses for onboard space vehicle fire suppression systems?
- What is the estimated amount of HFCs for onboard space vehicle fire suppression systems? What has been the trend in the past (e.g., last five years)?
- What alternatives do you see in the future for onboard aerospace fire suppression systems? What challenges remain in finding and implementing alternatives?
- What relevant data is EPA seeking for this application?
- How can information be submitted to EPA?

SNAP Updates

Fire Suppression Submissions

Total Flooding Uses

- Pyroquench-α™
  - Gas generating system; for use in normally unoccupied spaces
  - Status: submission complete
- EXXFIRE®
  - Gas generating system; for use in normally unoccupied spaces
  - Status: submission complete

Fire Suppression Submissions

Total Flooding Uses

- New Submission
  - Aerosol; for use in normally occupied spaces
  - Status: submission incomplete, currently under review

Streaming Agents

- 2-BTP
  - Additional industrial and commercial uses; previously listed as acceptable subject to use conditions for use in aircraft
  - Status: submission under review by TSCA/SNAP

SNAP Notice 36

- Published on 12/11/2020
- Listed Solstice® Quench 55 as acceptable for total flooding fire suppression
  - Gas generating system; for use in normally occupied and unoccupied spaces
  - With signature of Notice 36, Solstice Quench 55 was included in NFPA 2001 Standard
  - Under consideration for ISO standard

SNAP Listing Rule 23

- Proposed rule published 6/12/20; comment period closed 7/27/20:
  - Would add acceptable substitutes for refrigerants and extruded polystyrene (XPS) foams
  - Would remove restriction for Powdered Aerosol E which limited use to normally unoccupied areas
- We have reviewed the comments and are considering our approach to these listings; no comments were received for the proposed changes for fire suppression

For More Information

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- **Useful EPA Web Sites**:
  - Fire Suppression: https://www.epa.gov/snap/substitutes-fire-suppression-and-explosion-protection
  - SNAP Program: www.epa.gov/snap
  - AIM Act & HFC Phasedown: https://www.epa.gov/climate-hfcs-reduction