



# The American Innovation and Manufacturing (AIM) Act

## Sector Workshops

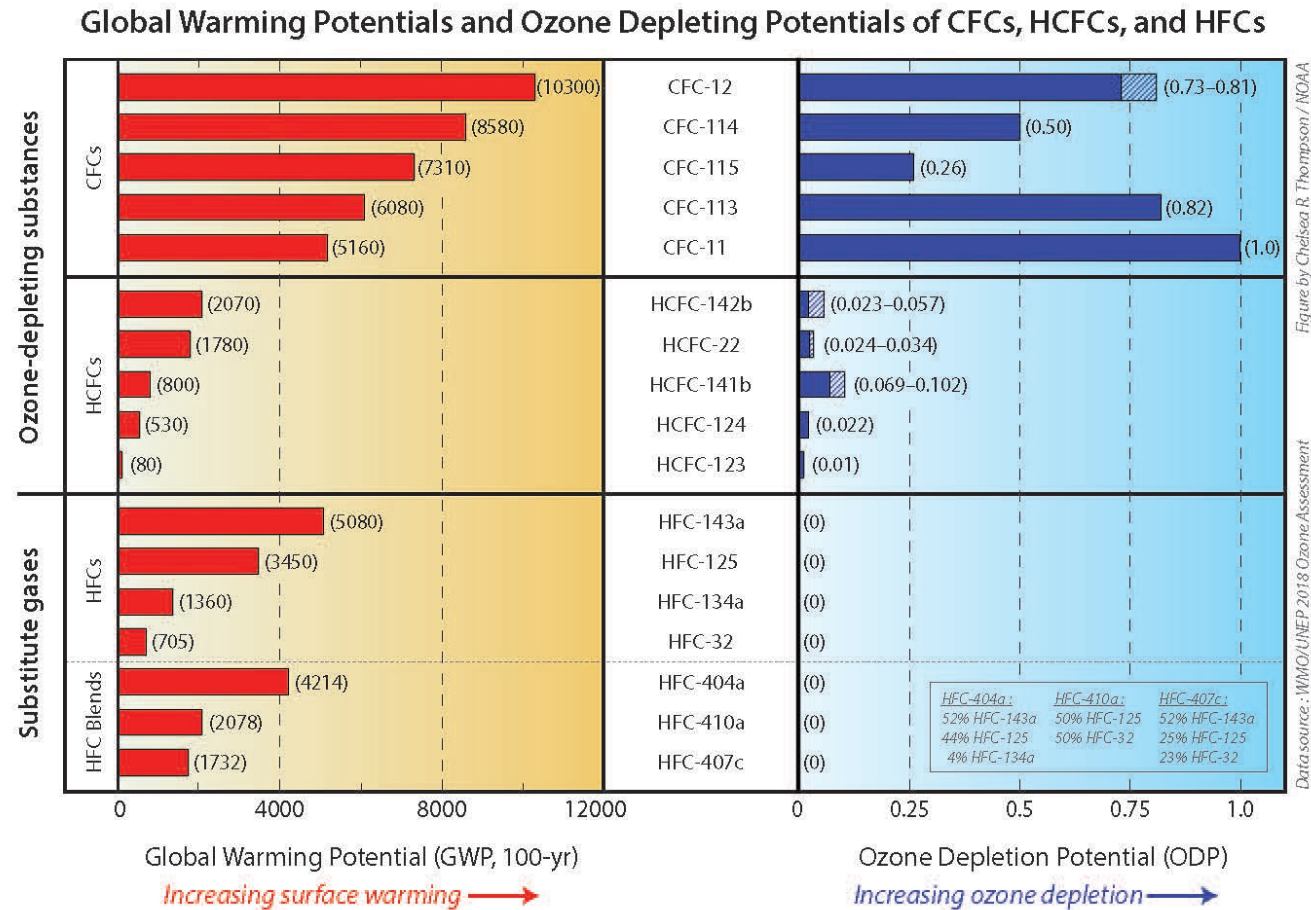
MARCH 11-12, 2021

# Agenda

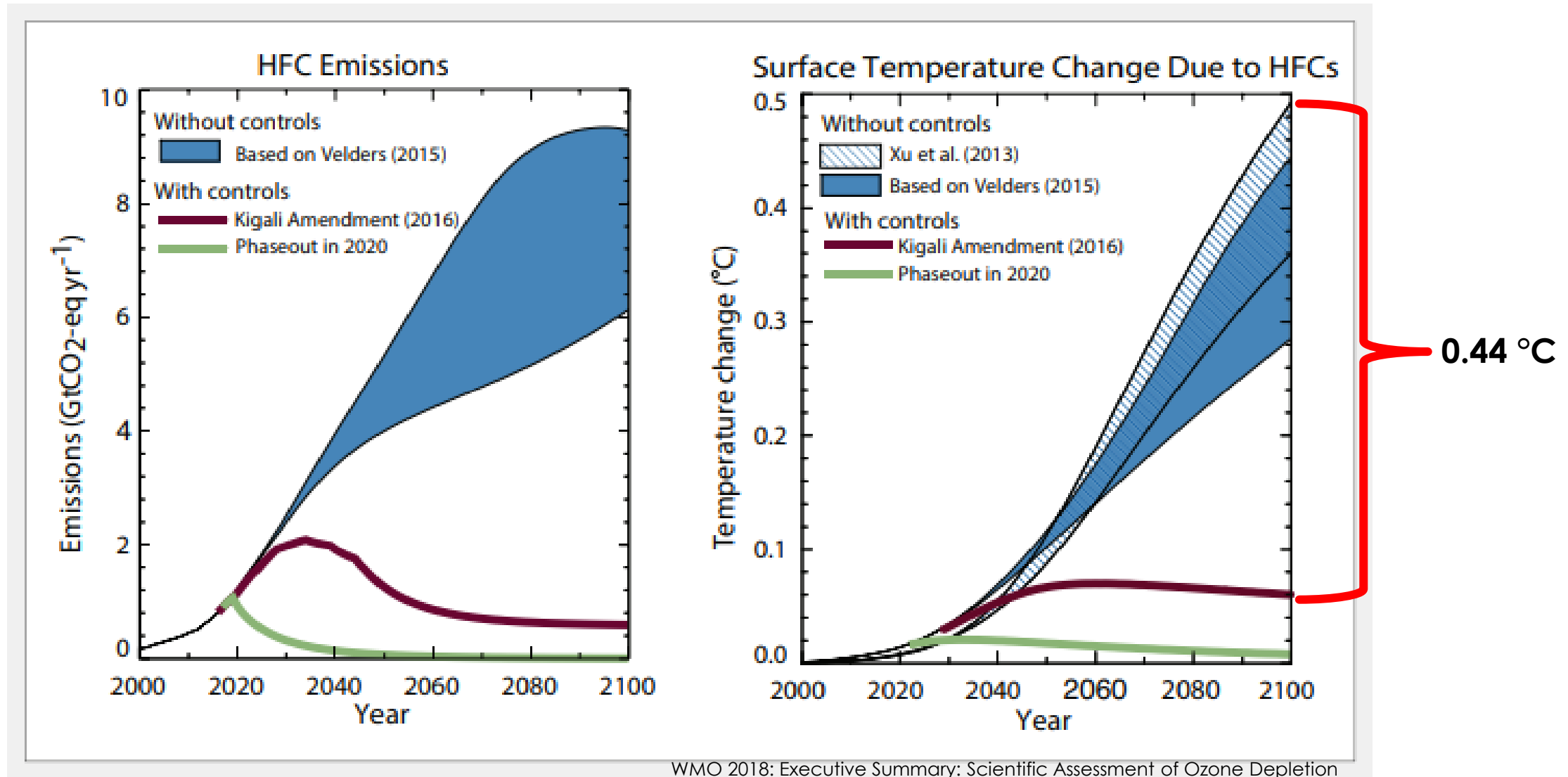
- ▶ Welcome & Introductions
- ▶ The AIM Act and First Actions
- ▶ HFC Application
- ▶ Open Dialogue
- ▶ Closing

# 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<sub>2</sub>)
- ▶ HFC use is growing rapidly worldwide



# A global HFC phasedown is expected to avoid up to 0.5°C of global warming by 2100



# 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:
  - ▶ Includes a limited state pre-emption clause
  - ▶ Provides targeted small business technology grants

# HFC Phasedown Schedule

- ▶ Important 2021 statutory deadlines:
  - ▶ 270 days after enactment EPA to issue phasedown regulations = **September 23**
    - ▶ Less than **200** days to go
  - ▶ **By October 1<sup>st</sup>** 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
- ▶ Provide 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
- ▶ EPA must consider using negotiated rulemakings
  - ▶ If not using negotiated rulemaking, EPA must publish explanation
- ▶ Specified timelines:
  - ▶ grant or deny petitions within 180 days
  - ▶ promulgate final rules within 2 years from granting a petition



# 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: Notice of Data Availability (NODA)

- ▶ NODA published 2/11/21; comment period closed 2/25/21
- ▶ Provided information on HFC production and consumption between 2011 and 2013 as reported to the GHGRP
- ▶ Identified potential data gaps and requested comments on areas of additional information
- ▶ Provided preliminary information on HFCs for some of the specific applications allowed under the AIM Act for allocations
- ▶ Data will inform the establishment of U.S. HFC baselines for production and consumption

# First Actions: HFC Phasedown Allocation Rulemaking

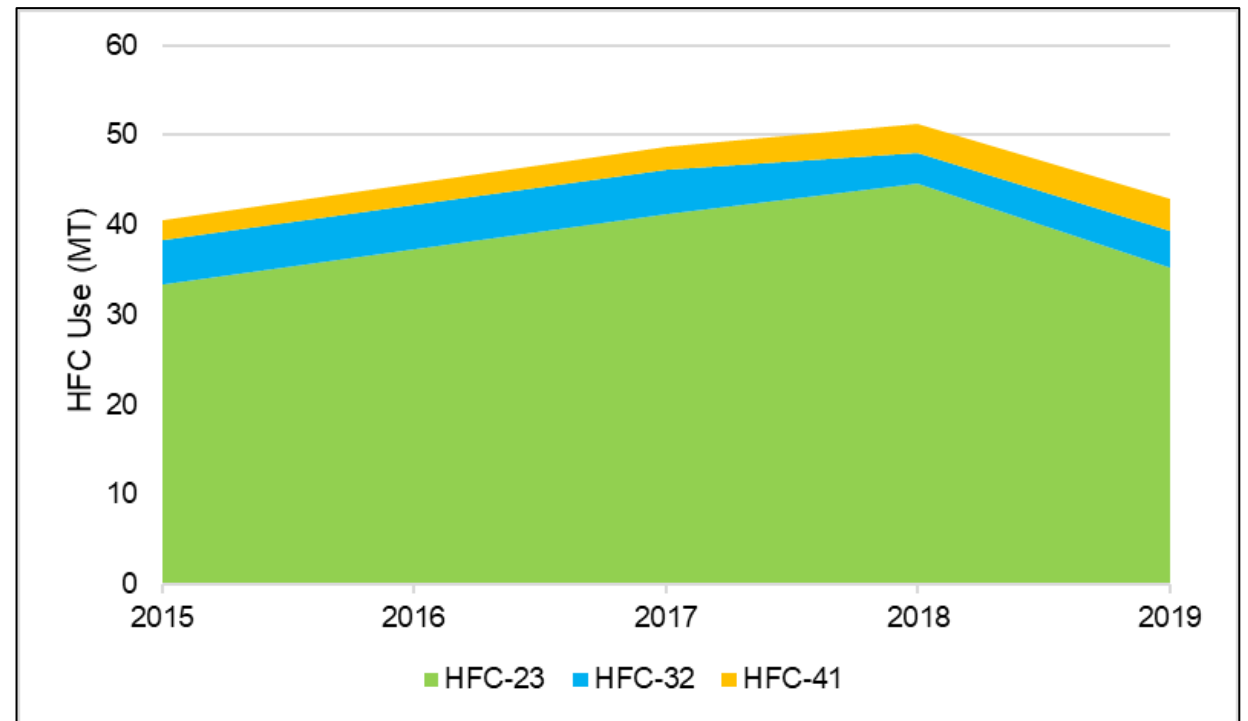
- ▶ NPRM allocation rule
- ▶ Fast-tracked, planned signature late April/early May
  - ▶ Planning for a 45-day comment period
- ▶ Rule will stand up allocation program, list entities receiving allowances, and set up methodology for distributing allowances
  - ▶ Amounts of application-specific allocations to be issued
- ▶ EPA will issue a benefits-costs analysis and other technical support documents

# Semiconductors

# Historical and Projected HFC Use

- ▶ Semiconductor manufacture uses three HFCs—HFC-23, HFC-32, and HFC-41—primarily in etching processes, but also minimally in CVD chamber cleaning processes
- ▶ In 2019, EPA estimates 43 metric tons (MT) were used in semiconductor fabrication facilities in the U.S.
- ▶ In 2025, EPA estimates that, absent transition to alternatives, 68 MT of HFCs will be used in semiconductor manufacturing
  - ▶ Reclaimed HFCs could offset need for newly produced/imported HFCs

Historical Estimated Use of HFCs for US Semiconductor Manufacturing, 2015-2019 (MT)



Source: GHGRP (2020), WFF (2020)

# Reminders

- ▶ Unless called to speak, please keep your speaker on **MUTE**
  - ▶ If joining by phone, unmute by entering \*6
- ▶ During Q&A session:
  - ▶ Raise your **HAND** to ask to speak
  - ▶ Open **CHAT** to submit questions or ask to speak
  - ▶ Please indicate your **NAME** and **AFFILIATION**
  - ▶ Please be mindful of time to allow others opportunity to ask questions or speak
- ▶ If your internet connection is unstable, turning off your **VIDEO** might help

# Questions for Discussion

- ▶ Is the estimate of consumption of HFCs by semiconductor manufacturing reasonable? What has been the trend in the past (e.g., last five years)?
- ▶ What trends do you foresee in the future use of HFCs or alternatives for semiconductor manufacturing (e.g., next five years)?
  - ▶ What growth rate do you anticipate for semiconductor manufacturing generally? For use of HFCs in semiconductor manufacturing? Do you expect different growth rates for different HFCs?
- ▶ What alternatives and/or alternative technologies do you see in the future for semiconductor manufacturing? What challenges remain in finding and implementing alternatives to HFCs in this application?
- ▶ Have you investigated the possibility of using recovered/reclaimed HFCs?
- ▶ What relevant data is EPA seeking for this application?
- ▶ How can information be submitted to EPA?

# Closing