



U.S. Developments on PFAS Policies and HFC Phasedown

Stephen R. Yurek
AHRI President & CEO

Air-Conditioning, Heating, and Refrigeration Institute (AHRI)

Advocate for 330+ HVACR and
water heating manufacturers

Developer of 100+ international
industry standards and guidelines

Administer of 40+ certification
programs



Our Members are Manufacturers

Cooling and heating products for residential, commercial and industrial applications

central AC & heating equipment

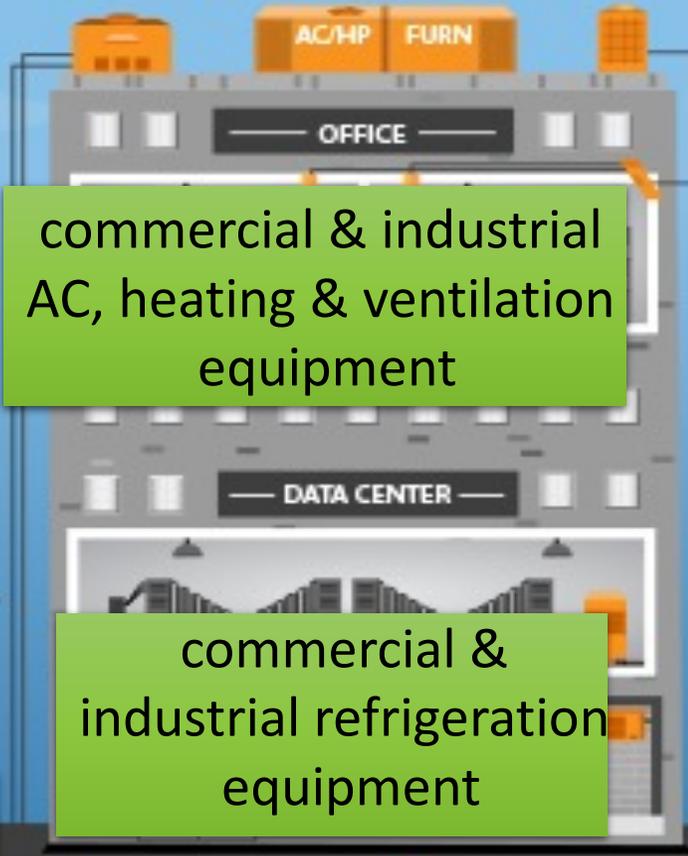


hydronic heating equipment

water heating equipment



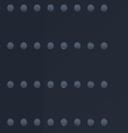
components for heating, AC & refrigeration systems



commercial & industrial AC, heating & ventilation equipment

commercial & industrial refrigeration equipment





USA



CANADA



CHINA



UAE



INDIA

We Are a Global
Association



For Discussion Today

PFAS policy in the United States
and AHRI's Position

Refrigerant transition: Where
we are in the United States



We Have a History of Environmental Stewardship

The products and equipment manufactured by our members require energy

However, for more than 50 years, we have prioritized energy efficiency and environmental stewardship

- Improved overall efficiency 50 percent over the past 20 years
- Innovated “green” HVACR and water heating products such as geothermal and thermal heat pumps, tankless and solar-powered water heaters, dual-fuel hybrid heating systems, zone controls, ECM motors, variable frequency drives, and lower GWP refrigerants.

United States PFAS Policy

- EPA is considering requiring the reporting of PFAS retroactively from 2011
 - The EPA definition is **much narrower** than the definition proposed in Europe and **excludes refrigerants and trifluoroacetic acid** (TFA)
 - Would require manufacturers and importers to document, report, and retain records of PFAS manufacturing and import since January 1, 2011
 - Does not exclude chemicals in “articles” or components and parts, such as articles containing PFAS as part of surface coatings
- Maine
 - Broad definition, like that proposed in Europe
 - Reporting required for PFAS, including refrigerants, starting in 2023
 - Bans on PFAS, including refrigerants, unless exempted, starting in 2030

PFAS Definitions

The European Union (EU) definition includes refrigerants and trifluoroacetic acid (TFA), which are not PBTs

- “Substances that contain at least one aliphatic -CF₂- or -CF₃ element”

The U.S. definition excludes refrigerants and TFA

- “For the purposes of this proposed action, the structural definition of PFAS includes per- and polyfluorinated substances that structurally contain the unit R-(CF₂)-C(F)(R')R”. Both the CF₂ and CF moieties are saturated carbons and none of the R groups (R, R' or R'') can be hydrogen.”

States are considering a wide array of definitions

- Maine and California propose using a definition similar to EU
- Delaware proposes to use something closer to EPA

AHRI PFAS Position

- We support a definition that:
 - Explicitly targets persistent, bioaccumulative, and toxic (PBT) chemicals, such as PFOA and PFOS
 - Does not directly or indirectly include critical chemicals, such as refrigerants, that do not pose a risk to public health

Example:

- *“PFAS” means non-polymeric perfluoroalkyl and polyfluoroalkyl substances that are a group of man-made chemicals that contain at least 2 fully fluorinated carbon atoms, excluding gases and volatile liquids. “PFAS” includes PFOA and PFOS.*

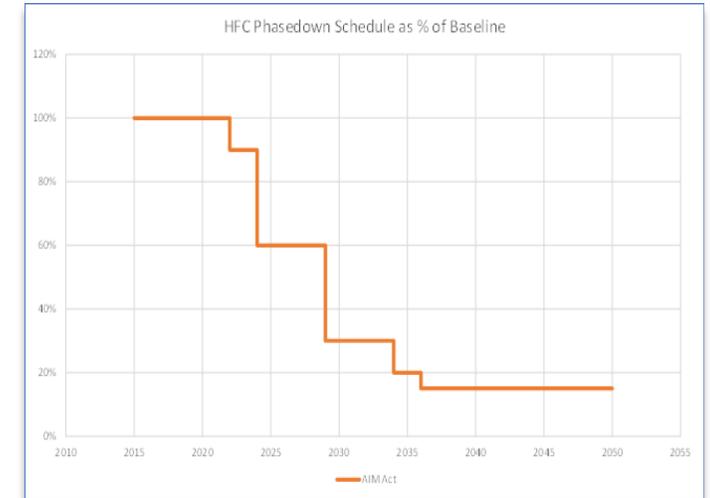
American Innovation and Manufacturing Act of 2020

Mandates production and consumption phase-down of HFCs

Mirrors Kigali Amendment

Allows sector transitions

Refrigerant management including recovery and reclaim



2011-2013 baseline:

- 2022: 10% reduction
- 2024: 40% reduction
- 2029: 70% reduction
- 2034: 80% reduction
- 2036: 85% reduction

U.S. Refrigerant Transition Developments

We have legislation implementing Kigali and the U.S. Senate has begun the ratification process

EPA allows A2L refrigerants in certain applications, subject to safety standards

Standards and building codes are being updated to allow the new refrigerants

Manufacturers have made their refrigerant choices and all are in the equipment research and development stage

In the U.S., new refrigerants must be approved by the EPA and standards adopted into building codes



Enabling Refrigerants

We've come a long way...

2019

- States developing disparate regulations
- Safety standards unavailable for next generation refrigerants
- New refrigerants not allowed by EPA
- Building codes not enabling new solutions
- Training needed
- Questions around transportation

2022

- ✓ Federal regulation through the American Innovation and Manufacturing (AIM) Act
- ✓ Safety standards updated
- ✓ EPA listed refrigerants for air conditioning
- ✓ International Code Council (ICC) National Model Codes enabled the use of next generation refrigerants and storage.
 - ✓ Over 1/3 of US market has adopted building codes enabling use of new refrigerants.
 - ✓ On track to have 2/3 of US market enabled by end of 2022
- ✓ Training available for technicians and first responders
- ✓ Department of Transportation (DOT) Letter of Interpretation up to 25 pounds of charge

We have more
work to do...

- AIM Act petitions for sector-based controls
- Increase refrigerant recovery and reclaim use
- Have EPA list as acceptable additional new refrigerants
- Building Codes
 - Have Model building codes adopt latest standards (e.g., UL-60335-2-89, ASHRAE 15)
 - Have remaining states adopt latest building codes enabling use of new refrigerants
- Have U.S. Department of Transportation update regulations regarding shipping of chillers, horizontal cylinders, and mid-sized systems
- Work with Canadian and Mexican governments to harmonize implementation of the Kigali Amendment

Thank-you!

