

HFC Regulations in the United States

National Legislation: The American Innovation and Manufacturing (AIM) Act of 2020

On December 27, 2020, a bill for COVID-19 relief was signed into law that includes provisions from the American Innovation and Manufacturing (AIM) Act. The AIM Act is based on Title VI standards of the Clean Air Act and is written to combat climate change by limiting the production and consumption of specific greenhouse gases, known as hydrofluorocarbons (HFCs), which contribute to global warming.

The AIM Act aligns the United States with the HFC phasedown schedule of the Kigali Amendment to the Montreal Protocol and

grants authority to the US Environmental Protection Agency (EPA) to manage HFC phasedown at specified reduction targets through 2036.

This reduction schedule will be implemented for HFC refrigerant use in new equipment only starting January 1, 2024. Existing equipment is not currently impacted and HFC refrigerant is expected to remain available for servicing. The EPA is expected to start the rulemaking process for HFC servicing in 2022.

What are HFCs?

Hydrofluorocarbons (HFCs) are gases used in multiple applications such as aerosols, air conditioning, fire suppression, foam insulation, commercial and industrial refrigeration and transportation.

HFCs are commonly considered to have higher global warming potential (GWP) values and can be harmful to the environment if released into the earth's atmosphere.

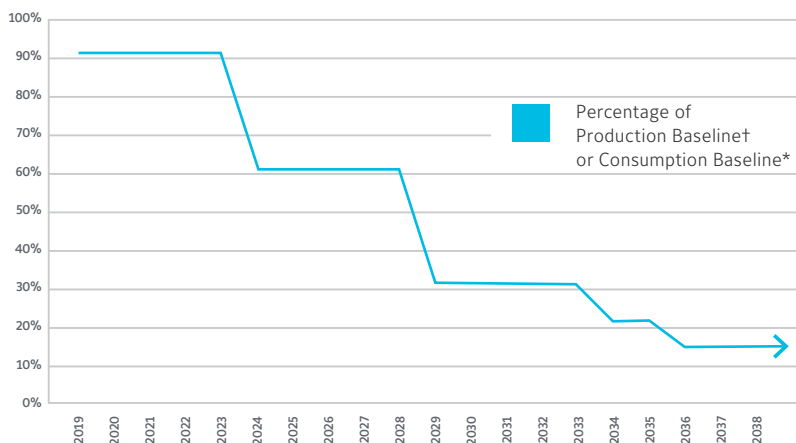
HFC refrigerants have been successfully utilized in HVAC/R products for decades, including chillers, commercial and residential air-conditioning equipment, industrial refrigeration and VRF systems. While some applications such as aerosols, fire suppression and foam blowing are designed to release HFC gases, most stationary HVAC/R products are designed to have relatively low leakage. Proper maintenance and end-of-life recovery practices can guarantee little to no direct impact on global warming from HVAC/R equipment.



HFC refrigerants currently used in Johnson Controls HVAC/R products include:

R-134a R-32 R-404A R-407C
R-407F R-410A R-507A

AIM Act HFC Refrigerant Phasedown Schedule:



† Production Baseline = average annual quantity of all regulated substances produced in the US from January 1, 2011 through December 31, 2013 + 15% of HCFC production level in 1989 + 0.42% of CFC production in 1989

* Consumption Baseline = average annual quantity of all regulated substances consumed in the US from January 1, 2011 through December 31, 2013 + 15% of HCFC consumption level in 1989 + 0.42% of CFC consumption in 1989

Note: Exchange values assigned to each HFC, HCFC and CFC listed in Section 4 of the AIM Act are typically reflective of the AR4 GWP of each fluid

Johnson Controls and many United States manufacturers of refrigerants and HVAC/R equipment are in full support of the HFC phasedown schedule detailed in the AIM Act and the Kigali Amendment. This will allow a market transition to next-generation technologies in a way that protects the environment while allowing the US to maintain leadership in the global refrigerant market, supporting the HVAC industry's commercial objectives and meeting the needs of consumers.

EPA SNAP program

The EPA issues a series of [rulemakings](#) under the Significant New Alternatives Policy (SNAP) that generally classify refrigerants as acceptable or unacceptable depending on the "overall risk to human health and the environment".

SNAP Rules 20 and 21¹: Issued in 2015 and 2016 respectively, individual HFC refrigerants were listed as unacceptable and eliminated for future use in new HVAC/R equipment in specific sectors and applications. These rules were challenged in court and partially vacated due to the lack of authority by the EPA to regulate HFC refrigerants.

The AIM Act now provides the EPA with the authority to manage HFC reduction in the United States and future rulemakings are expected before 2024.

SNAP Rule 23: Issued in 2021, specific alternatives to HFC refrigerants are listed as acceptable for use in residential and light commercial HVAC products.

Transition to next-generation technologies is supported in three primary ways:

- HFC production and consumption are phased down over a 15-year period, which allows for an orderly transition that is friendly to the market and the consumer.
- The EPA is authorized to establish standards for HFC refrigerant management and reclaim, which helps to ensure adequate HFC supply for servicing existing equipment.
- The EPA can establish sector-based HFC use restrictions that would aid sectors able to transition away from HFCs more quickly and provide flexibility to sectors in need of more time to complete a transition.

State-level HFC restrictions

The AIM Act does not include federal preemption, thus allowing individual states to manage their own HFC phasedown schedule provided they meet or exceed the AIM Act requirements.

Some states have already adopted or are in the process of adopting the EPA's SNAP Rules 20 and 21 and their associated sector-based mandates. [California](#) is leading the way as well as some state members of the [US Climate Alliance](#). While Johnson Controls is in full support of national HFC phasedown requirements, Johnson Controls does not support state-level legislation that could potentially fragment the U.S. refrigerant market.

¹ SNAP Rules 20 and 21 address the future use of refrigerants in new HVAC/R equipment and do not impact the ability to maintain or service existing equipment utilizing HFC refrigerants.

The current HFC reduction schedule for the AIM Act and the Kigali Amendment allows for a 15 percent service tail to remain for HFC refrigerant production after 2036.

Sector-based transition mandates

Sector-based mandates begin with formal petitions submitted to the EPA and are typically filed by industry trade organizations and NGOs.

AHRI, NRDC and AHAM, as well as several other organizations, have filed formal [petitions](#) requesting specific transition dates and GWP limits for varying sectors.

October 2021 – The [EPA](#) has granted or partially granted 11 petitions submitted under the AIM Act to restrict the use of HFCs in the HVAC/R, aerosols and foam sectors. One of these petitions includes restricting HFC use in new chiller equipment on January 1, 2024 and new unitary equipment on January 1, 2025, aligning with the original intent of SNAP Rules 20 and 21 and aligning with most existing state-level HFC regulations. The EPA now has two years to finalize rulemakings to support these petitions and is ultimately driven by the overall HFC phasedown schedule of the AIM Act.

Johnson Controls commitment to sustainability

To further the cause of sustainability, government, industry and civil society must collaborate to adopt a consistent approach to managing refrigerant transitions. These transitions must take place in a proactive, environmentally sound, economical and equitable manner. Johnson Controls supports global agreements such as The Kigali Amendment and has made voluntary commitments to initiatives aimed at driving this consistent approach to managing the refrigerant transition. Learn more [here](#).

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