

The EPA Administrator, Michael S. Regan, signed the following final rule on 12/6/24, and EPA is submitting it for publication in the *Federal Register* (FR). While we have taken steps to ensure the accuracy of this Internet version of the rule, it is not the official version of the rule for purposes of compliance or effectiveness. Please refer to the official version in a forthcoming FR publication, which will appear on the Government Printing Office's website (www.gpo.gov/fdsys/search/home.action) and on Regulations.gov (www.regulations.gov) in Docket No. EPA-HQ-OAR-2021-0643. Once the official version of this document is published in the FR, this version will be removed from the Internet and replaced with a link to the official version.

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ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 84

[EPA-HQ-OAR-2021-0643; FRL-11739-02-OAR]

RIN 2060-AW20

Phasedown of Hydrofluorocarbons: Restrictions on the Use of HFCs under the AIM Act in Variable Refrigerant Flow Air Conditioning Subsector

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: The U.S. Environmental Protection Agency is amending a provision of the 2023 Technology Transitions regulations promulgated under the American Innovation and Manufacturing Act of 2020. This action provides until January 1, 2027, for the installation of certain new variable refrigerant flow air conditioning and heat pump systems which use components manufactured in the United States or imported into the United States prior to January 1, 2026. This action also provides until January 1, 2028, for the installation of certain new variable refrigerant flow air conditioning and heat pump systems if a building permit that approves the use of a hydrofluorocarbon or blend containing a hydrofluorocarbon in such a system was issued prior to October 5, 2023, provided that the system uses components manufactured in the United States or imported into the United States prior to January 1, 2026. This action will mitigate the potential for stranded inventory of variable refrigerant flow systems.

DATES: This final rule is effective on **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

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ADDRESSES: The EPA has established a docket for this action under Docket ID No. EPA-HQ-OAR-2021-0643. All documents in the docket are listed on the <https://www.regulations.gov> website. Although listed in the index, some information is not publicly available, *e.g.*, Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available electronically through <https://www.regulations.gov>.

FOR FURTHER INFORMATION CONTACT: Joshua Silver, Stratospheric Protection Division, Office of Atmospheric Protection (Mail code 6205A), Environmental Protection Agency, 1200 Pennsylvania Ave. NW, Washington, DC 20460; telephone number: (202) 564-2473; email address: silver.joshua@epa.gov. You may also visit EPA’s website at <https://www.epa.gov/climate-hfcs-reduction> for further information.

SUPPLEMENTARY INFORMATION:

Throughout this document, whenever “we,” “us,” “the Agency,” or “our” is used, we mean EPA. Acronyms that are used in this rulemaking that may be helpful include:

AC–Air Conditioning
AHRI–Air-Conditioning, Heating, and Refrigeration Institute
AIM Act–American Innovation and Manufacturing Act of 2020
The Alliance–Alliance for Responsible Atmospheric Policy
BTU/h–British thermal units per hour
CAA–Clean Air Act
CRA–Congressional Review Act
EPA–U.S. Environmental Protection Agency
FR–*Federal Register*
GWP–Global Warming Potential
HARDI–Heating, Air-conditioning & Refrigeration Distributors International
HFC–Hydrofluorocarbon

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HVAC–Heating, Ventilation, and Air Conditioning
kW–Kilowatt
NAICS–North American Industry Classification System
NTTAA–National Technology Transfer and Advancement Act
OEM–Original Equipment Manufacturer
PRA–Paperwork Reduction Act
RACHP–Refrigeration, Air Conditioning, and Heat Pumps
RFA–Regulatory Flexibility Act
UMRA–Unfunded Mandates Reform Act
VRF–Variable Refrigerant Flow

Table of Contents

- I. General Information
 - A. Does this action apply to me?
 - B. What action is the Agency taking?
 - C. What is the Agency’s authority for taking this action?
 - D. What are the incremental costs and benefits of this action?
- II. Background
 - A. Previous Technology Transitions Rules
 - B. EPA’s Proposal Regarding Variable Refrigerant Flow Systems
- III. EPA’s Final Action
 - A. Final Action
 - B. Avoiding Stranded Inventory
 - C. Comments and Responses
 - D. Limiting the Environmental Impact of this Action
 - E. How Do the Labeling, Recordkeeping, and Reporting Provisions Apply?
 - F. Evaluation of the Subsection (i)(4) Factors
 - G. Negotiated Rulemaking
- IV. Judicial Review
- V. Statutory and Executive Order Reviews
 - A. Executive Order 12866: Regulatory Planning and Review and Executive Order 14094: Modernizing Regulatory Review
 - B. Paperwork Reduction Act (PRA)
 - C. Regulatory Flexibility Act (RFA)
 - D. Unfunded Mandates Reform Act (UMRA)
 - E. Executive Order 13132: Federalism
 - F. Executive Order 13175: Consultation and Coordination with Indian Tribal Governments
 - G. Executive Order 13045: Protection of Children From Environmental Health and Safety Risks
 - H. Executive Order 13211: Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution, or Use
 - I. National Technology Transfer and Advancement Act (NTTAA)

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J. Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations and Executive Order 14096: Revitalizing Our Nation's Commitment to Environmental Justice for All
K. Congressional Review Act (CRA)

I. General Information

A. Does this action apply to me?

You may be affected by this rule if you manufacture, import, export, sell, distribute, or install residential and light commercial air conditioning and heat pump equipment. Potentially affected categories, by North American Industry Classification System (NAICS) code, include:

- New Multifamily Housing Construction (except For-Sale Builders) (236116).
- New Housing For-Sale Builders (236117).
- Residential Remodelers (236118).
- Industrial Building Construction (236210).
- Commercial and Institutional Building Construction (236220).
- Plumbing, Heating, and Air Conditioning Contractors (238220).
- Air Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing (333415).
- Plumbing and Heating Equipment and Supplies (Hydronics) Merchant Wholesalers (423720).
- Warm Air Heating and Air Conditioning Equipment and Supplies Merchant Wholesalers (423730).

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This list is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this action. This list includes the types of entities that the EPA is aware could potentially be regulated by this action. Other types of entities not included could also be regulated. To determine whether your entity is regulated by this action, you should carefully examine the regulatory text at the end of this document. If you have questions regarding the applicability of this action to a particular entity, consult the person listed in the **FOR FURTHER INFORMATION CONTACT** section.

B. What action is the Agency taking?

This rule provides one additional year, until January 1, 2027, for the installation of new variable refrigerant flow (VRF) systems used for residential and light-commercial air-conditioning and heat pumps when using components that are manufactured in the United States or imported into the United States before January 1, 2026. Specifically, this rule allows for pre-2026 condensing units, evaporators, and air handlers using hydrofluorocarbons (HFCs) and blends containing HFCs, such as R-410A, not meeting the October 2023 Technology Transitions Rule's (88 FR 73098) restrictions, to be assembled into new VRF systems (*i.e.*, installed), so long as those systems are assembled prior to January 1, 2027. For projects that were issued a building permit which approved the use of an HFC or blend containing an HFC in a VRF system prior to October 5, 2023, this rule provides for installation of such systems until January 1, 2028, provided that they use components that are manufactured in the United States or imported into the United States prior to January 1, 2026.

C. What is the Agency's authority for taking this action?

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On December 27, 2020, the American Innovation and Manufacturing Act of 2020 (AIM Act) was enacted as section 103 in Division S, Innovation for the Environment, of the Consolidated Appropriations Act, 2021 (codified at 42 U.S.C. 7675). Subsection (k)(1)(A) of the AIM Act provides EPA with the authority to promulgate necessary regulations to carry out EPA's functions under the Act, including its obligations to ensure that the Act's requirements are satisfied. Subsection (k)(1)(C) of the AIM Act also provides that the Clean Air Act (CAA) sections 113, 114, 304, and 307 apply to the AIM Act and any regulations EPA promulgates under the AIM Act as though the AIM Act were part of title VI of the CAA. Accordingly, this rulemaking is subject to CAA section 307(d) (see 42 U.S.C. 7607(d)(1)(1)) (CAA section 307(d) applies to "promulgation or revision of regulations under subchapter VI of this chapter (relating to stratosphere and ozone protection)").

The AIM Act authorizes EPA to address HFCs by providing authorities in three main areas: phasing down the production and consumption of listed HFCs; promulgating certain regulations for purposes of maximizing reclamation and minimizing releases of these HFCs from equipment and ensuring the safety of technicians and consumers; and facilitating the transition to next-generation technologies by restricting use of these HFCs in sectors or subsectors in which they are used. Subsection (i) of the AIM Act, "Technology Transitions," provides that "the Administrator may by rule restrict, fully, partially, or on a graduated schedule, the use of a regulated substance in the sector or subsector in which the regulated substance is used." 42 U.S.C. 7675(i)(1). The AIM Act lists 18 HFCs, and by reference any of their isomers not so listed, that are covered by the

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statute’s provisions, referred to as “regulated substances” under the Act.¹ (42 U.S.C. 7675(c)(1)). This rule amends restrictions on the use of regulated substances, or blends containing regulated substances, with a global warming potential (GWP) above 700 for VRF systems. EPA’s regulations at 40 CFR 84.64 describe how to determine the GWP of a regulated substance or blend containing a regulated substance for purposes of complying with regulations under the Technology Transitions program.

D. What are the incremental costs and benefits of this action?

This rule will reduce regulatory burden associated with the Technology Transitions restrictions on VRF systems used for residential and light commercial air-conditioning and heat pumps while having a negligible environmental impact. Original equipment manufacturers (OEMs) and distributors have indicated that manufactured inventory of VRF equipment could go unsold without an extension of the installation compliance date. Commenters representing builders and owners of large residential buildings have also described how they may be unable to install already-purchased VRF equipment in projects that are currently under development within the existing timeframes. Stranding equipment that does not meet the new GWP limits is counter to the overall approach EPA took in the October 2023 Technology Transitions Rule. Providing additional time for the installation of these systems will not affect the environmental benefits modeled under that rule given EPA is limiting the extension of the installation compliance date to equipment manufactured in the United States or imported into the United States before the existing compliance date of January 1, 2026 (88 FR 73098).

¹ “Regulated substance” and “HFC” are used interchangeably in this document.

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Therefore, we do not anticipate an increase in the amount of VRF equipment manufactured or imported as a result of this rule.

II. Background

A. Previous Technology Transitions Rules

On October 24, 2023, EPA published the final rule establishing the Technology Transitions program (88 FR 73098; hereafter “October 2023 Technology Transitions Rule”). That rule restricted the use of certain HFCs in many sectors and subsectors in which they are used by establishing limits for those uses based on GWP. Among other things, that rule prohibited the manufacture and import of factory-completed products and the installation of certain refrigeration, air conditioning, and heat pump systems that use HFCs or blends containing HFCs above specified GWP limits. The compliance dates for these restrictions vary by subsector and range generally from January 1, 2025, to January 1, 2028. The rule also included a prohibition on the sale, distribution, and export of factory-completed products that applies three years after the subsector manufacture and import compliance dates, to allow for a sell-through period of previously manufactured or imported products.

After issuance of the October 2023 Technology Transitions Rule, manufacturers, importers, and distributors of residential and light commercial air conditioning and heat pump equipment requested clarification about split systems and VRF systems. A letter dated November 13, 2023, to EPA from the Air-Conditioning, Heating, and Refrigeration Institute (AHRI), the Alliance for Responsible Atmospheric Policy (the Alliance), and Heating, Air-conditioning & Refrigeration Distributors International (HARDI) states that these organizations understand that components for these systems that are manufactured

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or imported before January 1, 2025, and January 1, 2026, respectively, using an HFC or blend containing an HFC with a GWP of 700 or more, cannot be installed as new systems after each such compliance date (See Docket ID No. EPA-HQ-OAR-2021-0643-0246).

The letter states that not allowing time between the manufacture and import compliance date and the installation date would be “particularly problematic for residential new construction, including both single-family and multi-family dwellings, where builders order heating and cooling equipment well in advance of knowing the exact date of install. Such equipment is not installed until construction is nearly complete, but at time of order builders do not know when this date will be.” The letter further articulates that allowing the use of components manufactured or imported prior to the compliance date to be installed as part of new systems for one year after the compliance date would provide some relief to these economic and practical burdens.

In response to this letter from industry trade groups, EPA indicated on November 29, 2023, that the Agency “intends to act swiftly to address concerns regarding the January 1, 2025, installation compliance date, including by potentially amending the final regulation to allow for installation of previously manufactured components until January 1, 2026, and separately intends timely consideration of VRF systems” (See Docket ID No. EPA-HQ-OAR-2021-0643-0235). Subsequently, EPA issued an interim final rule (88 FR 88825; December 26, 2023) to reevaluate the specific circumstances for residential and light commercial air conditioning and heat pump systems. That rule extended the installation compliance date for those systems from January 1, 2025, to January 1, 2026, when using components that are manufactured or imported prior to January 1, 2025, to

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prevent the stranding of existing inventories of equipment. That rule did not address VRF systems, which are subject to this action.

B. EPA's Proposal Regarding Variable Refrigerant Flow Systems

In response to stakeholder concerns raised in the aforementioned letter received by EPA after the finalization of the October 2023 Technology Transitions Rule, EPA proposed to adjust the installation compliance date for VRF systems manufactured or imported prior to January 1, 2026 (89 FR 53373; June 26, 2024; hereafter “VRF Proposed Rule”). VRF systems are described in the October 2023 Technology Transitions Rule as direct expansion multi-split systems that incorporate the following: a split system air conditioner or heat pump incorporating a single refrigerant circuit that is a common piping network to two or more indoor evaporators, each capable of independent control, or compressor units. VRF systems contain a single module outdoor unit or combined module outdoor units with at least one variable capacity compressor that has three or more steps of capacity, with air or water as the heat source. While this technology is used in air conditioning and heat pump equipment of any size, the October 2023 Technology Transitions Rule restrictions for VRF systems apply only to air-source VRF systems with capacities of 65,000 BTU/h (19 kW) or more and water-source VRF systems of any capacity. The regulatory text at 40 CFR 84.54(c)(2) refers to these systems as “variable refrigerant flow systems for use as residential and light commercial air-conditioning or heat pumps.”² Throughout this preamble, these systems are referred to as “VRF systems.”

² The regulations at 40 CFR 84.54(c)(2) treat VRF systems as a separate subsector, due to how the regulatory restriction is structured. No difference in meaning is intended as to which systems are addressed, however.

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The number of VRF systems is small compared to the overall number of residential and light commercial air conditioning and heat pump equipment. EPA used data from AHRI (See Docket ID No. EPA-HQ-OAR-2021-0643-0245)³ and eJARN⁴ to estimate that approximately 42,000 VRF units that had a capacity of 65,000 BTU/h or more were sold in 2023. This represents 0.49% of total air conditioning and heat pump equipment sales that year. The available data also indicate that approximately 37,000 VRF units with capacities below 65,000 BTU/h were sold in 2023. Adding together these estimates of units sold in 2023 for VRF units of any capacity provides an overall estimate of 79,000 VRF units, which is approximately 0.91% of all air conditioning and heat pump equipment sold in 2023. EPA notes that this number and percentage of VRF units is a rough estimate intended to describe its use currently as an extremely small percentage of all residential and light commercial air conditioning and heat pump equipment.

In the VRF Proposed Rule, EPA proposed to extend the installation compliance date for new VRF systems from January 1, 2026, to January 1, 2027, when using components that are manufactured or imported prior to January 1, 2026 (89 FR 53373; June 26, 2024). In the alternative, EPA proposed to extend the installation compliance date for new VRF systems from January 1, 2026, to January 1, 2027, when using components that are manufactured or imported prior to January 1, 2026, but only for projects where a building permit both approved the HFC or blend containing the HFC to be used and was issued prior to October 5, 2023.

³ AHRI notes that its “reports track shipments, which are defined as when a unit transfers ownership. While some people use the terms shipments and sales interchangeably, they may not be the same.” See <https://www.ahrinet.org/analytics/statistics>. Date Accessed: November 15, 2024.

⁴ See <https://www.ejarn.com/article/detail/83750>. In this article, the term “units” is used, as in “79,000 units.” We note that VRF units is not equivalent to VRF systems.

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EPA received public comments on its proposal from stakeholders representing VRF equipment manufacturers, distributors, industry trade groups, real estate developers, contractors, and environmental groups. After the initial 30-day comment period ended on July 26, 2024, the Agency reopened the comment period via a document published in the *Federal Register* to offer the public an opportunity to request a public hearing to provide oral comment, if desired (89 FR 65575; August 12, 2024). A public hearing was requested, and the Agency held a public hearing on August 27, 2024. The comment period remained open for 30 days after the date of the public hearing, closing on September 26, 2024. All comments received on the VRF Proposed Rule and a transcript of the public hearing are available in the docket for this action (See Docket ID No. EPA-HQ-OAR-2021-0643).

III. EPA's Final Action

A. Final Action

After considering the comments and input received on the VRF Proposed Rule, EPA is finalizing the extended installation compliance date for new VRF systems to January 1, 2027, as proposed. EPA is also providing additional time, to January 1, 2028, for the installation of such systems in projects where a building permit approved the use of an HFC or blend containing an HFC in such a system, and was issued prior to October 5, 2023. Building permits are government-issued documents that grant authorization to an entity to begin a construction project, which are typically issued by local permitting authorities, or authorities having jurisdiction. This includes county or city offices of permits and licensing, departments of housing, or other authorities having jurisdiction. Building permits vary in the level of specificity provided; for purposes of EPA's

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regulations in 40 CFR part 84, subpart B, EPA considers a building permit to include designs submitted as part of the application that is approved by the authority having jurisdiction.

These extensions only allow for installation of new VRF systems using an HFC, or blend containing an HFC, with a GWP above 700 in components that are manufactured in the United States or imported into the United States prior to January 1, 2026.

To further limit the possibility of stranded inventory, EPA is providing the additional time for installation to January 1, 2028, for projects where three conditions are met: 1) an approved building permit was issued for a project prior to October 5, 2023, 2) that building permit approves the use of an HFC or blend containing an HFC in a VRF system, and 3) all specified components of that VRF system are manufactured in the United States or imported into the United States prior to January 1, 2026. Stakeholder input indicated that even a January 1, 2027, extended installation compliance deadline could still risk stranding VRF equipment for larger buildings using VRF systems with particularly long construction timelines. EPA is finalizing this rule with the additional extension given the complexity of these systems, the size of the projects in which these systems are typically installed, and recognizing that the projects were issued approved building permits prior to the issuance of the Technology Transitions Rule on October 5, 2023. EPA recognizes that a subset of construction projects that use VRF equipment were issued approved building permits prior to October 5, 2023, and may not be completed by the new installation date of January 1, 2027, and thus determines that this additional flexibility for those projects using VRF systems with HFCs or blends containing HFCs

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above the new GWP threshold is reasonable in light of the goal to avoid stranding inventory.

B. Avoiding Stranded Inventory

An important consideration in the October 2023 Technology Transitions Rule was to avoid stranding inventory of equipment manufactured ahead of the various compliance deadlines. This includes systems that are already installed and operating as well as unsold equipment in the manufacturing and distribution chain. EPA stated that “[w]e recognize that the production and purchase of products or components that are unable to be sold to consumers is an economic and environmental outcome no parties desire, and the proposed rule’s forward-looking compliance dates were intended to allow all parties in the market supply chain sufficient time to avoid that outcome” (88 FR 73123; October 24, 2023). EPA’s goal of avoiding the stranding of inventory is consistent with the requirement in subsection (i)(6) that Technology Transitions restrictions may not take effect sooner than one year from the date of promulgation; this provision also serves to ensure that regulated parties have sufficient time to prepare for and comply with restrictions under this provision. In response to concerns about stranded inventory raised during the public comment period on that proposed rule, EPA made two significant adjustments in the October 2023 Technology Transitions Rule.

First, EPA removed the applicability of the rule’s use restrictions to components. EPA explained that components are pieces of equipment that do not function independently and must be assembled together in the field in order to function for its intended purpose. Components are replaceable and a faulty component can be swapped out to avoid replacing an entire system. Recognizing the ongoing need for servicing and

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updating previously installed systems, EPA allowed for the continued manufacture, import, sale, distribution, offer for sale and distribution, and export of components that rely on higher-GWP HFC refrigerants. Aside from reporting and labeling requirements, components are not subject to the restrictions in the October 2023 Technology Transitions Rule, except insofar as those components may not be installed in new systems on or after the applicable installation compliance dates.

Second, EPA extended the sell-through period for factory-completed products in the October 2023 Technology Transitions Rule from one year to three years after the manufacture and import compliance date. For the purposes of the restrictions under that rule for the refrigeration, air conditioning, and heat pump (RACHP) sector, factory-completed products are pieces of equipment that are functional upon completion of manufacturing in a factory. Functional means that the equipment's refrigerant circuit is complete, it is charged with refrigerant, and it is ready to use for its intended purpose. The Agency received many comments on this topic, including from those commenters that considered one year to be insufficient for the sale of seasonal products.

EPA believed it had minimized the potential for stranded inventory with these two modifications to the October 2023 Technology Transitions Rule. Specifically with respect to components, the Agency's view was that there would continue to be a market for components not meeting the GWP limit thresholds for new systems, because those components could continue to enter the market to service existing systems.

EPA also finalized later compliance dates for the installation of most field-assembled refrigeration systems, recognizing, in part, that refrigeration systems would require manufacturers and importers to make components available and that such systems

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can be specifically designed for an individual facility and would need more time to transition.⁵ For some refrigeration subsectors, EPA also recognized in the October 2023 Technology Transitions Rule that buildings may have already been issued an approved building permit prior to finalization of that rule. Recognizing that where earlier issued permits approved the use of an HFC or blend containing an HFC, and where such permitted systems were likely to be highly complex and costly to redesign, EPA provided one additional year beyond the final rule compliance dates for the installation of certain field-assembled systems. Specifically, that extension applied to the following refrigeration systems or subsectors (certain industrial process refrigeration systems; retail food refrigeration – supermarkets; cold storage warehouses; and ice rinks) if an approved building permit was issued prior to the signature date of the final rule (*i.e.*, October 5, 2023), and the permit specified the use of a system containing an HFC or blend containing an HFC with a GWP above the relevant GWP threshold for that subsector (88 FR 73120; 40 CFR 84.54(d)).

EPA intended this limited flexibility in the October 2023 Technology Transitions Rule to prevent the need to redesign these systems and, in some cases, the facility that houses these systems, given that facilities or systems may already have been well along on the construction timeline. EPA granted this permit-based extension selectively, as

⁵ See 88 FR 73143 (industrial process refrigeration systems—proposed January 1, 2025, compliance date, finalized January 1, 2026, compliance date (January 1, 2028, for some subsectors); 88 FR 73149 (data centers, ITEF, computer room cooling equipment—proposed January 1, 2025, compliance date, finalized January 1, 2027, compliance date); 88 FR 73150 (systems in retail food refrigeration subsector—proposed January 1, 2025, compliance date, finalized a range of compliance dates from January 1, 2026, to January 1, 2028); 88 FR 73162 (cold storage warehouses—proposed January 1, 2025, compliance date, finalized January 1, 2026, compliance date); 88 FR 73163 (ice rinks—retained proposed January 1, 2025, compliance date in final rule but increased GWP limit from 150 to 700); 88 FR 73175 (chillers-industrial process refrigeration—proposed January 1, 2025 compliance date, finalized compliance dates of January 1, 2026, and January 1, 2028 depending on the system).

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most systems are not typically designed specifically for an individual facility and/or most systems covered by the October 2023 Technology Transitions Rule have a later compliance date and thus could make any necessary adjustments with the GWP restrictions in mind.

EPA did not finalize later compliance dates for the installation of residential and light commercial air conditioning and heat pump systems and VRF systems in the October 2023 Technology Transitions Rule.⁶ After issuing that rule, EPA learned that additional time, which EPA had extended to nearly all of the subsectors covering field-assembled refrigeration systems, was also needed for residential and light commercial air conditioning systems and VRF systems. As noted previously, EPA responded by issuing an interim final rule reevaluating the specific circumstances for residential and light commercial air conditioning and heat pump systems and extending the installation compliance date for those systems by one year to January 1, 2026 (88 FR 88825; December 26, 2023), and by undertaking this rulemaking for VRF systems.

EPA has reevaluated the planning, purchasing, and installation timeframes for VRF systems in new construction projects as referenced in the Agency's response to industry stakeholders (See Docket ID No. EPA-HQ-OAR-2021-0643-0235). EPA is providing one additional year to install VRF systems, which aligns with the additional time already provided for system installations in many refrigeration subsectors in the October 2023 Technology Transitions Rule and in the interim final rule for installation of residential and light commercial air conditioning and heat pump systems. In addition,

⁶ See 88 FR 73178 (residential and light commercial air conditioning and heat pumps—proposed January 1, 2025, compliance date, finalized January 1, 2025, compliance date); *id.* (VRF systems—proposed January 1, 2026, compliance date, finalized January 1, 2026, compliance date).

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EPA is allowing installation of VRF systems that use an HFC, or a blend containing an HFC, with a GWP above 700 until January 1, 2028, in projects where a building permit approves the use of an HFC or blend containing an HFC in a VRF system, and that approved building permit was issued prior to October 5, 2023, provided the components were manufactured or imported prior to January 1, 2026. EPA is providing this additional extension based on information received from commenters that detailed the length of the timeline from initial design, to permitting, to construction completion of projects that incorporate VRF systems, which are typically much larger and more complex than other projects. Given the longer lead times for the compliance dates for new projects incorporating VRF systems, EPA does not anticipate similar scenarios for equipment used in other sectors and subsectors covered by the October 2023 Technology Transitions Rule.

The construction of new multi-unit residential and commercial buildings is planned well in advance, including plans for the heating and cooling systems intended to be installed in that new construction. Builders may order those planned heating and cooling systems in concert with the planning process well in advance of when those systems are installed. As noted by commenters, installation of these systems is often one of the final steps in construction. For construction planned to occur after January 1, 2026, components of VRF systems that use a regulated substance, or a blend containing a regulated substance, with a GWP above 700 may have already been incorporated into the design of the building and ordered by builders. In addition, such buildings may have already been issued a building permit approving the use of an HFC or blend containing an HFC with a GWP above 700, from the appropriate local permitting authority or the

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authority having jurisdiction, prior to October 5, 2023. In these cases, the VRF equipment associated with these projects are at risk of being stranded. EPA also recognizes that as one of the first systems facing a system installation compliance date under the October 2023 Technology Transitions Rule, the ability of installers of VRF systems to comply with this deadline relies on equipment manufacturers, importers, and distributors to quickly make commercially available component parts that comply with the GWP thresholds. For this reason, as well, EPA has determined it is appropriate to provide a limited extension for compliance.

As discussed in the October 2023 Technology Transitions Rule, EPA established the compliance date of January 1, 2026, for these systems based on consideration of the AIM Act's subsection (i)(4) factors, and in particular, the assessment that VRF systems will be able to meet the GWP limit of 700 and transition from the current use of HFCs. EPA's consideration of the statutory factors continues to support a swift transition for these systems, but the January 1, 2026, installation compliance date could result in builders of new construction being left with stranded inventory that could not be used. Stranding inventory is an economically and environmentally undesirable outcome, and the issue addressed in this rule—that the January 1, 2026 installation deadline for new VRF systems could result in stranded inventory—was not brought to the Agency's attention until after the October 2023 Technology Transitions Rule was finalized. Through this action, EPA is extending the January 1, 2026, installation compliance date to January 1, 2027, provided the new installation uses components that are manufactured or imported prior to January 1, 2026. In addition, for those projects that were issued a building permit prior to October 5, 2023 which approves the use of an HFC or blend

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containing an HFC in a VRF system, EPA is extending the installation compliance deadline to January 1, 2028, provided all specified components of that VRF system were manufactured or imported prior to January 1, 2026.

C. Comments and Responses

The Agency received several comments on the VRF Proposed Rule. These comments are addressed in this section.

Comment: Several commenters, representing original equipment manufacturers (OEMs), distributors, air conditioning contractors, developers, and trade associations – including the groups that contacted the Agency in the November 13, 2023, letter – expressed support for the proposal to extend the installation compliance date by one year. They reiterated that the proposal “provides indispensable relief to manufacturers, homebuilders, and other stakeholders in the implementation of the... AIM Act and the [October 2023 Technology Transitions Rule]” (See Docket ID No. EPA-HQ-OAR-2021-0643-0255). Commenters underscored the importance of the proposed extension to mitigate the potential for significant stranded inventory that would otherwise burden the industry (See Docket ID No. EPA-HQ-OAR-2021-0643-0249). Some requested this rule to be finalized soon, or before the end of 2024, to provide clarity for the industry (See Docket ID No. EPA-HQ-OAR-2021-0643-0253, and Docket ID No. EPA-HQ-OAR-2021-0643-0276).

Response: EPA agrees with commenters that extending the installation compliance date by one year, until January 1, 2027, for such equipment would avoid stranding inventory and provide relief to most manufacturers, distributors, builders, and

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other stakeholders. EPA takes note of the request to finalize this rule quickly to provide clarity for the industry.

Comment: Three commenters requested the Agency exempt projects that were already permitted. One commenter suggested EPA exempt buildings from any VRF system installation compliance date if they received a permit prior to October 5, 2023. Another commenter encouraged EPA to consider a variance or exemption for already-designed projects that had applied for permits based on heating, ventilation, and air conditioning (HVAC) systems then-available on the market. One commenter requested the Agency consider a further exemption of previously permitted VRF equipment.

Response: While some flexibility is fitting, it would not be appropriate with the application of the subsection (i)(4) factors to provide a broad, indefinite exemption for VRF systems from the October 2023 Technology Transitions Rule to any project where the project in which the system would be installed was issued an approved building permit prior to October 5, 2023. EPA was cognizant in establishing restrictions in the October 2023 Technology Transitions Rule, and in considering the new information provided after finalization of the October 2023 Technology Transitions Rule that there may be equipment that would need to work its way through the distribution chain. As demonstrated in the October 2023 Technology Transitions Rule, EPA recognized that in discrete situations, projects that were issued approved building permits prior to October 5, 2023, may not have the system installed by the relevant compliance date as anticipated. EPA's analysis under the October 2023 Technology Transitions Rule was that substitutes with a GWP below 700 will be available for the components needed for the installation of VRF systems in time for the January 1, 2026, compliance date. One of the primary

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manufacturers of this equipment has confirmed EPA's assessment about availability in the materials provided to the Agency during the comment period. However, as noted previously, EPA became aware of new information after the issuance of the October 2023 Technology Transitions Rule that indicated the potential for stranded inventory held by some affected entities. As a result, EPA is extending the compliance date for installation by one year and based on the comments received, is finalizing a limited additional extension for projects where a building permit approves use of an HFC or blend containing an HFC in a VRF system, and that approved building permit was issued by the relevant permitting authority prior to October 5, 2023. This additional time recognizes that some projects were well underway ahead of the issuance of the October 2023 Technology Transitions Rule. The Agency expects that projects with an approved building permit issued on or after October 5, 2023, will either use VRF systems that meet the 700 GWP threshold, or will use VRF components that are manufactured or imported prior to January 1, 2026, and will be installed by the January 1, 2027, installation deadline.

Comment: Some commenters requested that the installation compliance date be extended by two years, instead of one, and described the several-year construction timeline in support of this request. One commenter stated this extended timeline is necessary to provide projects that have already been designed, permitted, financed, and contracted with enough time to meet the installation compliance date (See Docket ID No. EPA-HQ-OAR-2021-0643-0251). Other commenters stated that more than one year is needed to provide building owners and developers with time to comply without significantly disrupting existing projects, particularly larger, in-process development

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projects where construction has already started (See Docket ID EPA-HQ-OAR-2021-0643-0256). Two commenters requested a blanket two-year extension to the installation compliance date given the several-year construction timeline. They described this timeline, from initial design to construction completion, for buildings with VRF systems. One of these two commenters stated that it can take six to 18 months to design a building, obtain building permits, and go through the entitlement process. This commenter noted that the HVAC system is incorporated into the initial design of a building based on available equipment. Further, this commenter stated that the construction timeline after the design and permitting stage ranges from 12 months to three years, depending on jurisdiction, construction type, project size, and project complexity. The other commenter indicated the total time between initial design and selection of the project's mechanical systems and the installation of those mechanical systems in large development projects is typically between four and eight years. This commenter further noted that design takes at least two years, and that HVAC systems are selected during the design planning process. This commenter, who is based in New York, stated that the building permit approval process in New York takes six to 12 months, and that construction starts three to six months after building permits are approved. Lastly, this commenter noted that actual construction takes two to six years, and that installation of the HVAC systems, while purchased at the start of the construction period, are installed within the last six months of this schedule.

Response: EPA took into consideration the comments from stakeholders who preferred a blanket two-year extension to the installation compliance date for VRF

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systems, however we do not agree that a blanket two-year extension to the installation compliance date for VRF systems is warranted.

EPA considered the information on construction timelines that commenters provided. EPA's decision in this final rule to extend the installation compliance date by one year for VRF systems, and by two years for projects that were issued an approved building permit prior to October 5, 2023, and meet the other conditions described in this rule, is informed by these comments. This rule and its extension of the compliance dates for installation of VRF systems is designed to mitigate the narrow issue of stranded inventory without delaying the overall transition to substitutes for VRF systems that are compliant with the GWP thresholds established in the October 2023 Technology Transitions Rule. Regulated parties also have a responsibility to ensure that they are not taking actions, particularly after promulgation of a regulation, that risk creating stranded inventory. Such actions may include, but are not limited to, submitting building permits for approval at such a point that does not give sufficient time for the authority having jurisdiction to issue an approved building permit and allow the project to be constructed, with the relevant equipment installed, by a regulatory deadline. It also includes purchasing equipment that may not be able to be installed by a regulatory deadline.

In establishing the January 1, 2026, deadline in the October 2023 Technology Transitions Rule, EPA provided more than two years between promulgation of that rule and the relevant installation compliance date. In this action, EPA is providing an additional year for all VRF systems that were subject to the January 1, 2026 deadline, or two additional years under a specific set of circumstances. Most affected regulated entities will therefore have more than three years from the time the October 2023

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Technology Transitions Rule was published in the *Federal Register*, and the new installation compliance deadline. For those projects that were issued an approved building permit prior to the finalization of the October 2023 Technology Transitions Rule, and were therefore further along on the construction timeline, we are providing more than four years, until January 1, 2028. Builders, VRF equipment manufacturers, distributors, and installers therefore will have had multiple years to accommodate the restrictions in their planning. Moreover, available information indicates that equipment using compliant lower-GWP substitutes will be available for installation allowing the affected regulated entities to meet the new installation compliance date of January 1, 2027. Those projects that were issued an approved building permit prior to the signature of the October 2023 Technology Transitions Rule, and meet other conditions as described in this rule, are being granted until January 1, 2028, not because of the lack of available equipment for compliance with the restrictions, but because it is more likely that the construction timeline of such projects is further along such that the likelihood of stranding inventory for these projects is greater.

Commenters requesting a blanket two-year extension did not supply sufficient information to support such an extension, or a longer extension, for installation of VRF systems. One commenter's construction timeline of 12 months to three years is fully within the time provided in this rule. The other commenter's construction timeline of two to six years goes beyond the more than four years provided for projects that were issued an approved building permit prior to October 5, 2023. However, this commenter noted just one project that would be adversely affected by a January 1, 2027, compliance date, and the extension to January 1, 2028, for projects that were issued an approved building

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permit prior to October 5, 2023 and meet the other conditions described in this rule, resolves the commenter's concern with respect to the specified project.

The Agency is also cognizant of the remaining phasedown period for HFCs in declining to adopt commenters' request for additional extensions. Per Congress' phasedown schedule in the AIM Act, by 2029 overall domestic production and consumption of HFCs must be reduced by 70 percent from historic baseline levels and by 85 percent from the baseline by 2036. AIM Act subsection (i)(4)(D) directs EPA to factor in, to the extent practicable, "the remaining phase-down period for regulated substances," when promulgating restrictions under the Technology Transitions program. 42 U.S.C. 7675(i)(4)(D). EPA explained in the October 2023 Technology Transitions Rule that the fact that most of the AIM Act's phasedown would occur by 2029 was "an important factor" in finalizing the compliance dates and restrictions in the Technology Transitions Rule (*See* 88 FR 73140). As the phasedown is implemented, the supply of available HFCs will decrease significantly. Timely restricting the use of HFCs in sectors and subsectors that are well positioned to transition to new substitutes and technologies supports the phasedown and fulfills Congress' direction to the Agency in subsection (i). For VRF systems, the best available information from manufacturers and industry commenters is that substitutes that meet the October 2023 Technology Transitions Rule's restrictions are currently being manufactured and will be commercially available in time to support the transition. We therefore do not agree that extensions beyond those established in this rule are warranted.

Comment: One commenter requested a two-year extension to the installation compliance date for VRF systems in projects that use higher-GWP refrigerants, were

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permitted prior to October 24, 2023, and where the components for such systems are manufactured or imported prior to January 1, 2026 (See Docket ID No. EPA-HQ-OAR-2021-0643-0251). This commenter described that it is in the process of constructing a building and expects to complete the installation of the VRF system in that building by April 1, 2027. The commenter stated that this project was issued an approved building permit prior to finalization of the October 2023 Technology Transitions Rule and submitted its approved permitting documents and building designs to the docket. These documents indicate R-410A, a refrigerant blend that has a GWP of 2,088 and consists of two HFCs regulated under the AIM Act, is intended to be used in the VRF system in the project.

Response: EPA appreciates the details and documents provided by this stakeholder on this project. EPA notes this stakeholder's concern would not be addressed with a one-year extension to the installation compliance date. Projects that had already been issued an approved building permit prior to October 5, 2023, are more likely than those that were issued an approved building permit on or after this date to be substantially further along in the construction timeline, such that switching the refrigerant to one that complies with the 700 GWP threshold could risk stranding already-manufactured, and already-purchased, VRF equipment inventory, as well as require developers to re-design, re-permit, and in some cases, rebuild ongoing projects to accommodate a different VRF system (See Docket ID No. EPA-HQ-OAR-2021-0643-0242). We are therefore finalizing an extension to January 1, 2028, for installation of VRF systems where the project was issued a building permit prior to October 5, 2023, where the building permit approves the

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use of an HFC or blend containing an HFC in a VRF system, and where the components of the VRF system were manufactured or imported prior to January 1, 2026.

EPA is finalizing October 5, 2023, instead of October 24, 2023, as the date by which an approved building permit must have been issued to allow projects to install certain VRF systems until January 1, 2028, because this was the signature date of the October 2023 Technology Transitions Rule, it aligns with the flexibility provided to entities in the October 2023 Technology Transitions Rule as described in section III.B. of this rule, and entities could have become aware of the Technology Transitions restrictions on or around this date. In addition, the commenter's project that was issued an approved permit would not be adversely affected by this earlier date than their request.

EPA can reasonably anticipate that there may be a discrete number of projects that may also have been issued building permits ahead of October 5, 2023, that approve the use of an HFC or blend containing an HFC in VRF systems, and thus is providing this additional flexibility where these circumstances exist and the other conditions in this rule are met.

Comment: Several commenters opposed the alternative proposal in the VRF Proposed Rule to limit the one-year extension to only those projects with an approved building permit that specified an HFC or blend containing an HFC and was issued prior to October 5, 2023 (See Docket ID No. EPA-HQ-OAR-2021-0643-0252, Docket ID No. EPA-HQ-OAR-2021-0643-0254, Docket ID No. EPA-HQ-OAR-2021-0643-0255, Docket ID No. EPA-HQ-OAR-2021-0643-0258). They said this alternative proposal is too narrow in comparison to the proposed extension. One commeter noted that it “would

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fail to resolve the inventory and order fulfillment concerns articulated by industry” (See Docket ID No. EPA-HQ-OAR-2021-0643-0255).

Response: EPA agrees with these commenters. Based on its review of the comments received in total, EPA finds that a limited one-year extension solely for projects that were issued an approved building permit prior to October 5, 2023, will not provide sufficient relief to avoid stranding inventory. Comments from multiple OEMs, distributors, developers, and trade associations provided information that indicated that a broad one-year extension was necessary to provide certainty to those looking to complete construction on projects with long timeframes. We are also cognizant that the compliance date for VRF systems is among the earlier deadlines of all the Technology Transitions program’s restrictions for assembled systems. The flexibility of a blanket one-year extension to January 1, 2027, to install components that were manufactured or imported by January 1, 2026, is intended to help smooth the transition. It provides some cushion to OEMs, distributors, and developers if roll-out of the new rule-compliant components are delayed in any way, ensuring that builders and installers will be able to depend on available supply of previously manufactured equipment for these systems to reliably meet the January 1, 2027, installation deadline.

Comment: One commenter supported the alternative approach in the VRF Proposed Rule to limit the one-year installation compliance extension to only those projects that were issued an approved building permit with a specified HFC or blend containing an HFC, prior to October 5, 2023 (See Docket ID No. EPA-HQ-OAR-2021-0643-0260). This commenter questioned how much stranded inventory there would be since no data was provided by OEMs on the volume of potential stranded equipment.

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This commenter also encouraged the Agency to avoid continued compliance date extensions.

Response: After reviewing the comments, EPA disagrees that it should finalize the alternative approach described in the VRF Proposed Rule since it is likely that far fewer projects would qualify for this one-year extension, which could result in stranding already-purchased VRF equipment. EPA instead agrees with other commenters that a broad one-year extension provides certainty and avoids stranding inventory.

EPA recognizes that finalizing an extension to January 1, 2028, for projects that were issued a building permit prior to October 5, 2023, and where the building permit approves the use of an HFC or blend containing an HFC with a GWP above the threshold, provides one additional year beyond the alternative proposal that this commenter supported. EPA is finalizing this targeted extension to still limit the universe of who may qualify for additional time while addressing the needs of certain affected regulated entities to avoid stranding inventory.

Comment: One commenter requested clarification on whether a VRF-Dedicated Outdoor Air System with a single direct expansion coil connected to a VRF condensing unit meets the definition of VRF systems under the Technology Transition Program and thus would be on the same timeline as other VRF systems. This commenter also asked if outdoor units which are tested in accordance with AHRI 1230 and listed as VRF units, regardless of whether they are installed with one or multiple associated evaporators, would fall under this definition of VRF systems.

Response: Air conditioning systems that have one indoor evaporator instead of two or more as described in the October 2023 Technology Transitions Rule, do not fall

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under the description of VRF systems in that rule. This rulemaking does not reconsider the description of VRF systems from the October 2023 Technology Transitions Rule. For purposes of the Technology Transitions program, the systems that the commenter described are considered residential and light commercial air conditioning and heat pump systems, and have an installation compliance date of January 1, 2026, when using components that are manufactured or imported prior to January 1, 2025. VRF systems described in this rule, which uses the same description as the one found in the October 2023 Technology Transitions Rule, do not cover all designs using VRF technology. For example, air-source VRF units with capacities below 65,000 BTU/h are not subject to this final rule and instead are regulated with other residential and light commercial air conditioning and heat pump systems.

Comment: One commenter provided their estimate that the costs associated with an installation compliance deadline earlier than January 1, 2028, will be \$112 million for a project currently under development (See Docket ID No. EPA-HQ-OAR-2021-0251). This project was issued an approved building permit prior to October 5, 2023. The costs that this commenter highlights stem from real estate taxes, land loan interest, insurance expenses, the equity costs of capital, cost of new VRF equipment, and the cost to re-design the building to accommodate incorporation of additional ventilation into the building to account for the flammability of the new refrigerant.

Response: EPA appreciates comments, including in this case, with detailed information on cost breakdowns. EPA appreciates this commenter's description of the cost impacts associated with a compliance deadline earlier than January 1, 2028. With EPA's decision to extend the installation compliance deadline to January 1, 2028, for

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projects issued an approved building permit prior to October 5, 2023 and that meet the other conditions described in this rule, the commenters' projected cost estimates, which EPA has not independently evaluated or verified, will in any case be avoided.

Comment: One commenter suggested EPA change the definition of "install" to mean that VRF equipment are mounted in place, regardless of whether the field-installed system is charged (See Docket ID No. EPA-HQ-OAR-2021-0275).

Response: EPA is not adopting a change in the definition of "install" to its regulations. EPA defined that term in the October 2023 Technology Transitions Rule after a notice-and-comment rulemaking and did not reopen that definition in this rulemaking. As such, this request is outside the scope of this narrow rulemaking. Such a change would have far-reaching impacts on existing stakeholder plans to comply with the October 2023 Technology Transitions Rule in numerous subsectors. Other subsectors with an installation compliance deadline include, but are not limited to, chillers, industrial process refrigeration, and several retail food subsectors. Based on the information provided by this commenter, finalizing an additional year to install VRF systems in certain projects that were issued an approved building permit prior to October 5, 2023, beyond the one year as proposed would also alleviate the commenter's concerns and would not affect the broader Technology Transitions program.

Comment: Two commenters stated that EPA did not give the real estate industry sufficient notice about this rule's potential effects on the real estate industry. They note that NAICS codes that correspond to builders and developers were not used in the October 2023 Technology Transitions Rule, the interim final rule issued in December 2023 (88 FR 88825), or the VRF Proposed Rule (See Docket ID No. EPA-HQ-OAR-

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2021-0643-0273). One commenter called this a “major oversight” (See Docket ID No. EPA-HQ-OAR-2021-0643-0274). This commenter also mentioned that EPA set installation deadlines without engaging developers, and thus failed to meaningfully consider or discuss compliance needs and challenges of commercial and multifamily housing developers. As such, this commenter requested that EPA work with the real estate industry to set compliance deadlines, and the other commenter requested that EPA delay the installation compliance deadline.

Response: EPA acknowledges that the October 2023 Technology Transitions Rule, interim final rule (88 FR 88825), and VRF Proposed Rule did not include NAICS codes for developers and general construction. EPA has included those codes in this final rule and will continue to include them where appropriate in further regulations under the Technology Transitions program. EPA disagrees that this means the Agency provided insufficient notice of the rule. Notice of EPA’s intention to regulate is provided through publication in the *Federal Register*. The list of NAICS codes within that document serves as a guide for readers regarding entities the EPA expects could potentially be affected, but EPA states that the list is not intended to be exhaustive, and that other types of entities not listed could also be affected. EPA received input from multiple developers and real estate-related trade associations during the comment period on this rule and the interim final rule, and has met with real estate developers before finalizing this rule. A record of meetings EPA held with stakeholders after publication of the VRF Proposed Rule on June 26, 2024, is included in the docket for this rule (See attachment 1, Docket ID No. EPA-HQ-2021-0643-0276). EPA intends to continue its engagement with these stakeholders.

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Comment: One commenter suggested EPA should not set compliance deadlines until it develops a building code amendment strategy with model code bodies, state legislatures, and the buildings sector (See Docket ID No. EPA-HQ-OAR-2021-0643-0274). This commenter stated further that EPA should clarify the regulatory impacts that will arise on existing buildings' air conditioning and chiller systems when they reach the end of their useful lives. In particular, this commenter noted that existing buildings would need to be retrofitted to accommodate new air conditioning systems using refrigerants with lower GWP but higher flammability ratings. Another commenter noted that the latest building codes, which harmonize requirements for lower-GWP A2L refrigerants, have not been adopted in numerous jurisdictions across the country, which makes it harder to comply with these installation compliance dates. Other commenters also noted that lack of consistent A2L requirements across building codes could result in an inability to complete construction for projects that have already been issued approved building permits.

Response: This rule serves the limited purpose of extending compliance deadlines for the installation of new VRF systems. To the extent that commenters are identifying concerns regarding building codes as an impediment to compliance with the October 2023 Technology Transitions Rule deadline for installation of VRF systems, this rule only alleviates those concerns by extending that deadline by one year, or in specific cases, two years. This rule does not address the retrofit of buildings to accommodate new air conditioning systems with lower GWP and higher flammability ratings but EPA welcomes further discussion on this topic. As discussed in section III.F. of this preamble, in electing to provide additional time for compliance, the Agency is not revisiting or

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reopening its analysis of the AIM Act subsection (i)(4) factors with respect to VRF systems, as set forth in the October 2023 Technology Transitions Rule preamble (88 FR 73177-73180). In that rule, EPA considered building codes as one factor of its assessment of the availability of substitutes for HFCs used in the VRF systems. As noted in that final preamble, model building codes for this subsector were updated in 2021 to incorporate the use of lower-GWP refrigerants (88 FR 73178). When EPA issued the October 2023 Technology Transitions Rule, it noted that 41 states had either updated state building codes or legislatively ensured that refrigerants classified as A2Ls (*i.e.*, lower-GWP substitutes that can support compliance with the October 2023 Technology Transitions Rule restrictions) could be used (See attachment 5, p. 5-6, of Docket ID No. EPA-HQ-OAR-2021-0643-0227). At the time of this rulemaking, only Alaska, the District of Columbia, Kentucky, Massachusetts, Michigan, and Nevada have yet to update their codes or legislatively provide for the use of A2Ls in air conditioning (See attachment 2, Docket ID No. EPA-HQ-OAR-2021-0643-0276).⁷ Finally, with respect to regulatory impacts of the marginal cost of installing a new rule-compliant system at the end of the useful lives of existing systems, that comment is beyond the scope of this rule, which has the limited effect of extending the deadline for compliance for one air conditioning and heating subsector.

Comment: One commenter, noting its engagement in other EPA partnerships, suggested that the Agency develop partnership programs with the real estate industry to

⁷ See AHRI's Building Code Map, web page, accessed November 13, 2024. Available at <https://www.ahrinet.org/a21-refrigerant-building-code-map>.

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drive the responsible and methodical phasedown of HFCs and appropriate building equipment transitions.

Response: The establishment of potential partnership programs, or expansion of existing ones, is beyond the scope of this rulemaking. EPA welcomes additional opportunities for communication and collaboration with the real estate industry to successfully implement the phasedown of HFCs.

Comment: Some commenters referenced issues outside the scope of this rulemaking or made inaccurate statements about rules promulgated under the AIM Act. One commenter noted concerns about how air conditioning systems used on boats are classified under the Technology Transitions program (See Docket ID No. EPA-HQ-OAR-2021-0643-0257). Two commenters requested EPA extend the installation compliance date for residential and light commercial air conditioning and heat pump systems beyond the time provided in the interim final rule (88 FR 88825) (See Docket ID No. EPA-HQ-OAR-2021-0643-0272 and EPA-HQ-OAR-2021-0643-0273). One commenter noted that this rulemaking “would set the HFC production and consumption baseline levels from which reductions will be made [and] establish an initial methodology for allocating and trading HFC allowances for 2022 and 2023” (See Docket ID No. EPA-HQ-OAR-2021-0643-0267).

Response: These comments are outside the scope of this rulemaking, which is solely related to an extension of the installation compliance date for VRF systems.

D. Limiting the Environmental Impact of this Action

EPA is narrowly tailoring this action to respond to stakeholder concerns about stranded inventory and longer construction timelines for projects that incorporate VRF

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systems while maintaining the human health and environmental benefits of the October 2023 Technology Transitions Rule. To do so, EPA is granting the extension for installation of a VRF system only if all “specified components” of that system are manufactured or imported prior to January 1, 2026. The term “specified component” is defined in the October 2023 Technology Transitions Rule as “condensing units, condensers, compressors, evaporator units, and evaporators” (88 FR 73112).⁸ As a result, the total number of VRF systems using HFCs, or blends containing HFCs, with a GWP above 700 installed in 2025, 2026, and 2027 for projects that were issued an approved building permit prior to October 5, 2023, would match what the Agency modeled for installation before the January 1, 2026, deadline. The extra year that is being provided for installation of new VRF systems, and two years for certain installations, would not increase total demand for HFCs in VRF systems, but rather shift some of the modeled demand from 2025 into 2026 and 2027.

Specified components manufactured or imported on or after January 1, 2026, remain subject to the restrictions of the October 2023 Technology Transitions Rule. Specifically, if they use or are intended for use with an HFC or a blend containing an HFC with a GWP of 700 or greater, their use is limited to servicing previously installed systems. All the labeling, reporting, and recordkeeping requirements, as delineated in the October 2023 Technology Transitions Rule, also continue to apply to components using, or intended to use, any regulated substance.

⁸ Other components of an air conditioning or heat pump system such as valves or refrigerant piping are not restricted by the October 2023 Technology Transitions Rule and can be installed regardless of manufacture or import date.

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EPA finds that providing additional time for installation effectively responds to stakeholder concerns about stranded inventory while remaining protective of the environmental benefits of the restrictions in the October 2023 Technology Transitions Rule. This approach was suggested by industry stakeholders in their letter dated November 13, 2023, and it aligns with industry’s plans to transition VRF systems to use lower-GWP substitutes.

E. How Do the Labeling, Recordkeeping, and Reporting Provisions Apply?

The October 2023 Technology Transitions Rule requires labels on products and specified components that use regulated substances. The labeling requirement takes effect at the time of the manufacture and import prohibition for products and specified components. This timing reflects the primary purpose of the labels, which is for assessing compliance of products and systems in sectors and subsectors with active HFC restrictions.

Consistent with the October 2023 Technology Transitions Rule, this action does not require any new labeling for specified components intended for use in VRF systems that are manufactured in the United States or imported into the United States prior to January 1, 2026 (*i.e.*, existing inventory). This action also does not change the labeling requirements for specified components used in VRF systems that are manufactured or imported after January 1, 2026. As such, they must be labeled with the following: 1) the statement “For servicing existing equipment only,” 2) the HFC or blend containing an HFC that is used or intended for use, and 3) the date of manufacture.

This labeling is particularly important to distinguish between components manufactured or imported before January 1, 2026, which are not subject to restrictions,

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from those that are manufactured or imported on or after January 1, 2026, which may be subject to the GWP limit depending on whether it is new or intended for servicing existing equipment. For a complete description of the Technology Transitions program labeling requirements, including formatting requirements, please refer to the October 2023 Technology Transitions Rule, or 40 CFR 84.58.

The October 2023 Technology Transitions Rule established recordkeeping and reporting requirements for any entity that manufactures or imports products or specified components that use or are intended to use HFCs in the sectors and subsectors covered in that rule. The reporting period for all sectors and subsectors starts on January 1, 2025, and the first reports covering the 2025 calendar year must be submitted to the Agency by March 31, 2026. This action does not add to nor modify the existing reporting and recordkeeping requirements for specified components. This rule does not establish new reporting and recordkeeping requirements related to the sale or installation of components manufactured or imported prior to January 1, 2025. However, EPA notes that entities that intend to rely on the flexibility associated with the date of their approved building permit should maintain that approved building permit as a record and have it available for inspection, if requested. Reporting and recordkeeping requirements finalized in the October 2023 Technology Transitions Rule are still applicable for specified VRF components that are manufactured in the United States or imported into the United States on or after January 1, 2025.

F. Evaluation of the Subsection (i)(4) Factors

Subsection (i)(4) of the AIM Act directs EPA to factor in, to the extent practicable and using best available data, various considerations when carrying out a rulemaking

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under subsection (i). As discussed in detail in the preamble to the October 2023 Technology Transitions Rule, EPA views subsection (i)(4)(A) through (D) as providing overarching direction for setting restrictions under subsection (i) (88 FR 73129-73141). In this action, EPA did not reconsider the interpretations provided in the October 2023 Technology Transitions Rule regarding how it considers the factors laid out in subsection (i)(4). Nor did the Agency revisit or reopen its analysis of the (i)(4) factors with respect to VRF systems as set forth in the October 2023 Technology Transitions Rule preamble (88 FR 73177-73180). However, in finalizing this narrow adjustment to the installation compliance date for VRF systems, EPA considered the (i)(4) factors to the extent practicable, as applicable to the Agency's adjustment of that compliance date.

The issue being addressed by this final rule was brought to the Agency's attention by stakeholders impacted by the October 2023 Technology Transitions Rule after the issuance of that rule. As noted in EPA's discussion of subsection (i)(4)(A), in addition to information generated by other governing bodies and agencies, the Agency considered information provided by industry, environmental non-governmental organizations, trade associations, academia, standard-setting bodies, and more (88 FR 73129). EPA acknowledges that in some cases, regulated entities may be best situated to identify best available information, particularly regarding implementation challenges.

With respect to the Agency's evaluation of the availability of substitutes under subsection (i)(4)(B), EPA previously determined that substitutes with a GWP less than 700 are available effective January 1, 2026, for VRF systems. EPA did not change that determination and continues to find that substitutes with a GWP less than 700 will be available January 1, 2026, for these systems. Manufacturers and importers in this

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subsector are currently making or importing VRF systems and components with lower-GWP refrigerants for other markets and are prepared to meet the January 1, 2026, manufacture and import compliance date for such systems. This action did not reconsider the Agency's prior evaluation of the availability of substitutes for meeting the use restrictions issued in the October 2023 Technology Transitions Rule for VRF systems; rather, this action addresses the disposition of components manufactured in the United States or imported into the United States before January 1, 2026.

This rule to adjust the installation compliance date for VRF systems was motivated by the policy goal of avoiding the negative environmental and economic impacts of stranding inventory where possible, while recognizing that the AIM Act authorizes the Agency to establish use restrictions where appropriate for sectors and subsectors to move away from the use of high-GWP HFCs. These goals are consistent with the direction in subsection (i)(4)(C), which instructs the Agency to factor in, to the extent practicable, overall economic costs and environmental impacts, as compared to historical trends. As discussed in the October 2023 Technology Transitions Rule, EPA interprets (i)(4)(C) as purposefully accommodating different types and degrees of analysis of economic costs and environmental impacts, including costs and impacts that may be difficult to quantify (88 FR 73138). The narrow adjustment in this final rule reduces the potential to unintentionally strand equipment used in VRF systems, while still achieving a prompt transition for this equipment. Specifically, even with the adjustments in this final rule, manufacturers and importers of components for new VRF systems will be required in the near term (*i.e.*, before January 1, 2026) to transition away from using HFCs or blends containing HFCs with a GWP above 700 in those components, and

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developers and builders will not be allowed to install new systems that use non-compliant regulated substances beginning January 1, 2027 (or January 1, 2028, in limited circumstances). This action does not affect the overall consumption of HFCs because EPA does not anticipate a change in the amount of new VRF equipment that will be manufactured or imported prior to January 1, 2026. Further discussion of environmental impacts can be found in section III.D.

Finally, subsection (i)(4)(D) directs the Agency to factor in, to the extent practicable, the remaining phasedown period for regulated substances under the allowance allocation program. The reduction in the supply of HFCs is an important factor supporting compliance dates and GWP limits that are as stringent as feasible under the analysis of all the (i)(4) factors. This rule will not materially affect the demand for HFCs because it limits installations to components that are manufactured or imported before January 1, 2026. The effect of this rule is to extend the installations that EPA modeled to occur in 2025 over the two-year period of 2025 and 2026, with further limited installations extending into 2027 for projects issued an approved building permit prior to October 5, 2023, providing the other criteria established in this rule are met.

G. Negotiated Rulemaking

Prior to proposing a rule, subsection (i)(2)(A) of the AIM Act directs EPA to consider negotiating with stakeholders in the sector or subsector subject to the potential rule in accordance with negotiated rulemaking procedures established under subchapter III of chapter 5 of title 5, United States Code (commonly known as the “Negotiated Rulemaking Act of 1990”). If EPA makes a determination to use the negotiated rulemaking procedures, subsection (i)(2)(B) requires that EPA, to the extent practicable,

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give priority to completing that rulemaking over completing rulemakings under subsection (i) that are not using that procedure. If EPA does not use the negotiated rulemaking process, subsection (i)(2)(C) requires the Agency to publish an explanation of the decision not to use that procedure before commencement of the rulemaking process. A discussion on EPA's consideration of using negotiated rulemaking procedures and its decision not to use such procedures prior to proposal can be found in section II.G. of the VRF Proposed Rule (89 FR 53378-53380; June 26, 2024).

IV. Judicial Review

The AIM Act regulations promulgated herein may be challenged in the United States Court of Appeals for the District of Columbia Circuit. Pursuant to section 307(b)(1) of the CAA, petitions for judicial review of the AIM Act regulations must be filed in that court within 60 days after the date notice of this final action is published in the *Federal Register*.

The AIM Act provides that certain sections of the CAA “shall apply” to the AIM Act and actions “promulgated by the Administrator of [EPA] pursuant to [the AIM Act] as though [the AIM Act] were expressly included in title VI of [the CAA].” 42 U.S.C. 7675(k)(1)(C). Among the applicable sections of the CAA is section 307, which includes provisions on judicial review. Section 307(b)(1) provides, in part, that petitions for review must only be filed in the United States Court of Appeals for the District of Columbia Circuit: (i) when the agency action consists of “nationally applicable regulations promulgated, or final actions taken, by the Administrator,” or (ii) when such action is locally or regionally applicable, but “such action is based on a determination of nationwide scope or effect.”

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The AIM Act regulations promulgated herein are “nationally applicable regulations” within the meaning of CAA section 307(b)(1). These regulations establish regulatory requirements applicable across the entire United States to implement restrictions under subsection (i) of the AIM Act. The regulations promulgated herein amend an existing nationally applicable regulation by adjusting a compliance deadline for certain systems. The deadlines in the amended regulation and the conditions required to qualify for those extended deadlines are nationally applicable to all affected entities. Accordingly, under section 307(b)(1) of the CAA, petitions for judicial review of these AIM Act regulations must be filed in the United States Court of Appeals for the District of Columbia Circuit by **[INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

V. Statutory and Executive Order Reviews

Additional information about these statutes and Executive Orders can be found at <https://www.epa.gov/laws-regulations/laws-and-executive-orders>.

A. Executive Order 12866: Regulatory Planning and Review and Executive Order 14094: Modernizing Regulatory Review

This action is not a significant regulatory action as defined in Executive Order 12866, as amended by Executive Order 14094, and was therefore not subject to a requirement for Executive Order 12866 review.

B. Paperwork Reduction Act (PRA)

This action does not impose an information collection burden under the PRA because it does not contain any information collection activities.

C. Regulatory Flexibility Act (RFA)

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I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. In making this determination, EPA concludes that the impact of concern for this rule is any significant adverse economic impact on small entities and that the Agency is certifying that this rule would not have a significant economic impact on a substantial number of small entities because the rule would relieve regulatory burden on the small entities subject to the rule. This rule will prevent the stranding of components used to install VRF systems. EPA therefore concluded that this action will relieve regulatory burden for all directly regulated small entities.

D. Unfunded Mandates Reform Act (UMRA)

This action does not contain an unfunded mandate of \$100 million (adjusted annually for inflation) or more (in 1995 dollars) as described in UMRA, 2 U.S.C. 1531–1538, and does not significantly or uniquely affect small governments.

E. Executive Order 13132: Federalism

This action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

F. Executive Order 13175: Consultation and Coordination with Indian Tribal Governments

This action does not have tribal implications as specified in Executive Order 13175. It will not have substantial direct effects on tribal governments, on the relationship between the Federal government and Indian tribes, or on the distribution of

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power and responsibilities between the Federal government and Indian tribes, as specified in Executive Order 13175. Thus, Executive Order 13175 does not apply to this action.

G. Executive Order 13045: Protection of Children From Environmental Health and Safety Risks

EPA interprets Executive Order 13045 as applying only to those regulatory actions that concern environmental health or safety risks that EPA has reason to believe may disproportionately affect children, per the definition of “covered regulatory action” in section 2-202 of the Executive Order. This action is narrowly tailored to prevent the stranding of certain air conditioning and heat pump equipment using VRF technology while not affecting the demand for HFCs. Therefore, this action is not subject to Executive Order 13045 because it does not concern an environmental health risk or safety risk. Since this action does not concern human health, EPA’s Policy on Children’s Health also does not apply.

H. Executive Order 13211: Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution, or Use

This action is not subject to Executive Order 13211, because it is not a significant regulatory action under Executive Order 12866.

I. National Technology Transfer and Advancement Act (NTTAA)

This rulemaking does not involve technical standards.

J. Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations and Executive Order 14096: Revitalizing Our Nation’s Commitment to Environmental Justice for All

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EPA believes that this type of action does not concern human health or environmental conditions and therefore cannot be evaluated with respect to potentially disproportionate and adverse effects on communities with environmental justice concerns. This action is narrowly tailored to prevent the stranding of inventory of air conditioning and heat pump equipment using VRF technology while not affecting the demand for HFCs.

Although this action does not concern human health or environmental conditions, EPA identified and addressed environmental justice concerns within the October 2023 Technology Transitions Rule (88 FR 73098; October 24, 2023).

K. Congressional Review Act (CRA)

This action is subject to the CRA, and the EPA will submit a rule report to each House of the Congress and to the Comptroller General of the United States. This action is not a “major rule” as defined by 5 U.S.C. 804(2).

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List of Subjects in 40 CFR Part 84

Environmental protection, Administrative practice and procedure, Air pollution control, Chemicals, Imports, Reporting and recordkeeping requirements.

Michael S. Regan,
Administrator.

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For the reasons set forth in the preamble, the EPA amends 40 CFR part 84 as follows:

PART 84-PHASEDOWN OF HYDROFLUOROCARBONS

1. The authority citation for part 84 continues to read as follows:

Authority: Pub. L. 116-260, Division S, Sec. 103.

Subpart B-Restrictions on the Use of Hydrofluorocarbons

2. Amend § 84.54 by revising paragraph (c)(2) to read as follows:

§ 84.54 Restrictions on the use of hydrofluorocarbons.

* * * * *

(c) * * *

(2) Effective January 1, 2026, variable refrigerant flow systems for use as residential or light commercial air-conditioning or heat pumps, using a regulated substance, or a blend containing a regulated substance, with a global warming potential of 700 or greater. Such new variable refrigerant flow systems using a regulated substance, or a blend containing a regulated substance, with a global warming potential of 700 or greater may be installed prior to January 1, 2027, where all specified components of that system are manufactured or imported prior to January 1, 2026. Such new variable refrigerant flow systems using a regulated substance, or a blend containing a regulated substance, with a global warming potential of 700 or greater may be installed prior to January 1, 2028, when an approved building permit issued prior to October 5, 2023, specifies the use of a restricted regulated substance, or blend containing a restricted regulated substance, in such system detailed in that building permit, and where all specified components of that system are manufactured or imported prior to January 1, 2026.

* * * * *