

# Errata and Clarifications

## METHODOLOGY FOR THE QUANTIFICATION, MONITORING, REPORTING AND VERIFICATION OF GREENHOUSE GAS EMISSIONS REDUCTIONS AND REMOVALS FROM ADVANCED REFRIGERATION SYSTEMS

### VERSION 2.1

2024-08-28

This Errata and Clarifications document is supplemental to the ACR Methodology *Advanced Refrigeration Systems, Version 2.1* (“the Methodology”) and applies to all projects registered under the Methodology. Each erratum and clarification contained herein is effective as of its posting date listed below. This document may be updated as supplemental information or clarifications are needed. Project Developers and Verification Bodies shall adhere to the errata and clarifications when implementing projects and conducting verification activities.

#### **1. Erratum: Start Date Requirements (2021-05-15)**

Chapter 3, Table 2 of the ACR Standard details eligibility criteria for all projects, defines each criterion and articulates ACR requirements. Additional eligibility requirements for specific project types may be summarized in the relevant ACR sector standard and/or methodology.

Per this erratum, additional eligibility requirements for start dates for this project date are specified.

Projects must be validated within two years of the start date with the following exception: a project must be validated within 3 years of its start date if it occurs at a facility that has been visited during a successful validation and verification for another project of this same type and registered on ACR by the same Project Proponent.

#### **2. Erratum: Section 1.2.III and Section 5.2 re. CFC and HCFC Destruction (2024-08-28)**

Section 1.2.III of the Methodology requires recovered CFCs and HCFCs to be destroyed. However, regulations in U.S., Canada, and Mexico do not require the destruction of recovered CFCs and HCFCs. Reclamation and reuse of recovered CFCs and HCFCs are legally allowed and often

encouraged to ensure a smoother transition to alternative refrigerants. Moreover, baseline and project emissions in the Methodology only include the end of life (EOL) emission rate from disposal of the equipment and associated gases (i.e., emissions of refrigerants that cannot be recovered at EOL). Since recovered CFCs and HCFCs are not accounted for in baseline and project emissions, whether the recovered CFCs and HCFCs are reclaimed/reused or destroyed does not impact the quantity of emissions reductions.

Per this erratum, Section 1.2.III of the Methodology is replaced with the following text:

“For a project activity in which an existing refrigeration system is decommissioned, refrigerant in the original refrigeration system must be recovered and managed in accordance with applicable rules and regulations.<sup>4</sup> For refrigeration systems decommissioned in the U.S., this includes U.S. EPA regulations (40 CFR Part 82, Subpart F) under Section 608 of the Clean Air Act and any relevant state rules and regulations (Clean Air Act, 2024). For systems decommissioned in Canada, the Ozone Depleting Substances and Halocarbon Alternatives Regulation and any relevant provincial rules and regulations (Ozone-depleting Substances, 2016). For refrigeration systems decommissioned in Mexico, this includes the General Law for Waste Prevention and Integrated Waste Management (Ley General para la Prevención y Gestión Integral de los Residuos) and any relevant state rules and regulations (General Law, 2003).”

<sup>4</sup>Additional credits can be generated for destroying recovered refrigerants by using ACR’s Destruction of Ozone Depleting Substances and High-GWP Foam Methodology. See <https://acrcarbon.org/methodology/destruction-of-ozone-depleting-substances-and-high-gwp-foam/>.

Similarly, per this erratum, bullet 4 of Section 5.2 of the Methodology is modified as follows, with changes shown in ~~struck out~~ or underlined (and bolded) text, and bullet 5 is removed entirely:

- For Large Commercial Refrigeration projects that are replacing CFC, ~~or HCFC~~ **or HFC**-based systems, documentation showing proof of ~~destruction-recovery and management of for~~ the displaced ~~refrigerant CFC and HCFC~~. This documentation shall include the following:
  - ◆ ~~Bills of lading for shipments of CFC or HCFC from the facility to a destruction or reclamation facility~~<sup>20</sup> **Job order or other technical report submitted by the certified technician that recovered the refrigerant in accordance with relevant rules and regulations. For refrigeration systems decommissioned in the U.S., this includes U.S. EPA regulations (40 CFR Part 82, Subpart F) under Section 608 of the Clean Air Act and any relevant state rules and regulations. For systems decommissioned in Canada, the Ozone Depleting Substances and Halocarbon Alternatives Regulation and any relevant provincial rules and regulations. For refrigeration systems decommissioned in Mexico, this includes the General Law for Waste Prevention and Integrated Waste**

**Management (Ley General para la Prevención y Gestión Integral de los Residuos) and any relevant state rules and regulations.**

- ◆ **Attestation from project proponent and signed by representatives from the project proponent and the destruction facility that the volume of displaced CFC or HCFC from the baseline system was destroyed including the dates of destruction. Job order or other technical report submitted by the certified technician should include equipment name and type (per U.S. EPA refrigeration end-use categories), equipment model number, equipment refrigerant full charge size, refrigerant name, amount of refrigerant recovered, date of recovery, and what was done with the recovered refrigerant (e.g., stored at same location, transferred to a different location for same owner, sent/sold for reclamation to a certified reclaiming, or sent/sold for destruction).**

<sup>29</sup> Destruction shall be conducted at either an approved hazardous waste combustor subject to the Resource Conservation and Recovery Act (RCRA) that maintains a current RCRA permit that states an ODS destruction efficiency of at least 99.99% or at a destruction facility that meets the Montreal Protocol's Technology and Economic Assessment Panel standard that a destruction facility must demonstrate a destruction and removal efficiency of 99.99%.

### **3. Clarification: Baseline Refrigerants and GWP Values for 2022 through 2024 (2024-08-28)**

Tables 5 and 6 in the Methodology provide baseline refrigerants and their global warming potential (GWP) values for different segments of the refrigeration sector. These are segregated by U.S. states and countries (Canada and Mexico) based on regulatory requirements and by calendar year. These tables currently provide data for the years 2019 through 2021.

Per this clarification, baseline refrigerants and their GWP values for years 2022 through 2024 are added to Tables 5 and 6. State regulations adopting United States Environmental Protection Agency (U.S. EPA) Significant New Alternative Policy (SNAP) rules 20 and 21 came into effect in three new U.S. states – Maine, Rhode Island, and Virginia – on January 1, 2022. The GWP values of baseline refrigerants are lower in states with SNAP regulations than in those without SNAP regulations because the use of higher-GWP refrigerants R-134A and R-404A are prohibited in these states, resulting in use of other SNAP-approved lower-GWP refrigerants. Additions to Tables 5 and 6 are shown in underlined text below.

**Table 5: Baseline Refrigerants (GWP) for Stand-Alone Commercial Refrigeration**

SEGMENT	U.S. STATE(S)/ COUNTRIES	BASELINE REFRIGERANT (GWP)			
		2019	2020	2021 <sup>13</sup>	<u>2022-2024<sup>13</sup></u>
<b>Stand-Alone Commercial Refrigeration</b>	California	1453 <b>(A)</b> 2053 <b>(B)</b>	850 <b>(C)</b>	773 <b>(D)</b> 1306 <b>(E)</b>	<u>1306</u>
	Washington	2053	850	773 1306	<u>1306</u>
	Colorado, Delaware, Maryland, Massachusetts, New Jersey, New York, Vermont	2053	2053	773 1306	<u>1306</u>
	<u>Maine, Rhode Island, Virginia</u>	<u>2053</u>	<u>2053</u>	<u>1962</u>	<u>1306</u>
	All other US States and Territories	2053	2053	1962	<u>1962</u>
	Canada	2053	1425 <b>(F)</b>	1425	<u>1425</u>
	Mexico	2053	2053	1962	<u>1962</u>

<sup>13</sup> AR5 100-year GWP values are used for years 2021-2024 per ACR Standard.

**Table 6: Baseline Refrigerants (GWP) for Large Commercial Refrigeration and Remote Condensing Units**

SEGMENT	U.S. STATE(S)/ COUNTRIES	BASELINE REFRIGERANT (GWP)			
		2019	2020	2021 <sup>14</sup>	2022-2024 <sup>14</sup>
Large Commercial Refrigeration and Remote Condensing Units	California	2110 (G)	2110	1923	<u>1923</u>
	Washington, New Jersey, Vermont	3015 (H)	2110	1923	<u>1923</u>
	Colorado, Delaware, Maryland, Massachusetts, New York	3015	3015	1923	<u>1923</u>
	<u>Maine, Rhode Island, Virginia<sup>14a</sup></u>	<u>3015</u>	<u>3015</u>	<u>2934</u>	<u>1923</u>
	All other U.S. States and Territories	3015	3015	2934	<u>2934</u>
	Canada	3015	2200 (I)	2200	<u>2200</u>
	Mexico	3015	3015	2934	<u>2934</u>

<sup>14</sup> AR5 100-year GWP values are used for years 2021-2024 per ACR Standard.

<sup>14a</sup> State regulations: i) Maine: Act to limit the use of hydrofluorocarbons to fight climate change <https://www.legislature.maine.gov/legis/bills/getPDF.asp?paper=HP0161&item=3&snum=130>; ii) Rhode Island: Prohibition of hydrofluorocarbons in specific end-uses <https://rules.sos.ri.gov/regulations/part/250-120-05-53>; iii) Virginia: Regulations for control of greenhouse gases <https://www.deq.virginia.gov/home/showpublisheddocument/9272/63758246326060000>

#### 4. Erratum: Establishing Refrigerant Annual Leak Rate Based on Historical Records (2024-08-28)

Section 5.2 of the Methodology requires Project Proponents for projects that replace existing large commercial refrigeration systems to establish an annual refrigerant leak rate based on the average of the previous two years' worth of baseline system operation prior to installation of advanced refrigeration system. Most supermarkets and grocery stores, where large commercial systems are commonly used, record the refrigerant type and amount and the dates when the refrigerants are recharged in these systems. The quantity of refrigerant recharged in each calendar year is determined and divided by the full charge size to calculate the annual leak rate. Based on ACR experience with projects to date, it is not uncommon to have to rely on more than two previous years' worth of recharge data to ensure accuracy of the calculated annual refrigerant leak rate. Using five previous years' worth of data will allow use of more recharges to establish a more representative historical average leak rate.

Per this erratum, this monitoring requirement in section 5.2 is modified as follows, with changes shown in ~~struck out~~/underlined text (and bolded), and shall be used to quantify baseline emissions in Equation 1.

“For Large Commercial Refrigeration projects that are replacing existing systems, regulatory compliance reporting or verifiable historical operating records to establish the annual leak rate of the replaced baseline system which shall be based on the average of the previous ~~two~~ **five** years of baseline system operation prior to installation of advanced refrigeration system.”

#### 5. Clarification: Project Locations in Multiple Countries (2024-08-28)

Per this clarification, which is applicable to vintages 2021 and onwards, Project Proponents implementing project activities that result in GHG emissions reductions or removals being generated within the geographic boundary of more than one country must independently quantify GHG emissions reductions and/or removals achieved within each country and register them as separate projects. Individual projects may not include manufacturing facilities located in more than one country, and project activities must be split such that each project only includes manufacturing facilities in a single country. For example, if a manufacturer has manufacturing facilities in the U.S. and Canada, two projects must be listed, one for the facilities in the U.S. and one for the facilities in Canada. Similarly, individual projects may not include equipment installations at facilities such as supermarkets and grocery stores located in more than one country, and project activities must be split such that each project only includes facilities in a single country. For example, if a grocery store chain has locations in the U.S. and Mexico, two projects must be listed, one for the stores in the U.S. and one for the stores in Mexico. This ensures accurate representation of the host countries associated with projects and credits for the purpose of facilitating use under the Paris Agreement.

## **6. Clarification: Project Location for Stand-Alone Commercial Refrigeration Projects (2024-08-28)**

Stand-alone commercial refrigeration equipment is charged, and the refrigeration circuit is hermetically sealed at the factory. The decision to use a certain type of refrigerant is made by the manufacturer. This equipment can be purchased and plugged into a power outlet to start operation (like individual refrigerators, vending machines, refrigerated food processing and dispensing equipment). They cannot be recharged with refrigerant by the end-user.

Per this clarification, for projects that include stand-alone commercial refrigeration equipment (as defined in Methodology Table 1) that are fully charged with refrigerants and sealed at the manufacturing facility and for which the manufacturer is the Project Proponent, the location of the project shall be the manufacturing facility.