

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

### Proposed Regulatory Text for the Air Conditioning Refrigerant Transition in California

- 1) Air Conditioning Equipment, Stationary installed in the state of California may only contain refrigerants having a global warming potential (GWP) of less than 750 by January 1, 2025.
- 2) Air conditioning (AC) original equipment manufacturers (OEMs) will enable refrigerant recovery from 2022 to 2030 to offset the quantity of refrigerant higher than 750 GWP the OEM placed in new equipment shipped to and not exported from California in 2023 and 2024 in carbon dioxide (CO<sub>2</sub>) equivalent (eq) units (using CARB's Standardized Regulatory Impact Assessment (SRIA) leak rates and equipment lifetimes), (Greenhouse Gas Impact or GHG<sub>i</sub>). The amount to be offset will be adjusted up or down (Greenhouse Gas Adjustment or GHG<sub>A</sub>) to recognize the refrigerant used in new equipment sold in California between 2023 and 2030 by:
  - a) Changes in refrigerant charge size and
  - b) Refrigerant GWP less than 750 GWP.
- 3) Definitions
  - a) Air Conditioning Equipment, Stationary: "Air-conditioning Equipment" or "Air-conditioning System" means equipment that cools or dehumidifies spaces in residential or non-residential settings, for comfort cooling and other purposes, including but not limited to room air conditioning such as window units, packaged terminal air conditioners (PTAC), packaged terminal heat pumps (PTHP), and portable air conditioners; central air conditioners (i.e., ducted); non-ducted systems (both mini and multi splits); packaged rooftop units; water-source and ground-source heat pumps; and dehumidifiers. Air-conditioning also includes computer room and data center cooling and remote condensing units for comfort cooling applications. Chillers are defined separately from "air-conditioning equipment." For the purposes of this regulation, "air-conditioning equipment" applies to stationary air-conditioning equipment and does not apply to mobile air-conditioning, including those used in vehicles, rail and trains, buses, aircraft, watercraft, recreational vehicles, recreational trailers, and campers.
  - b) Enable refrigerant recovery: includes facilitating recovery, purchasing or using reclaimed refrigerant, or enabling the destruction of recovered refrigerant.
  - c) Greenhouse Gas Adjustment (GHG<sub>A</sub>):  $GHG_A = [\Sigma(\text{Charge} \times [750 - \text{GWP}])] \text{ for equipment designed to use a refrigerant less than 750 GWP shipped to and not exported from California} + \text{RCR} \times \text{charge}] \times \text{SRIA Leak Rate} \times \text{SRIA Equipment Lifetime}$
  - d) Greenhouse Gas Impact (GHG<sub>i</sub>):  $GHG_i = \Sigma(\text{Charge}) \times (2088 - \text{GWP}) \text{ for equipment designed to use a GWP greater than 750 shipped to and not exported from California from January 1, 2023 and January 1, 2025} \times \text{SRIA leak rate} \times \text{SRIA equipment lifetime}$
  - e)  $GHG_p = \Sigma(\text{Charge} \times \text{GWP}) \text{ shipped to and not exported from California}$
  - f) Original equipment manufacturer: Company that fabricates air conditioners or other products

- g) Reclaim<sup>1</sup>: To reprocess recovered refrigerant to at least the purity specified in the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) Standard 700-2016 and to verify this purity using the analytical methodology prescribed in the standard. Per EPA Section 608, Reclamation requires specialized machinery not available at a job site or auto repair shop. The technician will recover the refrigerant and then send it either to a general reclaimer or back to the refrigerant manufacturer.
- h) Recover<sup>2</sup>: To remove refrigerant in any condition from an appliance and store it in an external container without necessarily testing or processing it in any way.
- i) Recycle<sup>3</sup>: When referring to a refrigerant, recycle means to extract refrigerant from an appliance (except MVACs) and clean refrigerant for reuse in equipment of the same owner without meeting all the requirements for reclamation. In general, recycled refrigerant is refrigerant that is cleaned using oil separation and single or multiple passes through devices, such as replaceable core filter-driers, which reduce moisture, acidity, and particulate matter.
- j) Refrigerant Charge Reduction (RCR) - The inherent refrigerant charge reduction is the ratio of the average liquid and vapor densities of refrigerant multiplied by 80% based on the observed charge size reduction of 20%<sup>4</sup>.

$$\text{Inherent charge reduction} = \frac{(\text{Liquid Density} + \text{Vapor Density}) \text{ for new refrigerant}}{(\text{Liquid Density} + \text{Vapor Density}) \text{ for base refrigerant}} \times (1 - 20\%)$$

Refrigerant charge size reduction table<sup>5</sup>

Refrigerant	Charge Size Relative to Current R-410A Charge
R-32	80%
R-454B	85.4%

- 4) GHG<sub>i</sub> will be compensated for as GHG<sub>A</sub> and GHG<sub>p</sub> of recovered, destroyed, installed reclaimed refrigerant enabled by the OEM. The remaining commitment calculated as GHG<sub>i</sub> - GHG<sub>A</sub> - GHG<sub>p</sub> of enabled refrigerant must be zero by January 1, 2030
- 5) Reporting Requirements: On or before April 1, 2023 and each April 1 thereafter until the OEM has shown compliance, AC OEMs that ship equipment into California that will not be exported from shall register in the R3 database and provide the following information:
  - a) Name of Company.
  - b) Company Federal Tax Identification Number.

<sup>1</sup> <https://www.epa.gov/section608/definitions-section-608-terms>

<sup>2</sup> <https://www.epa.gov/section608/definitions-section-608-terms>

<sup>3</sup> <https://www.epa.gov/section608/definitions-section-608-terms>

<sup>4</sup> Cold Hard Facts 3 for The Australian Government by The Expert Group

<https://www.environment.gov.au/system/files/resources/bd7fa5d0-8da1-4951-bd01-e012e368d5d0/files/cold-hard-facts3.pdf>

- c) Company mailing address including a street address, city, state, and zip code.
  - d) Company location address including a street address, city, state, and zip code.
  - e) Company contact person.
  - f) Company contact person phone number.
  - g) Company contact person e-mail address; and
  - h) Compliance Information:
    - i) The total volume of refrigerant having a GWP greater than 750 that is shipped to and not exported from California.
    - ii) The total volume of refrigerant having a GWP less than 750 that is shipped to and not exported from California.
    - iii) The company's RCR
    - iv) The company's GHG<sub>i</sub>
    - v) The company's GHG<sub>A</sub>
    - vi) The GHG<sub>p</sub> of and quantity of recovered refrigerant that the company has enabled, and the methodology used to enable its recovery.
    - vii) The GHG<sub>p</sub> of and quantity of reclaimed refrigerant used in new equipment.
    - viii) The GHG<sub>p</sub> compliance credits purchased from another entity along with the name and contact information for that entity.
- 6) Recordkeeping Requirements. As of the effective date of this subarticle, any person who ships equipment into California that will not be exported from California from January 1, 2022 to January 1, 2030 shall maintain for five years and make available, upon request by the California Air Resources Board's Executive Officer, the following records:
- a) The means by which the GHG<sub>i</sub> is calculated.
  - b) The means by which the GHG<sub>A</sub> is calculated.
  - c) The GHG<sub>p</sub> and quantity of recovered refrigerant that the company has enabled, and the methodology used to enable its recovery.
  - d) Each refrigeration system charge reduction, including the full charge size before a refrigerant charge reduction and after a refrigerant charge reduction.
  - e) The GHG<sub>p</sub> and quantity of reclaimed refrigerant used in new equipment.
  - f) The GHG<sub>p</sub> compliance credits purchased from another entity along with the name and contact information for that entity.
  - g) The calculations and spreadsheets used to create the reported information under section 95375(4); and
  - h) The recordkeeping requirements of section 95375(5) shall include documentation including but not limited to, invoices, receipts, records of shipments, plans, or work details, that are generated or supported by information from a third party, such as a service technician or refrigerant reclaimer.