

# A-Gas V5

June 23, 2022

## A-Gas



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# **A.**

## **PROJECT OVERVIEW**

## A1. PROJECT TITLE

A-Gas V5

## A2. PROJECT TYPE

Industrial Process Emissions Use of Certified Reclaimed HFC Refrigerants

## A3. PROOF OF PROJECT ELIGIBILITY

Table 1: Eligibility Requirements

Criterion	Requirement	Proof of Project Eligibility
<b>Start Date</b>	Both AFOLU and non--AFOLU projects with a Start Date of 01 January 2000 or later are eligible for registration.	Project Start Date of January 2, 2019
<b>Minimum Project Term</b>	The Minimum Project Term for specific project types is specified in the relevant ACR sector standard and/or methodology. Project types with no risk of reversal subsequent to crediting have no required Minimum Project Term.	There is no risk of reversal for this project type.
<b>Crediting Period</b>	Crediting periods for all projects (except Fire Suppressants) are 15 years. Crediting period for Fire Suppressant projects will be 40 years.	The crediting period is 15 years.
<b>Real</b>	GHG reductions and removals shall exist prior to issuance. ACR will not forward issue nor forward register a projected stream of future offsets.	GHG reductions take place at the displacement of virgin HFC production, which takes place prior to the issuance.

<b>Emission or Removal Origin</b>	Project Proponent shall own, have control, or document effective control over the GHG sources/sinks from which the emissions reductions or removals originate. If the Project Proponent does not own or control the GHG sources or sinks, the Proponent shall document that effective control exists over the GHG sources and/or sinks from which the reductions/removals originate.	A-Gas holds and retains title to the HFC Refrigerant and all environmental rights and benefits from the purchase through reclamation, up until the sale of the AHRI Certified Reclaimed gas back out to the market.
<b>Offset Title</b>	Project Proponent shall provide documentation and attestation of undisputed title to all offsets prior to registration, including chain of custody documentation if offsets have ever been sold in the past. Title to offsets shall be clear, unique, and uncontested.	A-Gas has provided documentation of undisputed title to all offsets. Title to offsets is clear, unique, and uncontested.
<b>Land Title</b>	For U.S. projects, Project Proponent shall provide documentation of clear, unique, and uncontested land title. For international projects, Proponent shall provide documentation and/or attestation of land title; ACR may require a legal review by an expert in local law. Land title may be held by a person or entity other than the Project Proponent, provided the Project Proponent has clear, unique, and uncontested offsets title.	Not applicable to project type.

<p><b>Additional</b></p>	<p>Every project shall use either an ACR--approved performance standard and pass a regulatory surplus test or pass a three--pronged test of additionality in which the project must: 1) exceed regulatory/legal requirements; 2) go beyond common practice; and 3) overcome at least one of three implementation barriers: institutional, financial or technical.</p>	<p>This project passes the regulatory surplus test and the ACR--approved practice--based performance test.</p> <p>Regulatory Surplus Test: Currently, there are no restrictions in the US or elsewhere in North America on the quantities of HFC that can be produced, imported, or used. Because of the lack of production controls for HFC, combined with the additional costs to recover, transport, and separate/process refrigerants to virgin purity levels, there is currently little incentive for recovery, reclamation, and re-sale of HFC refrigerants.</p> <p>Practice--Based Performance Standard: A review of US EPA's reclamation data indicates that the HFC refrigerant sector has a low market adoption rate for using certified reclaimed HFCs.</p>
<p><b>Regulatory Compliance</b></p>	<p>Projects must maintain material regulatory compliance. To maintain material regulatory compliance, a project must complete all regulatory requirements at required intervals. Project Proponents are required to provide a regulatory compliance attestation to a verification body at each verification. This attestation must disclose all violations or other instances of noncompliance with laws, regulations, or other legally--binding mandates directly related to project activities.</p>	<p>This project maintains material regulatory compliance for the entire reporting period.</p>

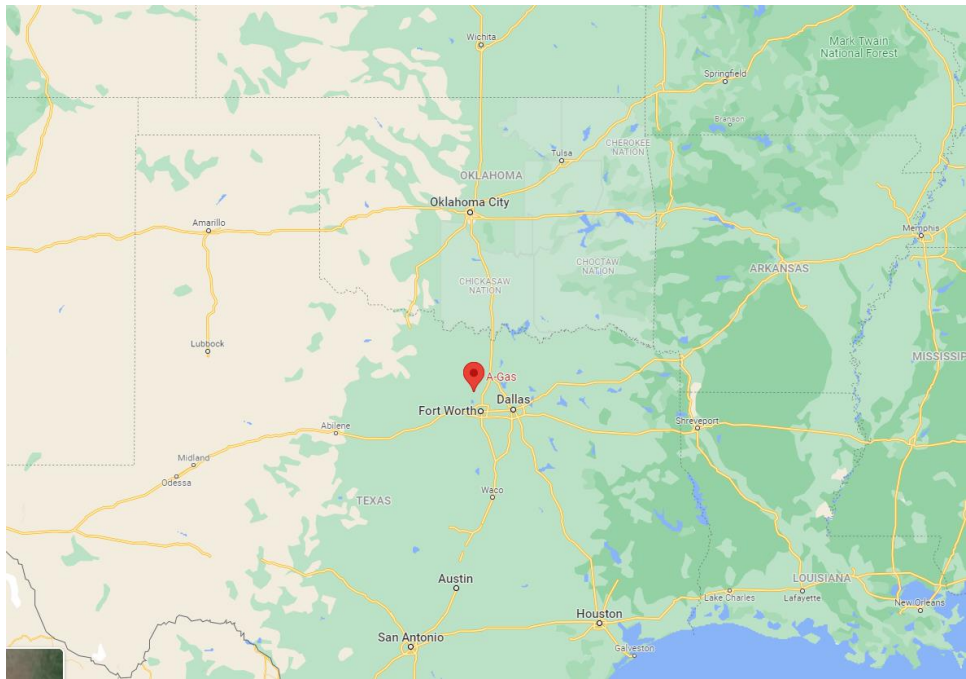
<b>Permanent</b>	For projects with a risk of reversal of GHG removal enhancements, Project Proponents shall assess risk using an ACR--approved risk assessment tool.	There is no risk of reversal of GHG removal enhancements for project type.
<b>Net of Leakage</b>	ACR requires Project Proponents to assess, account for, and mitigate certain types of leakage, as summarized in relevant sector standards and approved methodologies. Project Proponents must deduct leakage that reduces the GHG emissions reduction and/or removal benefit of a project more than any applicable threshold specified in the methodology.	Projects involving certified reclaimed HFC refrigerant would not increase demand for refrigerant beyond current baseline demand, i.e., use of more reclaimed refrigerant would not cause an increase in virgin HFC production (to the contrary), or increase refrigerant emission rates. Therefore, for this project, "leakage" can be disregarded.
<b>Independently Validated &amp; Verified</b>	ACR requires third--party validation and verification, by an ACR--approved Validation/Verification Body (VVB), at specified intervals to issue ERTs. Governing documents for validation and verification are the ACR Standard, relevant sector standard, relevant methodology, and the ACR Validation and Verification Guideline.	This project will be validated and verified by third-party, ACR-approved, ANAB Accredited Verification Body, Ruby Canyon Environmental



<b>Community &amp; Environmental Impacts</b>	ACR requires community and environmental impacts to be net positive overall. Project Proponents shall document in the GHG Project Plan a mitigation plan for any foreseen negative community or environmental impacts and shall disclose in their Annual Attestations any negative environmental or community impacts or claims of negative environmental and community impacts.	There are no negative community or environmental impacts for this project type.
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## A4. LOCATION

Wise County, Rhome, Texas USA **Latitude:** 33.03544 **Longitude:** -97.45346



## A5. BRIEF SUMMARY OF PROJECT

Description of Project Activity:

The project activity of A-Gas US Inc’s Voluntary Emission Reduction Project A-Gas V5, is the recovery, reclamation, re-sale and use of AHRI 700 certified HFC refrigerants to service/re-charge existing and newly manufactured

refrigeration and air conditioning equipment in the US. The benefit of using reclaimed HFCs is that it avoids future production of virgin high GWP HFCs and subsequent GHG emissions.

The HFCs used in the project were sourced domestically using our expansive refrigerant recovery network across the country (over 50 locations) from a variety and multiple sources. The HFC's recovered and reclaimed that make up this project include – R-134a, R-404a, R-407a, R407c, and R-410a, these are consistent with the HFC reclaim methodology.

These HFCs were reclaimed to industry specification standards at our EPA Certified Reclamation facility in Rhome Texas, with the intention to resell into the market. All applicable laws and regulations were followed throughout this project.

#### Background Information:

A-Gas provides turn-key recovery and reclamation offerings to wide customer base in the US. We work closely with our customers to ensure that proper safety, environmental and operational procedures are followed throughout the entire recovery process from point of acquisition using our highly trained technicians and/or collaborating with industry using or Refri-claim Program (over the counter cylinder exchange), to reclamation at our EPA Certified Reclamation facility in Rhome using modern state of the art reclamation and separation technology, to the point of selling the certified refrigerant.

#### Project Purpose and Objective:

The purpose of this project is to offset the production of virgin HFC refrigerants creating potential GHG emissions by implementing instead, recovery, reclamation and the reselling certified used HFC refrigerants thereby resulting in emission reductions. The activities that make up this project are part of A-Gas's BAU approach to the circular economy and Total Solutions offering to the market.

## A6. PROJECT ACTION

- Description of prior physical conditions
  - During the reporting period of this project and unlike R22, there were no regulatory restrictions phasing out the production of HFCs, this means we could achieve quantifiable voluntary carbon offsets from the recovery, reclamation, and sale of certified HFCs as prescribed in the Methodology.

From a physical condition point of view our project actions occurred within the USA & did not result in the release of GHGs outside of this geography. All the recovery, reclamation and sale activities have occurred and have contributed to emission reductions that will undergo verification by an independent verifier.

To ensure we continue to meet all the necessary physical conditions we have ensured that our technicians, our equipment, our record keeping, our operational activities on and off site meet the necessary Section 608 of the Clean Air Act obligations for Stationary Refrigeration and Air Conditioning; this will ensure that we are further preventing and minimizing venting of emissions throughout our processes.

- Description of how the project will achieve GHG reductions and/or removal enhancements

- The project will achieve GHG reductions by reducing the need for the refrigerant market and supply chain to rely on the import and manufacture of virgin high GWP HFCs for servicing existing and new refrigeration, domestic and industrial air conditioning equipment that continue to have a heavy reliance on HFCs for their operation.

A-Gas is an EPA certified refrigerant reclaimer and has been in the business of offering Total Solutions to its customers and the market for many years, the used HFCs that are acquired, safely processed, and sold from A-Gas to distributor, wholesaler, service technician or end user under this offering is a testament to this.

- o Description of project technologies, products, services, and expected level of activity

An overview of the project technologies and flow incorporating key activities are summarized below.

### **Acquisition**

The initial steps on the journey to emission reductions occurs at the acquisition phase. Our customers sell their used HFCs to A-Gas; these sales can occur through our various acquisition and recovery programs, including Refrigerant Buy Back, Refri-Claim & our Rapid Recovery Network. Our ability to respond quickly and comprehensively assures the material is properly picked up, safely recovered into various DoT rated cylinders or vessels and transfer of ownership occurs seamlessly.

### **Shipping To A-Gas Rhome Facility**

A-Gas uses its own vehicle fleet to pick up used HFC refrigerants or subcontracts transport to suitably qualified third-party service providers to return used HFCs to its plant in Rhome Texas for subsequent sorting and processing.

### **Receipt**

When used HFCs are delivered to our Rhome facility from various sources, the HFCs are checked in as per our in-house receipting procedures & entered our customary inventory database – Cyltrak.

### **Sorting & Initial Testing**

After the HFCs have been checked in, each vessel or cylinder of refrigerant is tested by our QC lab. Gas chromatography enables the identification of actual product type and purity. Depending on these two factors, the refrigerants are sorted into batches to start the initial reclamation process of removing non HFC impurities such as refrigerant oil, moisture, and non-condensable gases.

Depending on the outcome of the GC results the batches are classified into two groups, the first group are those batches that will only require reclamation only, (because their purity alone is greater than AHRI700 requirements), or the second group requiring further processing via our Separation distillation towers. The latter necessitated because the purity does not meet AHRI700 requirements and therefore distillation is required to purify the material to meet industry specifications for the refrigerant aftermarket.

## **Reclamation**

Prior to reclamation, the batches of HFC are transferred to bulk tanks that will feed either the Reclaimer or the Separation Towers.

The reclaimer operation includes the reclaim machine, desiccant driers, totes for refrigerant oil collection, the reclaimer has access to any bulk storage vessel within the A-Gas property.

Used HFCs are fed into the reclaim machine where a simple distillation process removes refrigerant oils & particulates, and to some extent acidity/chlorides and, water. Additional acidity/chlorides and water are removed through desiccant driers as necessary.

HFC batches that have been reclaimed or reclaimed &/or separated, are batched in dedicated storage tanks.

The batches are circulated to ensure a homogenous batch, and then tested to verify AHRI700 standards are met.

## **Separation Distillation Towers**

Any HFC which does not meet the composition or assay requirements for AHRI specifications is sent to the Separation Distillation towers where the HFCs are distilled into segregated fractions for blending or batch certification.

HFCs in storage tanks are fed into the separation tower, where physical chemistry is used to distill refrigerants into different component or purity ranges. The separation towers utilize a heating system to evaporate the refrigerants and a cooling system to reflux the separation process. Once purified, the refrigerants are removed from the separation tower into storage tanks.

The process uses many types of storage tanks such as feed tanks, storage tanks, or reclaim tanks from clients. After the refrigerants are separated, the batches are stored in storage tanks pending laboratory testing.

## **Post Reclaim & Separation Testing**

Upon reclamation and/or separation via our distillation towers samples are taken from the various tanks and sent away for testing by an AHRI 700 Certified laboratories. Our in-house laboratory at our Bowling Green facility in Ohio offers these services to our Rhome facility. If necessary and due to operational constraints at our Bowling Green laboratory, material processed at our Rhome facility can also be sent to AHRI certified third party laboratories like National Refrigerants for verification that the reclamation activity has been successful, and material meets AHRI 700 specification.

## **Packaging**

Once the bulk tanks have had their batches certified, the HFCs are repackaged into various DoT cylinders and vessels. These vessels range in size from 24 lbs to 2000 lbs.

## **Shipping to Aftermarket**

Once -HFC material has been successfully reclaimed, certified to meet AHRI specification and repackaged, the material is now ready for shipping to our third-party Warehouses for future picking and dispatch to fulfill sales orders.

Material is transported to these warehouses using third party freight contractors.

## A7. EX ANTE OFFSET PROJECTION

The following is the GHG emission reduction and removal enhancements from the reporting period stated in tonnes CO<sub>2</sub>e. *The emission reductions are quantified in accordance with V2.0 of methodology per section 1.6 of V2.0 of methodology.* Outstanding balance between original September 30, 2021 issuance and second issuance: 185,621 tonnes CO<sub>2</sub>e

Table 2: EX ANTE Emission Reductions

Total V5

				Baseline reclaim rate	2.00%	
<b>Vintage 2019</b>	<b>Refrigerant Type</b>	<b>Lbs Reclaimed and Sold</b>	<b>Annual Consumption (kgs)</b>	<b>GWP</b>	<b>Emission Reductions</b>	<b>Rounded Emission Reductions</b>
	HFC-134a refrig	52,990	24,036	1,430	33,683.826288112	33,683
	R-404a	266,920	121,073	3,922	465,350.481382438	465,350
	R-407a	10,825	4,910	2,107	10,138.738052324	10,138
	R-407c	79,800	36,197	1,774	62,928.585354432	62,928
	R-410a	196,500	89,131	2,088	182,383.065486720	182,383
	<b>Totals</b>	<b>607,035</b>	275,346		754,484.696564026	<b>754,484</b>

Previously issued:

			Baseline reclaim rate	8.90%			
<b>Vintage 2019</b>	<b>Refrigerant Type</b>	<b>Lbs Reclaimed and Sold</b>	<b>Annual Consumption (kgs)</b>	<b>10-yr Emission Rate</b>	<b>GWP</b>	<b>Emission Reductions</b>	<b>Rounded Emission Reductions</b>
	HFC-134a refrig	52,990	24,036	76%	1,430	23,797.279560038	23,797
	R-404a	266,920	121,073	89%	3,922	385,001.547755171	385,001
	R-407a	10,825	4,910	89%	2,107	8,388.150434126	8,388
	R-407c	79,800	36,197	68%	1,774	39,778.571485065	39,778
	R-410a	196,500	89,131	66%	2,088	111,897.593831169	111,897
	<b>Totals</b>	<b>607,035</b>	275,346			568,863.143065569	<b>568,863</b>

## A8. PARTIES

### Project Proponent & Reclamation Facility: A-Gas

A-Gas is one of the world leaders in the supply and life cycle management of specialty chemicals such as refrigerants, hydrocarbon blowing agents, and clean agent fire protection. A-Gas offers a full range of environmental services for the recovery and reclamation of environmentally sensitive products such as CFCs, HCFCs, HFCs, Halons and associated products.

Our decades of experience, depth of knowledge, and commitment to environmental solutions is unrivaled in the industries we serve.

Project activities for A-Gas V5: A-Gas has recovered, purchased, reclaimed, and sold all quantities of HFCs that makeup this project to customers in the Wholesale and air conditioning sector. A-Gas retains all environmental rights and benefits for all material from purchase through the resale, this applies to all ERTs that it has registered with ACR.

A-Gas is responsible for contracting validation and verification services.

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## **B.**

# **METHODOLOGY**





## B1. APPROVED METHODOLOGY

This project will be certified according to ACR Standard, Version 7.0. It will also follow the rules and calculations as described in ACR's methodology: Emission Reduction Measurement and Monitoring Methodology for the Use of Certified Reclaimed HFC Refrigerants and Advanced Refrigeration Systems v 1.2<sup>1</sup>

## B2. METHODOLOGY JUSTIFICATION

This project tracks source, reclamation, and sale documentation for the use of certified reclaimed HFC refrigerants to quantify emission reductions from displacing the production and eventual emissions of virgin HFC refrigerants. The chosen methodology provides the quantification framework for the creation of carbon credits from the reductions in GHG emissions resulting from the use of certified reclaimed HFC refrigerants. In Table 3, eligible segments and sectors relevant to this project are highlighted.

**Table 3: Eligible Refrigerant Sector & Segment**

PROJECT ACTIVITY	ELIGIBLE SECTOR	ELIGIBLE SEGMENTS IN SECTOR
Use of Certified Reclaimed HFC Refrigerants, Propellants, and Fire Suppressants	Domestic Refrigeration	Residential refrigerators and freezers
	Commercial Refrigeration, also known as Retail Food Refrigeration	Equipment used to store and display chilled and frozen goods for commercial sale such as in supermarkets, convenience stores, bakeries, and restaurants. This equipment includes centralized supermarket systems, remote condensing units, and stand-alone equipment (e.g., beverage vending machines, stand-alone display cases).
	Cold Storage Warehouses	Storage for meat, produce, dairy products, and other perishable goods.
	Industrial Process Refrigeration	Chemical, pharmaceutical, petrochemical, and manufacturing industries, industrial ice machines and ice rinks.
	Transport Refrigeration	Refrigerated truck trailers, railway freight cars, ship holds, and other shipping containers.
	Mobile Air Conditioning	Automobiles, trucks, buses, and other motor vehicles.
	Stationary Air Conditioning	Comfort cooling for homes and commercial buildings, including multi-family buildings, office buildings, hospitals, universities, shopping malls, airports, sports arenas.
	Aerosols (Propellants)	Medical aerosol devices, consumer aerosol devices, technical aerosol devices
	Fire Suppression	Flooding agents, streaming agents

<sup>1</sup> The emission reduction calculations have been updated in accordance with V2.0.

## B3. PROJECT BOUNDARIES

Physical boundary: The physical boundary is A-Gas located at 11050 South Hwy 287, Rhome, Texas 76078. A-Gas is an EPA certified refrigerant reclaimer. It is the physical and geographical site where the recovered HFC refrigerant is reclaimed in the project for use in equipment operations and servicing/recharging to replace refrigerant that leaks or to charge newly manufactured refrigeration or air conditioning equipment.

Temporal boundary: Per the methodology, projects shall have one reporting period not to exceed 12 months in length. Per the ACR Standard, the project Start Date is the date on which the project began to reduce GHG emissions against its baseline. The reporting period for this project is January 2, 2019, to December 27, 2019. This is one reporting period that is less than 12 months in length, which complies with the temporal boundary stated in the methodology.

## B4. IDENTIFICATION OF GHG SOURCES AND SINKS

Table 4: Greenhouse Gases and Sources (Stated within Methodology)

SSR	SOURCE DESCRIPTION	GAS	INCLUDED (I) OR EXCLUDED (E)	QUANTIFICATION METHOD
1 HFC Production	Fossil fuel emissions from the production of HFCs	CO <sub>2</sub>	E	N/A
		CH <sub>4</sub>	E	N/A
	HFC leaks during HFC production	HFCs	E	N/A
2 HFC Transport	Fossil fuel emissions from transport of HFCs	CO <sub>2</sub>	E	N/A
		CH <sub>4</sub>	E	N/A
		N <sub>2</sub> O	E	N/A
	HFC leaks during transport	HFCs	E	N/A
3 Equipment Manufacture and Installation	Emissions of HFCs during manufacture or installation of equipment or system or product "First-Fill Emissions"	HFCs	I	N/A
4 Equipment Operations	Fossil fuel emissions from the operation of the equipment or system	CO <sub>2</sub>	E	N/A
		CH <sub>4</sub>	E	N/A
		N <sub>2</sub> O	E	N/A
	HFC leaks from the operation of the equipment or system or product	HFCs	I	Equation 1
5 Service Equipment	Fossil fuel emissions from servicing equipment or system to replace leaked HFC	CO <sub>2</sub>	E	N/A
		CH <sub>4</sub>	E	N/A
		N <sub>2</sub> O	E	N/A
	HFC emissions from servicing equipment or system to replace leaked HFC	HFCs	I	Equation 1
6 Equipment Disposal	Emissions from the disposal of the equipment at end-of-life	HFCs	I	Equation 1

## B5. BASELINE

The baseline scenario is the number of emissions that would take place without the use of certified reclaimed HFC refrigerant. It is equal to the total amount of reclaimed HFC refrigerant produced and the subsequent sale, title-transfer or return to a refrigerant distributor, refrigerant wholesaler, or an end-user for use in refrigeration or air conditioning equipment during the reporting period. In the absence of this project, most of the refrigerant used to recharge the system would have come from virgin HFC production along with some small portion of reclaimed HFCs (current reclamation rate).

The baseline HFC refrigerant reclamation rate is provided in the methodology (version 2.0) and is set at 2%.

## **B6. PROJECT SCENARIO**

For this project, refrigerant gas HFCs were purchased and recovered by A-Gas Rapid Recovery Network locations and returned to an A-Gas location in quantities under 500# or less. In cases that the recovered HFCs were purchased by A-Gas in quantities over 500#, the Rapid Recovery Work Order (WO) or Job Site Report (JSR) are provided to demonstrate the point of origin for that specific volume. A-Gas is one of the largest refrigerant reclaimers in the US, however, our HFC reclamation numbers are very low compared to R-22 and other HCFCs.

A-Gas took title to the HFC refrigerant upon delivery and retained title throughout the transportation and reclamation processes. A-Gas sold the certified reclaimed gas to various HVAC industry companies to go into the refrigerant aftermarket. According to the methodology, it is assumed that any refrigerant sold or otherwise transferred from the reclaimer to a distributor, wholesaler, service technician, or an end-user that refrigerant will be used. The sale of reclaimed refrigerant to A-Gas HVAC customers, displaced the production and eventual emissions of virgin refrigerant gas.

## **B7. REDUCTIONS AND ENHANCED REMOVALS**

All refrigerant that is produced will eventually reach the atmosphere unless destroyed. Currently, there is little incentive to reclaim and reuse HFC refrigerants because of the low costs associated with virgin HFC production. Using reclaimed refrigerant effectively displaces the use – and therefore avoids production and eventual emissions – of virgin refrigerant. Within the existing reclamation industry, there is capacity to significantly increase reclaimed refrigerant use. Thus, using reclaimed refrigerant would result in a new GHG reduction. Reclaimed refrigerant can be used both to “charge” newly manufactured equipment and systems, and to “charge” systems that leak during normal operations.

## **B8. PERMANENCE**

There is no risk of reversal of GHG removal enhancements for project type.



## **C.**

# **ADDITIONALITY**

*ACR requires that every project either pass an approved performance standard and a regulatory additionality test or pass a three-pronged test to demonstrate that the project activity is beyond regulatory requirements, beyond common practice, and faces at least one of three implementation barriers.*

## **C1. REGULATORY SURPLUS TEST**

Currently, there are no restrictions in the United States or elsewhere in North America on the quantities of HFCs that can be produced, imported, or used. There are no requirements on the quantities of reclaimed HFC refrigerants that must be used for any application. Users are free to use virgin HFC, stockpiled HFC, recycled or reclaimed HFC refrigerant in any amount of their choosing. There are regulatory requirements pertaining to certification of the equipment used to recover ODS refrigerants for servicing equipment and the service technicians that handle ODS refrigerants, as well as certification requirements for refrigerant reclaimers. All these regulatory requirements that apply to ODS refrigerants must be complied with as part of projects involving HFC refrigerants for this project.

Because of the lack of production controls for HFCs, combined with the additional costs to recover, transport, and separate/process refrigerants back to virgin purity levels, there is currently little incentive for recovery, reclamation, and re-sale of HFC refrigerants. Based on U.S. EPA data on reclamation of HCFC-22 (for which there is a strong incentive to recover and reclaim), and industry information, the percentage of available HFCs that are reclaimed in the U.S. is extremely low. For purposes of this Methodology, a conservative assumption is made that the rate by which HFC refrigerants are reclaimed under the baseline scenario is the same (8.9%) as the R-22 reclaim rate based on the most recent data.

A-Gas continually monitors any changes in refrigerant policy from the Federal, State, and local regulators and where necessary actively engages with regulators and registries when changes are being proposed to HFC regulations.

The following is the latest ACR Policy posted on their website (essentially verbatim) 22 July 2021 on the AIM Act – *“enacted by Congress in December of 2020, directs the U.S. EPA to address the environmental impact of hydrofluorocarbons (HFCs) by: phasing down production and consumption, maximizing reclamation and minimizing releases from equipment, and facilitating the transition to next-generation technologies through sector-based restrictions.<sup>1</sup> Although the United States has not ratified the October 15, 2016 Kigali*

*Amendment to the Montreal Protocol, the AIM Act's phase-down schedule is consistent with the applicable Kigali schedule.*

*Our V% project is governed by the Methodology for the Quantification, Monitoring, Reporting and Verification of Greenhouse Gas Emissions Reductions and Removals from Certified Reclaimed HFC Refrigerants (v.1.1)*

*In the U.S., the first of several EPA rulemaking processes as directed by the AIM Act is underway and is expected to be completed in 2021 with anticipated dates of enforcement of January 1, 2022. The ACR will continue to monitor the situation as the rulemaking process proceeds and the exact language of the rules are finalized.*

*The ACR's policy update as detailed on their website advises that ERTs issued from this project type are considered additional until further notice for the following reasons:*

- *The U.S. EPA's first proposed rule (Docket ID number EPA-HQ-OAR-2021-0044) under the AIM Act sets the HFC production and consumption baseline levels from which reductions will be made, establishes an initial methodology for allocating and trading HFC allowances for 2022 and 2023, and creates a robust, agile, and innovative compliance and enforcement system.<sup>4</sup> As of the writing of this document, the proposed rule does not set requirements for the production of reclaimed HFC nor the purchase of reclaimed HFC. The proposed rule does not create financial incentives to reclaim HFC. Further, several HFC end-use sectors are excluded from the proposed rule or have longer compliance deadlines.*
- *The AIM Act, which directs, and guides EPA's rulemaking processes, contains no language requiring HFC reclaim or mandating incentives for HFC reclaim. Section (h)(2) requires only that EPA "consider using authority to increase opportunities for reclaiming HFC refrigerants." Subsequent EPA rulemakings may heed this directive and include more specific requirements for purchase or production of reclaimed HFC; but, as of yet, the publicly available draft rule includes no such language.*
- *ERT's generated from ACR's Methodology for the Quantification, Monitoring, Reporting and Verification of Greenhouse Gas Emissions Reductions and Removals from Certified Reclaimed HFC Refrigerants are contingent not only on the*



*production of reclaimed HFC, but on the sale, and annual emission rates based on equipment leak rates from the EPA.*

- *Response in the HFC reclaim market from the U.S. EPA rules is possible even if the finalized rules and regulations do not require HFC reclaim or use of reclaimed HFC. However, the timing and magnitude of the response in the reclaim market cannot be known with certainty and is dependent on the speed of transition to next generation technologies in each end-use sector. ACR will continue to monitor HFC reclaim rates as available from industry groups and the U.S. EPA. The ACR Standard requires that all methodologies that rely on a performance standard for additionality be re-examined on a regular basis.*
- *ACR will adjust policy in response to U.S. EPA rulemaking and any subsequent to ensure integrity of all ERTs issued. “*

We conform to all laws relating to the handling of refrigerants, our wide network of recovery technicians holds the necessary EPA 608 licenses. All our processing equipment used to process refrigerants follows all local, state, and federal requirements.

## **C2. COMMON PRACTICE TEST**

A market adoption analysis laid out in the methodology was conducted for the relevant HFC refrigerant sectors and segments. Review of US EPA’s reclamation data indicates that the sectors and segments have a low market adoption rate for using certified reclaimed HFCs. Therefore, project activities within these sectors and segments qualify for offset credit creation under this Methodology.

## **D. MONITORING PLAN**

## D1. MONITORED DATA AND PARAMETERS

<i>Data or Parameter Monitored</i>	$VR_{HFC, j, rp}$
<i>Unit of Measurement</i>	kg
<i>Description</i>	Total quantity of virgin HFC refrigerant j that would have been used to recharge equipment during the reporting period, derived from the quantity of monitored certified reclaimed HFC refrigerant that is documented according to the methodology.
<i>Data Source</i>	Purchase orders, operating records, & Sales packets
<i>Measurement Methodology</i>	Reclaimer weighs the individual containers of reclaimed HFC refrigerant using calibrated weight scales
<i>Data Uncertainty</i>	Low
<i>Monitoring Frequency</i>	Determined once per reporting period
<i>Reporting Procedure</i>	Purchase orders, operating records, & Sales packets
<i>QA/QC Procedure</i>	Multiple A-Gas departments work in parallel during each process
<i>Notes</i>	

## **E.**

# **QUANTIFICATION**

## E1. BASELINE

The baseline emissions are the emissions that would take place without the use of certified reclaimed HFCs. It is equal to the amount of HFC refrigerant reclaimed and the subsequent sale, title transfer or return to a refrigerant distributor, refrigerant wholesaler, or an end-user for use in refrigeration or air conditioning equipment during the reporting period. In the absence of the project, most of the refrigerant used to recharge the system would have come from virgin HFC production, and some would come from HFCs that would normally be reclaimed. The baseline calculation takes into consideration the 8.9% estimated, current HFC refrigerant reclamation rate.

The baseline emissions are calculated as follows:

$BE_{HFC, rp} = \sum_j [(VR_{HFC, j, rp} \times GWP_{HFC, j})] \times (1 - RR_{BL}) \div 1000$	
<b>BE<sub>HFC, rp</sub></b>	Baseline emissions during the reporting period (MT CO <sub>2</sub> e)
<b>VR<sub>HFC, j, rp</sub></b>	Total quantity of virgin HFC j used to recharge equipment during the reporting period (kgs), derived from the quantity of monitored certified reclaimed HFCs that is documented according to the procedures in Section 3.1 and Section 5
<b>GWP<sub>HFC, j</sub></b>	The global warming potential of HFC or HFC Blend j (see Table 3)
<b>RR<sub>BL</sub></b>	Baseline Virgin HFC Replacement Rate (% per year) <sup>15</sup>

A-Gas V5, baseline calculations:

2019 Reclaim R-134a		2019 Reclaim R-404a	
Parameter	Value	Parameter	Value
<b>BE<sub>HFC, rp</sub></b>	52,990 tonnes CO <sub>2</sub> e	<b>BE<sub>HFC, rp</sub></b>	266,920 tonnes CO <sub>2</sub> e
<b>VR<sub>HFC, j, rp</sub></b>	24,036 kgs	<b>VR<sub>HFC, j, rp</sub></b>	121,073 kgs
<b>GWP<sub>HFC, j</sub></b>	1,430	<b>GWP<sub>HFC, j</sub></b>	3,922
<b>RR<sub>BL</sub></b>	2.00%	<b>RR<sub>BL</sub></b>	2.00%

2019 Reclaim R-407a		2019 Reclaim R-407c	
Parameter	Value	Parameter	Value
<b>BE<sub>HFC, rp</sub></b>	10,825 tonnes CO <sub>2</sub> e	<b>BE<sub>HFC, rp</sub></b>	79,800 tonnes CO <sub>2</sub> e
<b>VR<sub>HFC, j, rp</sub></b>	4,910 kgs	<b>VR<sub>HFC, j, rp</sub></b>	36,197 kgs
<b>GWP<sub>HFC, j</sub></b>	2,107	<b>GWP<sub>HFC, j</sub></b>	1,774
<b>RR<sub>BL</sub></b>	2.00%	<b>RR<sub>BL</sub></b>	2.00%

2019 Reclaim R-410a	
Parameter	Value
<b>BE<sub>HFCrp</sub></b>	196,500 tonnes CO <sub>2</sub> e
<b>VR<sub>HFC,j, rp</sub></b>	89,131 kgs
<b>GW<sub>HFC, j</sub></b>	2,088
<b>RR<sub>BL</sub></b>	2.00%

## E2. PROJECT SCENARIO

By using previously used, reclaimed HFC refrigerants, this project displaces new production of virgin HFC. Any project related emissions from using reclaimed refrigerant, for example, from transport of certified reclaimed HFCs, are considered negligible and outside the project boundary. Project emissions can be disregarded.

## E3. LEAKAGE

Projects involving certified reclaimed HFC refrigerant would not increase demand for refrigerant beyond current baseline demand, i.e., use of more reclaimed refrigerant would not cause an increase in virgin HFC production or increase refrigerant emission rates. For this project, leakage can be disregarded.

## E4. UNCERTAINTY

For the purposes of this methodology, it is assumed that from the time any reclaimed HFC refrigerant is sold or otherwise transferred from the reclaimers to a distributor, wholesaler, service technician, or an end-user that refrigerant will be used. There is no ex post uncertainty accounted for in this methodology.

## E5. REDUCTIONS AND REMOVAL ENHANCEMENTS

Project emission reductions during reporting period equals baseline emissions of HFC refrigerant during reporting period.

V5 Total:

Parameter	Value
<b>BE<sub>HFCrp</sub></b>	754,484 tonnes CO <sub>2</sub> e
<b>ER<sub>rp</sub></b>	754,484 tonnes CO <sub>2</sub> e

Previously Issued:

Parameter	Value
<b>BE<sub>HFCrp</sub></b>	568,863 tonnes CO <sub>2</sub> e
<b>ER<sub>rp</sub></b>	568,863 tonnes CO <sub>2</sub> e

Outstanding Balance:

Parameter	Value
<b>BEHFCrp</b>	185,621 tonnes CO <sub>2</sub> e
<b>ERrp</b>	185,621 tonnes CO <sub>2</sub> e

## E6. EX-ANTE ESTIMATION METHODS

Emission reductions from project A-Gas V5 used the equations within the Methodology to calculate the GHG reductions in 1 year, the reporting period. There is one reporting period for this project.

V5 Total:

Project	Vintage	Total ERTs (tonnes CO <sub>2</sub> e) <sub>2</sub>
A-Gas V5	2019	754,484 tonnes CO <sub>2</sub> e

Previously Issued:

Project	Vintage	Total ERTs (tonnes CO <sub>2</sub> e) <sub>2</sub>
A-Gas V5	2019	568,863 tonnes CO <sub>2</sub> e

Outstanding Balance:

Project	Vintage	Total ERTs (tonnes CO <sub>2</sub> e) <sub>2</sub>
A-Gas V5	2019	185,621 tonnes CO <sub>2</sub> e

**F.**  
**COMMUNITY & ENVIRONMENTAL**  
**IMPACTS**



## **F1. NET POSITIVE IMPACTS**

Positive community impacts from the project include the reduction of emissions and economic benefit to refrigerant reclamation facilities. HFC refrigerants are the ozone friendly alternative to CFC and HCFC refrigerants, but HFC refrigerants are powerful greenhouse gases. Currently, there is no phase out plan proposed for reducing the production of HFC refrigerants. As discussed, there is currently no incentive to reclaim and reuse HFC refrigerants because of the low costs associated with virgin production. Because all HFC refrigerants produced eventually reach the atmosphere, decreasing virgin production creates an emissions reduction. The purpose of this methodology is to transition the refrigerant industry from using virgin HFC refrigerants to using reclaimed HFC refrigerants.

There are no negative community or environmental impacts for this project. The Sustainable Development Goals set forth by the United Nations are met initially by the 9<sup>th</sup> goal to build a resilient infrastructure, promote include, and sustainable industrialization, and foster innovation by promoting the recovery and reclamation of used HFCs that reduces the reliance on virgin HFC production, eliminating the potential of being released into the atmosphere. Goal 12, Ensure sustainable consumption and production patterns, is also met as more HFC users are adopting a more sustainable infrastructure with the use of reclaimed HFCs, adding in the reduction of the future environmental costs of climate change. Additionally, Goal 13 of taking urgent action to combat climate change and its impacts are served by the reuse of HFCs before any mandates or regulations enforce such action, as the HFC recovered and reclaimed are done so voluntarily by all parties.

## **F2. STAKEHOLDER COMMENTS**

Not applicable for A-Gas V5

## **G.**

# **OWNERSHIP AND TITLE**

## **G1. PROOF OF TITLE**

A-Gas retains title to all refrigerant and environmental attributes once purchased from the entity selling the material, or transferring to A-Gas for reclamation, destruction, and/or resale.

Additional evidence can be found on the A-Gas website: <https://www.agas.com/us/products-services/carbon-offsets/>

## **G2. CHAIN OF CUSTODY**

The offsets from this project have not been bought or sold previously. There is no forward option contract for the offsets from this project.

## **G3. PRIOR APPLICATION**

A-Gas has not applied for GHG emission reduction or removal credits for this project through any other GHG emissions trading system or program.

## **H.**

# **PROJECT TIMELINE**

## **H1. START DATE**

The reporting period start date for this project is January 2, 2019. The reporting period begins on the date that the initial volume of certified reclaimed HFC was sold to an A-Gas Wholesale or HVAC customer.

## **H2. PROJECT TIMELINE**

- Initiation of project activities: January 2, 2019
- Project term: January 2, 2019 – December 27, 2019
- Crediting period: January 2, 2019 – January 1, 2034
- Frequency of monitoring, reporting and verification: Once during reporting period.