



# CERCARBONO

CERTIFICADORA DE CARBONO



**PROTOCOL  
FOR THE VOLUNTARY  
CERTIFICATION OF CARBON  
EMISSION  
FROM CERCARBONO**

**CVCC  
2.1**

## 1. PROLOGUE

CERCARBONO is a voluntary private carbon certification program, whose mission is to facilitate and guarantee individuals, companies and the general public the registration of Removal Programs / Projects<sup>1</sup> or Greenhouse Gas Reduction (GHG-PRR), the certification of emissions and the registration of carbon credits obtained by these projects.

With the development and implementation of these mitigation initiatives, CERCARBONO, in addition to contributing to the solution of the environmental issues of climate change and the responsibilities that countries such as Colombia have assumed in reducing this problem, aims to help boost the carbon market.

CERCARBONO's protocol for Voluntary Carbon Certification has been developed by a technical team trained by CERCARBONO and endorsed by its board of directors.

This protocol will be regularly updated to adapt it to the circumstances and needs of the country.

This This version of the protocol has been again put in consideration of the society in general, through the second public consultation exposed in the CERCARBONO website and through invitations to individuals and public and private companies. The following is a list of the companies that participated in this second public consultation, to whom we are especially grateful for their valuable contribution:

- AGI Ambiental SAS
- Allcot Colombia SAS
- Aures Bajo SAS ESP
- BIOFIX CONSULTORIA SAS
- BP-BOSQUES DE CANADA
- Carbon Pulse
- Ministerio de Hacienda
- MGM Innova Consulting
- Reforestadora del Sinu
- Saving the Amazon
- SIER Grupo ISA
- South Pole Carbon Asset Management S.A.S.

## 2. ACKNOWLEDGEMENTS

CERCARBONO appreciates the participation in the elaboration of this document to its entire expert technical staff as well as to its external consultants to obtain this regulatory framework for transparent and responsible GHG-PRR. It also appreciates the participation in the first and second public consultation by independent companies and individuals who expressed their points or opinions and allowed to strengthen this document.

The following is an updated version of the document with new elements that will allow both the participation of other economic sectors and different actors in the solution of the environmental problem of climate change.

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<sup>1</sup> Throughout this document the term removal will be used because it is more recognized in the international context, which is comparable to that of absorption used in some national translate

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## 4. LIST OF ACRONYMS

<b>AR</b>	Afforestation/Reforestation
<b>AENOR</b>	Spanish Association for Normalization and Certification
<b>ANSI</b>	American National Standards Institute
<b>ASOCARBONO</b>	Association of Stakeholders in the Colombian Carbon Market
<b>BE</b>	Stabilized biomass
<b>CARBONCER</b>	Certified Greenhouse Gas Emissions Removal or Reduction Credit
<b>CERCARBONO</b>	Voluntary carbon certification company
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>CC</b>	Fuel change
<b>CO<sub>2</sub>e</b>	Carbon dioxide equivalent
<b>CMP</b>	Raw material change
<b>CT</b>	Change of technology
<b>DE</b>	Destruction of GHG emissions
<b>EcoRegistry</b>	CERCARBONO registration platform
<b>E-ECC</b>	Fuel switching efficiency in the energy sector
<b>E-ECT</b>	Technology change efficiency in the energy sector
<b>EE</b>	Energy efficiency
<b>E-EE</b>	Energy efficiency in the energy sector
<b>EEv</b>	Avoided GHG emissions
<b>ER</b>	Renewable energy
<b>E-ER</b>	Renewable energy in the energy sector
<b>EF</b>	Fugitive emissions
<b>EF-ECC</b>	Fuel switching efficiency in the fugitive emissions sector
<b>EF-EEv</b>	Avoided GHG emissions in the fugitive emissions sector
<b>FR</b>	GHG emission source or reservoir
<b>GHG</b>	Greenhouse gasses
<b>GLP</b>	Liquid petroleum gas
<b>GV</b>	Landfill gas
<b>IAF</b>	International Accreditation Forum
<b>ICONTEC</b>	Colombian Institute of Technical Standards and Certification
<b>ID</b>	Identification number of a GHG-PRR
<b>I-DE</b>	Destruction of GHG emissions in the industrial sector
<b>I-ECC</b>	Fuel switching efficiency in the industrial sector
<b>I-EE</b>	Energy efficiency in the industrial sector
<b>I-EEv</b>	Avoided GHG emissions in the industrial sector
<b>I-ER</b>	Renewable energy in the industrial sector
<b>I-EMP</b>	Efficiency by raw material change in the industrial sector

<b>IPCC</b>	Intergovernmental Panel on Climate Change
<b>ISO</b>	International Organization for Standardization
<b>LA/FT</b>	Money laundering and financing of terrorism
<b>MDL</b>	Clean development mechanism
<b>MR</b>	Waste management
<b>MR-DE</b>	Emission destruction in the waste management sector
<b>MR-EE</b>	Renewable energy in the waste management sector
<b>MM-EEv</b>	Avoided GHG emissions in the waste management sector
<b>ONAC</b>	National Accreditation Agency of Colombia
<b>VVB</b>	Validation or verification body
<b>PDD</b>	Project description document
<b>GHG-PRR</b>	Greenhouse Gas Removal or Reduction Project
<b>tCO<sub>2</sub>e</b>	Tons of carbon dioxide equivalent
<b>T-CC</b>	Fuel switching in the transport sector
<b>T-EE</b>	Energy efficiency in the transport sector
<b>T-ECC</b>	Fuel switching efficiency
<b>REDD</b>	Reduction of Emissions from Deforestation

## 5. TERMS AND DEFINITIONS

This section provides clarification of the terms and definitions used throughout this protocol. Some of these definitions were taken or adapted from ISO 14064:1-3 standards (2018-2019-2013), IPCC documents, CDM-approved methodologies and different sources within the context of climate change mitigation and are harmonized with the national regulatory framework (Resolution 1447 and Decree 926). Additionally, they provide guidelines for ensuring the principles of the protocol.

### Hydrogen supply

Energy source used for transport.

### Project activity

Specific set of technologies, measures and outcomes (described in a methodology), which alter the conditions identified in the baseline scenario and result in GHG removals or reductions by a project.

### Additionality

Requirement for climate change mitigation projects so that project activities remove more GHGs (in the case of GHG removal projects) than would have been removed in the absence of the GHG-PRR, or reduce GHG emissions (in the case of GHG emission reduction projects) that would have occurred in the absence of the GHG-PRR. Therefore, additionality allows for the demonstration that GHG removals or reductions derived from the implementation of a GHG-PRR generate a net benefit to the atmosphere by removing or reducing GHGs.

### GHG storage

Process for holding GHGs in reservoirs so that they do not reach the atmosphere.

### Project area

Area in which the project activity is implemented, which directly affects the land or associated resources, in which GHG removal or reduction occurs.

### Project database

Data set managed by EcoRegistry where GHG-PRRs are listed under CERCARBONO voluntary carbon certification.

### Biofuel

Liquid fuel made from biomass, such as ethanol or biodiesel.

### Biogas

Gas generated from a digester.

### Biomass

In forestry projects: Total dry mass of plants in a community or area, both above and below the surface, living or dead, not including litter or decomposing organic matter. For example: trees, shrubs, grasses, roots, among others.

In other types of projects: Biodegradable and non-fossilized organic material from plants, animals and micro-organisms, including: biomass waste; non-fossilized and biodegradable organic fractions from

industrial and municipal waste; and gases and liquids recovered from the decomposition of non-fossilized and biodegradable organic material.

### **Forest**

Minimum land area of 1.0 ha, which may contain shrubs, palms, bamboo, herbs and lianas, where tree cover predominates with a minimum canopy density of 30% and a minimum potential canopy height of 5 meters in situ. Included are forest areas that, due to human intervention or natural causes, do not have standing timber stocks, but are expected to revert to forest.

### **Heat**

Thermal energy that is generated in a heat generation facility (e.g. boiler, co-generation plant, solar thermal panels, etc.) that is transferred to a heat carrier (e.g. liquid, gas, steam, etc.) for use in thermal or process applications.

### **CARBONCER**

Certified GHG removal or reduction credit generated under the voluntary carbon certification - CERCARBONO. Each CARBONCER represents the removal or reduction of one ton of carbon dioxide equivalent (tCO<sub>2</sub>e) achieved by project activities.

### **Power Plant**

Installation that generates electrical energy.

### **Hydroelectric power plant**

Installation that generates electrical energy from hydraulic energy.

### **Certification**

Process by which CERCARBONO, as a competent and legally constituted entity, certifies that a GHG-PRR complies with the requirements demanded in the certification process of this protocol.

### **Certification of the emission of carbon credits**

Document issued by CERCARBONO, which ratifies the compliance of the GHG-PRR with the requirements of its voluntary carbon certification process. It lists the CARBONCER issued and assigns them a unique serial number.

### **Customer**

For CERCARBONO, it is a person or organization that is required to register a GHG-PRR or certify the emission and registration of its carbon credits as well as a trader, consumer or end user of fuel. In the validation or verification and certification processes, the customer represents the holder of the GHG-PRR.

### **Cogeneration**

Procedure by which electrical energy and useful thermal energy (heat, steam, hot or cold water) are obtained simultaneously through the use of fossil fuels.

### **Alternative fuel**

Unconventional fuel. Material or substance that can be used as fuel. Includes waste from fossil sources such as tires, plastics, polymer or rubber textiles, biomass waste and renewable biomass.

### **Fossil fuel**

Fuel formed from the refining or processing of materials extracted from the subsoil these materials result from the action of specific geological conditions on organic remains occurring over millions of years. Includes liquid fuels (crude oil and petroleum products), solid fuels (coal and coal products) and natural gas.

### **Composting**

A process of waste degradation under aerobic conditions, by which microorganisms act on rapidly biodegradable matter (crop residues, animal manure and urban waste), making it possible to obtain compost.

### **Co-composting**

Process of biodegradation of waste under aerobic conditions, where solid waste and wastewater containing solid biodegradable organic material are composted together.

### **Fossil fuel consumer or end-user**

It is one that uses fossil fuels, including all oil derivatives and all types of fossil gas for energy purposes, provided they are used for combustion.

### **Contract**

A document establishing the voluntary carbon certification service between CERCARBONO and an initiative holder or project developer (if the latter has special power).

### **Carbon credit**

Economic instrument used for offsetting GHG emissions and for the negotiation of transactions related to the non-causation of the carbon tax (as provided for in Decree 926 of 2017). Its measurement is established in terms of CO<sub>2</sub>e and its unit is defined as the representation of a ton of CO<sub>2</sub>e that has been removed or that has stopped being emitted into the atmosphere by a GHG-PRR. One carbon credit is equivalent to one tCO<sub>2</sub>e. CERCARBONO defines it as a CARBONCER.

### **Validation Statement**

Document issued by a validation body (authorized third party), which refers to the validation report to which it is related, in which the design of a GHG-PRR and its baseline are evaluated after the validation process.

### **Verification statement**

Document issued by a verification body (authorized third party), which refers to the verification report to which it relates, demonstrating the GHG removals or reductions achieved by a GHG-PRR following the verification process.

### **Deforestation**

Detectable, direct or induced conversion of forest cover to other land cover type in a given period of time.

### **Degradation**

Persistent reduction in canopy cover or carbon stocks in a forest due to human activities such as animal grazing, fuel wood extraction, timber harvesting or other similar activities, but not resulting in conversion of forested land to non-forested land.

### **Anaerobic digestion**

Degradation and stabilization of organic materials by the action of anaerobic bacteria that produce CH<sub>4</sub> and CO<sub>2</sub>. Typical organic materials that undergo anaerobic digestion are solid waste, animal manure, wastewater, organic industrial effluents and biosolids from aerobic wastewater treatment plants.

### **Anaerobic Digester**

Equipment used to generate biogas from liquid or solid waste through anaerobic digestion. The digester is covered or encapsulated, allowing the capture of biogas to generate heat or electricity, or to feed a gas network.

### **Carbon dioxide equivalent (CO<sub>2</sub>e)**

A measure of any amount of GHG, calculated by its CO<sub>2</sub> equivalence in terms of its global warming potential.

### **Double counting**

Scenario under which the same GHG removal or reduction is accounted for separately by two different entities. It also includes double claims, where the same GHG removal or reduction is used more than once to demonstrate compliance with national or international mitigation objectives.

### **Project Description Document (PDD)**

A document describing a climate change mitigation project and the ways in which it meets each of the requirements of this protocol.

### **Duration of the project**

Period of time during which project activities are implemented. It sets a start and an end date.

### **EcoRegistry**

CERCARBONO's allied platform for the registration, storage and publication of GHG-PRR information, which guarantees the traceability of the emission, follow-up and withdrawal of CARBONCER and the handling and control of documents and information received.

### **Eligibility**

Determination that a specific area of land meets the conditions required to be included in a project activity in the forestry sector.

### **Reservoir**

A large reservoir that is artificially formed, usually by closing the mouth of a valley by means of a dike or dam, and in which the waters of a river or stream are stored, in order to use them in the irrigation of land, in the supply of towns, or in the production of electrical energy, among others.

### **GHG emission**

Total mass of GHG released by sources or reservoirs into the atmosphere over a specified time period.

### **Fugitive emission of fuel**

It corresponds to the sum of emissions from accidental discharges, equipment leaks, losses from evaporation or accidental discharges or during filling, torch burning, pipeline leaks, storage losses, venting and any other direct emissions, except those from the use of fuel.

### **Potentially significant emission**

Emission that may eventually, under certain possible circumstances, reach a significant level. Sources are considered non-significant if, when added together, they do not exceed 10% of the total emissions generated by the project over its accounting period.

### **Biomass energy**

Energy generated from various sources of biomass, i.e. from forest, agricultural or livestock residues; rapid rotation of forest plantations; energy crops; organic components of municipal solid waste; and other sources of organic waste, materials that can be used to directly produce electricity or heat, or to generate gaseous, liquid or solid fuels.

### **Wind energy**

Kinetic energy of moving air, which can be used to generate electricity from wind turbines installed on land or in water (sea or rivers).

### **Hydropower**

Energy generated from the potential energy of a body of water in dams with reservoirs, along a river or in the middle of a stream.

### **Geothermal energy**

Energy obtained by using heat from the interior of the earth, extracted to generate electricity or to be used for thermal energy applications, in particular heating or cooling.

### **Ocean energy**

Energy obtained from the potential, kinetic, thermal or chemical energy of seawater (including waves and tides), which can be transformed to supply electricity, thermal energy or drinking water.

### **Renewable energy**

Energy that is obtained from natural sources that are generally inexhaustible, either because of the immense amount of energy they contain, or because they are capable of regenerating by natural means.

### **Residual energy**

Energy contained in a waste stream from industrial processes in the form of heat or chemical energy. It includes the energy contained in gases that are burned or released to the atmosphere, the heat or pressure of an unrecovered waste stream.

### **Solar energy**

Energy generated by activities that exploit the energy radiated by the sun to produce electricity by photovoltaic processes or by solar concentration, to generate thermal energy (for heating or cooling purposes by passive or active means), for direct lighting uses or to produce transport or other fuels.

### **Material error or discrepancy**

Individual error or the set of actual errors, omissions or distortions in the quantification of GHGs in GHG-PRR, resulting in an erroneous reported quantity and whose value generates a change in the result of the emissions.

### **Baseline scenario**

Hypothetical reference case that best represents the conditions most likely to occur in the absence of a proposed GHG-PRR.

### **Project Scenario**

Events or conditions most likely to occur in the presence of GHG-PRR activities.

### **Evaluation**

The process to which a project is subjected in the validation or verification stages by an VVB.

### **Existence of carbon**

Amount of carbon contained in a GHG reservoir.

### **Technical expert**

Professional responsible for reviewing and verifying the documentation submitted by the holder or developer of a GHG-PRR, who works for CERCARBONO.

### **Emission / Removal Factor**

Coefficient that relates specific project activity data to their respective GHG emission or removal.

### **Project start date**

In the case of GHG removal projects, the project start date corresponds to the date on which the first direct action in the project area leading to such removals (e.g. site preparation activities) was implemented. In the case of GHG emission reduction projects, the start date corresponds to the date the project began generating such reductions.

### **Electronic Signature**

Authentication parameters, which for security reasons EcoRegistry assigns to a certain user, allowing his identification in relation to the data messages he issues within the platform. These parameters, individually or as a whole (user name and password or key) constitute the electronic signature of this user, according to the terms of the Law of Electronic Commerce in Colombia and its regulatory decrees. The users accept the terms and conditions established by EcoRegistry, where any message of data that is generated within or with the occasion of the platform that provides the services, comes exclusively from the codes assigned by this platform to the users.

### **Car fleet**

A set of cars available to a company to provide internal or external services.

### **Afforestation**

Establishment, increase or restoration of forest cover or land in area(s) without forest or in an area that has not been forested for a period of 50 years or more as of the date of commencement of the activity.

### Source of GHG emissions

Net generator of GHGs to the atmosphere, such as: burning of fossil fuels and biomass, nitrogen fertilization, preparation of site for planting, among others.

### Photovoltaic source

A renewable energy source that produces electricity from solar radiation.

### Leak

Any increase in GHG emissions by emission sources outside the GHG-PRR area and with respect to the baseline, as a result of project activities.

### Physical leakage

Leakage or loss of crude oil, natural gas, associated gas or combustible gas into equipment, systems or components at any stage of extraction, processing, storage or transportation.

### Gasification

Process of thermal decomposition of organic compounds at high temperatures (over 800 °C). Gasification converts organic compounds of both biogenic and fossil origin into combustible gas.

### Associated gas

Gas that is extracted together with the extraction of crude oil. It may be the gas obtained from the oil separation process or the gas released from wells.

### Combustible gas

A gas used as a fuel to produce thermal energy through a combustion process.

### Lift gas

High pressure gas used for lifting gas in oil wells.

### Greenhouse Gas (GHG)

A gaseous constituent of the atmosphere, both natural and anthropogenic, which absorbs and emits radiation at specific wavelengths within the spectrum of infrared radiation emitted by the earth's surface, the atmosphere and the clouds, a property that causes the greenhouse effect. The main GHGs are carbon dioxide (CO<sub>2</sub>), nitrous oxide (N<sub>2</sub>O), methane (CH<sub>4</sub>) and ozone (O<sub>3</sub>).

### Liquefied Petroleum Gas (GPL)

Natural gas mixture composed mainly of ethane, propane and butane, with small amounts of pentane plus (C5+) in any combination.

### Landfill gas (GV)

Gas generated by the decomposition of solid waste. It consists mainly of CH<sub>4</sub>, CO<sub>2</sub> and small fractions of ammonia and hydrogen sulfide.

### Uncertainty

Parameter associated with the measurement result that characterizes the dispersion of values that could reasonably be attributed to the measured quantity.

### **Confidential information**

The information not available to the public, but available for control and surveillance bodies. It includes commercial, financial, scientific, technical or other information the disclosure of which could reasonably be expected to result in a significant financial gain or loss, or prejudice the outcome of contractual or other negotiations to which the information relates.

### **Monitoring report**

A document that describes how the project has been implemented in accordance with its validated PDD and records data to enable the assessment of GHG removals or reductions generated by the GHG-PRR over a given period of time, in accordance with the monitoring plan set out in the PDD.

### **Validation report**

Written document of the assessment of the PDD, prepared by an authorized validation body in accordance with the requirements of the validation process.

### **Verification report**

Written document of the evaluation of the implemented project activities, prepared by an authorized verification entity according to the requirements of the verification process.

### **Climate Change Mitigation Initiative**

Program, project, action or activity developed at international, national, regional, local or sectoral level whose objective is the removal or reduction of GHGs.

### **Project Activity Instance**

Particular set of technologies or measures implemented that constitute the minimum unit of activity required to comply with the criteria and procedures applicable to the project activity under the implemented methodology.

### **Anaerobic lagoon**

A bioreactor that combines the sedimentation of solids and their accumulation at the bottom, with the flotation of materials from the wastewater at the surface and with active biomass suspended in the wastewater, attached to the sedimentation sludge or floating cream.

### **Gas liquefaction**

Change of state of a substance from the gaseous state to the liquid state, by the increase of pressure and the decrease of temperature reaching a high overpressure.

### **List of projects**

Publication of GHG-PRR in the EcoRegistry database, which relates the status of the projects and summary aspects of their participation in the voluntary certification process.

### **Handling and control of documents**

Procedure for the handling and control of the documentation supported in the CERCARBONO users' account, which has a safe system of information storage offered by EcoRegistry.

### **Raw Material**

An element of natural or artificial origin that is transformed to create a product.

## **Carbon Market**

A trading system in which governments, companies or individuals trade GHG removal or reduction units, known as carbon credits, in order to meet mandatory or voluntary commitments to reduce GHG emissions.

### **Regulated carbon market**

Binding and enforceable market for GHG removals or reductions, controlled by governments and other supranational institutions.

### **Voluntary carbon market**

Market that is complementary to the official and compulsory requirements in which individuals or companies decide voluntarily to comply with the removal or reduction of GHGs as happens in Colombia, giving the opportunity to participate in GHG-PRR to individuals or companies to obtain the non-charge of the carbon tax or participate in other non-mandatory initiatives.

## **Methodology**

Specific set of criteria and procedures that apply to specific project activities, to identify the project scenario, determine the baseline scenario, demonstrate additionality, quantify net GHG removals or reductions, and specify monitoring procedures. It uses guidelines, processes and methodologies (approved, verified, recognized or CERCARBONO's own) that are technically sound and specific to each project.

## **Climate Change Mitigation**

Actions or measures taken to remove, reduce or help stabilize the concentration of GHGs in the atmosphere. This may involve reducing emissions by sources or increasing carbon stocks in GHG reservoirs.

## **Module**

Component of a methodology that can be applied to perform a specific methodological task.

## **Monitoring**

A set of measurement and control activities that allow all technical aspects of the project to be quantified and recorded in a verifiable manner, especially those related to the flow of GHG.

## **Level of insurance**

Level of detail that the VVB uses to determine whether there are errors, omissions, underestimates, overestimates or misinterpretations in the validation or verification process.

## **Non compliance**

Failure to comply with a procedure or requirement.

## **Project operator**

Natural or legal person in charge of implementing and supervising the activities established in a GHG-PRR.

## **Validation or verification opinion**

Formal written statement confirming or not the compliance of the requirements of the validation process or the verification process of a particular GHG-PRR.

### **Validation and Verification Body (VVB)**

Entity that acts as an independent third party, which is authorized by CERCARBONO and which carries out processes of validation or verification of GHG-PRR. It is responsible for carrying out an objective evaluation and issuing a validation or verification statement regarding the information submitted by the GHG-PRR holder in accordance with the selected methodology, the standards and laws in force and the requirements established in this protocol.

### **Solar panel**

A device that captures the energy of solar radiation for its use.

### **Interested party**

A person or organization that may affect, be involved in, or be perceived to be affected by a GHG-PRR decision or activity.

### **Accreditation period**

Period during which removals or reductions of GHG emissions, as appropriate to the type of project, can be verified and CARBONCER emitted.

### **Verification period**

Period of time specified in the verification report during which removals or reductions of GHGs were generated and verified by a verification body.

### **Global Warming Potential**

Index that allows comparison of the relative effect of different greenhouse gases, in relation to the greenhouse effect caused by CO<sub>2</sub>.

### **Well**

In the context of this protocol, drilling done on land for the purpose of finding or producing crude oil, natural gas or providing services related to the production of crude oil or natural gas.

### **Waste well**

Well used to dispose of waste fluids from a reservoir or process, or water produced in a reservoir or aquifer.

### **Certification Program**

Voluntary or mandatory system, national or international, which has a set of principles and requirements for the formulation, development, validation and verification of the results against the design and implementation of GHG-PRR

The CERCARBONO certification program adopts or develops approved methodologies for the removal and reduction of GHGs within the framework of ISO 14064:1-3 standards and has a public registry platform that allows the certification of carbon credits (CARBONCER) and their registration, in which the CARBONCERs issued are assigned a unique serial number.

### **GHG Removal or Reduction Program**

A set of related projects, grouped or not, that can be implemented in a sequential or parallel manner to respond or not to government or sector plans. The GHG removal or reduction actions that programs can develop under this protocol are the same defined for projects.

### Grouped project

GHG-PRR structured to allow the addition of one or more instances of the project activity or the extension of a project activity after the validation of the GHG-PRR, provided that they meet a set of pre-established criteria.

### GHG Removal or Reduction Project (GHG-PRR)

Set of actions or activities carried out for specific purposes that lead to the removal or reduction of GHG emissions. The actions of removal or reduction of GHGs that projects can develop under this protocol are focused on:

- Renewable energy in the energy sector (GHG-PRR/E-ER),
- Energy efficiency in the energy sector (GHG-PRR/E-EE),
- Fuel switching efficiency in the energy sector (GHG-PRR/E-ECC),
- Efficiency by technology change in the energy sector (GHG-PRR/E-ECT),
- Renewable energy in the industrial sector (GHG-PRR/I-ER),
- Energy efficiency in the industrial sector (PRR-GEI/I-EE)
- Fuel switching efficiency in the industrial sector (GHG-PRR/I-ECC),
- Efficiency by change of raw material in the industrial sector (GHG-PRR/I-ECM),
- Avoided GHG emissions in the industrial sector (GHG-PRR/I-EEv),
- Destruction of GHG emissions in the industrial sector (PRR-GEI/I-DE)
- Energy efficiency in the transport sector (GHG-PRR/T-EE),
- Fuel switching efficiency in the transport sector (GHG-PRR/T-ECC),
- Fuel switching efficiency in the fugitive emissions sector (GHG-PRR/EF-ECC),
- Avoided emissions in the fugitive emissions sector (GHG-PRR/EF-EEv),
- Destruction of GHG emissions in the fugitive emissions sector (GHG-PRR/EF-DE),
- Renewable energy in the waste management sector (GHG-PRR/MR-ER),
- Avoided emissions in the waste management sector (GHG-PRR/MR-EEv),
- Destruction of GHG emissions in the waste management sector (GHG-PRR/MR-DE),
- Afforestation or reforestation in the forest sector (GHG-PRR/AR),
- Reducing emissions from deforestation and degradation in the forest sector (GHG-PRR/REDD).

### Heat network

Spatial extension of heat generation facilities that are physically connected through a heating pipe.

### Electrical network

Spatial extension of power plants that are physically connected through transmission and distribution lines. It is an electricity supply system to which power plants and many consumers are connected.

### Reduction of GHG emissions

Decrease in quantified GHG emissions between a validated baseline and the quantified net emissions from the implementation of a GHG-PRR, set at tCO<sub>2</sub>e.

### Reforestation

Establishment, increase or restoration of forest cover in non-forested area(s) or in an area that has been without forest cover for a period of 10 years or more as of the date of commencement of the activity.

### Regasification

Stages that natural gas goes through from its extraction in the field to the final consumers.

### Registration of carbon credits

Registration of the GHG-PRR in the EcoRegistry database where the data of all CERCARBONO GHG-PRRs are officially listed and centralized, with the corresponding emissions, monitoring, transfers and withdrawals of carbon credits that have been duly certified.

### **Registration of the GHG-PRR**

Registration of the GHG-PRR in the EcoRegistry database where the data of all CERCARBONO projects are officially related and centralized.

### **Removal of GHG emissions**

Total mass of GHG removed from the atmosphere by a reservoir during a specified time period set at tCO<sub>2</sub>e.

### **Report**

A stand-alone document intended to communicate to a client information related to their GHG PRR.

### **Requirement**

An application established in this protocol, which guides the validation / verification process and supports the certification process.

### **Reservation/Removal Buffer**

Percentage of carbon credits due to the removal of GHGs from non-negotiable projects to cover the risk of unforeseen losses in GHG reservoirs. In GHG-PRR/AR a buffer of 15% of total GHG removed is established. In GHG-PRR/REDD the buffer is established according to the methodology.

### **GHG reservoir**

A different component of the atmosphere that has the capacity to accumulate, store and release GHGs. In GHG-PRR in the forestry sector, the reservoirs considered are: aerial biomass, underground biomass, dead organic matter including debris and dead wood, and soil organic carbon.

### **Solid waste or residue**

Surplus and insoluble material (including gases or liquids in cans or containers), by-product of some process.

### **Biomass waste**

Biodegradable, non-fossilized organic material from plants, animals and micro-organisms, which is a by-product, waste or waste stream from agriculture, forestry and related industries.

### **Review/Checks**

Process to which the documentation of a GHG-PRR is submitted in the certification process.

### **Venting system**

Common method to remove waste gas volumes from oil and gas facilities.

### **Flare system**

Common method to remove waste gas volumes from oil and gas facilities.

### **Tea**

In the context of this protocol, a device for burning associated gas, combustible gas or natural gas.

### **Term of commitment**

Agreement between the GHG-PRR holder and an VVB to carry out the validation or verification processes.

### **GHG-PRR holder**

Natural or legal person, public or private, responsible for the formulation, implementation, monitoring and registration of the GHG-PRR and the withdrawal of carbon credits from EcoRegistry. This person must have a legal document representing the GHG-PRR. In some cases the developer of the GHG-PRR can act as the holder of this through a special power of attorney granted.

### **Ownership or property rights**

Statutory and customary rights to own, use, access or manage land, territories and resources.

### **Certifying user of the program**

Type of user established when opening an account in EcoRegistry, which has the responsibility to review the documentation of the certification process and to generate a report and the certification of emission of carbon credits from a GHG-PRR.

### **Trading User**

Type of user established when opening an account in EcoRegistry, who has the power to buy or sell carbon credits.

### **Project developer user**

Type of user established when opening an account in EcoRegistry, applying for a service under CERCARBONO voluntary carbon certification with a special power of attorney issued by the GHG-PRR holder.

### **User Validation and Verification Body**

Type of user established when opening an account in EcoRegistry, which evaluates and supports the information of the validation or verification process of a GHG-PRR.

### **User Holder of the initiative**

Type of user established when opening an account in CERCARBONO, who requests a service under the context of CERCARBONO's voluntary carbon certification, is itself the holder of the GHG-PRR.

### **Validation**

Systematic, independent and documented process by a third party, in which the design of a GHG-PRR is evaluated and its baseline in accordance with the selected methodology, with the regulations and legislation in force and with the requirements of the validation process of this protocol.

### **Validator**

A competent and impartial person of an VVB, with the responsibility of making a statement of validation.

### **Validity of carbon credits issued**

Based on the information provided by the GHG-PRR holder that demonstrates that the removals or reductions of GHGs are real, according to the project activities developed in a given period of time, the validity of a carbon credit is indefinite; however, it can only be used once to access offsets for the removal or reduction of GHGs or the non-causation of the carbon tax in Colombia, as long as the laws supporting such non-causation are in force.

### **Default value**

Value of a parameter specified in a methodology to standardize GHG removal or reduction calculations and provide greater consistency of calculations between projects.

### **Hybrid vehicle**

A vehicle that combines an internal combustion engine and one or more electric motors.

### **Vent**

Release of associated gas into the atmosphere.

### **Verification**

A systematic, independent and documented process conducted by a third party, in which the methodological consistency of the actions to remove or reduce a GHG-PRR is evaluated. In addition to the quality and performance of monitoring methods in accordance with the selected methodology, with the regulations and legislation in force and with the requirements of the verification process of this protocol.

### **Verifier**

A competent and impartial person within a VVB with responsibility for making a declaration of verification.

### **Validity of carbon credits issued**

The carbon credits issued by CERCARBONO will be valid indefinitely. However, its use for not causing the carbon tax will be subject to the validity of the rules that regulate it.

### **Deposit**

Natural accumulation of hydrocarbons in the subsoil, contained in porous or fractured rocks.

## 6. INTRODUCTION

CERCARBONO is a voluntary carbon certification program that certifies the removal or reduction of GHGs from climate change mitigation initiatives carried out in different sectors<sup>2</sup>, especially in the framework of the commitments that Colombia has made at the international level to address climate change after signing the Kyoto Protocol in 1997 and in 2015, the Paris Agreement.

The national carbon tax, created by Law 1819 of 2016 (Structural Tax Reform), responds to the country's need for economic instruments to encourage compliance with the targets for greenhouse gas (GHG) mitigation at the national level. In this regard, Decree 926 of 2017 has defined a compensation mechanism, based on the removal and reduction of GHGs, which allows the non-cause, total or partial, of the carbon tax.

In order for stakeholders in the fossil fuel value chain to have access to the non-cause of the carbon tax, they may stimulate or develop GHG Removal or Reduction Projects or Programs (GHG-PRR) or purchase carbon credits from this type of initiatives, which comply with all stages of the project cycle.

This document describes the protocol that the GHG-PRR must comply with in order to obtain the emission of carbon credits through CERCARBONO, credits that are unique, real and measurable called "CARBONCER".

In this way, GHG PRR holders, CARBONCER buyers/sellers and any other entity participating in the voluntary carbon market, both nationally and internationally, will be able to rely on appropriate, reliable, impartial, transparent and relevant validation, verification and certification processes.

The protocol, while providing guidelines for carrying out the validation and verification processes, focuses on defining the principles governing the registration of GHG-PRR and the certification of emission and registration of carbon credits from the different types of projects accepted by the protocol. It also describes in a general way the procedures and steps necessary for the CERCARBONO voluntary carbon certification process, as well as some specific methodological aspects. However, the specific methodological aspects of the different project types are defined in the methodologies accepted by CERCARBONO.

The protocol is based on ISO 14064-1: 2018; ISO 14064-2: 2019; ISO14064-3: 2019 and ISO 14065: 2013. The structure of the protocol is global and is governed by the requirements of international voluntary markets. In the Colombian context it is applicable based on the provisions of Decree 926 and Resolution 1447.

CERCARBONO accepts the Validation and Verification Organisms (VVB), duly accredited (see Section 14).

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<sup>2</sup>To develop climate change mitigation projects, 15 sectoral areas were established: 1) Energy, 2) Power distribution, 3) Energy demand, 4) Manufacturing industry, 5) Chemical industry, 6) Construction, 7) Transportation, 8) Mining and Mineral Production, 9) Metal production, 10) Fugitive fuel emissions, 11) Fugitive emissions from the production and consumption of halocarbons and Sulphur hexafluoride, 12) Solvent used, 13) Waste management and disposal, 14) Afforestation and Reforestation, 15) Agriculture. CERCARBONO covers 6 of these sectors, which are described in section 8.

## 7. PROGRAM OBJECTIVES

- To align the climate change mitigation objectives generated at both national and international levels with the requirements of the CERCARBONO program, as a guarantee of legal compliance with the GHG-PRR.
- Ensure a registry system that complies with the entire rigor that the carbon market deserves, generating security and transparency of all the GHG-PRR that are part of the program.
- Promote the dynamics of the carbon market, generating confidence through transparency in its actions and providing greater accessibility through the use of technologies that facilitate the management and access to information.
- Establish, advise or approve guidelines or methodologies that allow the development of projects that can be adapted to the dynamics of national sectors, complying with regulations and with the final intention of promoting initiatives that generate real and proven GHG emission reductions or removals.

## 8. SCOPE

This protocol has been defined for the registration of GHG-PRR and for the certification of emission and registration of carbon credits - CARBONCER of GHG-PRR by means of the voluntary certification of carbon of CERCARBONO.

The project activities allowed under the program can be presented at the project level or at the program level. According to the amount of GHG removal or reduction achieved by the GHG-PRR during the duration of the project, they can be considered in one of the two types of scale covered by CERCARBONO. PRR-GEI Type 1: those that remove or reduce 10,000 or more tons of CO<sub>2</sub>e, on average per year. GHG-PRR Type 2: those that remove or reduce less than 10,000 tons of CO<sub>2</sub>e, on average per year.

The GHG-PRRs covered by this new version of the protocol are those that contribute to the mitigation of climate change by removing or reducing GHGs, through the development of activities in the following sectors:

### 8.1 Energy Sector

Corresponds to project activities that reduce GHG emissions by sources of GHG in power plants or networks. It includes:

- a) **Renewable Energy (E-ER):** Energy generation by renewable sources such as hydroelectric, photovoltaic, wind, geothermal, ocean and biomass. It includes co-generation actions (of electricity, heat, water, steam or gas).
- b) **Energy Efficiency (E-EE):** Energy generation through the implementation or renewal of processes, machinery, tools or technology that require less energy demand to achieve the same performance or perform the same function more efficiently. It includes cogeneration actions.
- c) **Fuel Switching Efficiency (E-ECC):** Energy generation that includes fuel switching with lower GHG emissions. Includes cogeneration actions.
- d) **Efficiency by Technology Change (E-ECT):** Energy generation in which new equipment or machinery is implemented.

**Note:** In the energy sector, GHG-PRRs can include more than one GHG reduction activity simultaneously, such as cogeneration projects.

### 8.2 Industry sector

Corresponds to project activities that reduce, avoid or destroy GHG emissions from GHG sources in industrial facilities or companies. Includes:

- a) **Renewable Energy (I-ER):** Energy use by renewable sources such as hydroelectric, photovoltaic, wind, geothermal, ocean and biomass.
- b) **Energy Efficiency (I-EE):** Use of energy by improving, implementing or using processes, machinery, tools or technology that require less energy demand to achieve the same performance or perform the same function more efficiently.
- c) **Fuel Switching Efficiency (I-ECC):** Energy use that includes fuel switching with lower GHG emissions.
- d) **Raw Material Change Efficiency (I-EMP):** Improvement or changes of raw materials within the production processes.
- e) **Avoided GHG Emissions (I-EEv):** Adoption of technologies or processes that avoid GHG emissions.
- f) **Destruction of GHG Emissions (I-DE):** Adoption of technologies or processes that eliminate GHG.

**Note:** In the industrial sector, GHG PRRs can include more than one GHG reduction activity simultaneously.

### 8.3 Transportation Sector

Corresponds to project activities that reduce GHG emissions by sources of GHG. Includes:

**a) Energy Efficiency (T-EE):** Improvement in transport processes and improvement or renewal of the car fleet (public and private), air and sea, in terms of GHG emissions.

**b) Fuel Switching Efficiency (T-ECC):** Fuel switching from the lowest GHG emitting car fleet, including electric, hydrogen, hybrid, natural gas, Liquid Petroleum Gas (GLP), biodiesel or bioethanol sources or supply.

### 8.4 Fugitive fuel emissions

Corresponds to project activities that reduce, destroy or avoid GHG emissions from fugitive fuel emissions. This version of the protocol includes:

**a) Fuel Switching Efficiency (EF-ECC):** Changing the use of other fossil fuel sources such as natural gas, dry gas, Liquefied Petroleum Gas (GLP), condensed gas, among others, from non-associated gas by recovering or using associated gas or lifting gas from fields.

**(b) Avoided GHG Emissions (EF-EEv):** Adoption of systems, equipment or components that control and prevent fugitive emissions of fuel.

**(c) GHG Emission Destruction (EF-DE):** Adoption of technologies or processes that remove GHGs.

**Note:** Projects in this sector can carry out more than one GHG reduction activity simultaneously.

### 8.5 Waste Management Sector

Corresponds to project activities that reduce, destroy or avoid GHG emissions from GHG sources. This version of the protocol includes:

**a) Renewable Energy (MR-EE):** Energy generation by renewable sources of biomass.

**b) Avoided GHG Emissions (MM-EEv):** Adoption of systems, equipment or components that control and avoid GHG emissions.

**c) Destruction of GHG Emissions (MR-DE):** Adoption of technologies or processes that eliminate GHGs.

## 8.6 Forestry Sector

Corresponds to project activities that remove, reduce or avoid GHG emissions by sources of GHG. This version of the protocol includes:

**(a) Afforestation/Reforestation (AR):** Activities that remove GHG emissions by increasing the carbon content of reservoirs such as woody tree biomass.

**(b) Reduced Emissions from Deforestation and Degradation (REDD):** Activities that reduce or prevent emissions from GHGs when removing or maintaining carbon content in carbon pools.

This protocol applies to GHG-PRRs that comply with the laws or standards described in the reference section (Section 16).

## 9. PRINCIPLES

The following are the principles that should govern the GHG-PRR:

### 9.1 Completeness

All significant sources of reduced GHG emissions generated by the GHG-PRR should be included, as appropriate to their type. Sources are considered non-significant when they do not exceed 10% of the total emissions generated by the project throughout its accounting period.

### 9.2 Reliability

Data and parameters from recognized sources should be included, as well as technically supported models that support GHG removals or reductions.

### 9.3 Conservatism

Conservative assumptions, values and procedures should be used to ensure that emissions from the GHG-PRR is not underestimated and that removals or reductions in the GHG-PRR are not overestimated.

### 9.4 Consistency

The assumptions, values and procedures used for the calculation of GHG emissions, removals or reductions should be technically sound, consistent and reproducible.

### 9.5 Evidence

The evidence used should be sufficient and appropriate to ensure that rational, reliable and reproducible methods are employed to guarantee that GHG removals or reductions (as appropriate to the type of project) are real and properly calculated.

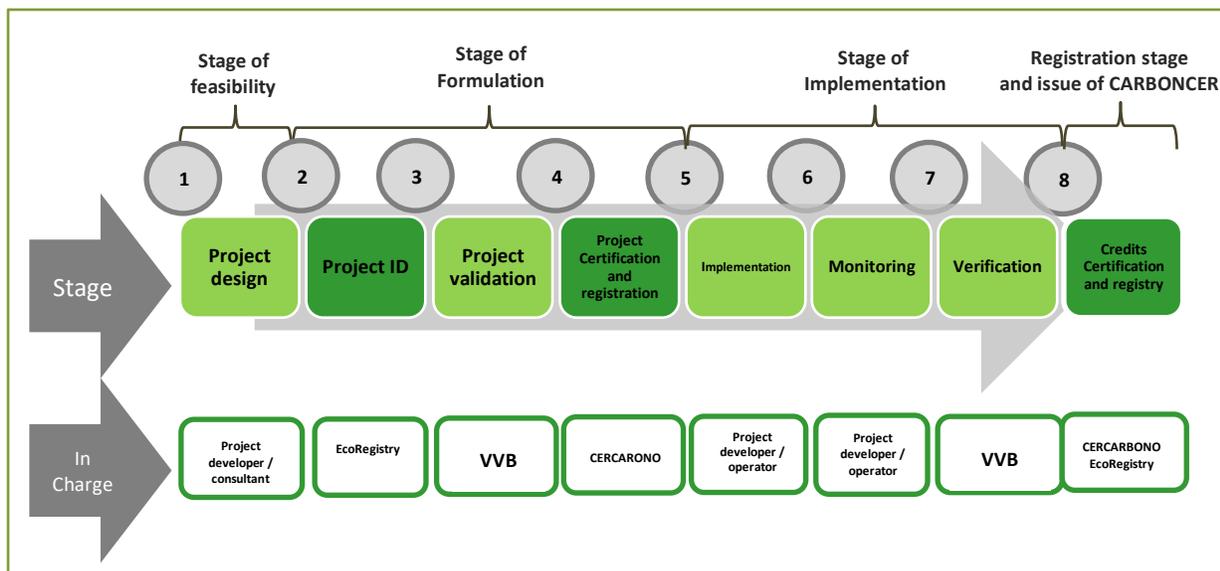
### 9.6 Transparency

Genuine, honest, appropriate and sufficient information related to the entire project cycle must be used so that stakeholders and the general public can be assured that there is no intentional deception or inaccuracy.

## 10. Project requirements

This section describes the different requirements and technical characteristics that the GHG-PRR who wish to be part of CERCARBONO's voluntary certification program.

The fulfilment of each one of these requirements will be reviewed in depth by CERCARBONO, making sure that they comply with those established in the validation / verification processes (independent or joint) by authorized VVBs, thus ensuring the traceability of each GHG-PRR. Therefore, the holder of the GHG-PRR must identify, consider and use relevant and available criteria or procedures for each stage of the GHG-PRR cycle (Figure 1).



**Figure 1.** Cycle of GHG removal or reduction projects, adapted to the case of CERCARBONO and that obeys international and national requirements such as Res. 1447 of the Ministry of Environment and Sustainable Development of Colombia.

**Note:** GHG-PRR that are being implemented (in progress) from January 1st, 2010, according to Decree 926 (or that date that modifies or replaces the current law) and that comply with the project cycle are included.

In the context of CERCARBONO, the project cycle required for a GHG-PRR to be registered and generate carbon credits due to GHG removal or reduction is composed of eight phases:

- 1) Design of the GHG-PRR:** Phase in which the GHG-PRR holder must assess the proposed project activity and additionality requirements; subsequently proposes (directly or indirectly) a PDD (see section 10.1), prepared in accordance with this protocol, based on an approved methodology and including the baseline scenario, GHG removal or reduction calculations and the monitoring plan for project activities that remove GHGs or reduce GHG emissions according to the type of project.
- 2) Project identification:** In this phase, once an account is created in CERCARBONO through EcoRegistry, developer-type or owner-type users attach documents that support the feasibility stage of the project, including the PDD. With this information, EcoRegistry generates an identification number (ID) of the GHG-PRR with which it will be recognized throughout the process.
- 3) Validation:** In this phase, an VVB evaluates the project design and its baseline. After the evaluation, a

validation report is produced. If the project design meets all the requirements of the validation process of this protocol, the selected methodology and the standards or laws in force, a statement of validation is issued; otherwise, corrective actions are generated which the holder must adjust to go through this phase again.

**4) Project registration:** In this phase, once the compliance of the documentation provided in the validation process of a GHG-PRR has been reviewed, it can be registered in the EcoRegistry platform, thus culminating the formulation stage, being publicly visible.

**5) Implementation:** In this phase, the holder or operator of the GHG-PRR executes the project activities established in the PDD, with which the removal or reduction of GHGs is carried out.

**6) Monitoring:** In this phase, measurements and calculations of GHG removal or reduction are carried out, following the monitoring plan that is part of the PDD. The monitoring plan is designed following the approved methodology that was selected for the development of the GHG PRR.

**7) Verification:** In this phase, an VVB verifies under this protocol that the project has achieved the removal or reduction of GHGs proposed, through periodic reviews (established or determined by project duration). A verification report is then produced following the assessment. If the activities of the GHG PRR comply with all the requirements of the verification process, the selected methodology and the regulations or laws in force, a verification statement is issued; otherwise, corrective actions are generated that the GHG-PRR holder must adjust in order to go through this phase again.

**8) Certification of emission and registration of carbon credits:** In this phase, once the compliance of the documentation, validation or verification processes of a GHG-PRR has been reviewed, a certification report is generated. The holder of the same may ask CERCARBONO to certify the emission of carbon credits obtained, complying with the requirements of the CERCARBONO voluntary certification process (Section 15). In this last stage, CERCARBONO requests EcoRegistry to register the carbon credits obtained from verification. The registration of the credits in EcoRegistry guarantees the transparency of the information and that there is no double accounting of the CARBONCER.

**Note:** It is important to mention that the validation and verification processes may be carried out simultaneously by an VVB, whose compliance is integrated in a single report. In these cases, if no corrective action is taken, an independent or joint validation and verification statement is generated that can be used for both the GHG-PRR registration and the certification of the CARBONCER emission and registration.

## 10.1 Project Components

The GHG-PRR holder should prepare a PDD that includes the following:

- a) Information on the GHG-PRR holder or other GHG participants where appropriate, detailing their roles and responsibilities, including contact and stakeholder information.
- b) Title, purpose(s) and objective(s) of the GHG-PRR.
- c) Sectoral scope of the project and type of GHG-PRR.
- d) Description of the GHG-PRR and how it will achieve GHG removal or reduction, including types of GHG specifics that it contemplates.
- e) Justification as to why the proposed GHG-PRR is considered additional.
- f) Location and boundaries of the GHG-PRR, including organizational, geographic and physical location information, that allows for the unique identification and delimitation of the specific extent of the project.
- g) Detailed description and support of the ownership or right of use of the area.
- h) Characteristics or conditions prior to the start of the GHG-PRR.
- i) Technologies, products, services of the GHG-PRR and the expected level of activity.
- j) Description and justification of the methodology selected and applied for quantification of GHG removal or reduction as appropriate to the type of GHG-PRR.
- k) Identification of GHG emission sources or reservoirs in the baseline and project scenarios.
- l) GHG emissions and removals in the baseline scenario estimated or calculated in tCO<sub>2</sub>e.

- m) Removal or reduction of GHGs that can be produced by the GHG-PRR, estimated or calculated in tCO<sub>2</sub>e.
- n) Net removal or reduction of GHGs that can be produced by the GHG-PRR, estimated or calculated in tCO<sub>2</sub>e.
- o) Monitoring plan.
- p) Leaks, if any and if significant, calculated in tCO<sub>2</sub>e.
- q) Identification of risks that could substantially affect GHG removal or reduction, as well as measures to manage those risks.
- r) Authorizations and documents required by current legislation for the development and operation of the GHG-PRR, such as Environmental License, Environmental Impact Assessment, Environmental Management Plan, Feasibility Concept for Connection (UPME), Water Concession, among others, depending on the type of GHG-PRR.
- s) Relevant results of stakeholder consultations and mechanisms for ongoing communication, if applicable. Include definition of when and how affected/involved people should be consulted.
- t) Chronological plan or actual dates and justification for the following:
  - The start date of the GHG-PRR activities,
  - The GHG baseline period,
  - The date of completion of the project,
  - The frequency of monitoring and reporting and the project period, including relevant project activities at each step of the project cycle, as appropriate and,
  - The frequency of the checks, including the periods in which they are carried out.

CERCARBONO has a PPD template available on its website, Certification Section.

## 10.2 Description of the methodology

The protocol allows the use of methodologies and their components, as well as complementary methods, modules or tools (always implementing its latest version) developed within the framework of ISO 14064-3: 2018. These include the:

- Approved by the UNFCCC including those of the Clean Development Mechanism (CDM),
- Verified by an independent third party, which include those from certification programs or carbon standards that are in accordance with this protocol,
- Recognized by the national government in the area of climate change mitigation, such as those developed by ICONTEC and the
- Own generated by CERCARBONO, publicly consulted and reviewed by a third party.

In the CERCARBONO website are listed the standards, procedures, tools and methodologies accepted under this protocol. Where CDM-approved methodologies are used, the use or non-use of modules or tools complementary to these must be justified.

Any methodology, method, module or tool that is not on the list but that meets the characteristics set out above may be considered by the certification program by sending a request to [info@cercarbono.com](mailto:info@cercarbono.com). In that sense, CERCARBONO has established within its procedures, a document on the approval of new or already developed methodologies. This document is available in the certification section of the CERCARBONO website.

The GHG-PRRR must establish and justify the applicability conditions of the selected methodology or methodological tools used for:

- Establish eligibility, when applicable,
- Determine the baseline and project scenario
- Estimate GHG emissions or reductions in the baseline scenario,
- Quantify net GHG emissions, removals or reductions in the project scenario,
- Identify risks of non-permanence, where appropriate,
- Monitoring of the GHG-PRR.

In addition, the GHG-PRR must perform an additionality analysis in accordance with current regulations, as detailed in the following section.

### 10.2.1 Additionality

In Colombia, all GHG-PRGs are considered additional that comply with the Resolution 1447 of 2018 from the Ministry of Environment and Sustainable Development of Colombia (or that which modifies or replaces it).

### 10.2.2 Eligibility

For GHG-PRR/AR, the eligibility requirements will be defined according to the selected methodology. For GHG-PRR/REDD will be defined according to the accepted or established methodology by CERCARBONO. For GHG-PRR other than GHG-PRR/AR or GHG-PRR/REDD, this section does not apply.

### 10.2.3 Non-permanence

In the case of GHG-PRR in the forestry sector, the risk of non-permanence of removals is compensated by the reserve/buffer established by CERCARBONO (currently 15% of total removals). The buffer size established by CERCARBONO will be periodically reviewed to ensure the environmental integrity of the removals obtained.

For GHG-PRR outside the forest sector, this section does not apply.

### **10.2.4 Determining the baseline scenario**

Based on the selected methodology, the GHG-PRR holder will determine the baseline scenario, considering the following:

- a) The description of the GHG-PRR, including the identified FRs.
- b) Existing and alternative project types, activities and technologies that provide a type and equivalent level of activity of products or services for the project.
- c) Data availability, reliability and limitations.
- d) Other relevant information on present or future conditions, such as legislation, technical, economic, socio-cultural, environmental, geographical, site-specific and temporal assumptions or projections.

The GHG-PRR holder shall demonstrate functional equivalence in the type and level of activity of the products or services provided between the project and baseline scenarios and shall explain, as appropriate, any significant differences between the two.

The GHG-PRR holder shall select or establish, describe and apply criteria and procedures to identify and justify the baseline scenario.

The justification of the GHG baseline should take into account the likely future behavior of the baseline scenario (emission sources or GHG reservoirs) in order to comply with the principle of conservatism. In the event that the baseline is exposed to changing conditions during the crediting period of a GHG-PRR, it should be subjected to an assessment and if the assessment demonstrates that the baseline no longer corresponds to the one initially established, the GHG-PRR should re-run the validation process to GHG-PRR.

### **10.2.5 Establishing the project scenario**

The project operator shall provide a description of the GHG PRR activity and the means used to achieve GHG removals or reductions.

- (a) For GHG-PRR/RA, the following must be included:
  - Description of forestry activities including forestry planning, type of species and justification of their use, production of plant material, establishment and maintenance of plantations and harvesting
  - Information on any conservation, management or planting activities to be carried out in the project area, including a description of how various organizations, communities and other entities are involved.
- b) For GHG-PRR- other than GHG-PRR/AR, the following must be included:
  - A list and arrangement of the major technologies, systems and manufacturing or production equipment involved, including information on the age and average life of the equipment according to manufacturer's specifications and industry standards, as well as existing and expected capacities, load factors and efficiencies,
  - The types and levels of services (typically in terms of mass or energy flows) provided by the systems and equipment being modified or installed and their relationship, if any, to other manufacturing or production equipment and systems outside the GHG-PRR limit. Describe how this would have been done in the baseline scenario and,
  - If applicable, a list of the facilities, systems and equipment in operation under the scenario existing before the implementation of the GHG-PRR.

Describe the selection or establishment of criteria, procedures or methodologies to quantify GHG emissions, removals or reductions during the implementation and operation of the GHG-PRR Detail the criteria and procedures to quantify them.

### 10.2.6 Identification of GHG emission sources

The following are the sources of GHGs that should be considered in a GHG-PRR, according to the type of activity contemplated:

**Table 1.** GHG emission sources by type of GHG-PRR:

Type of activity	Base line			Project			Leaks		
	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O
<b>ENERGY SECTOR</b>									
Renewable Energy	Yes	Dp	No	Dp	Dp	Dp	Dp	No	No
Energy Efficiency	Yes	Dp	No	Yes	Dp	Dp	Dp	Dp	No
Fuel Change	Yes	No	No	Yes	Dp	Dp	Yes	Yes	No
Technology Change	Yes	No	No	Yes	No	No	Dp	Dp	No
<b>INDUSTRY SECTOR</b>									
Renewable Energy	Yes	Dp	No	Yes	Dp	Dp	Yes	No	No
Energy Efficiency	Yes	No	No	Yes	No	No	Dp	Dp	Dp
Fuel Change	Yes	Dp	No	Yes	Dp	Dp	Yes	No	No
Raw Material Change	Yes	No	No	Yes	No	No	Yes	No	No
Avoided GHG Emissions	Yes	Yes	No	Yes	Yes	Yes	Dp	No	No
<b>TRANSPORTATION SECTOR</b>									
Energy Efficiency	Yes	Yes	No	Yes	Dp	No	Dp	No	No
Fuel Change	Yes	No	No	Yes	No	No	No	No	No
<b>FUGITIVE EMISSIONS</b>									
Fuel Change	Yes	No	No	Yes	No	No	Yes	No	No
Avoided Emissions	Yes	Dp	No	Yes	Dp	No	No	No	No
Destruction of GHG Emissions	Dp	Dp	No	Dp	Dp	No	No	Dp	No
<b>WASTE MANAGEMENT SECTOR</b>									
Renewable Energy	Yes	Yes	No	Yes	Yes	Yes	No	Yes	NO
Avoided Emissions	Yes	Yes	No	Yes	Yes	Yes	No	No	No

Type of activity	Base line			Project			Leaks		
	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O
<b>Destruction of Emissions</b>	Yes	Yes	Dp	Yes	Yes	Dp	Dp	Dp	Dp
<b>Forestry Sector</b>									
<b>Afforestation/ Reforestation</b>	No	Yes	Yes	No	No	No	Yes	Yes	Yes
<b>REDD</b>	No	Yes	Yes	No	No	No	No	No	No

**Note:** DP: depends on the type of GHG-PRR and the methodology applied; in these cases it is necessary to justify their inclusion or exclusion.

### Energy Sector

- In the case of GHG-PRR/E-ER:**

In the baseline scenario, CO<sub>2</sub> emissions due to the use of fossil fuels or due to the generation of electricity or heat (steam or non-steam), or in cogeneration where applicable, should be considered. CH<sub>4</sub> emissions from uncontrolled burning or decomposition of excess biomass waste should also be considered where applicable.

In the project scenario, it is expected that no GHG emissions will be generated. However, the different activities that generate GHG emissions should be considered. For geothermal projects, fugitive emissions of CO<sub>2</sub> and CH<sub>4</sub> from non-condensable gases contained in geothermal steam and CO<sub>2</sub> emissions from the use of fossil fuels must be considered. For new hydroelectric projects with a reservoir, CO<sub>2</sub> emissions due to site or reservoir area preparation must be considered. For established hydroelectric projects with a reservoir, CH<sub>4</sub> emissions from solid or liquid waste disposal must be considered. For solar projects, CO<sub>2</sub> emissions from the use of fossil fuel in complementary operations and in solar production processes. For biomass projects, the CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O emissions are due to the cultivation of land to produce raw material. For cogeneration projects, CO<sub>2</sub> emissions due to fossil fuel consumption for process elements, energy generation (electricity and heat) on site and by cogeneration facilities

In this type of project, no significant sources of leakage are expected; however, the different activities that could generate them must be considered. For biomass projects, it should be taken into account the CO<sub>2</sub> emissions due to the use of organic waste.

- In the case of GHG-PRR/E-EE**

In the baseline scenario, CO<sub>2</sub> emissions due to the use of fossil fuels for electricity and heat generation (steam or non-steam thermal energy), or in cogeneration when applicable must be considered as well as those generated in the production of chilled water or for plant operation. In addition, CH<sub>4</sub> emissions from uncontrolled burning or decomposition of excess biomass waste when applicable.

In the project scenario, CO<sub>2</sub> emissions due to the use of fossil fuels to generate electricity or heat must be considered. In CHP projects, CO<sub>2</sub> emissions from fossil fuel use in parts of the process, from on-site power generation (electricity and heat), from chilled water production and from their facilities. For biomass projects, CH<sub>4</sub> emissions from burning biomass to generate energy and CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O emissions from growing land to produce feedstock and CO<sub>2</sub> from transporting or processing biomass on and off site.

In some GHG-PRRs of this type, it is expected that no emissions will be generated by leakage. However, consideration should be given to the different activities that generate them, such as CO<sub>2</sub> and CH<sub>4</sub> emissions from the extraction, processing, liquefaction, transport, regasification and distribution of fossil fuels in natural gas projects. CO<sub>2</sub> emissions associated with the release of recovered heat whose diversion to energy units can increase emissions elsewhere should also be considered, as well as CO<sub>2</sub> and CH<sub>4</sub> emissions due to the diversion of biomass waste to other applications or due to the displacement of pre-project activities.

- **In the case of GHG-PRR-/E-ECC**

In the baseline scenario, CO<sub>2</sub> emissions due to the use of fossil fuels for electricity or heat generation (steam or non-steam thermal energy) or in cogeneration, where applicable, should be considered. Also CH<sub>4</sub> emissions from uncontrolled burning or decomposition of excess biomass waste, where applicable.

In the project scenario, CO<sub>2</sub> emissions due to the use of fossil fuels for electricity or heat generation (steam or non-steam thermal energy) must be considered. In cogeneration projects, CO<sub>2</sub> emissions due to the use of fossil fuels for process elements, power generation on site (electricity and heat) and by their facilities. For biomass projects, the CH<sub>4</sub> emissions from burning biomass to generate energy and the CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O emissions from growing land to produce feedstock, as well as the CO<sub>2</sub> from transporting or processing biomass on and off site.

The different activities that generate emissions from leakage, such as CO<sub>2</sub> and CH<sub>4</sub> emissions due to the extraction, processing, liquefaction, transport, regasification and distribution of fossil fuels in natural gas projects, as well as CO<sub>2</sub> and CH<sub>4</sub> emissions due to the diversion of biomass waste to other applications or due to the displacement of pre-project activities, should be considered.

- **In the case of GHG-PRR/E-ECT**

In the baseline scenario, CO<sub>2</sub> emissions due to the use of fossil fuels for electricity or heat generation (steam or non-steam thermal energy) should be considered.

In the project scenario, CO<sub>2</sub> emissions due to the use of fossil fuels for electricity or heat generation (steam or thermal energy not steam) must be considered.

The different activities that generate emissions from leakage, such as CO<sub>2</sub> and CH<sub>4</sub> emissions due to the extraction, processing, liquefaction, transportation, regasification and distribution of fossil fuels in natural gas projects, must be considered.

## **Industry Sector**

- **In the case of GHG-PRR/I-ER:**

CO<sub>2</sub> emissions due to the use of fossil fuels for electricity or heat generation (steam or non-steam thermal energy) or in cogeneration, where applicable, should be considered in the baseline scenario. CH<sub>4</sub> emissions from uncontrolled burning or decomposition of excess biomass waste should also be considered, where applicable.

In the project scenario, CO<sub>2</sub> emissions from the use of fossil fuels should be considered. In waste energy recovery plants, CO<sub>2</sub> emissions from heat or reaction heat supply processes, from supplementary electricity use and from gas cleaning. For dry or instantaneous steam geothermal power plants, CH<sub>4</sub> and CO<sub>2</sub> emissions from non-condensable gases contained in geothermal steam. For binary geothermal power plants, fugitive emissions of CH<sub>4</sub> and CO<sub>2</sub> from non-condensable gases contained in geothermal steam; low PCG hydrocarbons or refrigerants and fugitive emissions of hydrocarbons such as n-butane and isopentane contained in the heat exchanger.

For hydroelectric power plants, the CH<sub>4</sub> emissions from the reservoir for biomass projects, the CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O emissions from biomass cultivation.

In this type of project, no significant sources of leakage are expected; however, the different activities that generate them must be considered. For biomass projects, CO<sub>2</sub> emissions due to transport, use of organic waste and displacement of the biomass, as well as the change of pre-project activities outside the project area as a consequence of the project, must be taken into account.

- **In the case of GHG-PRR/I-EE**

In the baseline scenario, CO<sub>2</sub> emissions due to fossil fuel consumption and energy consumption for the preparation of raw materials, alternative fuels and for the operation of equipment must be considered.

In the project scenario, CO<sub>2</sub> emissions from electricity consumption (grid and self-generated), from the preparation of raw materials or fuels and from the operation of equipment must be considered.

Depending on the type of project, different sources of leakage emissions are considered or not.

- **In the case of GHG-PRR/I-ECC**

In the baseline scenario, CO<sub>2</sub> emissions from the use of fossil fuels, from the consumption of electricity, steam, grid or captive source and from the preparation of alternative raw materials and fuels (e.g. drying of materials or fuels with external dryers) must be considered. Also CO<sub>2</sub> emissions must be considered, where applicable, from thermal energy processes and from co-generation plants.

In the project scenario, CO<sub>2</sub> emissions due to the use of fossil fuels for electricity or heat generation (steam or non-steam thermal energy) must be considered. For cogeneration projects, CO<sub>2</sub> emissions due to the use of fossil fuel in parts of the process, those due to on-site power generation (electricity and heat) and those generated by their facilities. For geothermal projects, fugitive emissions of CO<sub>2</sub> and CH<sub>4</sub> from non-condensable gases contained in geothermal steam and CO<sub>2</sub> emissions from the use of fossil fuels must be considered. For hydroelectric projects with established reservoirs, CH<sub>4</sub> emissions from solid or liquid waste disposal must be considered. For solar projects, CO<sub>2</sub> emissions from the use of fossil fuel in complementary operations and for solar production processes. For biomass projects, CH<sub>4</sub> emissions from burning biomass to generate energy and CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O emissions from land cultivation to produce feedstock, CO<sub>2</sub> emissions from transporting or processing biomass on and off site, and CH<sub>4</sub> emissions from wastewater treatment of biomass.

In some GHG-PRGs of this type, it is expected that no emissions from leakage will be generated; however, consideration should be given to the different activities that generate them, such as CO<sub>2</sub> emissions from transport and collection of biomass, from diversion of biomass residues from other uses, from changing pre-project activities, and from fuel extraction, processing, liquefaction, transport, regasification and distribution of fossil fuels.

- **In the case of GHG-PRR/I-ECM**

In the baseline scenario, CO<sub>2</sub> emissions from the use of fossil fuels in raw material processes (calcinations or clinker generation), in the operation of equipment (engines, compressors, fans, among others) and from the use of electricity (grid or self-generated) must be considered.

In the project scenario, emissions from the use of fossil fuel in raw material processes (calcinations or generation of clinker), in the operation of equipment (engines, compressors, fans, among others) and from the use of electricity (network or self-generated) must be considered.

Emissions from leaks due to the use of fossil fuel for transporting additives or the diversion of additives from existing uses must also be considered.

- **In the case of GHG-PRR/I-EEv:**

In the baseline scenario, CO<sub>2</sub> emissions from the use of fuel for heat generation and CH<sub>4</sub> emissions from uncontrolled burning or decomposition of biomass waste must be considered.

In the project scenario, CO<sub>2</sub> emissions from fossil fuel use, on-site electricity generation and biomass transport, CH<sub>4</sub> emissions from biomass treatment wastewater, and CH<sub>4</sub> and N<sub>2</sub>O emissions from land cultivation to produce biomass feedstock must be considered.

CO<sub>2</sub> emissions from leakage due to the diversion of biomass waste and emissions due to the change of pre-project activities should also be considered.

### **Transport Sector**

- **In the case of GHG-PRR/T-EE**

In the baseline scenario, the CO<sub>2</sub> emissions from mobile sources of different road transport modes (buses, cars, trains, motorcycles, taxis) air (airplanes, planes) and sea (boats, ships, among others) must be considered.

In the project scenario, CO<sub>2</sub> emissions from the use of fossil fuels in land, air or sea traffic (feeder and trunk routes, as appropriate), from the on-site use of electricity or fossil fuels to operate the pipeline system, and from changes in land use must be considered.

No significant sources of leakage are expected in this type of project. However, the different activities that generate them should be considered.

- **In the case of GHG-PRR/T-ECC**

In the baseline scenario, CO<sub>2</sub> emissions from the use of mobile sources of different modes of road transport (buses, cars, trains, motorcycles, taxis); air (planes, aircrafts) or sea (boats, ships, among others) must be considered.

In the project scenario, CO<sub>2</sub> emissions from the use of fossil fuels or electricity must be considered.

In this type of project, no significant sources of leakage are expected; however, the different activities that generate them must be considered.

### **Fugitive Emissions Sector**

- **In the case of GHG-PRR/EF-ECC**

In the baseline scenario and the project scenario, the CO<sub>2</sub> emissions due to the use of oil field associated gas (including gas lifting gas) that is flared or vented must be considered.

CO<sub>2</sub> emissions due to energy consumption or burning of fossil fuels must also be considered.

- **In the case of GHG-PRR/EF-EEv:**

In the baseline scenario, CO<sub>2</sub> emissions due to the use of fossil fuels and natural gas must be considered. For GHG sources in the recovery of production gas for the purpose of use, CO<sub>2</sub> and CH<sub>4</sub> emissions due to gas flaring and CH<sub>4</sub> emissions from venting and fossil fuel use must be considered. For GHG sources for

physical leakage reduction, CH<sub>4</sub> emissions from physical leakage of systems, equipment and components should be considered.

For GHG sources in the teach-fire efficiency, CH<sub>4</sub> emissions from incomplete burning of existing methane fractions should be considered.

In the project scenario, CO<sub>2</sub> emissions from fossil fuel use and electricity consumption must be considered, as well as CH<sub>4</sub> emissions from gas production. For GHG sources in the recovery of production gas for use, CO<sub>2</sub> emissions must be considered in the recovery, pre-treatment, transportation when applicable, or by compression or decompression of the recovered gas for later use when applicable. For sources of GHG in the reduction of physical leaks, GHG emissions are not considered. For GHG sources in tidal flaring efficiency, CH<sub>4</sub> emissions from incomplete burning of existing methane fractions should be considered.

No significant sources of leakage are expected in this type of project; however, the different activities that generate them should be considered, especially those derived from physical leakage.

- **In the case of GHG-PRR/EF-DE:**

In the baseline scenario, the sources of GHGs in the recovery of production gas for use, CO<sub>2</sub> and CH<sub>4</sub> emissions due to the burning of gas in the plant and CH<sub>4</sub> emissions from venting and the use of fossil fuels must be considered. GHG sources for physical leakage reduction, CH<sub>4</sub> emissions from physical leakage of systems, equipment and components should also be considered. For GHG sources in tidal burn efficiency, CH<sub>4</sub> emissions from incomplete burning of existing methane fractions should be considered.

In the project scenario, GHG sources must be considered in the recovery of production gas for use, CO<sub>2</sub> emissions in recovery, pre-treatment and transport, when applicable, and by compression or decompression of the recovered gas for subsequent use, when applicable. For GHG sources in the reduction of physical leakage, GHG emissions are not considered, but for GHG sources in the efficiency of flaring in teas, as well as CH<sub>4</sub> emissions from incomplete flaring of existing methane fractions.

In this type of project, no significant sources of leakage are expected; however, the different activities that generate them should be considered, especially those derived from physical leakage.

### **Waste Management Sector**

- **In the case of GHG-PRR/MR-EE**

In the baseline scenario, CO<sub>2</sub> emissions from heat generation and from decomposition of waste on site must be considered. Also the CH<sub>4</sub> emissions from anaerobic lagoons should be considered sludge wells and electricity generation.

In the project scenario, CO<sub>2</sub> emissions from fossil fuel use and electricity use must be considered, as well as CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O emissions generated in waste treatment processes and CH<sub>4</sub> emissions from wastewater treatment.

CH<sub>4</sub> emissions associated with composting and co-composting, anaerobic digestion and the use of Refuse Derived Fuel (RDF) and stabilized biomass (SB) should be considered as leakage.

- **In the case of GHG-PRR/MR-EEv:**

In the baseline scenario, CO<sub>2</sub> emissions from energy generation (electricity or heat) and from sludge transport, as well as CH<sub>4</sub> emissions from waste decomposition in the landfill and from wastewater and sludge treatment must be considered.

In the project scenario, CO<sub>2</sub> emissions from electricity consumption and fossil fuel use and those due to transport must be considered, as well as CH<sub>4</sub> emissions from residual water treatment and mud, also from landfill waste decomposition and CH<sub>4</sub> and N<sub>2</sub>O emissions from landfill aeration.

No significant sources of leakage are expected in this type of project. However, the different activities that could generate them should be considered.

- **In the case of GHG-PRR/MR-DE**

In the baseline scenario CO<sub>2</sub> emissions from electricity consumption or generation and from heat generation, CH<sub>4</sub> emissions from waste decomposition and from manure treatment processes, as well as CO<sub>2</sub> and CH<sub>4</sub> emissions from the use of natural gas and CH<sub>4</sub> and N<sub>2</sub>O emissions from waste treatment processes must be considered.

In the project scenario, CO<sub>2</sub> emissions from the use of fossil fuels to generate electricity or heat or used in transport, as well as from electricity consumption, CH<sub>4</sub> emissions from burning, CO<sub>2</sub> and CH<sub>4</sub> emissions from the distribution of landfill gas, N<sub>2</sub>O and CH<sub>4</sub> emissions from waste and manure treatment processes, from sludge composting and from manure storage tanks must be considered.

In this type of project, no significant sources of leakage are expected; however, consideration must be given to the various activities that generate CH<sub>4</sub> emissions from the application of treated manure to land, as well as those related to anaerobic digestion in a digester, in addition to CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O emissions from the application of treated waste to land and from the transport of treated sludge or effluent.

## Forestry Sector

- **In the case of GHG-PRR/AR**

The CH<sub>4</sub> and N<sub>2</sub>O emissions associated with site preparation that could occur in the baseline scenario should be considered. In the project scenario, no fires are accepted for site preparation. In these projects, CO<sub>2</sub> is not considered as a source of GHG, but is accounted for as a change in carbon stocks.

- **In the case of GHG-PRR/REDD:**

CH<sub>4</sub> emissions associated with site preparation that could occur in the baseline scenario should be considered. In the project scenario, GHG emissions are not considered.

### 10.2.7 Identification of GHG reservoirs

In the case of GHG-PRR/AR and GHG-PRR/REDD, GHG reservoirs are aerial biomass, underground biomass, dead wood, litter and soil organic matter. When estimating the carbon stock in GHG reservoirs, at least the above-ground biomass and the underground biomass should be considered. The project operator may or may not consider the carbon in biomass present in deadwood, litter and soil carbon.

For GHG-PRR other than /AR, this section does not apply.

### 10.2.8 Selection of FRs to monitor or estimate GHG emissions and removals

The GHG-PRR holder will select and apply the criteria and procedures for estimating or monitoring the selected FR using appropriate and reliable data. The GHG-PRR holder shall provide the justification for not

selecting, in the regular monitoring, any GHG FR identified in the baseline scenario, according to the criteria of the selected methodology.

### 10.2.9 Quantification of GHG emissions, removals or reductions in the baseline scenario

The GHG PRR holder shall establish the criteria and procedures and methodologies to quantify emissions, removals or reductions for the selected FRs, quantifying them separately:

- (a) Each relevant FR in the baseline, converting the quantity of each GHG type to tCO<sub>2</sub>e.

The GHG-PRR operator shall select and apply criteria and procedures to assess the risk of a reversal of a GHG removal, in accordance with the selected methodology

If applicable, according to the selected methodology, the GHG-PRR operator shall select or develop GHG emission or removal factors that:

- 1) Are derived from a recognized source
- 2) Are appropriate for the FR in question,
- 3) Are suitable for the time of quantification,
- 4) Generate accurate and reproducible results from the quantification of uncertainty,
- 5) are consistent with the intended use of the GHG report.

### 10.2.10 Quantification of GHG emissions, removals or reductions in the project scenario

The GHG-PRR holder shall establish the criteria, procedures and methodologies to quantify GHG emissions, removals or reductions during project implementation and operation. The GHG-PRR holder shall apply the selected or approved criteria and methodologies to quantify them. GHG removals or reductions shall be quantified as the difference between the FR emissions, removals or reductions relevant to the project scenario and those relevant to the baseline scenario. The GHG-PRR operator shall quantify, as appropriate, the emissions, removals or reductions separately for each FR for the project scenario and for the baseline scenario, converting the amount of each type of GHG to tCO<sub>2</sub>e.

### 10.2.11 Monitoring of GHG-PRR

The GHG-PRR holder shall establish a monitoring plan that includes procedures for measuring or estimating, recording, compiling and analyzing data and information relevant to quantifying and reporting GHG emissions, removals, or reductions relevant to the baseline and project scenarios (i.e. a GHG information system using appropriate technologies). The monitoring plan shall include the following, as appropriate

- 1) Purpose of monitoring.
- 2) List of measured and monitored parameters.
- 3) Types of data and information to be reported, including units of measurement.
- 4) Origin of the data.
- 5) Monitoring methodologies (estimation, modelling or measurement), calculation approaches and uncertainty. In case of measurement, establish or include protocols for calibration and maintenance of measurement equipment, as appropriate.
- 6) Frequency of monitoring, considering the needs of the stakeholders.
- 7) Definition of roles and responsibilities, including procedures for authorizing, approving and documenting changes to recorded data.

- 8) Controls including internal evaluation of input, processing and output data and procedures for corrective actions.
- 9) GHG information management systems, including location and retention of stored data and data management including a procedure for data transfer between different forms of systems or documentation.
- 10) Monitoring report structure.

When measuring and monitoring equipment is used, the GHG-PRR holder should ensure and have the evidence to demonstrate that the equipment is used and maintained in a calibrated or verified manner, as appropriate. GHG monitoring criteria and procedures shall be applied in accordance with the monitoring plan.

CERCARBONO has a monitoring report template available on its website, in the Certification section.

### 10.3 Accreditation period

The GHG-PRR holder will choose the start date of the crediting period, as set out in the Terms and Definitions section. The crediting period will be 20 years, or equal to the operational life of the GHG-PRR (if less than 20 years, counted from the time it generates the first removals or emission reductions of GHG). After the initial crediting period, if the limit of the operational life of the GHG-PRR has not yet been reached, the crediting period may be renewed as many times as desired, for periods of 20 years or for a shorter period, until the end of the operational life of the GHG-PRR. The renewal of the crediting period will be done through a new validation statement, which will analyze if the GHG-PRR continues to be additional and if it continues to comply with the requirements of the protocol.

### 10.4 Management of legal requirements

The GHG-PRR holder must list, describe and justify compliance with local, regional and national laws, statutes and regulatory frameworks that apply to the GHG-PRR activity, including applicable environmental requirements and record of specific project actions, where applicable.

### 10.5 Data quality management

The GHG-PRR holder shall establish and implement procedures for the management and quality of data and information, including uncertainty assessment, relevant to project and baseline scenarios, as stipulated in the selected methodology. The GHG-PRR holder should minimize, to the extent possible, uncertainties related to the quantification of GHG removals or reductions.

### 10.6 GHG-PRR Documentation

The holder of the GHG-PRR shall have documentation demonstrating the compliance of the GHG-PRR with this protocol. This documentation should be consistent with the validation, verification and certification processes. The EcoRegistry platform will support all the information coming from the whole project cycle generated by those responsible for each stage of the project.

### 10.7 Consultation of interested parties

Depending on the project activity and the requirements of the GHG-PRR, these public consultations may or may not be carried out. They are carried out especially when the GHG-PRR is developed in an area where a population / local community is established or when its project activity may have an environmental, social or economic impact on a population / local community or society in general. The holder of the GHG-PRR shall prepare and make available to the interested party a report of the GHG-PRR, which shall:

- Identify the interested parties.
- Use a format and develop content consistent with the interested parties, which should include at least:
  - 1) The name of the GHG PRR holder.
  - 2) A brief description of the GHG-PRR, including title, size, location, duration and types of activities.
  - 3) A summary of the PDD, including GHG removals or reductions, expressed as tCO<sub>2</sub>e.
  - 4) A statement or document describing the GHG-PRR has been validated or verified by an VVB, including the type of validation or verification (whether independent or joint) and the level of assurance achieved.
  - 5) Describe the deviations from the selected methodology, if applicable, and justification of why such deviations are made.
  - 6) A list of all relevant FRs (including criteria for their selection and quantification).
  - 7) A statement of the aggregate GHG emissions, removals or reductions by FRs for both the baseline and project scenarios, for a given time period, expressed in tCO<sub>2</sub>e.
  - 8) A description of the baseline scenario and a demonstration that GHG emissions, removals or reductions are not overestimated.
  - 9) A general description of the criteria, procedures or good practice guidance used as a basis for the calculation of removals, or reductions, of GHGs from the project.
  - 10) The date of the report and the time period it covers.
  - 11) As appropriate, a permanency assessment.
  - 12) Evidence of the appointment of the legally authorized representative on behalf of the GHG-PRR holder, if different from the holder.
  - 13) If applicable, the GHG program for which the GHG-PRR is subscribed to.

This document should be presented or discussed under a meeting between proponents or holders of the GHG-PRR and identified stakeholders in or near the Project area. This meeting may result in common agreements or in defining the means by which the stakeholders can contribute. Subsequently, the results achieved by the public consultation and the monitoring of its compliance will be recorded. This document is to be presented before or after the validation or verification processes.

When required or requested, this document will be made available to the public by CERCARBONO, on its website, for a period of 15 solar days and the comments received will be made available to the GHG-PRR holder, who shall update the PDD, taking into account the comments received during the public comment period.

## 10.8 Co-benefits

It is desirable that the holder of the GHG-PRR promotes activities aimed at improving the quality of life of local populations affected by the project, through the adoption of good practices and including the protection of traditional knowledge and improving the use of natural resources. In no case shall it be accepted that the GHG-PRR deteriorate the quality of life of the local populations affected.

These actions may include the following:

- a) Generation of income and employment.
- b) Strengthening the capacity of communities through training activities.
- c) Protection of traditional knowledge of communities.
- d) GHG mitigation actions linked to programs that promote the sustainable use of natural resources and foster the quality of life of the communities.

## 11. PRELIMINARY AND SUBSEQUENT ACTIONS TO THE VALIDATION / VERIFICATION PROCESS

### 11.1 Actions prior to the validation / verification process

Before starting the validation / verification process, the authorized VVB will select a team or person with the necessary skills and competencies to carry out these processes. They shall have a sufficient understanding of the GHG-related project activity and relevant information from the GHG-PRR sector to plan and carry out the validation / verification, in order to identify the types of potential material errors, their probability of occurrence and to select the procedures for collecting evidence or proof (from analytical or estimation tests; evaluations, calculations, sampling, consultations or other evidence or proof they consider relevant for their assessment and conclusions.

Also, prior to the validation / verification process, the persons responsible for it (validator / verifier) will be defined with the client:

- 1) The term of commitment where the type and level of commitment of each process is established or if it is the case of the joint validation and verification processes (carried out at the same time), as well as the level of reasonable assurance of the statement(s) issued, thus establishing the form and moment of collection of evidence or proof.
- 2) The objectives of the validation / verification which establish the accuracy of the declaration(s) and its/their compliance with the requirements of the validation and verification processes of the protocol.
- 3) Whether they correspond to validation or verification processes carried out for the first time or to updates. Normally a validation process covers the entire period of accreditation of a GHG-PRR. Validation processes after the first time will be carried out in order to update the project activities contemplated, either by adding new instances in both the baseline and project scenarios, as happens in grouped projects or by changes due to external factors (such as environmental disasters, market, policies, among others). The verification processes after the first time, will be carried out as many times as established in the monitoring plan, according to the accreditation period of the GHG-PRR or when the holder of the same considers it. In both processes, documentation of the previous validation or verification process shall be taken into account, as applicable.
- 4) The evaluation criteria taking into account the requirements of the GHG-PRR. The verifier / validator will evaluate them in consideration:
  - The method for determining the scope and limits of the commitment.
  - GHGs and FRs to be accounted for.
  - The methods of quantification.
  - Disclosure requirements.
- 5) The scope of the declaration and spatial boundaries (of facilities, physical infrastructure, activities, technologies and processes), temporal boundaries (time period), the types of FR and GHG leakage.
- 6) The material discrepancy thresholds required by the parties concerned, which could be quantitative (includes misreporting, incomplete inventories, misclassified GHG emissions or misapplication of calculations) or qualitative (control problems that decrease the validator's / verifier's confidence in the reported data, mismanaged documented information; difficulty in locating the requested information; non-compliance with regulations indirectly related to GHG emissions, removals).
- 7) The action of definition of the property of the GHG-PRR, with the corresponding supports.
- 8) Conduct a conflict of interest check or review by the VVB.
- 9) Reviewing compliance with proposed co-benefits and legal authorization of the project, when applicable.

## 11.2 VVB applications

The VVB will, as soon as possible, communicate to the holder of the GHG-PRR requests for clarification, erroneous statements or non-conformities, as well as communicate intentional errors or non-compliance with laws or regulations.

If the holder does not respond adequately within a maximum period of six months, the VVB will issue a negative verification/validation opinion supporting its withdrawal from the process.

Similarly, if the VVB determines that there is insufficient information to support the validation / verification statement, it will request additional information. If such information is not corrected, it will not continue with the verification / validation process.

## 11.3 List of information from the VVB

The validator / verifier shall keep the following records:

- 1) Terms of engagement.
- 2) Validation / Verification.
- 3) Evidence collection plan.
- 4) Collection of evidence or proof.
- 5) Requests for clarification, misrepresentations and non-conformities arising from verification / validation and the conclusions reached.
- 6) Communication with the client about important misrepresentations.
- 7) Supports of records or documentation collected during audits or field visits.
- 8) The conclusions reached and the opinions of the validator / verifier.

The documentation of the GHG-PRR validation and verification process will be based on EcoRegistry, since the validator or verifier has a user account. This information will remain available for at least 10 years.

## 11.4 Facts discovered after the validation / verification

The verifier or validator shall obtain sufficient appropriate evidence and identify relevant information up to the date of the verification or validation opinion. If facts or new information are discovered that could materially affect the verification or validation opinion after this date, the verifier or validator shall take appropriate action, including communicating the matter as soon as possible to the GHG PRR holder. The verifier or validator may also communicate to other interested parties the fact that the confidence in the original opinion may now be compromised given the facts discovered or new information.

## 12. VALIDATION PROCESS REQUIREMENTS

### 12.1 Validation plan

The validator shall develop a validation plan that addresses the previous actions contemplated in section 11.

The validator shall communicate the validation plan and notify the GHG-PRR holder of the field visits.

If the evidence collected indicates a material error or identifies any non-compliance with the criteria, the validator should modify the validation plan and the evidence collection plan as necessary.

### 12.2 Collection plan of evidence or proof

The validator will design a plan of activities for the collection of sufficient and appropriate evidence for each GHG-PRR activity to support its conclusion. Except in cases where the validator chooses to examine all evidence.

The validator shall use a risk-based process to identify the evidence that will be collected from each GHG-related activity. The validator shall use any validation activity or technique to design the evidence collection plan, including field visits.

The validator will perform the validation in accordance with the validation plan and the evidence collection plan related to the GHG-related activities of the GHG-PRR:

#### 12.2.1 Acknowledgement

The validator will determine whether the GHG-PRR activity is recognized by the stakeholders, if any, and appropriate for them. It will assess whether there are any geographical or time constraints specified by the stakeholders and whether they comply with the project activity. It will also assess whether the project activity is real, measurable, verifiable and permanent by reviewing and evaluating the calculations used.

#### 12.2.2 Ownership

The validator shall assess whether the operator has or is entitled to claim GHG removals or reductions expressed in the validation statement.

It will also review the ownership or right of ownership of the area or lands covered by the GHG-PRR that demonstrate the right of use during the duration of the GHG-PRR.

#### 12.2.3 Limits of the GHG-PRR

The validator will assess whether the limits set by the GHG-PRR holder are appropriate. To this end, it shall evaluate the scope of the validation process, ensuring that it includes all spatial<sup>3</sup> and temporal<sup>4</sup> limits as well as all GHG FRs.

#### 12.2.4 Baseline scenario selection

The VVB will assess whether the baseline is the most appropriate, plausible and complete hypothetical scenario. To do this, it must:

<sup>3</sup>Specified by geodetic coordinates or polygons to delimit the geographical area(s) covered by the GHG-PRR.

<sup>4</sup>Refers to the duration of the GHG-PRR.

- 1) Establish whether the determined baseline is recognized by the interested parties, where applicable.
- 2) Assess whether the baseline is established using a credible, documented and repeatable process.
- 3) Assess whether the baseline is appropriate for the proposed project activity, in the period to which it is referred to.
- 4) Assess the selection of the baseline, including how the conservative principle, uncertainty, common practice and operating environment affect its selection.
- 5) Assess the designed operating conditions and activity levels associated with the GHG quantification methodology used in the GHG-PRR to determine how accurate, complete and conservative estimates will be produced.

In a GHG-PRR, the baseline scenario should be updated after the end of the crediting period, when re-validation is required, or in the case of clustered projects.

### 12.2.5 Quantification and monitoring methodologies

The validator will assess whether the selected quantification methodologies and associated measurements or monitoring are appropriate. In order to do so, he or she shall assess whether they are accurate, reliable and conservative, and whether they have been properly applied. Consideration should be given when ranges and operating conditions or assumptions for disclosure and material error purposes have not been met.

Quantification, measurement and monitoring methodologies include calculations, models, mass balance and their associated direct and indirect measurements, among others.

The validator will also review the estimated values contemplated in the GHG quantification, so that they meet the criteria and future projections. In doing so, it shall take into account the methodology used, the applicability of the assumptions and the quality of the data used in the estimation. The validator may make comparisons with own estimates to evaluate submitted estimates.

If any non-compliance is presented, the validator shall request evidence that proves the effectiveness and the way in which the parameters used in the quantification, measurement and monitoring methodology and in the estimated or calculated values were carried out.

### 12.2.6 Leakage

Depending on what is indicated in this respect by the selected methodology and where applicable, the validator will evaluate that the activity of the GHG-PRR has adequately addressed the management of the leaks that may result from it.

## 12.3 Information and data control system

The validator shall assess the GHG information management system and procedures of the GHG-PRR activity to determine whether they can be relied upon during validation. In order to do so, it shall:

- 1) Identify all measured and monitored data and assess whether it corresponds to the calculations, including measured and monitored data for the GHG-PRR activity.
- 2) Identify and confirm the acceptability of all additional information used in the results of GHG calculations, including, inter alia, emission factors, conversions and global warming potentials.
- 3) Assess whether there is a planned, sufficient and appropriate record control to connect the measurements to the report.
- 4) Identify key points in the data management process that are at high risk of misreporting and evaluate customer data controls at the key risk points.
- 5) Identify the responsibilities for the GHG data and information management system and assess whether segregation of duties has occurred and whether the levels of responsibility are adequate.

- 6) Assess the appropriateness of data collection and monitoring and operating frequencies.
- 7) Assess whether the data backup and recovery systems are sufficiently robust.
- 8) Assess whether the content of the PDD and for whom it is distributed is appropriate.
- 9) Assess whether the data control and information management system is transparent and complies with the customer's requirements.

As mentioned above, the documentation evaluated by the VVB will be held in EcoRegistry, as the GHG-PRR holder has a user account (either as the holder of the initiative or as the project developer).

## 12.4 GHG-PRR calculations

The validator shall confirm the calculations used in the GHG-PRR, reviewing:

- 1) The correct application of the calculations (e.g. emission factors, default values, etc.).
- 2) The correct application of the conversion of units of measurement and global warming potentials.
- 3) That the calculations have been made in accordance with the selected methodology.

To confirm the GHG removal or reduction proposed by the project activity, the validator will evaluate and compare the baseline scenario and the proposed project scenario, including the consistency of assumptions and limits over the duration of the GHG PRR.

## 12.5 Future estimates

If appropriate, the validator will evaluate the future estimates associated with the GHG-PRR, so that it can assess the proposed approach and assumptions inherent in the projection, the applicability of the projection scope to the proposed GHG-PRR activity, and the sources of data and information used in the projection, including their suitability, completeness, accuracy and reliability.

## 12.6 Uncertainty

The validator shall assess whether the uncertainty associated with the GHG-PRR affects the disclosure or the ability of the validator to reach a conclusion. For this purpose he shall:

- 1) Identify uncertainties that are larger than expected.
- 2) Assess the effect of the uncertainties identified in the GHG-PRR.
- 3) Determine the appropriate course of action for a given uncertainty.

In addition, the validator must identify assumptions with high potential for change and assess whether these changes result in a material error or discrepancy for the GHG-PRR.

## 12.7 Evaluation of the GHG-PRR

The validator will use the evidence gathered to evaluate the GHG-PRR presented by the GHG-PRR holder against the validation criteria set out here. It will also assess individually and jointly whether uncorrected misstatements are relevant to the GHG-PRR, as well as compliance with the requirements, and finally reassess the recognition.

## 12.8 Validation opinion

The validator should write a validation opinion based on the evidence gathered during the validation process. The opinion that the validator will generate can be of three types:

- a) Positive opinion: ensuring there is sufficient and appropriate evidence to support estimates of GHG emissions, removals or reductions in accordance with the requirements of the validation process.
- b) Modified opinion: ensuring that identified errors have been corrected to estimate GHG emissions, removals or reductions according to the validation process.
- c) Negative opinion: where it is concluded that there is insufficient or appropriate evidence to support a positive or modified opinion or where the estimate of GHG emissions, removals or reductions is not adequately applied and is not consistent with the validation process.

The validation statement may be issued only when the validator has generated a positive or modified opinion.

### 12.9 Proper dissemination of the GHG-PRR

The validator will evaluate the GHG-PRR for adequate disclosure and ensure that material disclosures occur. In order to do so, it must evaluate whether the disclosure:

- a) It is accurate and complete.
- b) It is a fair reflection of the GHG-related activity.
- c) Contains unintended biases.
- d) Addresses the requirements and needs of stakeholders

### 12.10 Validation Report

The validator shall draw up a validation report which shall include at least

- 1) An appropriate title.
- 2) A recipient.
- 3) The ownership and location of the project.
- 4) A statement of responsibility stating that the client is responsible for the preparation and submission of the PDD of the GHG-PRR in accordance with the requirements of the validation process.
- 5) The scope of the validation.
- 6) A statement that the validator is responsible for expressing an opinion on the GHG-PRR based on validation.
- 7) A description of the procedures for collecting evidence or validation evidence used to assess the PDD.
- 8) The validation opinion.
- 9) The description of the baseline.
- 10) Projected emission reductions.
- 11) The date and place of the field visit.
- 12) The date of the report.
- 13) The location and signature of the validator.

### 12.11 Validation declaration

The documentation generated by the validator will rest in EcoRegistry, since it has a user account on this platform. This should include the validation report, the validation statement and any other information you consider important.

## 13. VERIFICATION PROCESS REQUIREMENTS

### 13.1 Verification plan

The verifier shall develop a verification plan addressing the previous actions referred to in point 11.1 and shall also evaluate or analyze them:

- 1) The accuracy and completeness of the PDD.
- 2) The sources of GHG emissions and their contribution to the PDD.
- 3) Changes in GHG emissions, removals and carbon stocks in carbon pools GHG in a given period of time.
- 4) The implementation of the methods of quantification and the reporting of any changes.
- 5) The sources of GHG information.
- 6) The information and data control system.
- 7) The supervision of the management of the GHG-PRR holder's reporting data and supporting processes.
- 8) The availability of evidence for the project owner's information and PDD.
- 9) The results of previous verifications, if applicable.
- 10) The results of the sensitivity or uncertainty analysis.
- 11) The type of GHG.
- 12) The requirements of the monitoring plan.
- 13) The applied monitoring methodology (i.e. direct GHG measurement or GHG calculation with indirect measurement of activities and calculation data).
- 14) The monitoring report.
- 15) The results of the validation report.
- 16) Other relevant information, if applicable.

### 13.2 Risk assessment

The verifier shall perform a risk assessment of the PDD to identify a misstatement or non-compliance with the criteria. The risk assessment shall consider the results of the assessment to the material discrepancy.

The risk assessment may consider:

- 1) The probability of intentional error in the PDD.
- 2) The effect of emission sources on the PDD.
- 3) The probability of omission of a potentially significant emission source.
- 4) Presence of significant or unusual leaks not covered.
- 5) The nature of the specific operations of an organization, facility or project.
- 6) The degree of complexity in determining the organizational or project boundary.
- 7) Any changes from previous periods.
- 8) The likelihood of non-compliance with applicable laws and regulations that may have a direct effect on the content of the PDD.
- 9) Any significant economic or regulatory changes that may affect emissions and their notification.
- 10) The selection, quality and sources of GHG data.
- 11) The level of detail of the available documentation.
- 12) The nature and complexity of methods of quantification.
- 13) Subjectivity in the quantification of emissions.
- 14) Any significant estimates and the data on which they are based.
- 15) The characteristics of the information system and data controls.
- 16) Any controls used to monitor and report GHG data.

17) The experience, skills and training of staff.

Sources of information for risk assessment can be obtained by conducting site visits to the area or site, or you can conduct high-level analysis procedures to determine other areas of risk that may be included:

- a) Assessment of changes in GHG emissions.
- b) Evaluation of changes in GHG emissions, removals and storage over time.
- c) Evaluation of expected GHG emissions, removals and storage compared to reported emissions.

### 13.2.1 Risk Types

Inherent control and detection risks should be identified and assessed for the verification statement. Risks to be identified:

- a) For emissions and removals: occurrence, completeness, accuracy, range of calculation dates and classification
- b) For storage: existence, rights and obligations, completeness, accuracy and allocation.

### 13.3 Collection plan of evidence or proof

The verifier shall design a plan of activities for the collection of sufficient and appropriate evidence and proof of each GHG-related activity to support its conclusion. Except in cases where the verifier chooses to examine all evidence.

The verifier should use a risk-based process to identify the evidence to be collected for each GHG activity. The verifier should design and perform procedures and test analyses for each type of GHG emission, removal or reduction.

The verifier should develop evidence gathering activities that determine whether the PDD is in line with the requirements of the verification process.

The verifier shall perform the verification in accordance with the verification plan and the evidence collection plan.

If the project operator has made any changes to the PDD as a result of requests for clarification, misrepresentations and non-conformities, the verifier will assess these changes.

The verifier will design a plan with which to collect evidence or proof related to the activities of the GHG-PRR around

#### 13.3.1 Data logging

The verifier shall collect and assess the existence of records of GHG removals or reductions.

#### 13.3.2 GHG data and aggregate information

The verifier will collect evidence of the data aggregation process, including the agreement of the GHG-PRR with the records made during the preparation of the PDD.

## 13.4 Implementation of verification activities and techniques

### 13.4.1 Analysis tests

If performing analytical tests, the verifier should consider the ability of the test to reduce or mitigate the identified risk; the reliability of the data to be analyzed; and the likelihood that the test will identify misrepresentations.

If analytical tests identify fluctuations or relationships that are inconsistent with other relevant information or differ significantly from expectations, the verifier shall investigate such differences by obtaining additional evidence and performing other evidence gathering activities.

### 13.4.2 Control tests

The verifier, in collecting evidence and proof, will test the operational effectiveness of the controls, if:

- Deviations are detected; he shall assess whether the deviations affect the ability to rely on those controls and whether additional testing of the controls is necessary.
- Additional tests of controls are needed and whether other evidence collection should be applied.
- The characteristics of the data allow the use of control tests; the verifier should collect evidence to establish the operational effectiveness of those controls.
- 

### 13.4.3 Estimation tests

The verifier shall assess whether the estimates, if any, meet the criteria and methods for making estimates; including whether they have been applied consistently from previous periods or modified from previous periods, and are appropriate.

If required, the verifier shall assess the appropriateness of the estimation methodology used; the applicability of the assumptions in the estimation; and the quality of the data used in the estimation.

The verifier shall collect evidence or proof of the operational effectiveness of the controls governing the development of the estimate.

The verifier may develop its own estimate or range to evaluate the established estimate.

### 13.4.4 Sampling

If sampling is used, the verifier should consider the purpose of the evidence collection and the characteristics of the population from which the sample will be drawn.

### 13.4.5 Project site or area visits

#### 13.4.5.1 Site/area and facility selection

Field audits or visits to the site, area or facilities should be planned to collect the information necessary to reduce verification risks. These audits are conducted to evaluate, measure and corroborate in situ all aspects referenced in the GHG PRR, in their supports, their removal or reduction calculations and other required information. They are normally carried out on site to confirm that the audit was carried out under the parameters required by the VVB and on the date assigned by the latter<sup>5</sup>.

In some cases, these field audits may be carried out remotely by the VVB, using technological equipment or tools or

with the support of local technical or professional personnel (sometimes these personnel are not included), in order to justify or guarantee the accuracy and veracity of the tests or evidence recorded in the field on the assigned day

and under the parameters selected by the VVB. In that sense, CERCARBONO has developed a guideline to support the performance of field audits remotely by VVB, which is available on the CERCARBONO website, certification section.

For field audits, the verifier will identify the need to visit the sites and facilities, including the number and location of individual areas or facilities to be visited, considering:

- a) The results of the risk assessment and the efficiency of evidence collection.
- b) The number and size of sites, areas and facilities associated with the organization or project.
- c) The diversity of activities at each site, area and facility that contribute to the verification.
- d) The nature and magnitude of emissions at different sites, areas and facilities, and their contribution to the verification statement.
- e) The complexity of quantifying the sources of emissions generated at each relevant site, area or facility.
- f) The degree of confidence in the management of the GHG information and data system.
- g) Any risks identified in the risk assessment that indicate the need to visit specific sites.
- h) The results of previous verifications or validations, if any.

#### 13.4.5.2 Circumstances requiring a site visit

The verifier should make a site or installation visit in any of the following circumstances:

- a) An initial verification.
- b) A subsequent verification, for which the verifier has no direct knowledge of the activities and results of the previous verification
- c) A verification where there has been a change of ownership of a site, area or facility and where the GHG emissions, removals and storage from the site, area or facility serve as the verification statement.
- d) When misstatements are identified during verification, which indicate the need for visit a site, area or facility.
- e) There are unexplained changes in emissions, removals and storage since the declaration verified GHG preview.
- f) The addition of a GHG site, area or facility required for the verification statement.
- g) Changes to the scope or limit of the reports.
- h) Significant changes in data management involving the specific site, area or facility.

The verifier may determine that the above specified circumstances do not require a site/area/facility visit based on the results of the risk assessment and evidence collection plan and considering the results of any previous verification of the same site/area/facility. If a verifier determines that a site, area or facility visit is not necessary, the verifier should justify and document the rationale for the decision.

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<sup>5</sup>In joint validation or verification processes, the field audit can be carried out in parallel, making sure that it covers the requirements of both processes.

### 13.4.5.3 Activities to be performed during site, area or facility visits

The verifier should collect evidence or proof at the site, area, or facility to evaluate, as determined by the risk assessment:

- 1) Operations and activities relevant to FRs.
- 2) Information systems and data control.
- 3) Physical infrastructure.
- 4) Equipment, such as measuring devices and instruments, to establish traceability of applicable calibration and monitoring information.
- 5) Types of equipment, assumptions and supporting calculations (e.g. verifying that the information the manufacturer uses as a basis for emission calculations matches the installed equipment).
- 6) Processes and material flows affecting emissions.
- 7) Scope and limits.
- 8) Compliance with operational and data collection procedures.
- 9) Sampling equipment and sampling methodologies.
- 10) Monitoring practices against requirements set by the responsible party or specified in the requirements.
- 11) Calculations and assumptions made to determine GHG data, emissions and, as appropriate, removals or reductions of GHG.
  
- 12) The quality control and assurance procedures in place to prevent or identify and correct any errors or omissions in reported monitoring parameters.

### 13.5 Evaluation of the property

The verifier shall assess whether the holder of the GHG-PRR is entitled to claim removals or reductions expressed in the verification statement.

### 13.6 Information and data control system

The evaluation of the information and data control system will depend on the results of the risk assessment.

Evidence gathering activities to evaluate the design and effectiveness of the information and data control system should be considered:

- 1) The selection and management of GHG data and information.
- 2) The processes for collecting, processing, consolidating and reporting GHG data and information.
- 3) The systems and processes that ensure the validity and accuracy of the GHG data and information.
- 4) The design and maintenance of the GHG information system.
- 5) Systems, processes and personnel supporting the GHG information system, including activities to ensure data quality.
- 6) The results of maintenance and calibration of equipment and instruments.
- 7) The results of the previous verifications.

As mentioned above, the documentation evaluated by the VVB will be stored in EcoRegistry, as the GHG-PRR holder has a user account on this platform, thus guaranteeing its availability.

### 13.7 Evaluation of the GHG-PRR status

The verifier shall assess any changes in risks and material discrepancy thresholds that may have occurred in the course of the verification. The verifier shall assess whether the high level analytical procedures applied are still representative and appropriate.

The verifier shall determine whether the evidence and proof collected is sufficient and appropriate to generate a conclusion. If the verifier considers that the evidence is insufficient, he may undertake additional activities to collect evidence. The verifier will also check that there are no errors or material discrepancies.

### 13.8 Assessment of compliance to requirements

The verifier will assess any non-compliance with the requirements of the verification process. To assess compliance, the verifier shall consider the following:

- 1) The scope of the project implementation, including area(s), technology installation and measurement equipment.
- 2) The operation of the project.
- 3) The monitoring plan and methodology, including the requirements in the criteria.
- 4) Changes to the monitoring plan, installed equipment or baseline.
- 5) Conservative judgments that have a material effect on the verification statement.
- 6) The results of any validation.
- 7) Evaluation of changes from previous periods.

The verifier shall determine whether changes from previous periods that make the periods unmatched have been appropriately disclosed.

### 13.9 Verification opinion

The verifier should reach a conclusion based on the evidence gathered and write a verification opinion. The verifier shall issue one:

- a) Positive opinion: ensuring that sufficient and appropriate evidence exists to support the quantification of GHG emissions, removals or reductions and that these meet the verification requirements; and where the effectiveness of controls has been assessed and the verifier has confidence in those controls.
- b) Modified opinion: ensuring that errors identified to support GHG emissions, removals or reductions have been corrected and are consistent with the requirements of the verification process.
- c) Negative opinion: concludes that there is insufficient or appropriate evidence to support a positive or modified opinion, or where quantification of GHG emissions, removals or reductions is not adequately applied and is not consistent with the verification process.

The verification statement may be issued only when the verifier has generated a positive or modified opinion.

### 13.10 Verification report

The verifier shall draw up a verification report which shall include at least

- 1) An appropriate title.
- 2) A recipient.
- 3) A statement of responsibility, stating that the client is responsible for the preparation and presentation of the PDD of the GHG-PRR in accordance with the requirements.
- 4) The scope and period of verification.
- 5) A statement that the verifier is responsible for expressing an opinion on the GHG-PRR based on verification.
- 6) A description of the evidence collection procedures or verification evidence used to assess the GHG-PRR.
- 7) The verification opinion.
- 8) The reference to verification requirements.
- 9) A summary of the verification statement.
- 10) The date of the report.
- 11) The date and place of the field visit.
- 12) The location and signature of the verifier.

### 13.11 Verified statement

Document issued by the VVB, which refers to the verification report and contains a unilateral representation that it has verified compliance of the GHG-PRR with the requirements of the verification process and has issued a positive or modified opinion. In this statement, the VVB must have verified the annual disaggregation of GHG removals or reductions achieved by the GHG-PRR, such disaggregation may have been done in a linear manner using the principle of conservatism or by modeling annual growth rates of species, especially for GHG-PRR /AR.

The documentation generated by the verifier will rest in EcoRegistry, as it has a user account on this platform. This should include the verification report, the audit report or findings report, the verification statement and any other information you consider important.

## 14. AUTHORIZED VALIDATING/VERIFYING BODIES OR ENTITIES

The Validation and Verification Bodies (VBOs) authorized by CERCARBONO must be accredited by the National Accreditation Body ( ONAC ) or by an accreditation body member signatory of the International Accreditation Forum ( IAF ), which has in its offer of services the accreditation program of GHG emissions Validation or Verification Body under the requirements of ISO 14065. Bodies accredited by the CDM Executive Board as a Designated Operational Entity (DOE) are authorized to operate until December 31, 2020.

The following are the VVBs authorized by CERCARBONO in the sectoral scopes governing this protocol:

- **The Colombian Institute of Technical Standards and Certification (ICONTEC):** Colombian entity that is accredited by the United Nations Framework Convention on Climate Change (UNFCCC) to validate project proposals, as well as to verify the removals of GHG emissions generated by such projects. Website: <https://www.icontec.org>.
- **The Spanish Association for Normalization and Certification (AENOR):** entity in charge of creating technical standards (normalization in Spain), compliance assessment tasks (certification) and participating in normalization at an international level (EN and ISO standards). It is a certification and verification body for mitigation projects. Website: <https://www.aenor.com>.
- **Ruby Canyon Engineering Inc.** recognized by the American National Standards Institute (ANSI) and by the Mexican Accreditation Entity, both entities with recognition from the IAF, as a validating and verifying body accredited under the ISO 14065 to certify GHG emissions declarations from mitigation projects and inventories of organizational GHGs. Website: [www.rubycanyoneng.com](http://www.rubycanyoneng.com).
- **TÜV NORD CERT (Technischer Überwachungsverein):** German company for the certification of systems, products and persons. It evaluates and certifies compliance with legal requirements and voluntary standards. Website: <https://www.tuv-nord.com/>
- **EPSL:** Entity specialized in the energy, environment and climate change and sustainable development sectors. Accredited as a DOE under the CDM, it supports the generation of carbon credits from different global carbon market programs or standards. Website: <https://www.earthood.in>.
- **Deutsche Certification Body:** Responsible entity to accredit conformity assessment bodies. Provides audit and certification to the quality, environment, occupational health and food safety management system
- **Other VVBs subsequently authorized by CERCARBONO.** These entities will be listed on the CERCARBONO website.

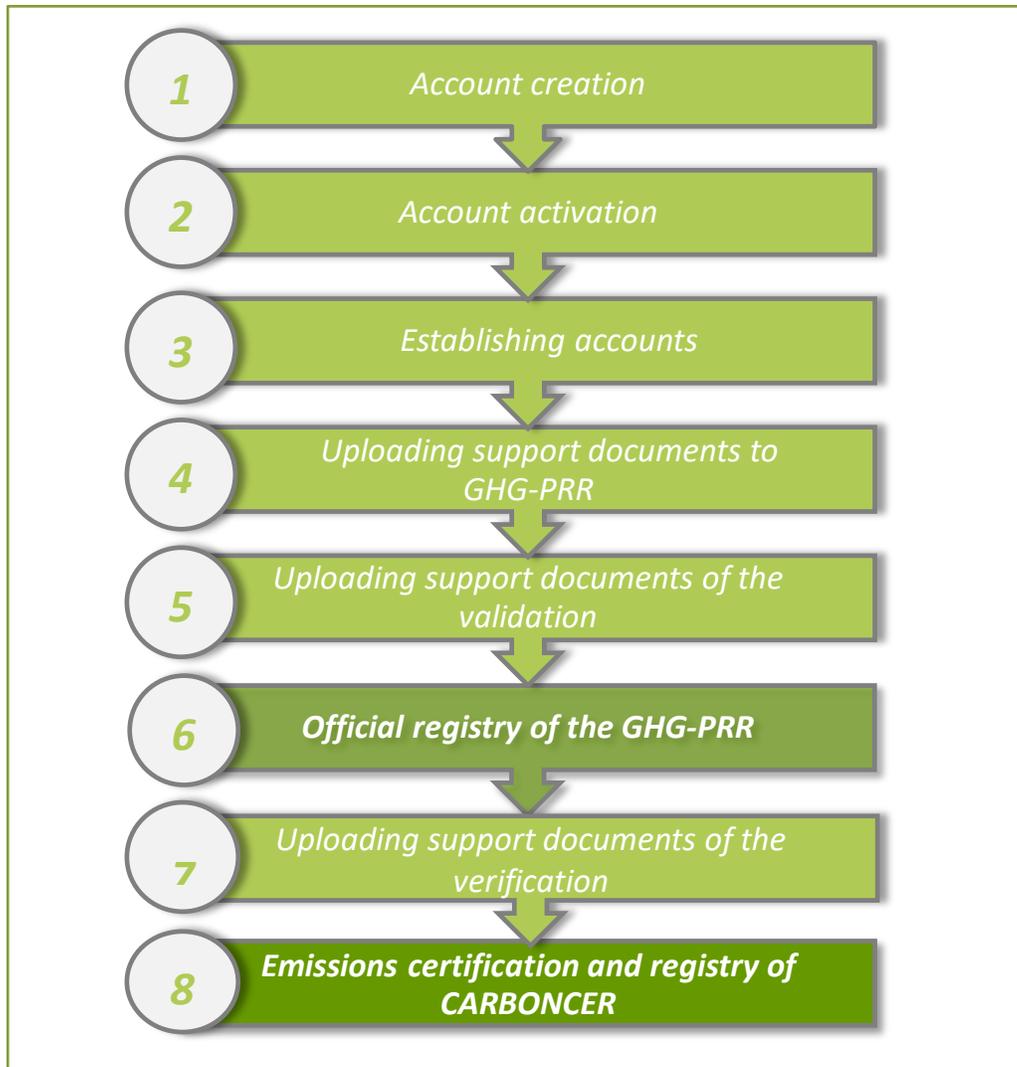
VVBs are required to issue either a validation statement supporting the baseline and scenario of the GHG-PRR or a verification statement indicating that the GHG emission removals or reductions that were generated conform to the methodology defined in ISO 14064-2 and the results obtained in the verification conducted under ISO 14064-3 or those that adjust and update them.

CERCARBONO shall review any conflict of interest that arises with respect to a VVB. If any conflict exists, it will assign to a committee the study of the case and according to the review and analysis to such conflict the exercise of the VVB will be allowed or not under CERCARBONO's voluntary carbon certification program.

## 15. CERTIFICATION PROCESS REQUIREMENTS

In order to support both the registration of the GHG-PRR, the certification of emissions and the registration of the "CARBONCER" generated by the GHG-PR, CERCARBONO has established the following stages to carry out the process of voluntary carbon certification, which integrates the processes of validation / verification and details the certification process. This ensures compliance with the GHG-PRR in each of the phases of the project cycle set out in Section 10.

As shown in Figure 2, the entire voluntary carbon certification process of CERCARBONO consists of eight stages that are detailed as follows.



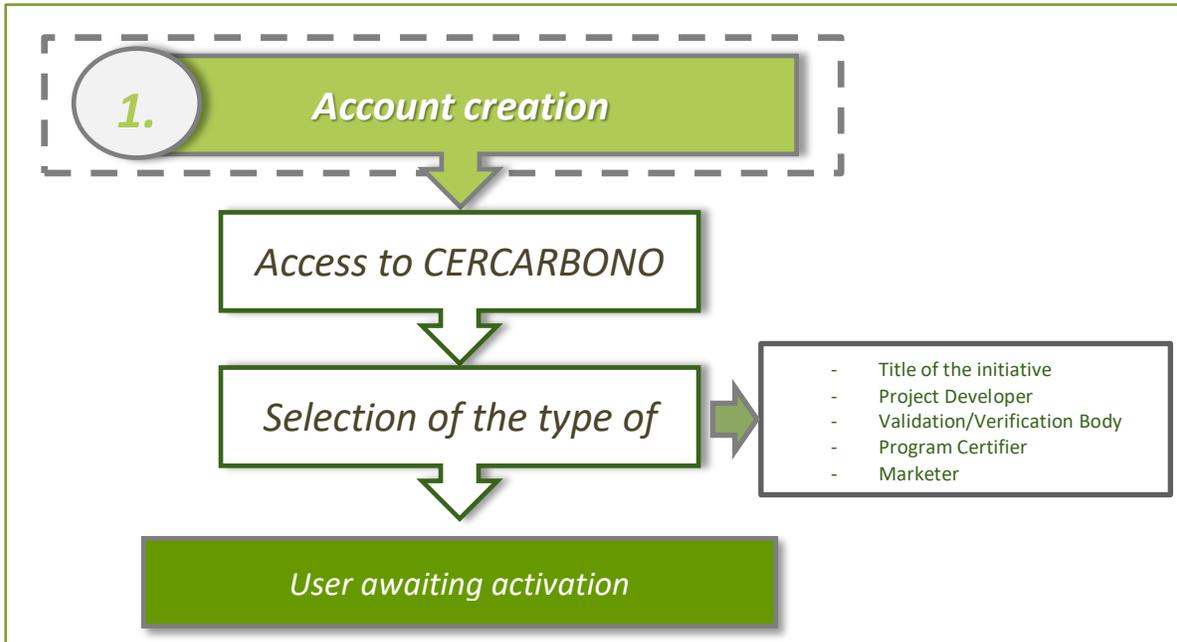
**Figure 2.** Stages of the voluntary carbon certification process - CERCARBONO.

In this way, the holder of the GHG-PRR, buyers/sellers of CARBONCER or any other entity that participates in the voluntary carbon market, both at the national and international level, will be able to count on the support of a certification process in accordance with the principles established in this protocol (see Section 9).

### 15.1 Stage 1. Creating an account

To participate in CERCARBONO's voluntary carbon certification program you need to open an account. To do this, you access the CERCARBONO<sup>6</sup> website and in the Certification Section you click on the icon: account creation.

The account can also be created directly on the EcoRegistry website<sup>7</sup>, the CERCARBONO registration platform, which supports all the information that is part of the formulation, validation, verification and certification processes for the registration of the GHG-PRR and the emission, monitoring, transfer and withdrawal of CARBONCER (Figure 3).



**Figure 3. Stage 1:** account creation at CERCARBONO.

There are five types of account users: initiative holder, project developer, validation and verification body, program certifier and marketer, which are established at the time of creating the account. Each of the available user types is described below:

- a) **Owner user of the initiative:** natural or legal person, public or private, owner of the GHG-PRR, responsible for the formulation, implementation, monitoring and registration of the GHG-PRR and the withdrawal of carbon credits from EcoRegistry. This user may act through a proxy or not, and may or may not coincide with the Developer. At the time of accessing the certification program, the holder of the initiative must guarantee that the GHG-PRR is not registered in another similar or equal platform established in Colombia or another country.
- b) **User developer:** natural or legal person that due to its technical or professional capabilities can be empowered by the holder of the initiative, to be in charge of the formulation, implementation, monitoring, registration of the GHG-PRR and in some cases the withdrawal of the carbon credits, as established in the power of attorney. The power of attorney granted by the holder of the initiative to this user will be understood to be

<sup>6</sup> [www.cercarbono.com](http://www.cercarbono.com)

<sup>7</sup> <https://www.ecoregistry.io/>

irrevocable according to the agreed terms, until it is updated or modified on the EcoRegistry platform by mutual agreement between the principal (initiative holder), the proxy (project developer) and EcoRegistry.

- c) **User Validation and verification body:** it corresponds to the VVB entities authorized by CERCARBONO, who carry out the validation and verification processes and are enabled to support the information that supports these processes in the EcoRegistry platform.
- d) **Certifying user of the program:** it corresponds to the personnel of technical experts with whom CERCARBONO has qualified according to its area of expertise, to generate the report and the certification of the emission of carbon credits.
- e) **Trading user:** natural or legal person, public or private, who performs operations of exchange, purchase or sale of carbon credits from GHG-PRR certified by CERCARBONO.

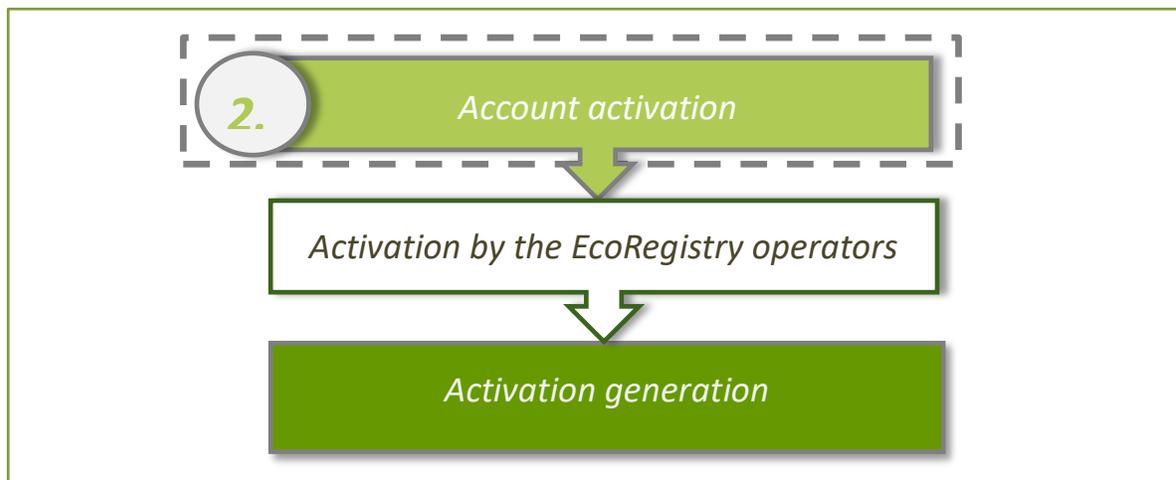
All users will receive information throughout the process of voluntary carbon certification from CLOSE in the email registered when creating the account.

It is important to mention that only users such as the owner of the initiative, the project developer and the marketer can change the type of user directly on the EcoRegistry platform. In addition, the EcoRegistry platform will create new types of users as required.

Also, please note that users accept the terms and conditions stipulated in the EcoRegistry, visible at the time of account creation

## 15.2 Stage 2. Activation of the account

Once the users create the account, the operators of the EcoRegistry platform are in charge of activating the account of all the types of users available, after reviewing the lists of Money Laundering and Financing of Terrorism (LA/FT). Account activation takes between 2 and 5 working days.



**Figure 4. Stage 2:** account activation at CERCARBONO.

Users are responsible for controlling access to created accounts and maintaining the confidentiality of user names, passwords, and account information. EcoRegistry is not responsible for any damage caused by users, including persons without authorization to access the services that they could access because the user names, passwords or accounts were not properly managed by the user. Therefore, users must use all reasonable efforts to prevent unauthorized third parties from accessing the services of the voluntary certification program. This is in accordance with the terms and conditions stipulated on the EcoRegistry platform.

### 15.3 Stage 3. Establishment of contracts

The holder or developer of the GHG-PRR will contact CERCARBONO to access the services of its voluntary certification program, via email: [info@cercarbono.com](mailto:info@cercarbono.com).

In the case of the developer, it must have a document of representation or special power of attorney of the GHG-PRR that accredits it as such. CERCARBONO has a special power of attorney format that is available on the websites of CERCARBONO and EcoRegistry.

It is important to mention that both the holder of the initiative and the developer of the GHG-PRR can initiate or formalize this stage before or after Stage 1 in which an account is created.

#### 15.3.1 CERCARBONO voluntary certification program services

Thanks to CERCARBONO's alliance with EcoRegistry, the voluntary certification program provides the following services:

- a) **GHG-PRR information repository:** it consists of the storage of information from projects under formulation, which have not started the voluntary certification process. This is a service provided by CERCARBONO free of charge.
- b) **Registration of GHG-PRR:** consists of the official disposition of the GHG-PRR in the EcoRegistry platform, after the validation process.
- c) **Deposit of information of the VVB:** it consists of the official disposition of the reports, findings or audits and declarations generated in the validation and verification processes. This is a service provided by CERCARBONO free of charge.
- d) **Certification and registration of carbon credits:** consists of the generation of a certificate that supports the issuance of credits for the removal or reduction of GHGs from a given GHG-PRR and the administration of a unique serial that EcoRegistry performs on those credits. This service is subject to payment.
- e) **Emission, monitoring, transfer and withdrawal of carbon credits:** according to the functionalities of EcoRegistry's platform, the generation of certificates will be enabled once the payment method chosen by the user is fulfilled, according to the terms, times and conditions of the services. This service is subject to payment.
- f) **Publication of updated information of the GHG-PRR:** it consists of the disposition of data coming from the GHG-PRR in the platform of EcoRegistry. A project list is presented that relates them, from where the information of these can be accessed. This supports the emission of carbon credits from the different GHG-PRRs. This is a service provided by CERCARBONO free of charge.

The EcoRegistry platform is designed to have public information of the GHG-PRRs, so that third parties can access the offer of goods or services of the voluntary carbon certification program or to exercise the right to be informed. EcoRegistry is not responsible for the veracity of the information that is provided by a third party, nor is it responsible for the treatment that is made to the information provided by users, since it can be modified or validated by them or by third parties.

The information that will be publicly displayed may be integrated:

- The complete PDD or its summary sheet when requested by the owner of the initiative or the developer of the project.
- The validation report.
- The findings or audit of the validator.

- The validation statement.
- The monitoring report.
- The verification report.
- The verifier's findings or audit.
- The verification statement.
- The certification report.
- The certificate of emission of carbon credits.
- The certificate of withdrawal.
- The GHG-PRR withdrawal table.

The information subject to the registration and publication services will be of permanent consultation, so there will be no obligation for EcoRegistry to eliminate it or withdraw it if the users do not update it. In the event that a user wishes to transfer information to another registration system, he must withdraw the certified carbon credits available to date and inform about these aspirations. EcoRegistry will not in any case ensure the portability of the data. This information and other related information is extended under the terms and conditions established by EcoRegistry.

### 15.3.1.1 Terms of use of public content

The information available in EcoRegistry that includes: texts, graphics, presentation and design, as well as the software, the source codes and in general the computer program that constitutes and supports the services have copyright protection in accordance with national legislation and international standards.

All distinctive signs (brands, logos, buttons, color combinations, presentation of contents and their structure, buttons or banners) enjoy trademark protection. Therefore, none of the elements previously mentioned will be able to be reproduced, communicated, distributed, copied, used, transmitted, sold or commercialized, in any way, without the previous authorization of EcoRegistry.

EcoRegistry confers the right of use to visualize the content of its platform, in accordance with the publication of information that it has, and to make a cache copy for that purpose only. For further information, please consult the terms and conditions established by EcoRegistry<sup>8</sup>.

### 15.3.1.2 Veracity and quality of the data or information provided

The data that are introduced in the platform of EcoRegistry by the users in each and every one of the forms or fields required in the services must be truthful, complete and updated.

The users are the only ones responsible for the supply of the data; consequently, they are submitted to the administrative or penal responsibilities of the current legislation in the national and international context.

Users must ensure that the information provided is true, accurate and complete in all objective and material respects and that it: a) is not false, fraudulent or misleading; b) does not violate, nor is in conflict with the law, applicable permits or licenses issued by any competent authority. In addition, it is obliged to inform EcoRegistry of any modifications made. In addition, the users assume the responsibility by the damages that could cause, as a result of giving or providing false, incomplete or inexact information.

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<sup>8</sup>It is important to mention, that some sections like this one that are within the sections of the certification process were taken, adapted or complemented from the terms and conditions established by EcoRegistry.

Users guarantee that the information complies with: a) the legal requirements and with; b) the requirements of the CERCARBONO voluntary carbon certification program.

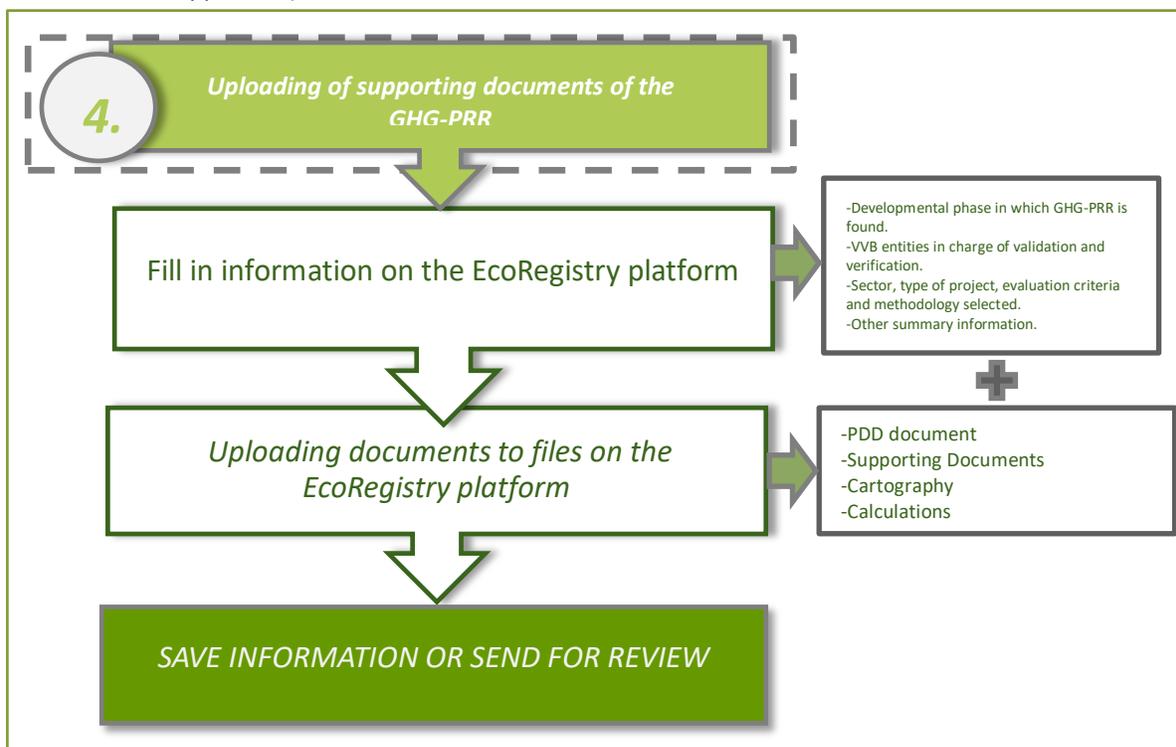
Users agree to make any necessary corrections or improvements to the information provided that are requested by EcoRegistry at any time.

### 15.4 Stage 4. Uploading of the GHG-PRR support documents

Once user accounts have been activated, they are responsible for providing documents throughout the certification process.

In the case of users such as GHG-PRR holders or developers, once they access the EcoRegistry platform they have the option of creating a project and boxes to complete information related to the GHG-PRR where: 1) it defines the development phase in which the project is (formulation, validation or verification and is; 2) it determines the VVB entities in charge of the validation and verification of the project, as well as the sector, type of project, evaluation criteria of validation and verification (that is to say the parameter under which it was evaluated or will be evaluated) and the selected methodology. (Figure 5).

This section also requests information on the location of the GHG-PRR (country, department and municipality) and summary data on expected GHG removals or reductions, those not applicable to the Decree 926 (which are considered not eligible to apply to such a decree), the buffer (the percentage of reserve, when applicable) and the net removals or reductions.



**Figure 5. Stage 4:** GHG-PRR support document upload.

Upon completion of the above information, the initiative holder or project developer uploads the project information in four files available from the EcoRegistry platform:

- a) **Project Documents:** where the PDD is deposited.
- b) **Support Documents:** where additional or complementary documents or information of the project is deposited.

- c) **Cartography:** where all the satellite images or maps of the project are deposited.
- d) **Calculations:** where the information of all the mathematical operations is deposited including the estimations, calculations or measurements made in the GHG-PRR.

In each file you can upload all the documents you consider necessary for the validation or verification process. It is recommended that all documents are uploaded in PDF format except for the cartography and calculation data.

Once the holder of the initiative or the developer of the project has uploaded the information related to the GHG-PRR, the EcoRegistry platform will generate an identification number (ID) to the project that is related to the project in the EcoRegistry project list and that is identified throughout the certification process.

The holder or developer of the GHG-PRR can save the information of his project so that he can edit it or can send it for the corresponding revision (validation or verification).

When a GHG-PRRR has finished the validation process by an VVB user, the EcoRegistry platform enables a file to the GHG-PRRR holder or developer in which the GHG-PRR monitoring report is uploaded, with which the verification process continues.

When a GHG-PRRR has finished the verification process by an VVB user, the EcoRegistry platform enables the holder of the initiative or the developer of the GHG-PRR to select the payment method.

All the information or communications generated after the information is uploaded, will be sent to the email address registered at the time of activating the account of the GHG-PRR holder or developer.

The holder or developer of the GHG-PRR agrees to provide all information requested only within the platform. Outside the platform, ECOREGISTRY is not responsible for information supplied by links or hyperlinks to third parties.

### 15.4.1 Monitoring the status of the GHG-PRR

The initiative holder or project developer can track the status of their GHG-PRR in two ways: from their personal account in EcoRegistry and from the official list of projects that are part of the voluntary carbon certification process available on the CERCARBONO and EcoRegistry websites.

The status of a GHG PRR can be presented as:

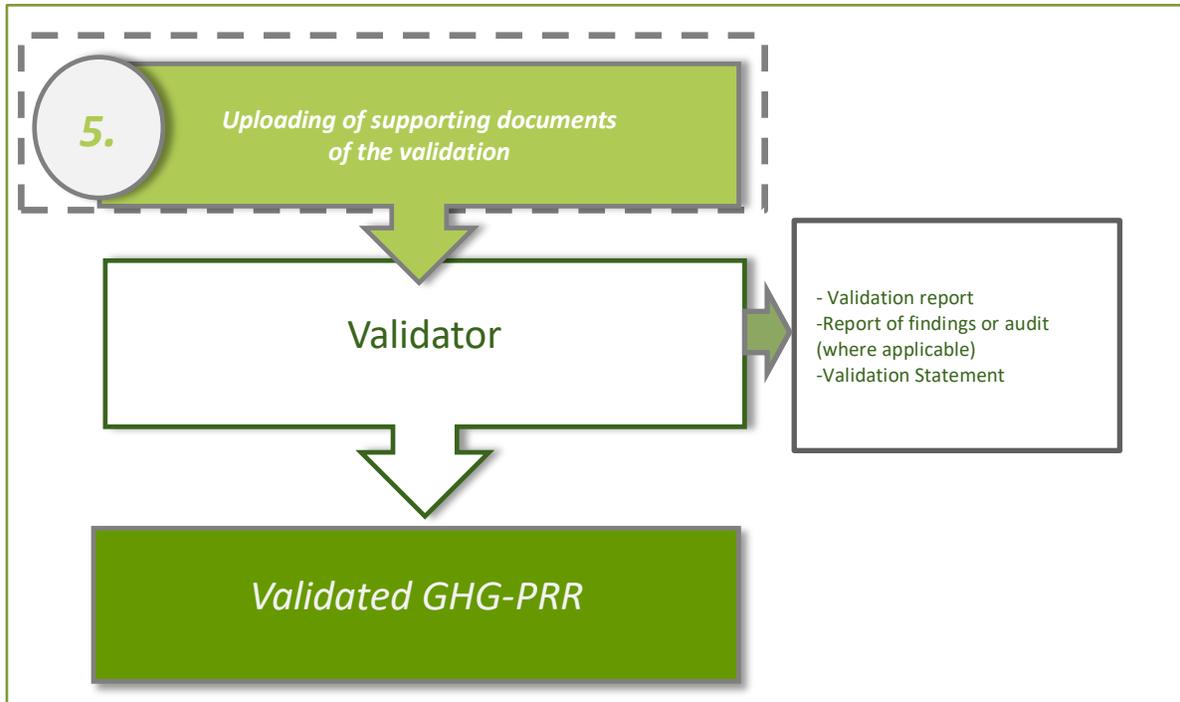
- a) In formulation: corresponds to GHG-PRR in pre-feasibility stage or in formulation.
- b) Validated: when all the documentation that supports the validation of the GHG-PRR has been reviewed and verified to be correct and complete.
- c) Verified: when all documentation supporting the verification of the GHG-PRR has been reviewed and verified as correct and complete.
- d) Certified: when the compliance of all documents that are part of the validation and verification process has been reviewed and certified.

### 15.5 Stage 5. Uploading of documents supporting the validation

In the case of validation and verification body type users, when a GHG-PRR has been sent for review, the platform will generate a notification to this type of user, who will receive a message in the email he has referenced, notifying him that he has a GHG-PRR pending review to carry out the validation process.

When the validator has finished the validation process, he accesses the platform to complete the information related to the evaluated GHG-PRR, and uploads the validation report, the findings report

(where applicable) or audit and the validation statement (Figure 6). It also confirms the amount of tons removed or reduced by the GHG-PRR, with the possibility of modifying them. Then the electronic signature process begins, where the validator receives a code to their registered mail or their cell phone to confirm his authentication.



**Figure 6. Stage 5:** Uploading documents to support the validation process

The duration of the validation process is established between the VVB and the initiative holder or project developer. It normally lasts between 1 and 3 months.

### 15.6 Stage 6. Official registration of the GHG-PRR

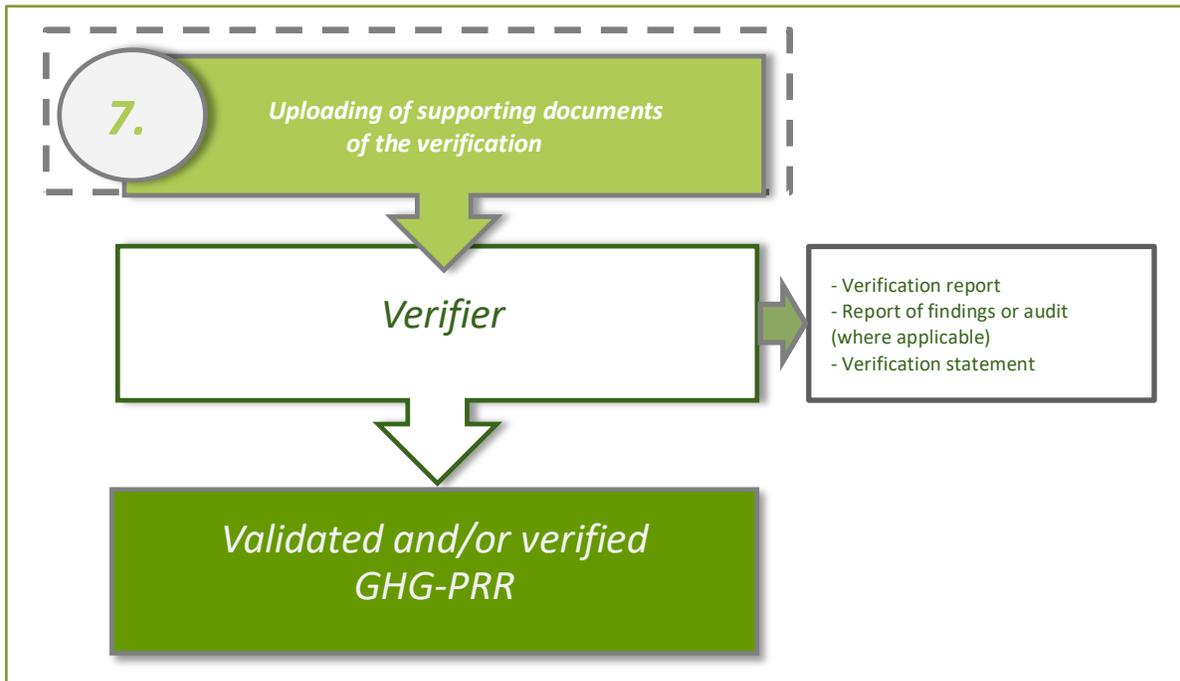
This stage is automatically carried out on the EcoRegistry platform when all documents are complete and duly approved by the corresponding user in the stage, when the validation has been completed by an authorized VVB and when the GHG-PRR has not been registered in this or any other certification program.

In this way, the GHG-PRR appears in the official list of projects in validated status

### 15.7 Stage 7. Uploading of verification support documents

In the case of validation and verification body type users, when a GHG-PRR has been sent for review, the platform will generate a notification to this type of user, who will receive a message in the email he has referenced, notifying him that he has a GHG-PRR pending review to carry out the verification process.

When the verifier has completed the verification process, he or she accesses the platform, fills in information related to the assessed GHG-PRR, and uploads the verification report, the findings report (when applicable) or audit report, and the verification statement. It also confirms the amount of tons removed or reduced by the GHG-PRR, with the possibility of modifying them (Figure 7). The electronic signature process is then initiated, where the verifier receives a code to his registered email or cell phone to confirm his authentication.



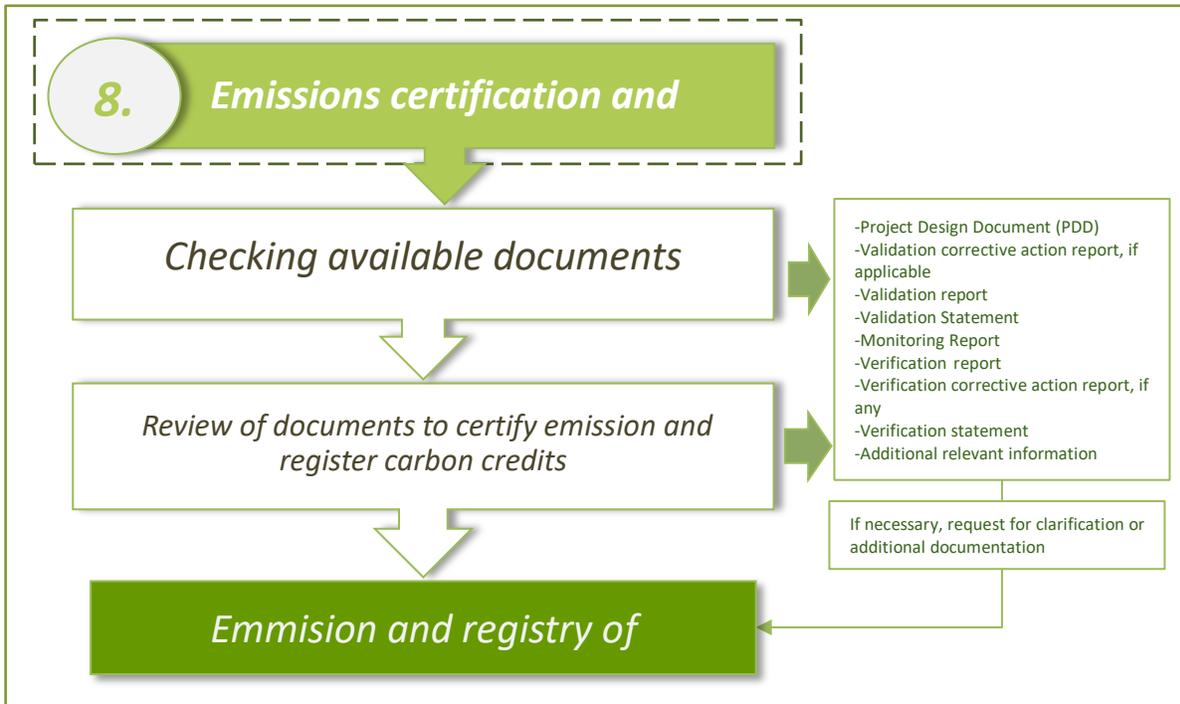
**Figure 7. Stage 7:** Uploading documents to support the verification process.

The duration of the verification process is established between the VVB and the initiative holder or project developer. It normally lasts between 2 and 4 months.

### 15.8 Stage 8. CARBONCER emission and registration certification

At this stage, the program's certifying user will perform a thorough review of the documentation uploaded to the EcoRegistry platform, with which the project's GHG removals or reductions can be verified and thus issue and register the CARBONCER certified carbon credits.

In the event of any inconsistencies in the documentation, an application will be sent to the initiative's operator, project developer or VVB (whichever is applicable) to have them rectified so that the CARBONCER emission can proceed (Figure 8).



**Figure 8. Stage 8: CARBONCER emission certification and registration.**

### **15.8.1 Checking documents for carbon credit emission certification**

At this stage, the certifier-type user will perform a general check to the information required to continue in the certification process. If additional information is required, it is requested in the first instance from the VVB or directly from the GHG-PRR holder or developer.

It is important to mention that this type of user has access to all the information provided by the other users (initiative holder, project developer and validation and verification body). However, it focuses on the list of check documents that is extended below.

For the certification of CARBONCER carbon credits, the certifying user will ensure that the following documents are in the document file of the EcoRegistry platform:

- 1) The legal document that accredits as the proponent or the holder of the GHG-PRR.
- 2) The PDD.
- 3) The report of findings or corrective actions of the validation, if applicable.
- 4) The validation report.
- 5) The validation statement.
- 6) The monitoring report.
- 7) The verification report.
- 8) The report of findings or corrective actions from the verification, if applicable and.
- 9) The verification statement.

It is important to note that in the event that the GHG-PRR submits the list of documents under a joint validation and verification by an authorized entity, the integrated check of information and documents will be performed to ensure that they are complete.

This stage may take between 1 and 3 working days.

### **15.8.2 Review of documents for CARBONCER emission certification**

To certify the issuance of CARBONCER the certifier will ensure that:

- 1) The legal document that accredits the holder of the GHG-PRR has been signed by all interested parties.
- 2) The PDD contains all relevant sections of the CERCARBONO PDD template and meets with existing legal regulations.
- 3) The validation report is signed by the evaluator of the responsible VVB entity.
- 4) In the validation corrective action report (if applicable), evidence has been reviewed to show that the corrective actions were resolved, incorporated and listed in the validation report.
- 5) In the validation statement, it shall be reviewed that the validation corresponds to the GHG-PRR, areas and actions of this and that it is duly signed by the validating entity.
- 6) Other information considered important, which supports the validation of the GHG-PRR (includes specific documentation, proof of land tenure, rights or ownership of property, proof of contracts, among others), is complete and sufficient.
- 7) The monitoring report is based on an approved methodology, which complies with the established project activities.
- 8) In the verification finding or corrective action report (if applicable), the following have been reviewed the evidence showing that these were resolved, incorporated and related in the verification report.
- 9) The verification report is signed by the verifier of the responsible VVB entity.
- 10) The verification statement is duly signed by the verifying entity.
- 11) Additional verification documents (documents of compliance of the verifier showing that the verifier is in compliance with any orders, contracts, among others).
- 12) The amount of tons removed or reduced digitized on the platform is in line with reality.

In addition to verifying that all documents are complete and duly signed when required, it is necessary that the verification has been completed by an authorized VVB entity and that the GHG-PRR has not been issued the same GHG removals or reductions under another certification program.

In the event that the validation and verification phases of the project cycle have been carried out jointly by an authorized VVB, a review of the information and documents will be carried out to verify that the project complies with the requirements.

This stage may last between 3 and 5 working days.

#### **15.8.2.1 Request for additional information for the issuance of CARBONCER**

When the certifier has any doubt or disagreement about the information presented or additional documents are required to support a specific point for the issuance of CARBONCER, it sends the GHG-PRR holder a message requesting the corresponding clarification or additional documentation required to continue the CARBONCER issuance process.

In the event that the GHG-PRR holder does not incorporate the requested information or documentation, the CARBONCER cannot be issued and the project cannot continue in the certification process. The requested documentation must be uploaded to the EcoRegistry platform.

#### **15.8.3 CARBONCER emission report**

The certifier will write a report that supports the review and verification of all information submitted by the initiative holder or project developer.

This report will support the project's compliance up to the verification phase and its verification period will be reviewed.

The final report will be sent to the GHG-PRR holder.

This phase may take between 3 and 5 working days.

#### **15.8.4 CARBONCER emission and registration certification**

Once the certifier user has reviewed and verified all information requested for the CARBONCER emission process, a certificate of the carbon credit emission from the GHG removal or removal will be sent to the initiative operator or project developer, which will also be available in EcoRegistry. Then the electronic signature process begins, where the certifier receives a code to his registered mail or his cell phone to confirm his authentication.

This certificate relates the amount of CARBONCER issued under a unique serial number generated by EcoRegistry, a determined period of validity, an indefinite validity of the carbon credits issued, a total duration of the project, as well as the VVBs that validated and verified the project. It is important to mention that the percentage of GHG emissions removals reserve will not be generated CARBONCER until the end of the GHG-PRR duration.

The total volume of carbon credits supported in the verification report and the total volume of carbon credits issued by CERCARBONO will be listed in the project's database and on the EcoRegistry platform.

The voluntary carbon certification program - CERCARBONO uses the EcoRegistry Platform, guaranteeing in a secure way the emission, monitoring, transfers, and withdrawals of all CARBONCER, in accordance with the principle of transparency and avoiding double accounting. For the registration of the issued carbon credits, the certifier user will request EcoRegistry to register the certified CARBONCERS. Each CARBONCER will have a unique serial number assigned by the EcoRegistry platform, which will guarantee that there is no double accounting of these, as well as the control and monitoring of the transfers and withdrawals of these.

As mentioned above, the information of the GHG-PRR documents that support its certification of emission and registration of carbon credits will be available to the public in EcoRegistry and will be stored for a minimum period of 10 years from the date that the emission of the credits is generated. Confidential information (which includes specific documentation, communications agreements, proof of land tenure, proof of contracting or other evidence, spreadsheets, or project-specific technical data) will be entered into the project database as restricted access documents (only available for internal audit purposes and processes with government entities, if required) and therefore will not be publicly available.

The user who owns the initiative or the project developer who has the respective authority may use the GHG emission reduction certificate to be withdrawn on behalf of the taxpayer or end user, who will consume them in order to offset the carbon footprint generated by their activities. A GHG emission reduction certificate can only be withdrawn once and in this way it will be discounted from the total number of certificates issued for the initiative. The withdrawal certificate to be issued may have the following information:

- a) Date of withdrawal of the carbon credits.
- b) Name and ID of the project.
- c) Name and ID of the project holder.
- d) Quantity of carbon credits withdrawn.
- e) Serials of the carbon credits retired.
- f) Business name and Tax ID of the taxable person for the purpose of not causing the carbon tax.

- g) Name or business name and tax identification number of the end user for purposes other than voluntary compensation.
- h) Project accreditation period.

This certificate of carbon credits will be generated in PDF format, electronically signed, and can be printed without losing its authenticity, as soon as it is verified against the original issued electronically by EcoRegistry, which can be accessed at the electronic address provided by EcoRegistry, using the verification code that it assigns.

### **15.9 Duration of the certification process**

The duration of the CERCARBONO voluntary certification process varies according to the progress of the validation or verification processes. If both stages are completed the process will have a maximum duration of 10 working days.

In the case that a GHG-PRR is validated, the time in the registration process depends on the users in charge of the advance of the project in each stage, as long as EcoRegistry does not request missing or additional information or documentation to the holder, developer of the GHG-PRR or the VVB incorporates the requested information or documentation, with which the process will be resumed immediately.

In the case that a GHG-PRR is verified, the CARBONCER emission and registration certification process will have a maximum duration of 15 working days, as long as the certifier does not request any information or documentation (missing or additional). If this is the case, there will be a pause in the duration of the process until the GHG-PRR holder incorporates the requested information or documentation, which will immediately resume the excess duration of the process.

### **15.10 Costs of the certification process**

The costs associated with the voluntary carbon certification process -CERCARBONO, depend on the specific conditions of the GHG-PRR and the service requested. This information can be requested by contacting [info@cercarbono.com](mailto:info@cercarbono.com).

The tariff contribution charged by CERCARBONO will be made before the certification process starts and before the certificate is issued and the CARBONCER is generated. This is requested through the EcoRegistry register, according to the terms, times and conditions of the payment method.

The payment of the Services will be made through the means of payment offered by the EcoRegistry platform, which may include bank consignments, electronic transfers and credit card payments. The user must read the rules and conditions informed in each of the payment methods available for this purpose.

### **15.11 Migration of projects from other programs or standards**

CERCARBONO accepts the migration of GHG-PRR from other programs or standards, under the following conditions:

- a) No double counting. For this purpose, the holder of the GHG-PRR must sign a statement that its GHG-PRR has not been registered for carbon credits under any program or standard and that, if registered by CERCARBONO, will not attempt the partial or total registration of the GHG-PRR under any other program or standard, unless it makes the withdrawal of the same from CERCARBONO, meeting the requirements defined for this purpose. On the other hand, CERCARBONO will make, as far as possible, a check that the project has not been registered under other programs or standards.
- b) That it complies with the regulations and guidelines of the protocol. Additionally, all documents for the CERCARBONO protocol have templates which must be submitted using those templates. Formats from other standards will not be accepted.

### **15.12 Facts discovered after certification**

As part of the ongoing review process, CERCARBONO's voluntary certification program tracks certified projects, which can generate, if necessary, notifications about findings found after certification. Findings are transmitted directly to the VVB and in some cases to the project owners in order to find justifications or formal changes in the GHG-PRR.

## 16. REFERENCES

This protocol is based on the following documents:

- International Organization for Standardization (ISO), 2018. ISO 14064-1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals. 56 p.
- International Organization for Standardization (ISO), 2019. ISO 14064-2: Specification with guidance at the project level for quantification, monitoring and reporting greenhouse gas emission reductions or removal enhancements. 36 p.
- International Organization for Standardization (ISO), 2019. ISO 14064-3: Specification with guidance for the verification and validation of greenhouse gas statements. 68 p.
- International Organization for Standardization (ISO), 2013. ISO 14065: Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition. 36 p.

### 16.1 Other sources of analysis

The following documents were also taken into account for the construction of this protocol:

- Data from the Intergovernmental Panel on Climate Change Available at: <http://www.ipcc.ch>.
- Data from the UNFCCC. <https://unfccc.int/Metodologías> approved by the CDM in the energy sector. Available at: <http://www.cdm.unfccc.int>.
- Ministry of Environment and Sustainable Development (Colombia), 2018. Resolution 1447 of 2018. System for monitoring, reporting and verification of mitigation actions at the national level. Republic of Colombia. 2018-08-01. 34 p.
- Ministry of Finance and Public Credit (Colombia), 2017. Decree 926 of 2017. No Causation of the National Carbon Tax. Republic of Colombia. 2017-06-01. 13 p.

## 17. MEMBERSHIPS / AFFILIATIONS

### 17.1 Internationals

CERCARBONO is a member of the International Emissions Trading Association (IETA)

### 17.2 Nationals

CERCARBONO is nationally affiliated with the:

- Colombian Association of Carbon Market Stakeholders (ASOCARBONO) since 2019 and is part of its board of directors.
- Colombian Institute of Technical Standards and Certification (ICONTEC)

## 18. DOCUMENT HISTORY

Log		
Version	Date	Comments/changes
0001	23/09/2019	Initial version of the Protocol in public consultation from 23/09/2019 to 07/10/2019.
1.1	30/10/2019	Version with adjustments and changes generated after public consultation.
2.0	10/03/2020	Version for public consultation in which it integrates new definitions and project activities from the energy, industry, transport, fugitive emissions and forestry sectors. Version 2.0. Public consultation carried out from 10.03.2020 to 30.03.2020.
2.1	13/04/2020	New version with adjustments and changes generated after the second public consultation.