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GENERAL IMPLEMENTATION GUIDE of Colombia's Green Taxonomy

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ACKNOWLEDGMENTS

Report prepared by the Climate Bonds Initiative, Ambire Global and Metrix Finanzas, within the framework of the programs " Supporting the implementation of the Sustainable Development Goals in Colombia – Preliminary Actions" financed by the European Union and "Greening the Colombian financial system: Implementation of local green definitions to enable long-term investment in priority sectors" through UK PACT support from the UK Embassy

We thank the Financial Superintendence of Colombia (SFC), the Banking Association of Colombia (Asobancaria), and the Interinstitutional Taxonomy Board for their valuable inputs.

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DISCLAIMER

The information and resources (proposed monitoring indicators, relevant public information, applicable regulations, among others) presented herein respond to explanatory cases derived from the implementation of the "Green Taxonomy Pilots" project with five (5) banking entities and a bibliographic review process. The information contained herein, as well as the resources mentioned, may change according to the regulatory provisions of the country, the information available, as well as the particularities of the entities and their projects. The content of this guide is illustrative but not exhaustive.

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INTRODUCCIÓN

Introduction

Green taxonomies and their importance

Scientific evidence has unequivocally demonstrated that increasing greenhouse gas (GHG) emissions, primarily due to human activities, have warmed the atmosphere, oceans, and land at an accelerated and unprecedented rate. Climate change is a reality and will have negative impacts on natural capital and economies around the world, causing irreversible damage to ecosystems and communities (IPCC 2022).

In view of the need to mitigate and adapt to the effects of climate change, Green Taxonomies emerge as a tool, based on scientific criteria, that allow the identification of "green" assets and activities, which substantially contribute to the achievement of the different environmental and climatic goals set globally; thus avoiding the so-called "green washing ¹".

Possible users of Green Taxonomies include: financial entities, private companies, investors, financial consumers, governments and regulators, among others, and depending on the needs of each of these stakeholders, Taxonomies can have various applications such as:

- Support in the identification and evaluation of economic activities and assets with substantial contributions to the achievement of environmental objectives.
- Drive effective mobilization of private and public resources for environmental investments.
- To facilitate the differentiation and classification of financial instruments denominated as green from other financial instruments.
- Promote standardization of criteria and definitions for green finance, through a common language.
- Support the tracking and tracking of green investments and public spending.

¹The term green washing refers to brands that present their products or business practices as environmentally friendly when in fact they are not. This implies that the company or entity does not strive for the continuous improvement of its processes, without changing or making the necessary investments to produce sustainably. The word originates from the term "laundering," which refers to scenarios in which an attempt is made to present an unfortunate situation in a better light (Funiber, 2022).

About this document

This document is part of the final results of the work carried out during the implementation pilots of the Green Taxonomy of Colombia and its objective is to provide users, in the analysis and management of different green assets/activities, with a practical guide for their implementation. Like the Colombia Green Taxonomy Tool, this Guide is presented as an official indicative tool for the application of Colombia's Green Taxonomy, which has been reviewed and is endorsed by the Interinstitutional Taxonomy Board.

The guides and resources presented here are based on observations during the pilot studies of Colombia's Green Taxonomy, as well as on a review of relevant scientific and bibliographic information related to their activities. This guide is therefore not exhaustive and may vary based on changes in regulations in the country, the availability of the information, and the context of each entity and the project being evaluated. among others.

The document also has the following annexes: Annex

1: Key definitions.

Annex 2: acronyms.

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1. Getting to know Colombia's Green Taxonomy

The TVC is responsible for defining a classification system for economic activities and assets with substantial contributions to the achievement of the country's environmental and climate objectives and commitments. This classification scheme focuses on helping different public and private sector actors, such as bond issuers, investors, financial institutions, public entities, among others, to make informed decisions to channel resources into green investments and spending.

In this sense, the TVC proposes four main uses:

- I. Reorient capital flows toward green sectors;
- II. Strengthening the process of identifying eligible projects, as well as facilitating the classification of financial instruments designated as green;
- III. Standardize criteria to increase transparency and avoid greenwashing; and
- IV. Support the development, monitoring, and tracking of green markets.

The TVC document is presented in 3 chapters as follows:

- **Chapter 1: The general framework that describes the context, as well as the purpose, uses, users and architecture of TVC.**
- **Chapter 2: Addresses the climate change mitigation goal for seven sectors of the economy (Energy, Buildings, Waste Management and Emission Capture, Water Supply and Treatment, Transport, Information and Communication Technologies, and Manufacturing) through 47 economic activities and assets plus complementary individual measures.**
- **Chapter 3: It addresses five environmental objectives (mitigation and adaptation to climate change, soil management, water management and conservation of ecosystems and biodiversity) in a transversal way for three sectors of the economy related to land use (Livestock, Agriculture, Forestry) and defines basic, intermediate and advanced practices for each of them.**

The scope, objectives, and sectors of TVT, as well as associated activities and practices, are summarized below:

Figure 1. TVT scope, objectives and sectors



Figure 2. Sectors and activities prioritized for the climate change mitigation objective

INDUSTRY SECTORS	ACTIVITIES
 Energy	• EGE1. Electricity generation from solar photovoltaic energy EGE2. Generation of electricity from concentrated solar power EGE3. Electricity generation from wind power EGE4. Electricity generation from ocean energy EGE5. Hydropower Generation EGE6. Electricity generation from geothermal energy EGE7. Electricity generation from biomass, biofuel and biogas EP8. ETD9 low carbon hydrogen production. Renewable Power Transmission and Distribution EA10. Electricity Storage EA11. Thermal Energy Storage EA12. Low carbon hydrogen storage EM13. Biomass, biofuels and biogas EC14 manufacturing. Cogeneration of heat/cold and power from EC15 concentrated solar power. Cogeneration of heat/cold and power from EC16 geothermal energy. Cogeneration of heat/cold and energy from biomass, biofuels and biogas EP17. Heat/cold and energy production using EDT18 waste heat. Thermal Districts • • • • • •
 Construction	• C1. Construction of new C2 buildings. Building renovation C3. Building Acquisition and Ownership
 Waste	• CR1. RC2 wastewater sludge treatment. Separate collection and transport of non-hazardous waste in the fraction segregated at source RC3. Anaerobic digestion of organic waste with capture or use of RC4 methane. Composting of organic waste RC5. Utilization of non-hazardous waste material RC6. Energy production from non-recyclable waste fractions (thermal treatments) RC7. Capture and utilization of landfill gas RC8. Artificial capture, transport and storage/use of GHGs • •
 Water	• A1. Aqueduct systems A2. Sanitary and combined sewerage systems A3. A4 Wastewater Treatment Systems. Water efficiency investments •

INDUSTRY SECTORS	ACTIVITIES
 Transport	• T1. Urban public transport T2. • Micromobility T3. Transport infrastructure • T4. Interurban transport (freight and passengers) T5. Private transportation •
 ICT	• ICT1. Data processing, hosting and ICT-related activities2. • Data-driven GHG reduction solutions
 Manufacturing	• M1. Manufacturing for low-carbon M2 technologies. Components for manufacturing M3 cement. Components for the manufacture of M4 aluminium. Components for the manufacture of M5 iron and steel. • Components for manufacturing chlorine M6. Components for manufacturing M7 organic-based chemicals. Components Involved in Primary Plastics Manufacturing •

Source: *Own elaboration*

Figure 3. Prioritized sectors and practices for land use

INDUSTRY SECTORS	INTERNSHIPS
 Animal husbandry	• Investments and practices for transitioning towards sustainable livestock
 Agriculture	• Investments and practices towards organic agriculture Reconversion of coffee crops • Reconversion of rice crops Reconversion of fruit crops Reconversion of cocoa cultivation •
 Forestry	• Investments to strengthen the sustainable forestry sector (Reducing deforestation, degradation of natural forests and other forest risks/Technological development, technical assistance and basic infrastructure) Restoration of degraded forest soils Conservation, management and exploitation of natural forests Commercial reforestation •

Source: *Own elaboration*

Economic sectors prioritized for the climate change mitigation objective

The economic sectors **covered in Chapter 2 of the TVC were selected for their economic relevance to the country and because they contribute substantially to the climate change mitigation objective. Within this first level of classification, there are different assets and activities that have defined eligibility criteria and general and specific compliance requirements.**

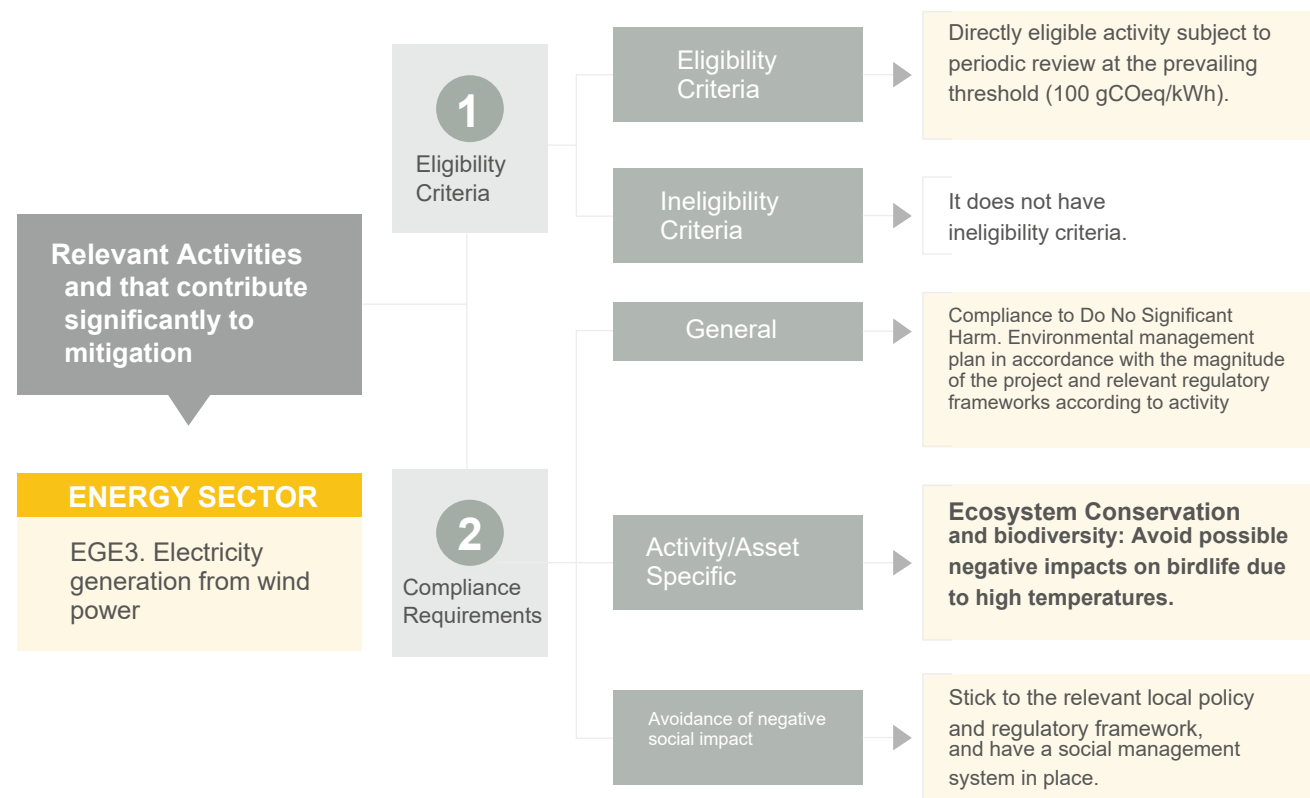
On the one hand, eligibility criteria may establish technical thresholds that clarify the characteristics that must be met to ensure a material contribution. Some activities are directly eligible due to their inherent contribution to the achievement of the environmental objective

climate change mitigation; For example, private transport vehicles with zero direct emissions, such as electric cars, are directly eligible under the activity T5 (Private service transport).

On the other hand, compliance requirements are divided into general (applies to all activities) and specific (according to each activity); and their main function is to ensure that the activity or the asset does not cause significant harm to natural resources and society, based on the five (5) Environmental objectives set in the TVC: adaptation to climate change, water management, circular economy, pollution prevention and control, ecosystems and biodiversity.

The illustration below illustrates the above and presents an example (dotted boxes) for the energy sector with activity EGE2 "Generating electricity from wind energy" and its corresponding eligibility criteria and compliance requirements.

Figure 4. Applied example of the TVT implementation path for the climate change mitigation objective



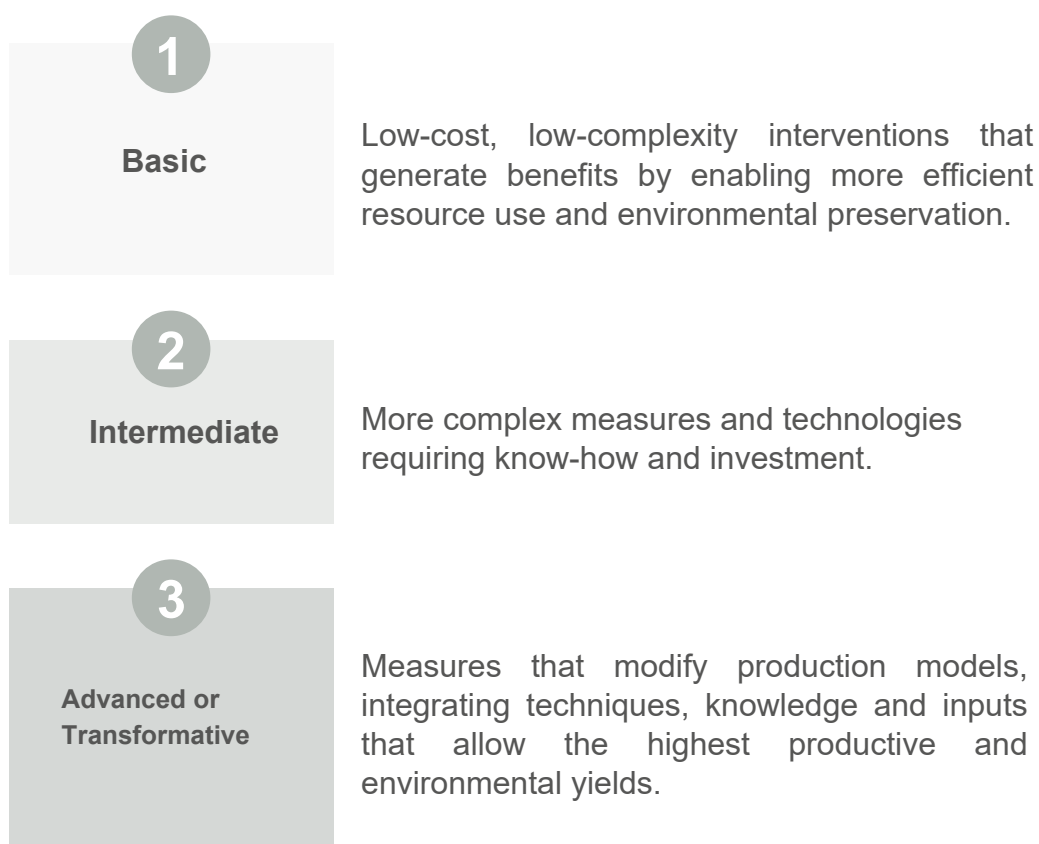
Source: *Own elaboration*

Priority economic sectors for land use

The land use sectors, **covered in Chapter 3 of the TVC**, are also based on the application of compliance requirements and eligibility criteria; however, unlike the economic sectors in Chapter 2 that mainly address climate change mitigation and the other objectives, they are addressed from the perspective of doing no significant damage. The sectors selected for land use (agriculture, livestock and forestry) meet the objectives of climate change mitigation and adaptation, soil management, biodiversity and ecosystem services, and water management in a cross-cutting manner.

The projects or properties in this case must comply with Colombian regulations regarding land use and environmental care; Have an environmental management plan on the property and incorporate practices ², investments and technologies aimed at promoting the transition towards sustainable agriculture, livestock and forestry.

The adoption of practices and investments takes the form of three types of time-sequenced interventions:



The interpretation of the land use sectors is shown in Figure 9 and, as an explanatory example, a case is presented (boxes on the right side of the illustration) for the livestock sector with some relevant information for it.

² Unlike the activities in chapter 2 of the TVC, the practices and investments in the land use sector do not have a specific threshold of compliance since they are developed from a sustainable development practices approach. 14

Figure 5. Explanatory Example Roadmap for Implementation of CBT in Land Use Sectors



Source: *Own elaboration*

For more information, download the TVC here:

https://www.taxonomiaverde.gov.co/webcenter/ShowProperty?modelId=ConexionContent/WCC_CLUSTER-191401 Colombia Green Taxonomy (taxonomiaverde.gov.co)

Colombia Green Taxonomy Tool

The Financial Superintendence of Colombia and the Ministry of Finance published a tool that aims to facilitate the interpretation and implementation of the TVC and serves as an input to track the resources mobilized towards climate finance in Colombia.

The tool integrates three essential components:

- 1 Schematically detail the content of the TVC.
- 2 It shows the alignment of the TVC with that implemented in the European Union.
- 3 Connects Colombia's climate finance monitoring, reporting, and verification (MRV) system with the TVC.

The file has five navigation tabs that allow a proper understanding of the following information:

- **Activities:** Consolidated matrix of the economic and land use sectors with their respective activities/assets and practices.
- **Alignment:** Detail on alignment of activities, principles of TVC criteria on EU Taxonomy, and Colombia's MRV system.
- **Mitigation –** details of eligibility criteria for each mitigation activity and other compliance requirements.
- **Land Use:** Detail of eligibility criteria for each activity in the land use sector along with their eligible practices and inputs.
- **Equivalence Table:** Equivalence table between taxonomy and MRV activities. For land use activities, equivalency was determined by evaluating the practices included in each eligible activity.

For more information, download the TVC tool here:

<https://www.taxonomiaverde.gov.co/webcenter/portal/TaxonomiaVerde> Colombia Green Taxonomy (taxonomiaverde.gov.co)

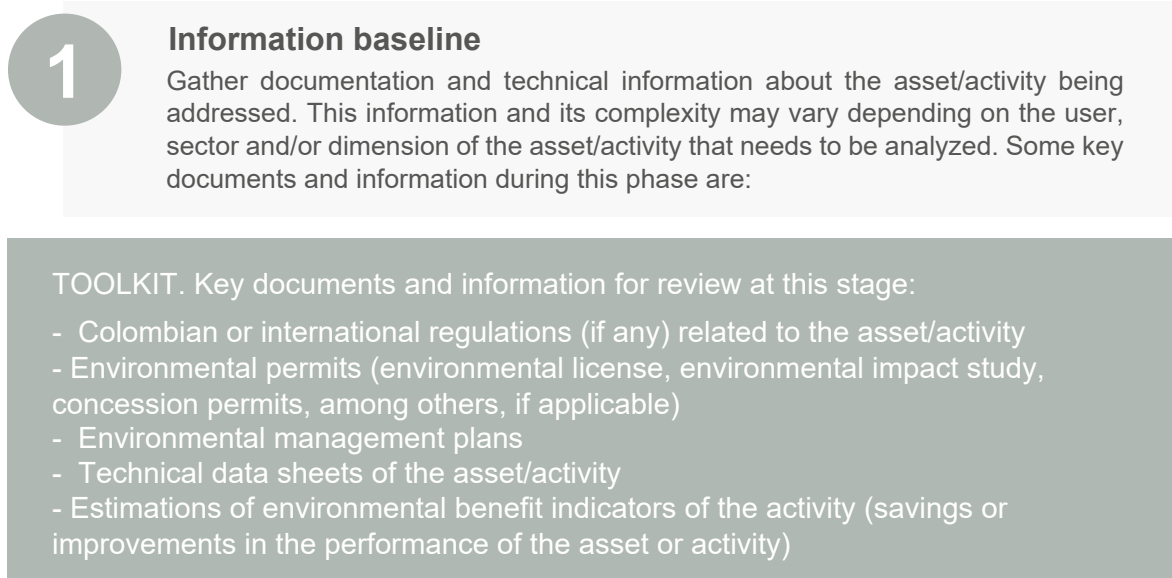
2. Technical alignment

Based on the results found during the execution of the TVC implementation pilots and on the review of technical resources for public information, a general methodological guide for different users is presented to facilitate the analysis and application of the Colombian Green Taxonomy in different projects and in this way:

- I Promote a common language in the country on green activities and assets, framed in Colombia's Green Taxonomy.
- II To be aware of the relevant information and/or documentation, as well as some public information resources available to consult and comply with the criteria, thresholds, general and specific requirements established in the Green Taxonomy of Colombia, allowing to improve the technical analysis of the projects against the provisions of the taxonomy.
- III Establish some guidelines for the application of the efficiency component, as one of the transversal axes of Colombia's Green Taxonomy.
- IV Establish some guidelines for the application of the social safeguards component in green credit lines, as defined in Colombia's Green Taxonomy and national and international regulatory frameworks.

The general methodology responds to the execution of the following stages:

Figure 6. Methodology for technical alignment of assets/activities with TVC



2

Understanding of TVT

Understand and draw up the criteria, thresholds, general and specific requirements, including social safeguards, set out in the TVT, that are applicable for the activities/assets being addressed.

TOOLKIT. Key documents and information for review at this stage:

- Green https://www.taxonomiaverde.gov.co/webcenter/ShowProperty?nodeId=/ConexionContent/WCC_CLUSTER-191401 Taxonomy of Colombia (pdf document)
- Colombia Green Taxonomy <https://www.taxonomiaverde.gov.co/webcenter/portal/TaxonomaVerde> Tool (Excel document)

3

Asset/activity and TVC alignment analysis

Evaluate technical alignment of the asset/activity versus what is established in the TVC for that activity or asset analyzed, taking into account the provisions of this guideline:

TOOLKIT. Key documents and information for review at this stage:

- Section (2.1) of this guidance: alignment at the sector and activity level
- Section (2.2) of this guidance: alignment at the level of eligibility criteria, general requirements
- Proxy <https://www.taxonomiaverde.gov.co/webcenter/portal/TaxonomaVerde> tool for the water, transport and land use sector

4

Appropriateness and monitoring of assets/activities with potential TVT alignment

Aligning the technical conditions of the asset/activity with the TVC requirements and monitoring these requirements so that the criteria and requirements are met throughout the project lifecycle.

Source: Own elaboration

Next, we delve into Step 3 of the methodology, in order to provide guidance on how to analyze the alignment of an asset/activity with the TVC at the level of sector and activity, eligibility criteria, as well as at the level of general and specific compliance requirements.

2.1 Alignment at the sector and activity level

After implementing steps 1 and 2 of the overall methodology above, the asset/activity of interest is compared and analyzed against the sectors and activities set out in the TVC. In this sense, the first approach is at the sector level. The objective or purpose of the asset/activity examines how it may relate to the sectors covered by the taxonomy. After identifying the sector with which there is alignment or potential alignment, the list of economic activities covered by the TVT sector is reviewed to check whether the asset/activity can be aligned at the activity level.

Some examples of sector- and activity-level alignment include :

Figure 7. Example alignment of an asset/activity at sector and activity level with TVC

TYPE OF ASSET/ACTIVITY	TAXONOMY SECTORS	TAXONOMY ACTIVITIES
Sale of solar panels	Energy	EGE1. Solar Photovoltaic Electricity Generation
Organic Agriculture Project	Agriculture	Depending on the scope of the project, TVC's proposed practices vary
Purchase of green apartment	Construction	C1. Construction of new buildings
Personal Electric Vehicle	Transport	T5. Private transportation
Low-emission machine manufacturing	Manufacturing	M1. Low-carbon manufacturing

Source: *Own elaboration*

It is possible that the asset/activity in the first approach may have a possible alignment with more than one sector, however, reviewing the list of activities covered by the TVC may help to narrow down the scope and verify with which activity there is greater alignment. The analysis will be supplemented by verification of eligibility criteria and general and specific requirements, which will be explained in the following section.

2.2 Alignment at the level of eligibility, general requirements y Specific Requirements

Alignment at this level is analyzed through the quantitative and/or qualitative thresholds and criteria established in the TVC. The following is practical information to facilitate resources to enhance the analysis of alignment of different assets/activities with the TVC in terms of eligibility criteria, as well as general and specific requirements ³.

³ This exercise responds to a comprehensive review of methodologies and public information to facilitate technical analysis on assets/activities. It should be noted that the resources presented here are not static, they may change according to the regulatory provisions of the country.

Table 1. Alignment at the level of eligibility criteria and requirements - energy sector

Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
No verification is necessary as it is directly eligible activity under TVT	- Installed or projected capacity (MW) - Annual electricity generation (kWh/year) (projected vs. current)	- Does the project require an environmental license 4 ? : Request this document and the Environmental Impact Study 5 approved by the environmental authority of Colombia - If the project does not require an environmental license, request an Environmental Management Plan, in accordance with the magnitude of the investment and the scale of the project/executing entity of the funding, which ensures the control of relevant impacts such as: - Area of Influence - Installed capacity - Project Phases - Identification of strategic ecosystems and environmentally sensitive areas in the project's area of influence - Integrated waste management - Environmental legal compliance (e.g., theft of forest reserves) - Handling and disposal of surplus excavating, construction, and demolition materials - Estimated Annual Energy Savings (kWh) - CO₂ eq emissions avoided/year - Project Beneficiaries - Retirement and Decommissioning Plans for Plants and Associated Infrastructure - Other documents that may be relevant: Power Purchase Agreement (PPA) - PPA (Power Purchase Agreement) (yes applies)	- Environmental impact assessments for investment projects https://www.anla.gov.co/documentos/normativa/terminos_referencia/anexo_idr_solar_ajustado_26072017v4.pdf Solar PV Use https://www.anla.gov.co/documentos/normativa/terminos_referencia/resolucion_1670_del_19_de_agosto_de_2017.pdf https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=57353 Investments in FNCER – environmental benefit: Law 1715 of 2014 - Resolution 1283 of 2016. Procedure and Requirements https://www.anla.gov.co/documentos/normativa/resoluciones/resolucion_1283_agt_2016.pdf for the issuance of the Environmental Benefit Certification for New Investments in Non-Conventional Renewable Energy Sources Projects - FNCER https://www.minambiente.gov.co/documentos/normativa/resolucion/1303-de-2018-75del-16-de-2018-A7909G00L5m-eR_10Jmoying0vrmu8AAnu8M_L1p2Muyt https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=77887 Decree 1073 of 2015 Administrative Sector of Mines and Energy https://www1.upme.gov.co/Paginas/Registro.aspx Registries of Power Generation Projects in Colombia https://seri.colombia.org/ Series de Colombia e Indices de Colombia - Disposiciones para la transición energética https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=66326 - Relevant regulatory http://apolo.creg.gov.co/Publicac.nsf/Indice01/Resolucion-2010-Creg005-2010 framework in cogeneration processes - Rules of Procedure https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=66326 Thermal Systems and Installations Technician – RETSIT 6 – - Resolution https://gestornormativo.creg.gov.co/gestor/entorno/docs/resolucion_creg_0024_2015.htm 24 of 2015 - CREG: Regulation of large-scale self-generation activity in the SIN - Resolution https://gestornormativo.creg.gov.co/gestor/entorno/docs/resolucion_creg_0179_2015.htm 179 of 2015 – CREG Flexibilization in connections of smaller plants, cogenerators and self-generators to the SIN - Resolution https://gestornormativo.creg.gov.co/gestor/entorno/docs/resolucion_creg_0038_2018.htm 38 of 2018 - CREG: Regulation of self-generation activity in non-interconnected areas

⁴ Projects requiring an environmental license (ANLA): construction and operation of electric power generation plants with an installed capacity equal to or greater than one hundred (100) MW; projects involving the exploration and use of virtually polluting alternative energy sources with an installed capacity greater than or equal to one hundred (100) MW. Projects requiring an environmental license (regional environmental authorities): The construction of any type of dam, dam, or reservoir with a capacity equal to or smaller than 200 million cubic meters of water; the construction and operation of generating plants with a capacity greater than or equal to 10 MW and less than 100 MW, other than plants generating energy from water resources; the construction and operation of water-based energy generation plants with a capacity of less than one hundred (100) MW; with the exception of small hydroelectric plants intended to operate in Non-Interconnected Areas (ZNI) and whose capacity is equal to or less than ten (10) MW (in the same way, they must obtain the necessary permits for the use and exploitation of natural resources from the competent regional environmental authority); Projects involving the exploration and use of virtually polluting energy sources with an installed capacity equal to or greater than ten (10) MW and less than one hundred (100) MW (Chapter 3. environmental licenses, Decree 1076 of 2015).

⁵ Due to the particularities of location for the use of the potential of the resource of solar, wind, geothermal and tidal energy, it is unfeasible to propose alternatives for this type of project, so the requirement of Environmental Diagnosis of Alternatives is not applicable (Decree 2462 of 2018 - <https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=90146#:~:text=Modifica%20el%20Decreto%20%C3%9Anico%20Reglamentario,y%20se%20dictan%20otras%20disposiciones>)

⁶ Document that is currently in the public comment phase of this guide.

Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
CONTINUED FROM PREVIOUS PAGE	CONTINUOUS OF THE PREVIOUS PAGE	CONTINUOUS OF THE PREVIOUS PAGE	• Resolution https://gestornormativo.creg.gov.co/gestor/entorno/docs/resolucion_creg_0075_2021.htm 75 of 2021 - CREG. Transport capacity in the SIN • Resolution 148 of 2021 - CREG. Connection and Operation https://gestornormativo.creg.gov.co/gestor/entorno/docs/resolucion_creg_0148_2021.htm of solar PV and wind plants in the SDL • https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=166326 Law 2099 of 2021. Energy transition provisions • Resolution 5 of 2010 - CREG - Requirements and conditions https://gestornormativo.creg.gov.co/gestor/entorno/docs/resolucion_creg_0005_2010.htm techniques for cogeneration processes • When requesting an Environmental Management Plan, the provisions of Decree 1220 of 2005, which regulates Title VIII of Law 99 of 1993, on environmental licenses, must http://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=163168&idclase=ASRP_3e056-aEPV48-ogKV-jhgKvQ8S0TS3oy2NA760DNTxepCp48Agnd be considered



Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
No verification is necessary as they are directly eligible activities under the TVC	• Installed or projected capacity (MW) • Annual electricity generation (kWh/year) (projected vs. current) • Installed or projected capacity in heat/cold cogeneration from concentrated solar (MW)	• Does the project require an environmental license?: Request this document and the Environmental Impact Study approved by Colombia's environmental authority • If the project does not require a license request an Environmental Management Plan, in accordance with the magnitude of the investment and the scale of the project/executing entity of the anchoring, which ensures the control of relevant impacts such as: • Environmental legal compliance (e.g., theft of forest reserves) • Identification of strategic ecosystems and environmentally sensitive areas in the project's area of influence • Integrated management of generated waste (reuse, recycling, WEEE and other waste management generated in the various stages of operation) • Retirement and Decommissioning Plans • Potential negative impacts of the cooling system on water resources • Possible negative impacts on birdlife due to the high temperatures generated by the plants of this activity	HERE THE RESOURCES OF THE PREVIOUS TABLE APPLY



Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
No verification is necessary as it is a directly eligible activity under TVC	- Installed or projected capacity (MW) - Annual electricity generation (kWh/year) (projected vs. current)	- Does the project require an environmental license?: Request this document and the Environmental Impact Study approved by Colombia's environmental authority - If the project does not require an environmental license, request an Environmental Management Plan, in accordance with the magnitude of the investment and the scale of the project/executing entity of the funding, which ensures the control of relevant impacts such as: - Environmental legal compliance (e.g., theft of forest reserves) - Identification of strategic ecosystems and environmentally sensitive areas in the project's area of influence - Integrated management of generated waste (reuse, recycling, WEEE management, wind turbines and other waste generated in the different stages of operation) - Retirement and Decommissioning Plans for Plants and Associated Infrastructure - Proper Disposal of Lubricants and Coolants Used by Wind Systems - Underwater Noise Created in Offshore Wind Turbine Installation - Potential disturbance, displacement, or collision of birds from the construction and operation of wind farms. - Possible visual impacts generated by landscape change in the installation of wind turbines	https://www.anla.gov.co/images/documentos/terminos_referencia/tr_energia_eolica_continental.pdf Terms of reference for environmental impact assessments in projects involving inland wind energy use https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=57353 Investments in FCNER – environmental benefit: 1715 of 2014 Fineness https://www.anla.gov.co/documentos/normativa/resoluciones/resolucion_1283_agl_2016.pdf Resolution 1283 of 2017- Procedure and Certification Issuance Requirements environmental gain from new investments in non-conventional renewable energy projects - FCNER https://www.minambiente.gov.co/documento-normativa/resolucion-1303-de-2018/ Resolution 1303 of 2018 amending Resolution 1283 of 2016. https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=77887 Decree 1073 of 2015 Administrative Sector of Mines and Energy https://www.minenergia.gov.co/kafic/ride-edica-offshore/wind/document/Español/CPI%20B%20H%20de%20la%20energ%C3%ADa%20e%C3%B3lica%20en%20la%20Columbia%20VE.pdf Roadmap for Offshore Wind Energy in Colombia https://www1.upme.gov.co/Documents/PHC-066-15-11_Informe%20Final_v1.pdf Technical Requirements and Regulatory Recommendations for the Incorporation of Wind Generation into the National Interconnected System in Colombia https://www1.upme.gov.co/Paginas/Registro.aspx Registries of Power Generation Projects in Colombia https://gestornormativo.creg.gov.co/gestor/entorno/docs/resolucion_creg_0024_2015.htm Resolution 24 of 2015 - CREG. Regulation of large-scale self-generation activity in the SIN https://gestornormativo.creg.gov.co/gestor/entorno/docs/resolucion_creg_0179_2015.htm Resolution 179 of 2015 - CREG. Flexibility in connections of smaller plants, cogenerators y self-generators to the SIN https://gestornormativo.creg.gov.co/gestor/entorno/docs/resolucion_creg_0038_2018.htm Resolution 38 of 2018 - CREG. Activity regulation of self-generation in non-interconnected areas https://gestornormativo.creg.gov.co/gestor/entorno/docs/resolucion_creg_0075_2021.htm Resolution 75 of 2021 - CREG. Ability to transport in the SIN https://gestornormativo.creg.gov.co/gestor/entorno/docs/resolucion_creg_0148_2021.htm Resolution 148 of 2021 - CREG. Solar PV and wind plants connected and operated in the SIN. https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=166326 Law 2099 of 2021. Provisions for energy transition https://gestornormativo.creg.gov.co/gestornormativo/norma.php?i=166326 Resolution 174 of 2021 – CREG. Regulation of the small-scale self-generation and distributed generation in the SIN.

Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
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• <https://www.cemagre.gov.co/colaboracion/colaboracion/Documentos/Documentos%20Normativos/Documentos%20Normativos.pdf> Technical Regulations for Electrical Installations

- RETIE

• CONPES 4075 of 2022 - Energy Transition Policy
<https://colaboracion.dnp.gov.co/CDT/Conpes/Econ%C3%B3micos/4075.pdf>

• https://gestornormativo.creg.gov.co/gestor/entorno/docs/resolucion_creg_0005_2010.htm
Resolution 5 of 2010 - CREG - Technical requirements and conditions for cogeneration processes

• Law 2294 of 2023, Arts. 232 and 236 - PND 2022-2026
<https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=209510>
"Colombia World Power of Life" Fair, Secure, Reliable, and Efficient Energy Transition

• When requesting an Environmental Management Plan, the provisions of Decree <https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=16316&buscar=AWAGP-lp0K-q-EFVU-lcgKvY-jhkyQSSOTBsynNA786ZONTexpCqHSApm8> must be considered.

1220 of 2005, which regulates Title VIII of Law 99 of 1993 on environmental licenses



Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
No verification is necessary as it is a directly eligible activity under TVC	• Installed or projected capacity (MW) • Annual electricity generation (kWh/year) (projected vs. current)	• Does the project require an environmental license?: Request this document and the Environmental Impact Study approved by Colombia's environmental authority • If the project does not require an environmental license, request an Environmental Management Plan, in accordance with the magnitude of the investment and the scale of the project/executing entity of the funding, which ensures the control of relevant impacts such as: · Environmental Legal Compliance · Identification of strategic ecosystems and environmentally sensitive areas in the project's area of influence · Integrated management of generated waste (reuse, recycling, WEEE and other waste management generated in the various stages of operation) · Retirement and Decommissioning Plans for Plants and Associated Infrastructure · Avoid potential contamination from lubricants and antifouling paints · Avoid potential negative impacts on marine ecosystems and biodiversity	• Registries of Power Generation Projects in Colombia: https://www1.upme.gov.co/Paginas/Registro.aspx https://www1.upme.gov.co/Paginas/Registro.aspx ⁷ • energy transition Law 2099 of 2021. Provisions for https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=166326 • Law 1220 of 2005, which regulates Title VIII of Law 99 of 1993 on environmental licenses

⁷ No ocean or tidal power projects have yet to be developed in Colombia



Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
• Request a technical concept describing: • Type of hydroelectric power plant: reservoir, run-of-the-river (e.g.: run-of-the-river) and pumped water. • Hydropower Plant Power Density (W/m2) If the power density is > 5 W/m2 , they are exempt from life cycle emissions assessment and are directly eligible. If the power density is < 5W/m2 , it must be demonstrated to operate with lifecycle emissions of less than 100 gCO eq/kWh 8 . Some methodologies for calculating these emissions are: G-res tool: is a free online interface that predicts the net GHG footprint of reservoirs. For this calculation it will be necessary to know parameters such as: reservoir area (km 2) , expected useful life of the hydroelectric plant (years), total annual production of electricity of the reservoir (kWh) IEA Hydro Framework: guidelines for quantitative analysis of net GHG emissions from man-made reservoirs ISO 14067: ISO guidance that allows quantification of GHGs that can be emitted and eliminated throughout the life cycle of a product. • If the project involves run-of-the-river hydroelectric plants 9, alignment with the parameters established in CAR 10 must be ensured . Request permits such as: water concession permit, channel occupation permit, natural resources permit or other necessary for the execution of the project, according to regulations.	• Installed or projected capacity (MW) • Annual electricity generation (projected vs. current) (kWh/year) • CO eq emissions per kWh generated or projected in the life cycle (tCO eq/kWh)	• Does the project require an environmental license?: Request this document, the Environmental Impact Study approved by the environmental authority of Colombia, and the Environmental Diagnosis of Alternatives • If the project does not require an environmental license 11 , request an Environmental Management Plan, in accordance with the magnitude of the investment and the scale of the project/executing entity of the anchorage, which ensures the control of relevant impacts such as: • Environmental legal compliance (e.g., permits for concessions and occupation of riverbeds) • Identification of strategic ecosystems and environmentally sensitive areas in the project's area of influence • Potential negative biodiversity impacts associated with ecosystem fragmentation and habitat change; hydrological and hydrogeological regimes • Integrated waste management during plant construction. • Establishment of a watershed management plan in line with the policy framework • Ensure good ecological status or potential, especially with respect to ecological continuity and flow • Avoid discharges to water bodies • Project Beneficiaries NOTE: given their technical complexity, these types of projects should fall within an environmental and social risk screening.	• Hydro-power Atlas of Colombia https://www.anla.gov.co/Bases-Datos-Atlas-hidroenergetico-revela-gran-potencial-en-Colombia.aspx • Terms https://www.anla.gov.co/documentos/normativa/terminos_referencia/terminos_de_referencia_eia_hidroelectricas.pdf of reference for environmental impact studies in hydropower projects • Registries https://www1.upme.gov.co/Paginas/Registro.aspx of power generation projects in Colombia • Energy transition arrangements https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=166326 • Calculations https://www.ieahydro.org/annex-xii-hydropower-and-the-environment of life cycle emissions in hydroelectric plants • Transmission http://www.upme.gov.co/Docs/Plan_Expansion/2022/Plan_Transmission_2022-2034_V6_scc_31ago2022.pdf Expansion-Plan-Generation 2022-2037 - UPME • Technical Regulations for Electrical Installations https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=16316&fclid=hwAR0P-qEPVUk-qhKyrQSS0TSbynNA7g6ZDNtwpCpHsApn8 • RETIE https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=16316&fclid=hwAR0P-qEPVUk-qhKyrQSS0TSbynNA7g6ZDNtwpCpHsApn8 must https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=16316&fclid=hwAR0P-qEPVUk-qhKyrQSS0TSbynNA7g6ZDNtwpCpHsApn8 When requesting an Environmental Management Plan, consideration must be given to the provisions of Decree 1220 of 2005, which regulates Title VIII of Law 99 of 1993 on environmental licenses

⁸ The main greenhouse gases emitted from a reservoir are CO, CH, and NO. Lifecycle GHG emissions from hydropower plants range from 1 gCO eq/kWh to 2,200 gCO eq/kWh, with an average value of 24 gCO eq/kWh (Ion, I. V., & Ene, A, 2021). However, the climate effect of hydropower is very project-specific.

⁹ Hydroelectric plants that do not have a water reserve, with the flow supplied varying according to the seasons of the year.

¹⁰ regional autonomous corporations

¹¹ Small hydroelectric plants intended to operate in Non-Interconnected Areas (ZNI) and with a capacity equal to or less than ten (10) MW do not require an environmental license. The foregoing does not exempt the project from obtaining the necessary permits for the use and exploitation of natural resources from the competent regional environmental authority.



EC15. Cogeneration of heat/cold and power from geothermal energy

- Terms
<https://www.minambiente.gov.co/wp-content/uploads/2022/06/Resolucion-0561-de-2022.pdf>
of reference for the preparation of the Environmental Impact Study, required for environmental licensing in geothermal energy exploration projects

Investments <https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=57353> In FNCER – environmental benefit

• [Resolution 1283 of 2016. Procedure and Requirements for Issuance of Certification](https://www.anla.gov.co/documentos/normativa/resoluciones/resolucion_1283_agt_2016.pdf)

- **Resolution 1303 of 2018 that modifies the**
<https://www.minambiente.gov.co/documento-normativa/resolucion-1303-de-2018/> **Resolution 1283 of 2016:**

Decree 1073 of 2015, Administrative of Mines and Energy

- Energy Transition Law – Geothermal Registry
<https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=166326>

ISO 14067: ISO guidance that allows quantification of GHGs that can be emitted and eliminated throughout the life cycle of a product.

NOTE: given their technical complexity, these types of projects should fall within an environmental and social risk screening.

<https://www.funcionpublica.gov.co/eva/gestornormativo/horima.php?i=1910668&--text=Se%20adoptan%20lineamientos%20para%20incentivar%20el%20uso%20de%20energias%20renovables%20y%20la%20reduccion%20de%20emisiones%20de%20gas%20de%20efecto%20invernadero%20en%20el%20sector%20publico>

<https://www.geoenvi.eu/lca-for-geothermal/> geothermal power plants
Lifecycle emissions calculations in

<https://science4cleanenergy.eu/resources/articles/life-cycle-assessment-based-software/>

<http://apolo.creg.gov.co/Publicac.nsf/Indice01/Resolucion-2010-Creg005-2010>

^a <https://www.minenergia.gov.co/es/mision/energía-eléctrica-2/legamentos-tecnicos/reglamento-%C3%A9cnico-de-sistemas-e-instalaciones-%C3%A9ricas-retail/>

- **Law 1715 of 2014 and Law 2099 of 2021.**
<https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=57353> Regulation of the
 integration of non-conventional renewable energies into the SIN.

<https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=297> Law 99 of 1993, Art. 76 - Prior consultation with traditional indigenous and black communities

- Decree 1320 of 1998 - Prior consultation of traditional indigenous and black communities <https://www.acnur.org/leadmin/Documentos/BDL/2008/6515.pdf> with for the exploitation of natural resources within its territory

<https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=166326>

Law 2099 of 2021 – Energy transition provision

1220 of 2005, which regulates Title VIII of
Law 99 of 1993 on environmental licenses

¹² Lifecycle emissions analysis results for geothermal systems range from 6 to 79 gCO₂ eq/kWh (IPCC 2011), however transparent information on geothermal lifecycle emissions is still lacking in the literature. Similarly, for cogeneration projects, the life cycle impacts to produce 1 kWh of heat/cold must be below the current threshold (100 gCO₂ eq/kWh), calculated through the power/heat ratio, i.e. the power that a heating equipment has to produce to be able to heat efficiently given in watts (W).

¹³ Document that is currently in the public comment phase of this guide



ACTIVITIES

EGE7. Electricity generation from biomass, biofuels and biogas EC16. Cogeneration of heat/cold and energy from biomass, biofuels and biogas

Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
• Request a technical concept demonstrating compliance with the 100 gCOeq/kWh 14 threshold of the project's lifecycle emissions. Some of the methodologies for calculating these emissions are: Biomass Environmental Assessment Tool (BEAT): a GHG Protocol product, developed for the Environment Agency and Defra (Department of Environment, Food and Rural Affairs), which assesses the potential environmental impacts of biomass energy projects, including lifecycle emissions results. ISO 14067: ISO guidance that allows quantification of GHGs that can be emitted and eliminated throughout the life cycle of a product. Electricity generation from biomass in power plants (ACM0018 - CDM Methodology – UNFCCC): This methodology is applied to project activities that generate energy using biomass as fuel, where the reduction of emissions from the implementation of this type of project is estimated, given a base scenario.	• Installed or projected capacity (MW) • Tons of biomass processed annually (t biomass/year) – by type (residual, agricultural, forestry, among others) • CO eq emissions per kWh generated or projected in the life cycle (tCO eq/kWh) • Annual thermal and electrical power generation per year from biomass, biofuel, and biogas (kWh/year) • Biogas production per year (m3 /year)	• Does the project require an environmental license?: Request this document, the Environmental Impact Study approved by Colombia's environmental authority, and the Environmental Diagnosis of Alternatives 15 • If the project does not require an environmental license, request an Environmental Management Plan, in accordance with the magnitude of the investment and the scale of the project/executing entity of the funding, which ensures the control of relevant impacts such as: • Environmental Legal Compliance • Identification of strategic ecosystems and environmentally sensitive areas in the project's area of influence • Integrated management of the waste generated in the different stages of operation • Retirement and Decommissioning Plans for Plants and Associated Infrastructure • If the raw material is biogas, it is part of the environmental license procedure, the burning of this is only eligible if it is part of a transition program to other types of exploitation in the medium term, that is, less than 3 years • If the feedstock is biomass, full traceability of its supply must be ensured. For example, if the crop is of forest origin, its supply must comply with the provisions of the forestry regulatory framework NOTE: given their technical complexity, these types of projects should fall within an environmental and social risk screening.	• Terms https://www.anla.gov.co/images/documentos/terminos_referencia/08-07-2022-anla-anexo-ldi-eia-biomasa-version-final.pdf of reference for environmental impact studies in projects involving the use of biomass for power generation • https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=166326 Energy transition provisions • https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=57353 Investments in FNCER – environmental benefit • Resolution https://www.anla.gov.co/documentos/normativa/resoluciones/resolucion_1283_agt_2016.pdf 1283 of 2017. Procedure and requirements for the issuance of the environmental benefit certification for new investments in projects of non-conventional sources of renewable energy - FNCER • Resolution 1303 of 2018 amending https://www.minambiente.gov.co/documento-normativa/resolucion-1303-de-2018/Resolution_1283_of_2016 • Decree 1073 of 2015 Administrative Sector https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=7789 of Mines and Energy • https://ghgprotocol.org/Third-Party-Data/BEAT-Tool-Plant • https://cdm.unfccc.int/methodologies/DB/4HISH6FQZNGKPAHOA6YV/N9DJ5J97T3 generation of electricity from biomass in power-only plants • Relevant regulatory framework in http://apolo.creg.gov.co/Publicac.nsf/indice017/Resolution-2016-Creg005-2010 Cogeneration • Regulation https://www.minenergia.gov.co/es/energia/2/reglamentos/tecnicos/reglamento-%C3%A1mbito-de-sistemas-e-instalaciones-%C3%A1mbito-de-16 • https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=209510 Law 2294 of 2023, Arts. 232 and 236 - PND 2022-2026 "Colombia World Power of Life" Fair, Secure, Reliable, and Efficient Energy Transition • Resolution 5 of 2010 - CREG - Requirements and https://gestornormativo.creg.gov.co/gestornormativo/docs/resolucion_0005_2010.htm • https://www.1upme.gov.co/spp/Paginas/Plan-nacional-austitucion-le%C3%B1a.aspx External Circular 39 of 2023 National Firewood Substitution Plan (PNSL) of the UPME • Atlas of the Energy Potential of Biomass UPME • https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=16316&fclid=hwARSP-gp0K-qEFVUI-vgKY-jhKyrQSSOT5bYnNA7f8ZDNTwepCptHSAqnl8 When requesting an Environmental Management Plan, consideration must be given to the provisions of Decree 1220 of 2005, which regulates Title VIII of Law 99 of 1993 on environmental licenses

¹⁴ For forest biomass power plants, the results of life-cycle emissions analysis range from approximately 90 to 260 gCOeq/kWh, with an average of approximately 100 gCOeq/kWh. On the other hand, dedicated biomass and crop residue power plants (such as perennial grasses, short-rotation species, and agricultural by-products such as wheat straw and corn stubble) can achieve between 100 and 260 gCOeq/kWh, averaging approximately 210 gCOeq/kWh, of lifecycle emissions. In the latter, changes in soil organic carbon can have a substantial influence on the overall balance GHG emissions (IPCC 2011).

¹⁵ Projects for the exploration and use of virtually polluting alternative energy sources that come from biomass for the generation of energy with an installed capacity greater than ten (10) MW, must request a pronouncement from the competent environmental authority on the need to present the Environmental Diagnosis of Alternatives – DAA.

¹⁶ Document that is currently in the public comment phase of this guideline.

Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
• Request a technical concept demonstrating compliance with the project lifecycle emissions threshold of 3 tCO eq/t hydrogen produced 17 . Likewise, where it is demonstrated that the project does not involve obtaining hydrogen from fossil fuel or natural gas 18 . Some of the methodologies for calculating these emissions are: Methodology (IPHE): methodology for determining greenhouse gas emissions associated with hydrogen production. ISO 14067; ISO 14040, ISO 14044: ISO guidance that allows quantification of GHGs that can be emitted and disposed of throughout the life cycle of a product. Hydrogen Production from Biogas Methane (AMS-III. O (CDM – UNFCCC Methodology): The methodology involves the installation of a biogas purification system to isolate methane from biogas and produce hydrogen, calculating the emissions reduction by replacing fossil fuel-based hydrogen production.	• Tons of low-carbon hydrogen produced • CO eq emissions per kWh generated or projected in the life cycle	• Does the project require environmental license 19?: Request this document, the Environmental Impact Study approved by the environmental authority of Colombia and the Environmental Diagnosis of Alternatives • If the project does not require an environmental license, request an Environmental Management Plan, in accordance with the magnitude of the investment and the scale of the project/executing entity of the funding, which ensures the control of relevant impacts such as: · Applicable Environmental Legal Compliance · Identification of strategic ecosystems and environmentally sensitive areas in the project's area of influence · Integrated management of the waste generated in the different stages of operation. Manufacturing process waste and by-products should be treated according to the waste hierarchy, and ideally recycled in the same process (closed cycle). · Retirement and Decommissioning Plans for Plants and Associated Infrastructure NOTE: given their technical complexity, these types of projects should fall within an environmental and social risk screening.	• Sheet hydrogen roadway in Colombia • Well-to-gate https://www.iphe.net/_files/ugd/45185a_ef588ba32fc54e0eb57b0b7444cfa5f9.pdf methodology for determining greenhouse gases and greenhouse gases • https://cdm.unfccc.int/methodologies/DB/XC2DTEAI88T9TTR3HK42GWRFOQ63GD/hydrogen_production from database extracted from Belgium • https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?n=16316&mbdd=1wARGP-g0K-qEPVU-ogKYJhKyQSS0TSbrynNA76SDNTexpCqH4SApe8 When requesting an Environmental Management Plan, consideration must be given to the provisions of Decree 1220 of 2005, which regulates Title VIII of Law 99 of 1993 on environmental licenses

¹⁷ According to recent technology benchmarking studies, without specifying technology type, the average GHG emissions intensity of the most efficient facilities for hydrogen production at an average of 4 tCO eq/t hydrogen produced (European Commission, 2021)

¹⁸ In this regard, only hydrogen technologies from renewable sources will be eligible. For more information, see: Hydrogen [https://www.climatebonds.net/ Production les/les/background-paper-hydrogen-Criteria \(climatebonds.net\) nal-version-211122.pdf](https://www.climatebonds.net/Production%20les/les/background-paper-hydrogen-Criteria%20nal-version-211122.pdf)

¹⁹ Green and blue hydrogen are classified as FNCE and FNCE respectively, and the special regime established in Law 1715 is applicable to them, where the National Environmental Authority (ANLA) and Regional Autonomous Corporations (CAR) are called upon to establish a rapid evaluation cycle for FNCE projects (Ministry of Mines and Energy of Colombia, 2022)

Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
• If the project involves the transmission and distribution of electricity, request a technical concept demonstrating interconnection of systems where more than 67 percent of the connected generation capacity is below the threshold of 100 gCOeq/kWh or if the emission factor of the National Interconnected System is demonstrated to be equal to this threshold of 100 gCOeq/kWh, in the last five (5) years. Some methodologies for calculating the marginal greenhouse gas emission factor of an electricity system are: Tool to Calculate the Emission Factor of an Electricity System (TOOL07 - CDM Methodology – UNFCCC): This methodological tool determines the CO emission factor for the displacement of electricity generated from power plants in an electricity system, by calculating the "Combined Margin" (MC) emission factor of the electricity system. • • In addition, the projects listed on pages 62 and 63 of the TVC (paragraphs 2 and 3) are directly eligible under this activity.²⁰	• Number of interconnected projects with systems on decarbonization pathway • CO₂ eq emissions per kWh generated from the financed interconnected system.	²¹ ? : • Does the project require an environmental license? Request this document, the Environmental Impact Study approved by the environmental authority of Colombia, and the Environmental Diagnosis of Alternatives • If the project does not require an environmental license, request an Environmental Management Plan, in accordance with the magnitude of the investment and the scale of the project/executing entity of the funding, which ensures the control of relevant impacts such as: • Applicable Environmental Legal Compliance • Identification of strategic ecosystems and environmentally sensitive areas in the project's area of influence • Integrated management of the waste generated in the different stages of operation. • Do not use equipment, such as transformers or generators, containing PCB-based electric fluid. • Avoid potential negative impacts of underground power lines on marine and terrestrial ecosystems (tested by an environmental impact study). • Avoid roads with strong associated negative environmental impacts. • Comply with applicable rules and regulations to limit the impact of electromagnetic radiation on human health, in particular those established by the International Commission on Non-Ionizing Radiation Protection, in the case of high-voltage overhead lines. NOTE: given their technical complexity, these types of projects should fall within an environmental and social risk screening.	https://con.upme.gov.co/Methodologies/PAMethodologies/tools/am-tool-07-v7.0.pdf • Calculations of Emissions Associated with Power Transmission and Distribution • Emission factor of the Colombian Interconnected System for the year 2021 https://www1.upme.gov.co/Normatividad/320_2022.pdf • UPME 2022 – 2037 Preliminary Transmission Expansion http://www.upme.gov.co/Docs/Plan_Expansion/2022/Plan_Transmission_2022-2034_V6_scc_31ago2022.pdf Plan • https://gestornormativo.oreg.gov.co/gestor/entorno/docs/resolucion_oreg_0075_2021.htm Resolution 75 of 2021–CREG. Whereby Define the provisions and procedures for the allocation of transport capacity in the National Interconnected System • https://colaboracion.dnp.gov.co/CDT/Conpes/Econ%C3%B3micos/4075.pdf CONPES 4075 of 2022 - Energy Transition Policy • <u>1220 of 2005, which regulates Title VIII of Law 99 of 1993 on environmental licenses</u>

²⁰ There is no need to apply for compliance with a threshold if it demonstrates that the object of the project is linked to the activities described.

²¹ Projects requiring an environmental license (ANLA): **The laying of the transmission lines of the National Transmission System (STN)**, composed of the set of lines with their corresponding substations that are projected to operate at voltages equal to or greater than two hundred and twenty (220) KV. Projects requiring an environmental license (Regional Autonomous Corporations): **The laying of lines of the Regional Transmission System** consisting of the set of lines with their connection modules and/or substations, operating at voltages between fifty (50) KV and less than two hundred and twenty (220) KV.



Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
No verification is necessary as they are directly eligible activities under the TVC	- Electricity storage capacity from renewable energy (kWh) - Thermal Energy Storage Density (MJ/m³) - Projected GHG decrease per year (tCOeq/year) - Tons of low carbon hydrogen stored (tH)	- According to the TVC, there are no specific requirements to do no significant harm (NHDS) for these activities, however, all taxonomy activities must comply with general NHDS requirements which can be addressed in this type of project through an Environmental Management Plan (according to the magnitude of the investment and the scale of the project) that allows the control of relevant impacts such as: - Identification of strategic ecosystems and environmentally sensitive areas in the project's area of influence - Comprehensive management of all waste generated in the different stages of operation. (e.g., proper end-of-life management of batteries or WEEE) and compliance, as producers, with Extended Producer Responsibility (EPR) standards - Strive for highly durable designs, easy disassembly, conditioning and recycling.	https://www.fundacionpublica.gov.co/vea/gestornormativoinforma.php?i=16316&tsid=1&wAROP=sDRK-q4PVLU-cgKCY2hKlyrQISOTStynNA76QZDHTexpCpHSApnt8 http://apolo.creg.gov.co/Publicacac.nsf/1c09d18d2d5_mechanisms_for_b5b05256eee00709c02/28669c6087eb69be0525846c006e9690/\$FILE/Creg098-2019.pdf incorporate battery storage systems into the National Interconnected System - Preliminary http://www.upme.gov.co/Docs/Plan_Expansion/2022/Plan_Transmission_2022-2034_V6_soc_31ago2022.pdf Transmission Expansion Plan 2022 – 2037 (storage systems) - CREG Resolution 98 of 2019. Mechanisms to incorporate https://gestornormativo.creg.gov.co/gestor/entorno/docs/resolucion_creg_0098_2019.htm storage systems to mitigate the inconvenience caused by insufficient energy transport networks in the SIN https://gestornormativo.creg.gov.co/gestor/entorno/docs/resolucion_creg_101-23_2022.htm CREG Resolution 101 023 of 2022. Quality of service requirements for SAEB power storage services http://www.upme.gov.co/siel/Portals/0/Formato_Estandar.pdf Planning by the UPME - Generation-Transmission Expansion Plan http://www.upme.gov.co/Docs/Plan_Expansion/2022/Plan_Transmission_2022-2034_V6_soc_31ago2022.pdf 2022-2037 – UPME https://www.fundacionpublica.gov.co/vea/gestornormativoinforma.php?i=16316&tsid=1&wAROP=sDRK-q4PVLU-cgKCY2hKlyrQISOTStynNA76QZDHTexpCpHSApnt8 When requesting an Environmental Management Plan, the provisions of Decree 1220 of 2005 must be considered, which regulates Title VIII of Law 99 of 1993 on environmental licenses



Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
If the manufacturing is biomass and biofuel: - Request a technical concept that demonstrates The sustainable sourcing and production of this raw material, complying with sustainable agricultural and forestry practices as stipulated in the TVC, as applicable. If the manufacture is of biogas for power generation: - Request a technical concept that demonstrates, at a minimum: · That the biomass used during the biological degradation process comes from agricultural, agricultural, or plant material wastes, associated with sustainable productions or that are in the process of transitioning to sustainable agriculture, livestock or forestry (according to TVC practices – see mentioned methodologies). Or that this biomass comes from organic waste segregated at source, as long as it constitutes a significant part of the input raw material (at least 70%, measured by weight, as an annual average) · Control of methane leakage from the process through a monitoring plan. · The digestate produced is used as fertilizer, soil amendment, or other uses Some certifications that could be requested optionally to demonstrate the above are: Biomass verification and certification services from SGS – service to ensure biofuels are produced sustainably 2BSVS - Voluntary Biomass and Sustainable Biofuels Scheme: aimed at sustainable biomass production, particularly for biofuel producers and their suppliers, as well as traders and cooperatives, in relation to organic feedstocks, including agricultural and forestry products. International Sustainability and Carbon Certification (ISCC): international system for the certification of biomass and bioenergy.	- Tons of biomass, by type, utilized for biogas production (t) - Biogas/biofuel production per year (m³/year)	Does the project require an environmental license 22?: Request this document, the Environmental Impact Study approved by the environmental authority of Colombia and the Environmental Diagnosis of Alternatives - If the project does not require an environmental license, request an Environmental Management Plan, in accordance with the magnitude of the investment and the scale of the project/executing entity of the funding, which ensures the control of relevant impacts such as: Applicable Environmental Legal Compliance Identification of strategic ecosystems and environmentally sensitive areas in the project's area of influence Biowaste should comply with the waste regulatory framework and national, regional, and local waste management plans, in particular with the principle of proximity 23. Ensure full traceability of supply through the corresponding chain-of-custody management system NOTE: given their technical complexity, these types of projects should fall within an environmental and social risk screening. NOTE: strategic ecosystems are: the identification of strategic ecosystems is not part of the scope of TVC. Strategic ecosystems are part of national regulations and their areas can be dictated by the National System of Protected Areas or included in the Red List of Ecosystems.	Certifications https://www.sgs.com/es-co/services/certificacion-de-biomasa or <u>services to ensure sustainable production</u> • 2BSVS https://certifications.centrulunion.com/es/certification-programa/certification-programa/2bsvs-esquema-voluntario-de-biomasa-y-biocombustibles-sostenibles - voluntary sustainable biomass and biofuels scheme • International Sustainability and Carbon Certification (ISCC) https://www.sgs.com/es-es/agriculture-food/alternative-fuels/audits-and-certification/iscc-certification • Action Plan https://economiacircular.mtinambiente.gov.co/sep-content/uploads/2022/04/Plan-de-Accion-para-la-Gestion-Sostenible-de-la-Biomasa-Residual.pdf for Sustainable Management of Residual Biomass • Policy guidelines to promote sustainable production of biofuels in https://gestornormativo.creg.gov.co/gestor/entorno/docs/CONPES_DNP_3510_2008.htm Colombia • Atlas of the Energy Potential of Residual Biomass in Colombia by the UPME https://www1.upme.gov.co/siame/Paginas/atlas-del-potencial-energetico-de-la-biomasa.aspx • Law 2294 of 2023, Arts. 232 and 236 - PND 2022-2026 "Colombia World Power of the https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=209510 Life" "Fair, Secure, Reliable, and Efficient Energy Transition" https://www.funcionpublica.gov.co/eva/gestornormativonorma.php?i=16316&cd=1&wARP=spDR-q-EPVUJ-ugK7-2hKp7G50T3byNNA7H6ZDN7espCp4H4Apr8 When requesting an Environmental Management Plan, the provisions of Decree 1220 of 2005 must be considered, which regulates Title VIII of Law 99 of 1993 on environmental licenses

²² Projects that require an environmental license (Regional Autonomous Corporations): **The construction and operation of plants whose purpose is the use and recovery of biodegradable solid organic waste greater than or equal to twenty thousand (20,000) t/year.**

²³ The principle of proximity refers to the fact that the management facilities must be located as close as possible to the generators, thus avoiding unnecessary transfers that entail a greater environmental impact (e.g. increase in the scope 3 carbon footprint) and increase in the risks associated with it.



Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
No verification is necessary as it is a directly eligible activity under TVC	Thermal energy recovered per year (kWh/year)	- Does the project require an environmental license?: Request this document and the Environmental Impact Study approved by Colombia's environmental authority - If the project does not require an environmental license, request an Environmental Management Plan, in accordance with the magnitude of the investment and the scale of the project/executing entity of the funding, which ensures the control of relevant impacts such as: - Identification of strategic ecosystems and environmentally sensitive areas in the project's area of influence - Comprehensive management of all waste generated in the different stages of operation. - Strive for highly durable designs, easy disassembly, conditioning and recycling.	- Regulation https://www.minenergia.gov.co/es/misional/energia-electrica-2/reglamentos-tecnicos/reglamento-4%C3%A8bnico-de-sistemas-e-instalaciones-4%C3%A8micas-retie/ Technical of Thermal Systems and Installations – RETIE - Resolution https://gestornormativo.creg.gov.co/gestor/entorno/docs/resolucion_creg_0024_2015.htm 24. 2015 – CREG. Regulation of large-scale self-generation of the National Interconnected System (SIN) https://gestornormativo.creg.gov.co/gestor/entorno/docs/resolucion_creg_0005_2010.htm Resolution 5 of 2010 – CREG. Technical requirements and conditions for cogeneration https://www.minenergia.gov.co/es/misional/energia-electrica-2/reglamentos-tecnicos/reglamento-4%C3%A8bnico-de-sistemas-e-instalaciones-4%C3%A8micas-retie/ Technical Regulation of Electrical Installations - RETIE https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=16316&fbclid=IwAR0P-q50K-qEFVUA-cgKY.hjKyrQSSOTShynNA7f6ZDNTxepCqH5Apx8 When requesting an Environmental Management Plan, consideration must be given to the provisions of Decree 1220 of 2005, which regulates Title VIII of Law 99 of 1993 on environmental licenses



Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
- Request a technical concept that demonstrates that the thermal district meets the criteria of energy efficiency. - Under this activity, the following will always be directly eligible: Activities that involve modifications to lower temperature regimes. Advanced pilot systems for energy control and management (e.g., IoT, automated metering).	- Projected annual energy use savings (kWh/year) - Percentage of electricity from renewable sources	- There are no specific requirements to do no significant damage to this thermal district activity. However, an Environmental Management Plan can be requested that considers relevant points such as: Identification of strategic ecosystems and environmentally sensitive areas in the project's area of influence Comprehensive management of all waste generated in the different stages of operation. (e.g., proper end-of-life management of batteries or WEEE) and compliance, as producers, with Extended Producer Responsibility (EPR) standards Strive for highly durable designs, easy disassembly, conditioning and recycling	https://www.distritoenergetico.com/ "Thermal Districts in Colombia" Project https://www.distritoenergetico.com/wp-content/uploads/2020/11/Gui%C3%ACa-metodolo%C3%ACgica-VF_2020.pdf Colombia https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=74498 in terms of efficiency before 2010, which 2010 encourages, and 2010 dictate 200 other 20 energy provisions - Law 697 of 2004 https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=57353 1715 of 2014. Integration of non-conventional renewable energies into the National Energy System http://apolo.creg.gov.co/Publicac.nsf/1c09d18d2d5b5b05256eee00709c02/83b41035c2c4474f05258243005a1191/\$FILE/Creg030-2018.pdf 2018. Regulation of small-scale self-generation activities and distributed generation in the National Interconnected System https://www.suin-juriscol.gov.co/viewDocument.asp?id=30043747 2169 OF 2021. Target setting and Minimum carbon footprints Climate Neutrality and Resilience https://vlex.com.co/vid/resolucion-numero-585-2017-894504213f -text=Oclure%20de%202017-.Resoluc%C3%B3n%20n%C3%Base%20585%20of%202017%2C%20by%20the%20which%20se%20establishes%202016%3B%20with%20its%20respective to conceptualize on the energy efficiency/efficient energy management projects that are presented to access the tax benefit referred to in paragraph d) of article 1.3.1.14.7 of Decree 1625 of 2016 http://apolo.creg.gov.co/Publicac.nsf/Indice01/Resolucion-2010-Creg005-2010 technical conditions that cogeneration processes must meet https://www.anla.gov.co/documentos/normativa/resoluciones/resolucion_1283_agt_2016.pdf 1283 of 2016. Procedure and requirements for the issuance of the environmental benefit certification for new investments in projects of non-conventional sources of renewable energy - FNCER https://www.miambista.gov.co/documentos/normativa/resolucion/1303-de-2018 Resolution 1283 of 2016 https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=77887 1073 of 2015 Administrative Sector of Mines and Energy https://colaboracion.dnp.gov.co/CDT/Conpes/Econ%C3%B3micos/4075.pdf CONPES Document 4075. Energy transition policy https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=166326 Law 2099 of 2021 – Energy transition provisions https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=16318&fcd=iwAROP-qEYU-qYuhjvqR5SOJ3eymNA76zONTespCpHApn8 it must consider the provisions of Decree 1220 of 2005, which regulates Title VIII of Law 99 of 1993 on environmental licenses



Construction of new buildings

Table 2. Alignment at the level of eligibility criteria and requirements – construction sector

[illegible]

²⁴ The Construction sector has individual complementary measures applicable to activities C1 and C2 that contribute to meeting the eligibility criteria for these activities. Some of the measures can be implemented at the building level, as well as at the city, municipal and locality levels. Its adoption must show how and how much energy consumption is reduced. For more information see from page 74.

Example: If the percentage reduction in energy consumption defined by the Resolution is 25%, the project must demonstrate that it meets a percentage of savings of 35%, with respect to the base case consumption.

²⁶ VIS: Social Interest Housing and VIP: Priority Interest Housing.

27 If these homes include mandatory savings, a threshold of 10% savings in additional consumption must be met, with respect to what is required in the regulation.

Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
energy consumption established in the TVC's eligibility criteria and which shows that such percentage was calculated against the baseline of the Resolution, according to typology and climatic zonification. Some certifications that may be requested are: • LEED (Leadership in Energy & Environmental Design). • EDGE (Excellence in Design for Greater Efficiencies) • CASA Colombia • HQE International • Other (e.g., Living Building Challenge) • All optional supplemental individual measures that contribute to reducing energy use in buildings, or at the city, municipal, or locality level, are directly eligible (TVC pages 73-76). In the event that the energy efficiency of any equipment is required , it is possible to request seals such as Energy Star. On the other hand, some methodologies to estimate the energy efficiency of buildings are: • International Protocol for Measurement and Verification (IPMVP): Outlines different methods for determining energy and water savings of energy efficiency projects. • AMS-II CDM Methodology. C and AMS-II. L: Definitions and calculation methods for the development of baselines, together with monitoring techniques. Focus on energy efficiency measures. • ISO 50001 Energy Management Standard (EnMS): Establishes a structure and discipline to implement technical and management strategies to reduce energy consumption and emissions and GHGs. NOTE: Request information from the responsible builder stating that the buildings will not be used for the extraction, storage, transportation or manufacture of fossil fuels and that the energy for the operation of the building does not come directly from fossil fuels, except for cooking food and emergency plants. Although this requirement does not contribute to the reduction of energy consumption, it is a necessary condition to access financial products with a sustainability focus.	CONTINUED FROM PREVIOUS PAGE	CONTINUED FROM PREVIOUS PAGE	NOTE: The UPME is making progress in the construction of a roadmap for the establishment of a building energy labelling system (SEEE). NOTE: The MVCT is bringing forward the update of Resolution 0549 of 2015 that will come with new goals and guidelines.



ACTIVITY **B**uilding Renovation

Technical information and/or documentation relevant to determining compliance with the eligibility criterion

NOTE: the technical basis for this sector is the **Sustainable Construction Resolution 0549 of 2015**, so the eligibility criteria have been expressed with respect to these regulations.

- Once the building has been renovated, request technical concept where:
 - Demonstrated percentage energy savings as per eligibility criteria for activity C1.**
 - It can be verified that a saving in energy consumption of 10% is achieved** according to the base case of the Resolution, with the installation of renewable energy generation systems in the building

This activity can apply for the same sustainable construction certifications mentioned in activity C1, provided that it is demonstrated that the energy savings achieved are equal to or greater than those defined in the Resolution (taking into account the baseline consumption), as established in the TVC criteria

- To certify savings in energy consumption, implement the Single Form for the Filing of Urban Licenses.
- Request a compliance self-declaration energy and water savings
- Request information from the responsible builder stating that the buildings will not be used for the extraction, storage, transportation or manufacture of fossil fuels and that the energy for the operation of the building does not come directly from fossil fuels, except for cooking food and emergency plants.

Proposed Monitoring Indicators

- Energy consumption (kWh/m² year)**
- Energy intensity
- Emissions intensity (gCO eq/kWh)
- Baseline indicator 100 (energy performance relative to baseline)
- Number of individual actions taken/project

NOTE: energy consumption is an indicator that can monitor elements for heating, lighting, cooling, etc.

Technical information relevant to determining compliance with general and specific requirements

- Depending on the nature of the project request:
 - Urbanisation licence**
 - Parcelling licence**
 - Subdivision license and its modalities**
 - Construction license and its modalities**
 - Licence for intervention and occupation of public space**
- Licenses must comply with the conformity of the Territorial Planning Plans (POT) and not be located in protected areas established by the regulatory framework of Colombia**
- Request an Environmental Management Plan This is in accordance with the magnitude of the investment and the scale of the project/executing entity of the anchoring, which ensures control of relevant impacts such as:
 - Identification of strategic ecosystems and environmentally sensitive areas in the project's area of influence**
 - Comprehensive management of all waste generated in the different stages of operation, seeking the reuse, recycling and recovery of non-hazardous construction and demolition waste.**
 - Impacts related to the generation of noise, particulate matter and gas emissions.**
 - Strategies and guidelines for the efficient use and saving of drinking and groundwater in the work fronts. Also comply with the environmental regulations associated with liquid discharges.**
 - Prevention, mitigation, and control of impacts generated by the movement and use of machinery, equipment, and vehicles used in the project.**

NOTE: given their technical complexity, these types of projects should fall within an environmental and social risk screening.

Available public information resources and relevant regulations associated with the activity

- Resolution**
<http://ismd.com.co/wp-content/uploads/2017/03/Resoluci%C3%B3n-549-de-2015.pdf>
0549 of 2015. Water & Energy Saving Guide
- Water and energy savings in buildings Annex 1. Sustainable Building Guide for the**
<http://ismd.com.co/wp-content/uploads/2017/03/Anexo-No-1-Gu%C3%ADa-de-construcci%C3%B3n-sostenible-para-el-ahorro-de-agua-y-energ%C3%ADa-en-las-edificaciones.pdf>
- Annex**
<http://ismd.com.co/wp-content/uploads/2017/03/Anexo-No-2-Mapa-de-Clasificaci%C3%B3n-del-Clima-en-Colombia.pdf>
2. Colombia Climate Classification Map by Temperature and Humidity and List of Municipalities
- MRV**
Methodology for Energy Efficiency with Implementation Measures in Commercial and Public Buildings for Caribbean Region Countries
https://www.minambiente.gov.co/wp-content/uploads/2021/06/Carilla_Criterios_Ambientales_Dise%C3%B1o_y_Construcci%C3%B3n_de_Vivienda_Urbana.pdf
<https://biblioteca.olade.org/opus-implDocumentos/18818.pdf?fileId=64AR3n-e7u4WQy6RnZk-w7VzLk74yCpY6K7/Integraci%C3%B3n-de-MRV>
- CDM** <https://cdm.unfccc.int/methodologies/methodologiesAccrv6/index.html> methodologies
- ISO 50001 Energy Planning Methodology**
<https://www.funccionpublica.gov.co/validacioninformacion/norma.php?n=173086#&=text%20de%20la%20norma%20que%20regula%20el%20manejo%20de%20los%20recursos%20de%20energ%C3%ADa%20en%20los%20edificios%20de%20uso%20p%C3%BAblico>
- ISO 50001 Energy Planning Methodology**
https://www.cccs.org.co/wp-content/uploads/2023/03/Hoja_de_Ruta_ENCC_compressed.pdf
National Roadmap for Net Zero Carbon Buildings
- Guide to Materials for Sustainable Construction**
<https://www.minambiente.gov.co/wp-content/uploads/2023/06/Guia-de-materiales-para-la-construccion-sostenible.pdf>
- Colombian Technical Standard NTC-6112 of 2016**
<https://docplayer.es/63353999-Norma-tecnica-colombiana-6112.html>
- Resolution 1257 of 2021. Integrated Management of Construction and Demolition Waste -CDW**
<https://www.minambiente.gov.co/wp-content/uploads/2021/12/Resolucion-1257-de-2021.pdf>
- Guide to Structuring Management Plans**
<https://www.upme.gov.co/Documentos/UPME-Guia-Implementacion-PEEE-SEEE-Energia-Eficiencia-en-Public-Entities>
- UPME**
<https://www.funccionpublica.gov.co/validacioninformacion/norma.php?n=163168&id=WARUP-q0K-q-EPVU-cgKjYqJGQ5OTSsynNA76ZONT1wpCqH5Apr8>
When requesting an Environmental Management Plan, the provisions of Decree 1220 of 2005 must be considered, which regulates Title VIII of Law 99 of 1993 on environmental licenses

NOTE: The UPME is making progress in the construction of a roadmap for the establishment of a building energy labelling system (SEEE).

NOTE: The MVCT is bringing forward the update of Resolution 0549 of 2015 that will come with new goals and guidelines.



²⁸ Case A: Acquisition or ownership of buildings or real estate constructed after December 31, 2020. Case B: Acquisition or ownership of buildings or real estate property constructed between December 31, 2015 and December 31, 2020. Case C: Acquisition or ownership of buildings or real estate built before December 31, 2015.



TRANSPORTATION
ACTIVITY T1.
Mass urban transport

Table 3. Alignment at the level of eligibility criteria and requirements - transport sector

Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
• Most all-electric, hydrogen, or other transport with no direct emissions, including private vehicles, passenger rail, urban metro, trams, and their direct support infrastructure are automatically eligible. NOTE: Direct emissions refer to the emission of pollutants and harmful gases that are generated as a result of operating a vehicle's engine. These emissions typically include gases such as carbon dioxide (CO2), carbon monoxide (CO), nitrogen oxides (NOx), unburned hydrocarbons (HC), and fine particulate matter. • For fleets that do not comply with the above, request a technical concept that demonstrates the following for this type of transport: TERRESTRIAL: • Purchase of new fleet: demonstrate emissions below 20 gCO eq/pkm until 2025. As of this year, only the new zero-emission fleet will be eligible. • Fleet renewal: demonstrate that the new fleet has an emissions factor of less than 30 gCO eq/pkm. • Physical fleet renewal and disintegration: Demonstrate that the new fleet has an emission factor of less than 40 gCO eq/pkm and the project must include the physical dismantling of the old vehicle. • For land vehicles, it is possible to additionally request certification protocols such as: • Global Harmonized Steering Cycle: WHSC/ WHTC/ WLTP/ WMTTC: United Nations Vehicle Regulations to assess pollutant emissions in different vehicles. • Emissions Certificate by Dynamic Test clearance by Montreal Protocol (PPRC): Document approved by the National Environmental Licensing Authority (ANLA) that must be filled out by the requesting user, and that is a prerequisite for importation, assembly and/or a the manufacture of new vehicles. • Globally Harmonized Light Vehicle (WLTP) Test Procedure: Laboratory test used to measure passenger cars' fuel consumption and CO emissions, as well as their pollutant emissions.	• Type of biofuel used • Type of technology acquired • Emissions avoided per year (tCOeq/year) • Vehicle energy performance (kWh/100 km) • Load factor • Annual trip (km/year) • Electricity consumption (kWh/pkm) • Sound levels (dB)	NOTE: The executing entities of the economic activity or owning the asset must ensure control of the relevant impacts related to aspects such as: • Environmental Legal Compliance • Pollution Prevention and Control • Circular economy • Both maintenance and end-of-life management of vehicles or rolling stock should comply with the Environmental Policy for the Comprehensive Management of Waste or Hazardous Waste. • In relation to direct emissions, all diesel engines manufactured, assembled or imported into the country will have to comply with the maximum permissible limits of air emission of pollutants corresponding to Euro VI technologies, equivalent or higher. • Vehicles must comply with the stipulations of Resolution 8321 of 1983, relating a maximum permissible noise levels. • If applicable, have the Montreal Protocol Approval and the Dynamic Test Emissions Certificate (CEPDE).	• National https://mintransporte.gov.co/publicaciones/10754/transporte-sostenible/ Sustainable Transport Strategy • National Strategy for Electric Mobility https://ambiente.minambiente.gov.co/images/Ambiento/Documentos/Estadisticas/Libros/pdf/Estadisticas_Nacional_de_Movilidad_Electrica_versio_minambiente.pdf • Environmental Policy for the Integrated Management of Hazardous Waste or Waste • Resolution 40177 on low or zero emissions energy https://www.minambiente.gov.co/wp-content/uploads/2022/03/Resolucion-40177-2020-minminas.pdf 2020. Definition of • National Traffic Registry (RUNT) • Electromaps (Charging points) https://map.electromaps.com/es/ • Decree 191 of 2021. Logo and color of the parking https://mintransporte.gov.co/publicaciones/10754/transporte-sostenible/ for electric vehicles • Resolution https://www.cornare.gov.co/BIAR/aire/RUIDO/NORMATIVA/Resolucion-8321-1983.pdf 8321 of 1983. Maximum Permissible Noise Levels • Resolution 0762 of 2022. Regulates the https://www.minambiente.gov.co/wp-content/uploads/2022/09/Resolucion-762-de-2022.pdf • Maximum permissible emission limits of pollutants to be met by land-based mobile sources and other provisions • https://observatorioplanificacion.cepal.org/sites/default/files/notes/files/6_PSC%20Modos%20de%20transporte_compressed.pdf simulations of social price of carbon in rail and inter-mode infrastructure in selected LAC countries • Guidelines and Methodologies: Effective Public Transport Operation https://odm.unfccc.int/methodologies/DB/OHJSDUNRODDND71KA41IO2FDV9AGWX • https://ghgprotocol.org/sites/default/files/Transport_Tool_v2_6.xlsx Mobile Combustion (GHG Protocol) • https://mintransporte.gov.co/publicaciones/10754/transporte-sostenible/ Resolution 20213040039485 of September 7 Technical Guidelines for Electric Vehicles

Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
• Real Driving Emissions (RDE): Measurement of pollutants such as NOx and particulate matter in number (PN), emitted by the car in real time. RIVER/SEA: • Demonstrate that vessels are using sustainable biofuels or biogas, complying with local and international regulations (example: independent test and inspection certificates carried out by certifying entities such as Bureau Veritas, including testing and inspection services for marine fuel) • Some methodologies that can be considered for calculating emissions and improving efficiency in the transport sector are: Effective Public Transport Operation (AMS-III.BN): This methodology is applied to project activities that implement measures that improve the efficiency of bus public transport operations. GHG Protocol - GHG Emissions Calculation Tool for Mobile Sources: This tool calculates CO, CH, and NO emissions from road, rail, air, and water public transport. • To estimate the emissions associated with fleets of vehicles or rolling stock for public transport, take into account parameters such as: • Types of fuels or biofuels • Emission factors for each mode of transport • Performance of the different types of vehicles to be considered • Vehicle, passenger, and freight weights *Load factors and percentage of empty routes • Passenger kilometers traveled • *Distances traveled • Number of trips NOTE: hybrid vehicle fleets will be eligible only until 2025, from that year only fleets with zero direct emissions will be eligible.	CONTINUED FROM PREVIOUS PAGE	CONTINUED FROM PREVIOUS PAGE	CONTINUED FROM PREVIOUS PAGE



ACTIVITY **T2.** Micromobility

Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
Any freight or passenger micromobility fleet or system that is zero emission directly eligible ²⁹.	- Speed (km/h) Electrical power (kW) - Weight (kg) - Engine type	NOTE: although this activity does not have specific compliance requirements, the shared mobility systems must additionally comply with some points such as: Avoid, prevent, mitigate and/or correct significant environmental impacts that may potentially be generated by the road infrastructure associated with shared mobility systems (e.g., bicycles, shared skateboards) Avoid fragmentation and degradation of the natural and urban landscape, and risks of road incidents or crashes. Have maintenance and waste management plans.	https://mintransporte.gov.co/publicaciones/10754/transporte-sostenible/ National Sustainable Transport Strategy National https://archivo.minambiente.gov.co/images/AsuntosAmbientales/Sectorial/Urbanos/pdf/Estrategia-Nacional-de-Movilidad-Elctrica-en-mi-ambiente.pdf e-Mobility Strategy Policy https://www.redjurista.com/Documents/r_mt_0160_2017.aspx#/ Resolution 160 of 2017. Regulations for the Registration and Circulation of Mopeds, Tricycle and Quadricycle Motor Vehicles and other provisions are issued https://www.minambiente.gov.co/images/AsuntosAmbientales/Sectorial/Urbanos/pdf/Estrategia-Nacional-de-Movilidad-Elctrica-en-mi-ambiente.pdf

²⁹ The micromobility fleet includes vehicles with electric, assisted, and non-motorized motors that meet the criteria of speed, weight, and power established in Resolution 160 of 2017. Other means of transport with similar characteristics are also contemplated, such as: skateboards, hoverboards, skates, segways, skateboards, skateboards, among others.



ACTIVITY T3. Transport infrastructure

Technical information and/or documentation relevant to determining compliance with the eligibility criterion

- **Request** a technical concept that demonstrates that the project meets the criteria of **Sustainable transport infrastructure**. Under this activity, the projects listed on page 100 of the **TVC 30** are directly eligible

Some relevant methodologies for sustainable infrastructure management are:

Contingent Obligation Valuation Methodology for Infrastructure Projects PPP 31: developed by the Ministry of Finance and Public Credit, this methodology includes the identification of Environmental, Social, and Governance + Resilience criteria in relevant infrastructure projects in the country.

Guide Sustainable Buildings and Infrastructures in National Natural Parks of Colombia: this guide describes some sustainability criteria and the phases of the life cycle, which favor the low impact on the natural environment during and after the development phases of buildings and infrastructures within Natural Parks.

Infrastructure Project Development Guide – Colombia Guide: This guide is aligned with the United Nations Sustainable Development Goals (inclusion of environmental and social sustainability dimensions) and was identified by the Global Infrastructure Hub as one of the main practices for successful project preparation.

NOTE: infrastructure dedicated to the transportation of fossil or mixed fossil fuels is not eligible

Proposed Monitoring Indicators

- **Type of infrastructure built**
- **Infrastructure unit (e.g.: km of infrastructure)**
- **Life time of charging stations (vehicles or boats) or charging lines (trains)**
- **Operating and maintenance costs**

Technical information relevant to determining compliance with general and specific requirements

- ³² ? : • **Does the project require** an environmental license?

Request this document and the Environmental Impact Study approved by Colombia's environmental authority

- If the project does not require an environmental license, request an Environmental Management Plan, in accordance with the magnitude of the investment and the scale of the project/executing entity of the anchoring, which ensures the control of relevant impacts such as:
 - Identification of strategic ecosystems and environmentally sensitive areas in the project's area of influence
 - **Comprehensive management of all waste generated in the different stages of operation, seeking the reuse, recycling and recovery of non-hazardous construction and demolition waste**
 - **For activities in water-stressed areas, ensure that water use management and conservation plans previously agreed with the community are being followed. As well as measures to avoid negative impacts on aquatic ecosystems.**
 - **Noise, vibration reduction measures** and dust during construction and maintenance works

NOTE: given their technical complexity, these types of projects should fall within an environmental and social risk screening.

Available public information resources and relevant regulations associated with the activity

- National <https://mintransporte.gov.co/publicaciones/10754/transporte-sostenible/> **Sustainable Transport Strategy**

• <https://archivo.minambiente.gov.co/images/AsuntosAmbientales/Sectorial/Urbanajpdl/Estrategia-Nacional-de-Movilidad-Elctrica-enme-minambiente.pdf> **National Electric Mobility Strategy**

- <https://www.minambiente.gov.co/wp-content/uploads/2022/03/Resolucion-40177-2020-minminas.pdf> **Resolution 40177 of 2020**
Definition of low- or zero-emission energy

- <https://www.minambiente.gov.co/wp-content/uploads/2022/07/24-Lineamientos-de-infraestructura-verde-vial-para-Colombia.pdf>
Guidelines for green road infrastructure in Colombia

- https://www.minenergia.gov.co/documentos/2808/Item_General_del_RETIE_vigente_actualizado_a_2015-1.pdf **Technical Regulation of Electrical Installations – RETIE**

RETIE

- **Resolution**
<https://mintransporte.gov.co/publicaciones/10754/transporte-sostenible/> 40223 of 2021. Minimum conditions for the deployment of charging infrastructure for electric vehicles
e plug-in hybrids

- **Inventory**
<https://www.minambiente.gov.co/wp-content/uploads/2022/03/INVENTARIO-DE-EMISIONES-DE-FMFC.pdf>
of emissions from mobile off-road sources in Colombia

- **Guides and manuals:**
https://www.minambiente.gov.co/webcontent/ShowProperty?nodeId=2F6W0C_CLUSTER_135526V2F%2FdcPrmaryFile&revision=0&selected=Contingent%20Obligations%20Valuation%20Methodology%20PPP%20Infrastructure%20Projects
Contingent Obligations Valuation Methodology for PPP Infrastructure Projects

• [Guide Sustainable Buildings and Infrastructures National Natural Parks of Colombia](#)

in

- **Infrastructure Project Development**
<https://colaboracion.dnp.gov.co/CDT/Participacin%20privada%20en%20proyectos%20de%20infraestructura/PDR%20Manual.pdf>
Guide – Colombia Guide

- <https://www.mintransporte.gov.co/publicaciones/10754/transporte-sostenible/> **Guidelines for Green charging infrastructure**

- <https://www.invia.gov.co/index.php/archivo-y-documentos/documentos-technicos/guia-de-manejo-ambiental-de-proyectos/972-guia-de-manejo-ambiental-subsector-maritimo-y-aerospacial>

y Fluvial

- <https://www.invia.gov.co/index.php/archivo-y-documentos/documentos-technicos/guia-de-manejo-ambiental-de-proyectos/971-guia-de-manejo-ambiental-subsector-fluvial>

- **Strategic Environmental Assessment of the Policy**
<https://www.minambiente.gov.co/wp-content/uploads/2022/04/11-EAE-Política-portuaria-para-un-país-más-moderno.pdf> **for a more modern country**

- **Strategic Environmental Assessment of the Master Plan**
Intermodal Transport
<https://www.minambiente.gov.co/wp-content/uploads/2022/04/13-EAE-del-Plan-maestro-de-transporte-intermodal.pdf>

- <http://www.invermar.org.co/documentos/1018243044/Vision+Plataforma+Terminales+Portuarias+11.pdf> **Environmental Guide for Port Terminals**

- **Railway Subsector Environmental Management Guide**
<https://redjusticiaambientalcolombia.files.wordpress.com/2012/10/guia-ambiental-subsector-ferreo.pdf>

- <https://mintransporte.gov.co/publicaciones/10754/transporte-sostenible/> **Guidelines for Green charging infrastructure**

- <https://www.funcionpublica.gov.co/eva/gestornormativo/home.php?n=16316&bclid=hwAR0P-90K-q-EFVUioqYJhKyoQSSOTShynNA7BZONTespCqHSAp8>
When requesting an Environmental Management Plan, consideration must be given to the provisions of Decree 1220 of 2005, which regulates Title VIII of Law 99 of 1993 on environmental licenses

³⁰ It is not necessary to apply for compliance with a threshold if it demonstrates that the object of the project is linked to the activities described.

³¹ infrastructure projects under the Public-Private Partnership (PPP) scheme

³² Projects on the national road network such as highways, bridges, second carriageways, tunnels and other infrastructure associated with these activities require an environmental license processed by the ANLA. For secondary and tertiary road network projects, the environmental license will be granted by the Regional Autonomous Corporations.

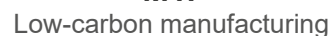


Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
• Fleets of vehicles or rolling stock intended for intermunicipal transport (land, rail, river or sea) with zero emissions are directly eligible. • Fleets of vehicles or rolling stock intended for intermunicipal transport that use sustainable biofuels or biogas are also eligible, request technical concept or proof that such biofuel or biogas complies with local and international regulations (example: test certificates and independent inspection carried out by certifying bodies such as Bureau Veritas). • For fleets, rolling stock, rail and river/marine that do not comply with the above, request a technical concept that demonstrates the following for this type of transport: RAIL: • For passenger transport, demonstrate direct emissions of less than 50 gCO eq/pkm. through 2025. After this year, the new projects must be zero emissions. • For freight transport, demonstrate direct emissions of less than 25 gCO eq/tkm until 2025. After this year, the new projects must be zero emissions. RIVER/SEA: • Direct CO eq emissions per tonne-km (tCO eq/tkm) or per ton-nq mile (tCO eq/tnm) at 50% CO reduction based on the average heavy-duty vehicle baseline. • Some reference values for specific CO emissions per tonne-km and by mode of transport in Europe can be consulted at the following link: https://www.eea.europa.eu/data-and-maps/daviz/specific-co2-emissions-per-tonne-2#tab-chart_1 In addition, some reference indicators specifically for Latin America and the Caribbean can be consulted at: https://data.worldbank.org/indicator • Some useful methodologies for calculating these emissions in the transport sector are: GHG Protocol - GHG Emissions Calculation Tool for Mobile Sources: This tool calculates CO, CH and N O for public transport by road, rail, air and water.	• Type of biofuel used • Type of technology acquired • Projected emissions avoided (tCO/pkm or tCO/tkm) • Vehicle energy performance (kWh/100 km) • Annual trip (km/year) • Electricity consumption (kWh/pkm)	NOTE: The executing entities of the economic activity or owning the asset must ensure control of the relevant impacts related to aspects such as: • Environmental Legal Compliance • Pollution Prevention and Control • Circular economy • Both maintenance and end-of-life management of vehicles or rolling stock should comply with the Environmental Policy for the Comprehensive Management of Waste or Hazardous Waste. • In relation to direct emissions, all diesel engines manufactured, assembled or imported into the country will have to comply with the maximum permissible limits of air emission of pollutants corresponding to Euro VI technologies, equivalent or higher. • Vehicles must comply with the stipulations of Resolution 8321 of 1983, relating a maximum permissible noise levels. • If applicable, have the Montreal Protocol Approval and the Dynamic Test Emissions Certificate (CEPDE).	• National https://mintransporte.gov.co/publicaciones/10754/transporte-sostenible/ Sustainable Transport Strategy • National Strategy for Electric Mobility https://repositorio.minambiente.gov.co/handle/document/51110528371?POC=ITCA+AMBIENTAL+PARA+LA+GESTION+ENTORRA+DE+RESPEL.pdf#42099677ec472e472b43064960e60e6d Plan for the Integrated Management of Waste or Hazardous Waste • Environmental https://www.minambiente.gov.co/wp-content/uploads/2022/09/Resolucion-762-de-2022.pdf Resolution 40177 of 2020. Definition of • National Traffic Registry (RUNT) • Electromaps (Charging Points) https://map.electromaps.com/es/ • https://mintransporte.gov.co/publicaciones/10754/transporte-sostenible/ Decree 191 of 2021. Logo and color of the preferential parking spaces for electric vehicles • https://mintransporte.gov.co/publicaciones/10754/transporte-sostenible/ Resolution 20213040039485 of September 7 • Resolution 0762 of 2022. Regulates maximum permissible emission limits of pollutants to be met by land-based mobile sources and other provisions • https://observatorioplanificacion.cepal.org/sites/default/files/note/files/6_PSC%20Modos%20de%20transporte_compressed.pdf simulations of social price of carbon in rail and inter-mode infrastructure in selected LAC countries • Guide to calculating the carbon footprint of the Road freight • Environmental Methodology and Data Update 2022 https://www.ecotransit.world/wp-content/uploads/20220908_Methodology_Report_Update_2022_Website.pdf • Guidelines and methodologies: https://ghgprotocol.org/sites/default/files/standards_supporting/Chapter4.pdf emissions in transport and distribution (GHG Protocol) • Mobile https://ghgprotocol.org/sites/default/files/Transport_Tool_v2_6.xlsx Combustion (GHG Protocol) • GHG https://www.ecologie.gouv.fr/sites/default/files/Information_GES%20-%202019.pdf information in transport services • Modal shift https://cdm.unfccc.int/methodologies/DB/4DOIK2WYP8P3AGAVJKTOCHY1NXJ4QP freight transport from road to water/rail transport • Avoid https://cdm.unfccc.int/methodologies/DB/D8BY5DZHPFSY6822TRH93VRTST4DTC travel by improving freight transport equipment

Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
GHG Protocol – Category 4: emissions in the transport and distribution of goods (scope 3): guide for the calculation of emissions associated with the transport and distribution of products (including river/sea, land and rail). Methodological Guide for the Calculation of Emissions in Transportation Services: A guide that allows estimating and providing information on the amount of greenhouse gases emitted during a given transportation service, including freight transportation. Modal shift in freight transport from road to water or rail transport (AM0090): calculation of estimated emissions reductions from modal shifts in freight transport. Preventing travel through improved freight transport equipment (AMS-III.BO): This methodology is applicable to project activities that reduce the number of trips required to transport a given quantity of goods through improvements to freight transport vehicles. • To estimate the emissions associated with fleets, rolling stock, rail and river/sea, take into account parameters such as: • Types of fuels or biofuels • Emission factors for each mode of transport • Performance of the different types of vehicles to be considered • Vehicle, Passenger, and Freight Weights • Load factors and percentage of empty trips • Passenger kilometers traveled • Distances traveled • Number of trips NOTE: hybrid vehicle fleets will be eligible only until 2025, from that year only fleets with zero direct emissions will be eligible. • Request information from the person in charge stating that the fleet of vehicles or rolling stock will not be used to transport fossil fuels or fossil fuels mixed with alternatives.	CONTINUED FROM PREVIOUS PAGE	CONTINUED FROM PREVIOUS PAGE	CONTINUED FROM PREVIOUS PAGE



Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
• Vehicles or vessels for the zero-emission private transportation are directly eligible. • Request a purchase statement or invoice where it is evident that the hybrid vehicle system does not use Diesel. NOTE: hybrid vehicle fleets will be eligible only until 2025, from that year only fleets with zero direct emissions will be eligible.	• Type of biofuel used • Type of technology acquired • Emissions avoided (tCO₂) • Vehicle energy performance (kWh/100 km) • Electricity consumption (kWh/pkm)	NOTE: the executing entities of the economic activity or owning the asset must ensure control of the relevant impacts related to aspects such as: • Environmental Legal Compliance • Pollution Prevention and Control • Private transport vehicles must comply with the policies incorporated in the World Forum for Harmonization of Vehicle Regulations of WP.29. • If applicable, have the Montreal Protocol Approval and the Dynamic Test Emissions Certificate (CEPDE).	• National https://mintransporte.gov.co/publicaciones/10754/transporte-sostenible/ Sustainable Transport Strategy • National https://archivos.minambiente.gov.co/images/8/transporteambiente/Secretaria/Libros/pdf/Estrategia Nacional de Movilidad Eléctrica en Colombia.pdf Energy Strategy • https://www.minambiente.gov.co/wp-content/uploads/2022/03/Resolucion-40177-2020-minminas.pdf Resolution 40177 of 2020. Definition of low- or zero-emission energy • https://www.bolivia.gov.co/bo/bo-de-gestion/transporte/104-inscripcion-de-vehiculos-entre-el-registro-unico-nacional-de-transporte-ent%2Fdocumento/1040014480ku_ggrrtC24_ho2WQ2_vfhwCvU25onppl_enC2D247546V Unión Nacional de Tránsito (RUNT) of Bogotá • Electromaps (Charging Points) https://map.electromaps.com/es/ • Decree 191 of 2021. Logo and color of the https://mintransporte.gov.co/publicaciones/10754/transporte-sostenible/ Preferential parking spaces for electric vehicles • Resolution 2021394-00039485 of December 7, 2007 https://mintransporte.gov.co/publicaciones/10754/transporte-sostenible/ Electric Vehicles • https://observatorioplanificacion.cepal.org/sites/default/files/note/files/6_PSC%20Modos%20de%20transporte_compressed.pdf simulations of social price of carbon in rail and inter-mode infrastructure in selected LAC countries



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³⁵ According to recent benchmarking studies, without specifying the type of technology, the average GHG emissions intensity of the most efficient facilities for the production of white cement clinker is on average 0.96 tCO₂ eq/t clinker of white cement produced (European Commission 2021)

³⁶ According to recent technology benchmarking studies, without specifying the type of technology, the average GHG emissions intensity of the most efficient cement production facilities is on average 0.69 tCO₂ eq/t cement produced (European Commission, 2021)

³⁷ The IPCC Guidelines provide guidance on the calculation of national greenhouse gas inventories. The Clinker-based methodology is used in the WBCSD "Cement CO Protocol" downloadable in <http://www.ghgprotocol.org>

Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
- Secondary aluminum manufacturing, i.e., through the use of recycled aluminum, is directly eligible and does not require specific thresholds. If the production of aluminum is primary, that is, from mineral raw material (virgin), request technical concept describing: - Type of technology and product manufactured. Description of the process. - Demonstrate compliance with the following thresholds in the manufacture of the product: - Primary production of aluminum with process emissions equal to or less than 1.5 tCO eq/t aluminum produced - Electricity consumption equal to or >15.3 MWh/t of aluminum produced - Carbon intensity of electricity used for production equal to or >100g CO eq/kWh Some methodologies for calculating these emissions are: GHG protocol: Guide published by the International Aluminum Institute. https://ghgprotocol.org/sites/default/files/aluminum_1.pdf This Guide has an Excel tool for calculating direct emissions from aluminum production plants. Reducing GHG Emissions from Primary Aluminum https://cdm.unfccc.int/methodologies/DB/CHNLRVLNEAM438MR5400YQDS3CPC50Foundries_(AM0059_-_CDM_Methodology_-_UNFCCC)	- tCO eq/t produced during the one-ton aluminum production process; and - Energy intensity: electrical energy use (kWh) per ton of aluminum produced. % share of low carbon electricity for aluminum production	- Does the project require an environmental license 40 ?: Request this document and the Environmental Impact Study approved by the environmental authority of Colombia - If the project does not require an environmental license, request an Environmental Management Plan, in accordance with the magnitude of the investment and the scale of the project/executing entity of the funding, which ensures the control of relevant impacts such as: - Control of significant impacts to air emissions: perfluorocarbons, fluorine gases, polycyclic aromatic hydrocarbons - Integrated management of generated waste (reuse, recycling, management of waste generated in the different stages of operation) - Identification of strategic ecosystems and environmentally sensitive areas in the project's area of influence NOTE: given their technical complexity, these types of projects should fall within an environmental and social risk screening	https://www.minambiente.gov.co/wp-content/uploads/2021/06/Decreto-1076-de-2015.pdf Stationary emissions permit - Single Environmental http://www.ideam.gov.co/web/contaminacion-y-calidad-ambiental/registro-unico-ambiental-para-el-sector-manufacturero Register for the Manufacturing Sector - Grid emissions factor https://www1.upme.gov.co/siame/Documents/Calculo-FE-del-SIN/Documento_calculo_Cartilla_Factor_de_emision_2021.pdf https://www.andi.com.co/uploads/Estrategia%20Nacional%20de%20Econ%C3%A1%20C%C3%B3m%20Circular-2019%20Final.pdf When requesting an Environmental Management Plan, the provisions of Decree 1220 of 2005 must be considered, which regulates Title VIII of Law 99 of 1993 on environmental licenses

39 According to recent benchmarking studies, without specifying the type of technology, the average GHG emissions intensity of the most efficient facilities for the production of primary aluminum is on average 1.46 tCO eq/t aluminum produced (European Commission, 2021)

40 Projects that require an environmental license (Regional Autonomous Corporations): The manufacturing industry for the manufacture of basic chemical substances of mineral origin.



Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
- If steel production is in Electric Arc Furnace (EAF) furnaces, a technical concept must be applied for to be directly eligible and not meet other emission thresholds, demonstrating that at least 90% of the iron content of the final products comes from scrap steel, contributing to the circular economy. - If the production is primary, that is, from virgin mineral material, request a technical concept describing and demonstrating: - Type of technology and product manufactured. - Detailed description of the process. - Demonstrate that emissions⁴¹ in the production process are less than or equal to: - Hot metal: 1.328 tCO eq/t - Sintered ore: 0.171 tCO eq/t - Iron casting: 0.325 tCO eq/t - Electric Arc Furnace: 0.352 tCO eq/t - EAF carbon steel: 0.283 tCO eq/t - Coke: 0.286 tCO eq/t NOTE: These thresholds apply to new processes or processes where virgin ore and recycled scrap material are combined. Some methodologies for calculating these emissions are: GHG protocol Iron and Steel Tool: This directive is intended for plant managers, facility personnel to assist in the measurement and reporting of emissions from the manufacture of iron and steel. American Iron Steel Institute: Methodological Guidelines for the Calculation of Greenhouse Gas Emissions in Steel Production https://www.steel.org/wp-content/uploads/2022/11/AISI-GHG-Emissions-Calculation-Methodology-Guidelines-Methodological-Guide-nal-11-3-22.pdf https://cdm.unfccc.int/methodologies/DB/QSGY2G2GS87QSIXXMPWCWN69ZBOL2B0 reduction of coke consumption in blast furnaces through the installation of dust and sludge recycling system in steel mills (AMS-III.V. CDM Methodology – UNFCCC) Some suggested parameters under the CDM methodology are: - Annual quantity of pig iron production, coke consumption; - Quantity and iron content of DRI pellet fed into the blast furnace; - Fuel and electricity consumption; - Carbon fraction in coke fed into blast furnace ISO guide ISO 14067 allows quantification of the intensity of CO2 emissions from steel production. ISO https://www.iso.org/obp/ui/#iso:std:iso:14067:ed-1:v1:es14067: ISO guidance that allows quantification of GHGs that can be emitted and disposed of throughout the life cycle of a product.	- tCO eq/t produced during the iron and steel production process - Energy intensity: electrical energy use (kWh) per ton of iron and steel produced.	⁴²?: - Does the project require an environmental license? Request this document and the Environmental Impact Study approved by Colombia's environmental authority - If the project does not require an environmental license, request an Environmental Management Plan, in accordance with the magnitude of the investment and the scale of the project/executing entity of the funding, which ensures the control of relevant impacts such as: - Control of air emissions from coke manufacturing and smelting operations, especially particulates, nitrogen oxides, sulfur dioxide, carbon monoxide, chlorides, fluorides, volatile organic compounds - Integrated management of generated waste (reuse, recycling, management of waste generated in the different stages of operation) and emissions of hydrocarbons and suspended solids into water - Identification of strategic ecosystems and environmentally sensitive areas in the project's area of influence NOTE: given their technical complexity, these types of projects should fall within an environmental and social risk screening.	Stationary https://www.minambiente.gov.co/wp-content/uploads/2021/06/Decreto-1076-de-2016.pdf emissions permit Single Environmental http://www.ideam.gov.co/web/contaminacion-y-calidad-ambiental/registro-unico-ambiental-para-el-sector-manufacturero Register for the Manufacturing Sector National Circular Economy Strategy https://www.and.com.co/objetos/estrategia-nacional-circular-economia-2020-2030 National Plan for Sustainable Management of Biodiversity https://www.minambiente.gov.co/web/contaminacion-y-calidad-ambiental/registro-unico-ambiental-para-el-sector-manufacturero single-use plastics - MinAmbiente 1220 of 2005, which regulates Title VIII of Law 99 of 1993 on environmental licenses

⁴¹ According to recent benchmarking studies, without specifying the type of technology, the average GHG emissions intensity of the most efficient iron foundry plants is on average 0.28 tCO eq/t; for EAF carbon steel an average of 0.26 tCO eq/t, and for Electric Steel Furnace (EAF) approximately 0.27 tCO eq/t (European Commission, 2021)

⁴² Projects requiring an environmental license (Regional Autonomous Corporations): Steel mills whose production exceeds ten thousand (10,000) cubic meters/month; the manufacturing industry for the manufacture of basic chemical substances of mineral origin.

Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
• Request a technical concept describing and demonstrating: • Type of technology and product manufactured. • Detailed Description of Process • That the electricity use is equal to or greater than 2.5 MWh/t chlorine • The average carbon intensity of the electricity used for chlorine production equals or >100 gCO eq/kWh Some methodologies for the calculation of electricity consumption during production are: https://www.iso.org/obp/ui/#iso:code:31002:2017 50002: Some methodologies for calculating emissions in chlorine production are: https://www.tfs-initiative.com/app/uploads/2023/02/TFS_PCF_guidelines_2022-English.pdf to establish a standard for the calculation of the carbon footprint of products in the chemical industry. NOTE: for more information on chlorine production follow https://www.worldchlorine.org/	• Electric energy consumption per ton of chlorine produced (kWh/t chlorine) • Quantity of chlorine production per year (t chlorine/year) • Process energy efficiency (kWh or MWh/t) • tCO eq/t chlorine produced in the process.	⁴³ ?: • Does the project require an environmental license? Request this document and the Environmental Impact Study approved by Colombia's environmental authority • If the project does not require an environmental license, request an Environmental Management Plan, in accordance with the magnitude of the investment and the scale of the project/executing entity of the funding, which ensures the control of relevant impacts such as: • Control of air emissions. • Integrated management of generated waste (reuse, recycling, management of waste generated in the different stages of operation) and emissions of hydrocarbons and suspended solids into water. • Identification of strategic ecosystems and environmentally sensitive areas in the project's area of influence. NOTE: given their technical complexity, these types of projects should fall within an environmental and social risk screening.	Single Environmental Registry for the Manufacturing Sector http://www.ideam.gov.co/web/contaminacion-y-calidad-ambiental/registro-unico-ambiental-para-el-sector-manufacturero https://www1.upme.gov.co/siame/Documents/Calculo-FE-del-SIN/Documento_calculo_Cartilla_Factor_de_emision_2021.pdf Grid emissions factor • When requesting an Environmental Management Plan, https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?n=16316&cd=hwAROP-gp0K-qEPV0U-agCYAjkyrQSSOT56yRKA7n6Z0N7xepCpREAgp8 must consider the provisions of Decree 1220 of 2005, which regulates Title VIII of Law 99 of 1993 on environmental licenses

⁴³ Projects that require an environmental license (Regional Autonomous Corporations): The manufacturing industry for the manufacture of basic chemical substances of mineral origin.

Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
• Request a technical concept describing: • Type of technology and product manufactured. • Detailed description of the process. • Demonstrate that the manufacture of the chemicals: • It is based on renewable feedstocks (biomass, industrial and municipal biowaste) • Has a lower carbon footprint than chemicals made from chemical raw materials In addition, demonstrate, as the case may be, that: • All biomass has a complete supply traceability process through the corresponding chain-of-custody management system. • All biomass used comes from agricultural, agricultural or plant material waste, associated with sustainable productions or those in the process of transitioning to sustainable agriculture, livestock or forestry (according to TVC practices – see mentioned methodologies), or biofuels that are produced in a sustainable way. • If it is forest biomass, apply for forest certification or commitment to certification. using independent, third-party auditable schemes. • If the raw material is bio-waste, ensure that it comes from organic waste segregated at the source. The carbon footprint will be calculated in accordance with ISO 14067: ISO guide that allows the quantification of the GHGs that can be emitted and https://www.iso.org/obp/ui#iso:std:iso:14067:ed-1:v1:es eliminated throughout the life cycle of a product.	• Type of product manufactured • tCO eq/t produced during the production process of organic-based chemicals • Type of biomass used • Amount of biomass processed per year (t/year)	⁴⁴?: • Does the project require an environmental license? Request this document and the Environmental Impact Study approved by Colombia's environmental authority • If the project does not require an environmental license, request an Environmental Management Plan, in accordance with the magnitude of the investment and the scale of the project/executing entity of the funding, which ensures the control of relevant impacts such as: • Control of air emissions. • Integrated management of generated waste (reuse, recycling, management of waste generated in the different stages of operation) and hydrocarbon emissions into water. • Identification of strategic ecosystems and environmentally sensitive areas in the project's area of influence. NOTE: given their technical complexity, these types of projects should fall within an environmental and social risk screening.	• Single Environmental http://www.ideam.gov.co/web/contaminacion-y-calidad-ambiental/registro-unico-ambiental-para-el-sector-manufacturero Register for the Manufacturing Sector • ISO 14067:2018 https://www.iso.org/obp/ui#iso:std:iso:14067:ed-1:v1:es • https://www.minenergia.gov.co/es/misional/fuentes-no-convencionales-de-energ%C3%ADa-renovable-fncer/ Non-conventional Renewable Energy Sources – FNCER • https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=16316&bold=IWARBP-sp0R-qEFVU--ogkYAjKjyQ5SOT3byhNA76ZONTxepCqrH5Apr8 When requesting an Environmental Management Plan, the provisions of Decree 1220 of 2005 must be considered, which regulates Title VIII of Law 99 of 1993 on environmental licenses

⁴⁴ Projects requiring an environmental license (Regional Autonomous Corporations): The manufacturing industry for the manufacture of alcohol.

Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
• Request a technical concept describing: • Type of technology and product manufactured (polymer type). • Detailed description of the process. • Demonstrate that the primary plastics manufacturing meets at least one of these criteria: • Manufactured by mechanical recycling. • If the manufacturing is by chemical recycling, calculate the carbon footprint of the process using ISO 14067:2018 and demonstrate reduction compared to the manufacture of plastics from fossil fuel. • If the manufacturing involves the use of renewable raw materials (biomass or biowaste), calculate the carbon footprint of the process using ISO 14067:2018, and demonstrate reduction compared to manufacturing plastics from fossil fuels. Some recommended guidelines are: Main basic transformation processes of the plastics industry and handling, https://redjusticiaambientalcolombia.les.wordpress.com/2012/09/guias-ambientales-sector-plc3a1sticos.pdf Use and disposal of post-consumer plastic waste: This guide presents a Overview of the different transformation processes of the plastics industry. ISO 14067: ISO guide that allows quantification of the greenhouse gases that can be emitted and disposed of throughout the life cycle of a product.	• tCO eq/t produced during the plastic production process • Type of polymer manufactured • Recycled plastic used for secondary production (t or %)	• Does the project require an environmental license⁴⁶ ?: Request this document and the Environmental Impact Study approved by Colombia's environmental authority • If the project does not require a license request an Environmental Management Plan, in accordance with the magnitude of the investment and the scale of the project/executing entity of the anchoring, which ensures the control of relevant impacts such as: • Control of Air Emissions • Integrated management of generated waste (reuse, recycling, management of waste generated in the different stages of operation) and emissions of hydrocarbons and suspended solids into water • Identification of strategic ecosystems and environmentally sensitive areas in the project's area of influence NOTE: given their technical complexity, these types of projects should fall within an environmental and social risk screening.	• Single Environmental Registry for the Manufacturing Sector http://www.ideam.gov.co/web/contaminacion-y-calidad-ambiental/registro-unico-ambiental-para-el-sector-manufacturero • Law 2332 — Gradual reduction of production and consumption https://www.cancilleria.gov.co/sites/default/files/Normograma/docs/ley_2232_2022.htm of certain single-use plastic products https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=16316&foId=hwARIP-gd8K-qEFVU1-vgKYJhKyQSSOT8yynNA76EDNTespCphSApe8 When requesting an Environmental Management Plan, consideration must be given to the provisions of Decree 1220 of 2005, which regulates Title VIII of Law 99 of 1993 on environmental licenses

⁴⁵Verify compliance with the origin of the biomass and biowaste, described in activity M6 and in the TVC.

⁴⁶ An environmental license is required for the import and/or production of those substances, materials or products subject to controls by virtue of international environmental treaties, conventions and protocols, except in those cases in which said regulations indicate a special authorization for this purpose.

Table 5. Alignment at the level of eligibility criteria and requirements - ICT sector

Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
• Request a technical concept demonstrating energy that the equipment used in the data centers per year (PUE) have energy efficiency certifications and that the calculation of efficiency of use • Savings of energy consumption (PUE) is projected annual energy less than 1.5. (kWh/yr) Some of the high-level energy efficiency certifications or seals are: In teams: Energy Star – A device's energy efficiency backup seal. Retiq certification: label that indicates the efficiency range of each appliance, set on a scale from the letter A to G, with the letter A representing the lowest energy consumption during its useful life. Data Center Level Certifications: CEEDA: Energy efficiency certification for new and existing data centers. Tier certification: verifies the application of the tier standard to guarantee that the facility has been designed, built and operated in accordance with certain specifications, such as: design, construction, efficiency in operation, among others. (Tier I – Tier IV) Energy Efficiency Calculation: For this calculation, the total potential of the facility ⁴⁷ is divided by the energy of the computer equipment ⁴⁸. The best ratio (PUE) is 1.0 ⁴⁹.	• Efficiency of use of	• Request an Environmental Management Plan, This is in accordance with the magnitude of the investment and the scale of the project/executing entity of the anchoring, which ensures the control of relevant impacts such as: • Identification of strategic ecosystems and environmentally sensitive areas in the project's area of influence • Comprehensive management of all waste generated in the different stages of operation. • Refrigerants used in cooling/cooling systems should comply with current F-gas regulations. • Data processing, hosting, and related activities must comply with applicable national standards or policies related to the management of waste electrical and electronic equipment (WEEE) and extended producer responsibility (EPR).	• Data center <u>certifications</u> https://uptimeinstitute.com/tier-certification • <u>TIA 942 standard for the implementation of data centers</u>. The TIA 942 Standard establishes the requirements https://www.c3comunicaciones.es/data-center-el-estandar-tia-942/ for the design and construction of data centers, including aspects related to energy efficiency, waste management and mitigation of environmental impacts. • <u>80 PLUS certificate, which applies to</u> power supplies used in https://hardzone.es/reportajes/que-es/certi-80-plus/ IT equipment, such as servers and storage systems. The 80 PLUS certificate evaluates the energy efficiency of power supplies and classifies their performance at different levels. Opting for power supplies with this certificate can contribute to the reduction of energy consumption and the operational efficiency of data centers. • <u>When requesting an Environmental Management Plan,</u> https://www.funcionpublica.gov.co/eva/gestornormas/norma.php?id=16316&id=1&A&P=aplicarEFVU+ogKV+hpKyGSSG7GynNA76ZONTmpCp1SAgn8 must consider the provisions of Decree 1220 of 2005, which regulates Title VIII of Law 99 of 1993 on environmental licenses

No verification is necessary as it is • Emission reduction one activity directly eligible under the GHG projected per year TVC. (gCO² eq/yr)	• Request a statement on whether the data-driven GHG reduction solutions comply with applicable national standards or policies related to WEEE management and extended producer responsibility (EPR).	• Depending on the type of digital solution to be implemented, there are different methodologies that can help create an indicator for the project, including the Clean Development Mechanisms methodologies, defined by the United Nations Framework Convention on https://cdm.unfccc.int/methodologies/documentation/index.html Climate Change: CDM: documentation (unfccc.int)
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47 This refers to the amount of energy used by the entire facility, including all data center hardware, power supply components, cooling systems, and lighting systems.
48 Computer equipment energy refers to the amount of energy used to power storage and networking equipment as well as control equipment such as monitors and workstations.
49 An PUE of 1.0 indicates a perfectly efficient data center in which 100% of the power of the installation is supplied to the computer equipment.

Table 6. Alignment at the level of eligibility criteria and requirements - waste sector

Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Monitoring Proposed indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
• If treatment is done through anaerobic digestion, request technical concept describing: • The monitoring plan to control the methane (CH) emissions generated in the process • The biogas production management plan , specifying: • The projected use of biogas (generation of electricity and/or heat, etc.), otherwise, if the biogas is not used and is directly burned, there must be a plan to transition to other types of use in the medium term (3 years) or less) • The use of digestate, a product of biological degradation, as a fertilizer or soil improver. Some determining factors to improve the efficiency of the biogas process and production are: • Monitoring of environmental conditions (temperature, pH, among others) • Biochemical characteristics of wastewater sludge (including substrate toxicity analysis) • Carbon to nitrogen ratio monitoring (optimal range: 30:1 to 20:1 range) • Monitoring of total solids and volatile levels. Some recommended guidelines are: Biogas Manual: developed by the FAO.	• Tons of sludge treated (t) • Quantity of biogas produced annually (m/yr) ³ • Biogas usage by type (e.g. electric power, thermal energy, amount of direct flaring, leakage, etc.) • Quantity of digestate generated per year and use	• Does the project require environmental license 50 ? : Request this document and the Environmental Impact Study approved by the environmental authority of Colombia. • Request an Environmental Management Plan and dumping permit in accordance with the magnitude of the investment and the scale of the project/executing entity of the anchoring, which ensures the control of relevant impacts such as: • Emissions to air and water are within the ranges established by Colombian legislation • Integrated management of the waste generated in the different stages of operation • Identification of strategic ecosystems and environmentally sensitive areas in the project's area of influence • The resulting digestate is used as fertilizer	• Law https://intranet.secretariajuridica.gov.co/transparencia/marco-legal/normatividad/ley-142-1994 142 of 1994. Regime of public household services • https://www.minambiente.gov.co/documento-normativa/decreto-1287-de-2014/ Decree 1287 of 2014. Criteria for Use of Biosolids Generated in Municipal Wastewater Treatment Plants • Decree 1076 of 2015 – Stationary Source Emissions Permit https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=78153 • Law 1972 of 2019 - Reduction of air pollutants https://www.minambiente.gov.co/wp-content/uploads/2021/06/ley-1972-2019.pdf • Biogas https://www.fao.org/3/as400s/as400s.pdf Manual Guides and Manuals • Technical Regulations on Water and Basic Sanitation https://minvivienda.gov.co/sites/default/files/documentos/anexo-3-tecnologias-de-tratamiento-de-lodos.pdf – RAS • Guide for conducting audits of Energy https://www.minvivienda.gov.co/sites/default/files/documentos/guia-auditorias-vf.pdf and Operational Efficiency in Water Treatment Systems • 1220 of 2005, which regulates Title VIII of Law 99 of 1993 on environmental licenses

⁵⁰ The construction and operation of wastewater treatment systems that serve populations equal to or greater than two hundred thousand (200,000) inhabitants is required.

Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
• Request a technical concept describing and specifying: Characteristics of the infrastructure and equipment for the collection and separate transport of non-hazardous waste. Including: • Description of the collection, demonstrating that the waste is segregated at source and collected separately • Description of waste transport optimization (e.g., transfer stations and investments in compaction and crushing to improve charging capacity) • Description of the type of final disposal (utilization)	• Amount of segregated waste at source collected (kg or t) • Amount of waste used by type of final disposal (kg or t by type of use)	• Request an Environmental Management Plan, This is in accordance with the magnitude of the investment and the scale of the project/executing entity of the anchoring, which ensures the control of relevant impacts such as: • Avoid commingling of source-separated waste fractions in waste storage and transfer facilities. • Complies with the rules related to the proper management of leachates during the separate transport of wastes.	https://intranet.secretariajuridica.gov.co/transparencia/marco-legal/normatividad/ley-142-1994 Waste separation color coding • Decree 1784 of 2017 - Treatment and final disposal of solid waste in the public sanitation service https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=84140 • Decree 2981 of 2013 – Provision of public sanitation services https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=56035 • Integrated Solid Waste Management https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=163168&cid=3wAR2P-ic09K-oEPVU8-ogkY-hbKvQSS0TS8ynNA76PD0NTexpCpH5Apm8 • National Guidelines for Proper Solid Waste Separation https://colaboracion.dnp.gov.co/CDT/vivienda%20Agua%20y%20Desarrollo%20Urbano/Guia_Residuos%20Sólidos_Digital.pdf • When requesting an Environmental Management Plan, the provisions of Decree 1220 of 2005, which regulates Title VIII of Law 99 of 1993, on environmental licenses, must be considered https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=163168&cid=3wAR2P-ic09K-oEPVU8-ogkY-hbKvQSS0TS8ynNA76PD0NTexpCpH5Apm8



Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
- Request a technical concept describing and specifying: Organic waste management, demonstrating that they are separated at the source and/or collected separately before entering anaerobic digestion. The monitoring plan to control the methane (CH) emissions generated in the process The biogas production management plan , specifying: The projected use of biogas (generation of electricity and/or heat, etc.), otherwise, if the biogas is not used and is directly burned, there must be a plan to transition to other types of use in the medium term (3 years). or less) The use of digestate, a product of biological degradation, as a fertilizer or soil improver. Biodigester capacity (t/year of waste) and (energy produced/year) NOTE: check the determining factors to improve the efficiency of the biogas process and production, described in activity RC1.	Amount of solid organic waste harnessed (t) - Quantity of biogas produced annually (m3 /year) - Biogas usage by type (e.g. electric power, thermal energy, amount of direct flaring, leakage, etc.) - Quantity of digestate generated per year and use	- Does the project require an environmental license?: Request this document and the Environmental Impact Study approved by Colombia's environmental authority - If the project does not require an environmental license, request an Environmental Management Plan, in accordance with the magnitude of the investment and the scale of the project/executing entity of the funding, which ensures the control of relevant impacts such as: Air and water emissions are within the ranges established for Colombia Air emissions after biogas combustion are controlled and decreased Identification of strategic ecosystems and environmentally sensitive areas in the project's area of influence NOTE: given their technical complexity, these types of projects should fall within an environmental and social risk screening.	Law https://intranet.secretariajuridica.gov.co/transparencia/marco-legal/normatividad/ley-142-1994 142 of 1994. Regime of public household services Decree https://www.minambiente.gov.co/documento-normativa/decreto-1287-de-2014/ 1287 of 2014. Criteria for Use of Biosolids Generated in Municipal Wastewater Treatment Plants https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=78153 Decree 1076 of 2015 – Stationary Source Emissions Permit <a href="http://www.ideam.gov.co/documentos/5131052739102_#resultado%2F%2F331+2254+de+2017+<Nivel+Calidad+de+aire_+pdf%2F2268a-058a-42d6-a488-27486a4395_+Decision+2264+of+2017_+Environmental+Air+Quality+Regulation">http://www.ideam.gov.co/documentos/5131052739102_#resultado%2F%2F331+2254+de+2017+<Nivel+Calidad+de+aire_+pdf%2F2268a-058a-42d6-a488-27486a4395_+Decision+2264+of+2017_+Environmental+Air+Quality+Regulation Guides and manuals https://www.fao.org/3/as400s/as400s.pdf Biogas Manual Technical Regulations on Water and Basic Sanitation (SAR) https://www.minvivienda.gov.co/sites/default/files/documentos/anexo-3-tecnologias-de-tratamiento-de-lodos.pdf When requesting an Environmental Management Plan, https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=16316&docId=164804_+pdf%2F2268a-058a-42d6-a488-27486a4395_+Decision+2264+of+2017_+Environmental+Air+Quality+Regulation must consider the provisions of Decree 1220 of 2005, which regulates Title VIII of Law 99 of 1993 on environmental licenses

Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
- Request a technical concept describing: Organic waste management, demonstrating that they are separated at the source and/or collected separately before entering the composting and pretreatment system. Methane reduction and management plan: Concept of operation detailing the waste aeration or mixing system during the composting process Final use of composted product, as fertilizer or soil improver Some factors that should be monitored during composting production include: Aeration Control Carbon dioxide Humidity Temperature pH Particle Size Volume Heavy Metal Content Some guidelines for the production and monitoring of the characteristics of compost are: FAO Farmer's Composting Handbook: https://www.fao.org/3/i3388s/i3388s.pdf Learning Guide on Composting at the Family and Smallholder Farm Level, prepared by FAO for Latin America and the Caribbean. Technical https://www.uaesp.gov.co/images/Guia-UAESP_SR.pdf Guide for the Use of Organic Waste through Methodologies Composting and Vermiculture: Document that explains the process of elaboration, quality monitoring and different composting techniques. https://www.fundacionambienteymedio.org/img/compostaje/Manual-Compostaje-FAYM-.pdf manual for the correct composting of organic waste: illustrative guide on the composting of organic waste.	Amount of compost produced (kg or t) - Compost characteristics and quality	- Does the project require an environmental license? ⁵¹ ? Request this document and the Environmental Impact Study approved by Colombia's environmental authority Request an Environmental Management Plan, In accordance with the magnitude of the investment and the scale of the project / executing entity of the funding, which ensures control of relevant impacts such as: For plants that treat >75 t/day, an emissions and odor management plan is in place. A system is in place to prevent leachate from reaching groundwater. The resulting compost meets the organic fertilizer requirements of national standards.	http://www.ideam.gov.co/documentos/51310/5275910_+Resolucion%2F%2B3+2254+de2017+-+Niveles+Calidad+del+Aire_.pdfResolucion 2254 of 2017 - Environmental Air Quality Regulations https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=84140 Decree 1784 of 2017- Amends and adds Decree 1077 of 2015 in relation to complementary treatment activities. and final disposal of waste, solids in the public sanitation service https://www.minambiente.gov.co/wp-content/uploads/2021/06/Decreto-1076-de-2015.pdf report on the characterization of liquid spills Manuals and Guides: https://www.fundacionambienteymedio.org/img/compostaje/Manual-Compostaje-FAYM-.pdf Manual for the correct composting of organic waste Technical guide for the use of organic waste through composting and worming methodologies https://www.uaesp.gov.co/images/Guia-UAESP_SR.pdf Farmer's Composting Manual https://www.fao.org/3/i3388s/i3388s.pdf https://www.fundacionambienteymedio.org/img/compostaje/Manual-Compostaje-FAYM-.pdf manual for the correct composting of organic waste: illustrative guide on the composting of organic waste. 1220 of 2005, which regulates Title VIII of Law 99 of 1993 on environmental licenses

51 The construction and operation of plants whose purpose is the use and recovery of biodegradable solid organic waste greater than or equal to twenty thousand (20,000) tons/year is required.



ACTIVITY **CR5. Utilization of Non-Hazardous Waste Material**

Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
- Request a technical concept demonstrating that: • At least 50% by weight of the recovered nonhazardous waste is converted into secondary raw materials. • The exploitation produces secondary raw materials suitable for the substitution of virgin materials different production processes. Are directly eligible active for mechanized separation of non-hazardous waste. Some guidelines for the proper separation of waste and the calculation of generation and recycling are: <u>National Guidelines for the Appropriate Separation of solid waste: Document published by the DNP that aims to promote recycling, reduce the negative environmental impact of waste</u> <u>Integrated Waste Management Manual: https://www.minsalud.gov.co/sites/rid/Lists/BibliotecaDigital/RIDE/IA/INS/manual-gestion-integral-residuos.pdf</u> Document published by the Ministry of Health <u>Industrial Solid Waste Management Guide https://www.andi.com.co/uploads/GUI%CC%81A%20RESIDUOS%20IMP%20ZAMPA%20MARZO%205.pdf for the pulp, paper, and paperboard sector of Colombia:</u> Information tool on available alternatives for the management of waste generated in the production processes of the paper industry. <u>Accounting procedure for the calculation of waste generation, recycling and reuse – EAP: The document describes the method used by the NSW Environment Protection Authority to calculate the generation, recycling, reuse and disposal of waste in the region of NSW.</u>	• Weight of each type of recycled materials per year (kg or t) • Weight of waste converted to secondary raw material per year (kg or t)	- Request an Environmental Management Plan, This is in accordance with the magnitude of the investment and the scale of the project/executing entity of the anchoring, which ensures the control of relevant impacts such as: • Avoided release of GHG emissions during operation Infrastructure is not located in strategic ecosystems NOTE: given their technical complexity, these types of projects should fall within an environmental and social risk screening.	https://www.orarbo.gov.co/es/el-observatorio-y-los-municipios/resolucion-754-de-2014 Resolution 0754 of 2014 - Integrated Solid Waste Management Plan • Decree 1784 of 2017 - Treatment. and Final https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=84140 disposal of solid waste in the public sanitation service • Decree https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=56035 2981 of 2013 – Provision of public sanitation services • Integrated Solid Waste Management Plans https://normas.cra.gov.co/gestor/aseo_cto_estaciones_clasificacion_aprovechamiento_eca.html Sorting and Utilization Station • National Plan for the Sustainable Management of Single-Use Plastics https://www.minambiente.gov.co/wp-content/uploads/2022/02/plan-nacional-para-la-gestion-sostenible-de-plasticos-un-solo-uso-minambiente.pdf • National policy for the comprehensive management of solid waste- CONPES-3874 https://colaboracion.dnp.gov.co/CDT/Compes/Econ%CC%83%20Ambio%2074.pdf • When requesting an Environmental Management Plan, https://www.unadpublica.gov.co/eva/gestornormativo/norma.php?i=161184 must consider the provisions of Decree 1220 of 2005, which regulates Title VIII of Law 99 of 1993 on environmental licenses



ACTIVITY **RC6. Energy Production from Non-Recyclable Waste Fractions (Thermal Treatments)**

Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
- Request a technical concept demonstrating that: The project has been identified as a key activity within the regional Integrated Solid Waste Management Plan (PGRIS). There is no accessible infrastructure for recycling in the region (information can be verified through ISWMP or technical concept issued by the public services unit in the project's area of influence). The activity occurs from the non-recyclable fraction of waste disposal and/or that displaces the use of fossil fuels for energy production. Some examples of guidelines for the integral management of solid waste and its reuse are: <u>Strategic Planning Guide for the Management of Solid Waste from Small Municipalities in Colombia:</u> The guide aims to help small municipalities introduce solutions for the sustainable management of Urban Solid Waste (MSW). https://www.minvivienda.gov.co/sites/default/LES/documentos/20210806-entregable-1-v5-de nltiva_0.pdf Tratamiento de residuos sólidos en el marco del servicio público de aseo: Guía cuyo objetivo is to accelerate actions to achieve the goals of the Nationally Determined Contributions by incentivizing the treatment of organic solid waste within the framework of the Public Sanitation Service in the country.	Annual energy generation (kWh/year) - Characteristics of the waste (calorific value) - Amount of secondary energy used (e.g. electricity, fuel, etc.) used if waste does not have sufficient calorific value - Quantity of ash produced and its final disposal - Atmospheric emissions characteristics	- Does the project require an environmental license?: Request this document and the Environmental Impact Study approved by Colombia's environmental authority - If the project does not require an environmental license, request an Environmental Management Plan, in accordance with the magnitude of the investment and the scale of the project/executing entity of the funding, which ensures the control of relevant impacts such as: Avoided release of GHG emissions during operation. Infrastructure is not in ecosystems that are strategic for food security, rich in biodiversity, or serve as habitat for endangered species. NOTE: given their technical complexity, these types of projects should fall within an environmental and social risk screening.	- Plans - Integrated Solid Waste Management - Decree 1077 of 2015. Decree 1077 of 2015. https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=77216 Single Regulatory Decree for the Housing, City, and Territory Sector - Resolution 0754 of 2014. Methodology for the formulation, implementation, evaluation, control and updating of Integrated Solid Waste Management Plans https://www.minvivienda.gov.co/sites/default/files/2020-08/resolucion-754-de-2014.pdf - Guides and manuals: https://www.minvivienda.gov.co/sites/default/files/documentos/20210806-entregable-1-v5-definitiva_0.pdf solid waste treatment within the framework of the public sanitation service - Strategic Planning Guide for the Management of Solid Waste from Small Municipalities in Colombia https://www.minvivienda.gov.co/sites/default/files/2020-07/guia-de-manejo-de-residuos-2017.pdf - UPME Atlas of the Energy Potential of Residual Biomass https://www1.upme.gov.co/siame/Paginas/atlas-del-potencial-energetico-de-la-biomasa.aspx in Colombia - External Circular 39 of 2023 National Firewood Substitution Plan (PNSL) of the UPME https://www1.upme.gov.co/siapg/Paginas/Plan-nacional-sustitucion-le%C3%B1a.aspx - Law 2294 of 2023, Arts. 232 and 236 - PND 2022-2026 https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=209510 "Colombia World Power of Life" Fair, Secure, Reliable, and Efficient Energy Transition https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=163168&cdid=hwARP-gDR-q4PVL-ogKY2HfjyG5SOT3byhNA76ZDNTxpcCjrt6Apmf When requesting an Environmental Management Plan, the provisions of Decree 1220 of 2005 must be considered, which regulates Title VIII of Law 99 of 1993 on environmental licenses

Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
• Request a technical concept demonstrating that: • Date of Permanent closure of the fill the toilet. • Landfill Gas Use Plan, preferably for the generation of electricity and/or heat, otherwise, if the system only includes the direct burning of gas, it must have a transition plan to other types of exploitation in the medium term (3 years or less). • There is a management and monitoring plan of the resulting methane. • Request environmental impact studies conducted for the project ⁵². Some recommended guidelines are: Biogas Manual: developed by the FAO. Regulatory Impact – document acknowledging the obligation to have extraction, active and passive capture systems for the management of gases in landfills within the tariffs of the public sanitation service.	• Quantity of gas captured • kWh produced annually • Characteristics of the waste (calorific value) • Amount of secondary energy (e.g. electricity, fuel, etc.) used if waste has insufficient calorific value • Quantity of ash produced and its final disposal • Air emission characteristics	• Does the project require an environmental license?: Request this document and the Environmental Impact Study approved by Colombia's environmental authority • If the project does not require an environmental license, request an Environmental Management Plan, in accordance with the magnitude of the investment and the scale of the project/executing entity of the funding, which ensures the control of relevant impacts such as: • SOX, NXOY and particulate emissions are controlled, and it is necessary to monitor that they are within the limits established by current regulations. • Infrastructure is not in strategic ecosystems NOTE: given their technical complexity, these types of projects should fall within an environmental and social risk screening.	• https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=84140 <u>Decree 1784 of 2017 - Treatment and final disposal of solid waste in the public sanitation service</u> • http://www.ideam.gov.co/documents/51310/527391/2.+Resoluci%C3%B3n+2254+de+2017+--+Niveles+Calidad+del+Aire_.pdf Resolución 2254 de 2017 - Environmental Air Quality Regulations • Guides and manuals: https://www.fao.org/3/as400s/as400s.pdf biogas manual • Regulatory impact – document acknowledging https://www.cra.gov.co/sites/default/files/multimedia_case/2019-12/AIN-FINAL-BIOGAS.pdf the obligation to have extraction and active and passive capture systems for the management of gases in landfills within the public sanitation service tariffs https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=16316&docId=hwAR0P-qdR0K-qdFVLS+gKCYzPlpYrQES0TS8ynNA7H6Z0HTwepCpH5Aprn8 When requesting an Environmental Management Plan, the provisions of Decree 1220 of 2005 must be considered, which regulates Title VIII of Law 99 of 1993 on environmental licenses

⁵² The construction and operation of sanitary landfills requires an environmental license.

Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
- Request a technical concept that includes: · System type: artificial capture, transport, or storage and demonstrate that none of the above is from fossil fuel processes. If it is: - Artificial capture of GHGs: direct capture of GHGs from the atmosphere is directly eligible. In the case of the capture of GHGs in an industrial process, it must ensure that it captures at least 90% of the emissions of the process. - In addition, request the carbon neutrality strategy and that the project is in line with the provisions of the Comprehensive Sectoral and Territorial Climate Change Management Plans, as appropriate. - Transportation of GHGs: it must demonstrate that it has a management and monitoring of leaks of the transported GHGs. - Storage and usage of captured GHG: must demonstrate that the facility meets the criteria of ISO 27914: 2017. https://www.iso.org/standard/64148.html	Screenshot: · - Percentage of GHG emissions capture - tCOeq captured Transport: - tCO eq transported Storage: - tCO eq stored or captured	- Does the project require an environmental license?: Request this document and the Environmental Impact Study approved by Colombia's environmental authority - If the project does not require an environmental license, request an Environmental Management Plan, in accordance with the magnitude of the investment and the scale of the project/executing entity of the funding, which ensures the control of relevant impacts such as: · Select equipment based on criteria with the lowest environmental impact · Avoid hazardous wastes · Prevent release of GHG emissions · Reducing ammonia loss on operation. · Minimize the formation of secondary aerosols and ozone · Adequate equipment for CO transport (fans, compressors, pumps, etc.) is available · Protect groundwater hydrology and aquatic ecology. NOTE: given their technical complexity, these types of projects should fall within an environmental and social risk screening.	https://www.catorce6.com/images/legal/Resolucion_40350_de_2021_Minminas.pdf 2021-MME-Resolution-40350 https://www.iso.org/standard/64148.html ISO 27914:2017 – Capture, transport, and geological storage of carbon dioxide - Geological storage https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=16316&dsd=HAROP-q-EPVUJ-qgKY.zhPlyGSSOTsbynNA718ZDNTxpcCp4EAp6 When requesting an Environmental Management Plan, the provisions of Decree 1220 of 2005 must be considered, which regulates Title VIII of Law 99 of 1993 on environmental licenses

Technical information and/or documentation relevant to determining compliance with the eligibility criterion

Leakage reduction by at least 20% compared to the existing system.

- Demonstrate increased coverage of existing systems that already meet water leakage target values (IPUFs)

Some reference documents:

EU Reference Document Good Practices in Leakage Management – this document

of water from the point of view of the water supply network.

NOTE: ensure that you have all environmental permits (e.g., water concession permit, if applicable).

Proposed Monitoring Indicators

CONTINUED FROM
PREVIOUS PAGE

Technical information relevant to determining compliance with general and specific requirements

CONTINUED FROM PREVIOUS PAGE

<https://www.andi.com.co/Uploads/Resoluci%C3%B3n%20316%20de%202018-.pdf> Resolution 316 of 2018

<https://www.metropol.gov.co/ambiental/calidad-del-aire/Biblioteca-aire/Combustibles/02-Anexo-3-manual-alu-para-talleres.pdf>

Manual for the integral management of used lubricated oils

- **When requesting an Environmental Management Plan,**
<https://www.funcionpublica.gov.br/conv/gestornormas/informacao.php?r=1163164&id=1&AROP=OPK-q-EVUL-qgKYJhlyqGSSOTfmgNNA76ZDN7reqTzCp8Aq8>
 must consider the provisions of Decree 1220 of 2005, which regulates Title VIII of Law 99 of 1993 on environmental licenses



Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
Request a technical concept describing and demonstrating that the project: It has an operation and maintenance plan to prevent leaks or overflows of untreated wastewater and reduces water consumption due to reuse. Sewerage systems that increase the volume of wastewater treated and/or the separation of rainwater are also eligible. NOTE: ensure that you have all environmental permits (e.g., discharge permit, sanitation and wind management plan-PSMV, if applicable). To demonstrate compliance with leakage reduction measures, projects must https://www.minvivienda.gov.co/sites/default/ them/documents/titulo-k_18-septiembre-2020.pdf comply with the Technical Regulations of the Drinking Water and Basic Sanitation sector (RAS).	% reduction in water leakage or overflow of untreated water - m3 of reduced water footprint or overflow of untreated water % reduction of raw wastewater discharges avoided - m of water discharged 3 untreated residuals avoided	- Request an Environmental Management Plan, This is in accordance with the magnitude of the investment and the scale of the project/executing entity of the anchoring, which ensures the control of relevant impacts such as: - Control, management and treatment of sludge and waste disposal Control, handling and treatment of used oils and lubricants (if applicable). - If the asset is located in water-stressed areas, water use management and conservation plans should be submitted.	https://www.minvivienda.gov.co/sites/default/files/documentos/titulo-k_18-septiembre-2020.pdf Technical Regulations for the Drinking Water and Basic Sanitation Sector https://www.minambiente.gov.co/wp-content/uploads/2021/08/resolucion-1257-de-2018.pdf Resolution 1257 of 2018 - Program for the efficient use and saving of water https://www.minambiente.gov.co/wp-content/uploads/2021/06/Decreto-1076-de-2015.pdf Liquid spill characterization report https://www.mincit.gov.co/ministerio/hormograma-sig/procesos-de-apoyo/gestion-de-recursos-fisicos/resoluciones/resolucion-1188-de-2003.aspx Resolution 1188 of 2003 - Management of used oils https://www.worldwatercouncil.org/en/publications/water-fit-finance Water: Is it suitable for financing? https://www.andi.com.co/Uploads/Resoluci%C3%B3n%20316%20de%202018-.pdf Resolution 316 of 2018 https://www.metropol.gov.co/ambiental/calidad-del-aire/Biblioteca-aire/Combustibles/02-Anexo-3-manual-atu-para-talleres.pdf Manual for the integral management of used lubricated oils https://www.mincit.gov.co/ministerio/hormograma-sig/procesos-de-apoyo/gestion-de-recursos-fisicos/resoluciones/resolucion-1188-de-2003.aspx Resolution 1188 of 2003 - Management of used oils <u>1220 of 2005, which regulates Title VIII of Law 99 of 1993 on environmental licenses</u>



ACTIVITY **A3. Wastewater Treatment Systems**

Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
- Request a technical concept that includes: System type: Centralized vs. decentralized, new vs. existing system For new systems: Demonstrate that the new system replaces existing high GHG emission systems such as: pit latrines, septic tanks, anaerobic lagoons, etc. For existing systems: Demonstrate that the treatment flow of the new system is greater, as well as an improvement in the treatment level, evaluating the parameters established in Resolution 631 of 2015; - depending on the activity that corresponds. - If the system is anaerobic, it must demonstrate that it has a methane leakage plan and that the biogas produced is used to generate electricity and/or heat, otherwise, if the biogas is not used and burned directly, it must have a transition plan to other types of exploitation in the medium term (3 years or less). Some methodologies for the calculation of the effectiveness of wastewater treatment plants are: Water/Wastewater Math Calculator Treatment Unit Efficiency Calculator. This https://www.dep.state.pa.us/dep/deputate/waterops/redesign/calculators/remecalculator can calculate the effectiveness of .htm a unit of treatment or the entire treatment process. Fluence Energy Consumption Calculator for Wastewater Treatment Based on International Standard: https://www.uenicecorp.com/wastewater-treatment-energy-consumption-calculator/ ISO 21939 standard for calculating the energy used in a wastewater treatment process. Guide for energy optimization in water treatment systems: developed by Minvivienda. Guide for the development of energy and operational efficiency audits in water treatment systems: developed by the Ministry of Housing. NOTE: make sure you have all environmental permits (e.g., dumping permit, if applicable).	New: tCO eq reduced with the new system Existing: a) M Treaties 3 (b) process energy used or saved (kWh/m) 3 Other indicators: Volume treated before/after project implementation (m³) Percentage of losses before/after project implementation Percentage of discharge compliance with permissible limits Reduction of water footprint due to treatment of new flows	53 ?: Does the project require an environmental license? Request this document, the Environmental Impact Study approved by Colombia's environmental authority and the Environmental Diagnosis of Alternatives If the project does not require an environmental license, request an Environmental Management Plan, in accordance with the magnitude of the investment and the scale of the project/executing entity of the funding, which ensures the control of relevant impacts such as: - Control, management and treatment of sludge and waste disposal - Management of oils and lubricants used in the plant's maintenance process. - If the asset is located in water-stressed areas, water use management and conservation plans should be submitted. NOTE: given their technical complexity, these types of projects should fall within an environmental and social risk screening.	https://www.minvivienda.gov.co/sites/default/files/documentos/titulo-k_18-septiembre-2020.pdf Technical Regulations for the Drinking Water Sector y Basic Sanitation https://www.minambiente.gov.co/wp-content/uploads/2021/08/resolucion-1257-de-2018.pdf Resolution 1257 of 2018 - Program for the efficient use and saving of water https://www.minambiente.gov.co/wp-content/uploads/2021/06/Decreto-1076-de-2015.pdf Liquid spill characterization report ISO https://www.iso.org/standard/72252.html 21939-1:2019 https://www.worldwatercouncil.org/en/publications/water-fit-finance Water: Is it suitable for financing? https://www.minambiente.gov.co/documento-normativa/resolucion-631-de-2015/parameters and maximum permissible limit values for point discharges to surface water bodies and public sewerage systems Guides and Manuals: https://www.minvivienda.gov.co/sites/default/files/documentos/15122021_g_optimizacion-energetica-v15.pdf guide for energy optimization in water treatment systems https://www.minvivienda.gov.co/sites/default/files/documentos/guia-auditorias-vf.pdf Guide for the development of energy and operational efficiency audits in water treatment systems https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?n=16316&fcid=1wAROP-gp0K-qEPVUJ-ogkY.jhKyrQSSOTStyrNA7f6ZDNTexpCpH5Aqnl8 When requesting an Environmental Management Plan, consideration must be given to the provisions of Decree 1220 of 2005, which regulates Title VIII of Law 99 of 1993 on environmental licenses

53 The construction and operation of wastewater treatment systems that serve populations equal to or greater than two hundred thousand (200,000) inhabitants is required.



ACTIVITY **A4. Water efficiency investments**

Technical information and/or documentation relevant to determining compliance with the eligibility criterion	Proposed Monitoring Indicators	Technical information relevant to determining compliance with general and specific requirements	Available public information resources and relevant regulations associated with the activity
- Request a technical concept describing: The baseline scenario of water use compared to the water consumption scenario (m3) after the implementation of the new technology. The difference between the two scenarios must represent a reduction of at least 20% in annual water consumption.	% decrease in water consumption 3 m3 of water consumption reduced	- Does the project require an environmental license?: Request this document and the Environmental Impact Study approved by Colombia's environmental authority - If the project does not require an environmental license, request an Environmental Management Plan, in accordance with the magnitude of the investment and the scale of the project/executing entity of the funding, which ensures the control of relevant impacts such as: - Control, handling and treatment of used oils and lubricants (if applicable). - Risks associated with water consumption and water quality are identified and managed. - If the asset is located in water-stressed areas, water use management and conservation plans should be submitted.	https://www.minvivienda.gov.co/sites/default/files/documentos/titulo-k_18-septiembre-2020.pdf Technical Regulations for the Drinking Water Sector y Basic Sanitation https://www.minambiente.gov.co/wp-content/uploads/2021/08/resolucion-1257-de-2018.pdf Resolution 1257 of 2018 - Program for the efficient use and saving of water https://www.minambiente.gov.co/wp-content/uploads/2021/06/Decreto-1076-de-2015.pdf Liquid spill characterization report Resolution 1188 of March 2003 - Management of used oils https://www.minci.gov.co/ministerio/normograma-sap/procesos-de-apoyo/gestion-de-recursos-fisicos/resoluciones/resolucion-1188-de-2003.aspx Water: Is it suitable for financing? https://www.worldwatercouncil.org/en/publications/water-fit-finance When requesting an Environmental Management Plan, https://www.funcionpublica.gov.co/eva/gestornormas/norma.php?id=116316&titulo=ANEP-aplicacion-y-uso-de-los-Sistemas-de-Monitoreo-y-Control must consider the provisions of Decree 1220 of 2005, which regulates Title VIII of Law 99 of 1993 on environmental licenses



LAND USE SECTORS (Livestock, Agriculture and Forestry)

Table 8. Alignment at the level of eligibility criteria and requirements – land use sector

Technical information for alignment of compliance requirements and general eligibility criteria	Technical documentation to align sectoral eligibility criteria	Proposed Monitoring Indicators	Available public information resources and relevant regulations associated with the activity
Request a technical proposal that demonstrates compliance with these regulatory minimums: • The location of the property with respect to the agricultural frontier (available at this link: https://sipra.upra.gov.co/nacional) • The consistency of the productivity activities of the property with the applicable Territorial Planning Plans (POT) and Forest Management Plan (POF) 54 (available at these links: https://www.colombiaot.gov.co/) * https://www.mtinambiente.gov.co/direccion-de-bosques-biodiversidad-y-servicios-ecosistemas/ordenacion-y-manejo-de-bosques-2/ Forest Management and Management • The environmental regulatory compliance of the property in areas such as: • No use of prohibited pesticides available at this link: https://www.ica.gov.co/areas/agricola/servi/regulation-and-control-of-pesticides-q-uimicos.aspx • Surface and/or groundwater concession permit • Compliance with the 30-meter buffer on each side of water bodies (available at these links: http://visor.ideam.gov.co/geovisor/) https://earth.google.com/web/search/colombia/) • Consistency with management plans for watersheds, wetlands, and other water resources.	• Does the project require an environmental license 55?: Request this document, the Environmental Impact Study approved by the environmental authority of Colombia and the Environmental Diagnosis of Alternatives • If the project does not require an environmental license, request a detailed technical proposal for the production transition to be carried out on the property: a proposal detailing the improvement practices that will be implemented on the property, at least one of the levels of improvement mentioned in the TVC document, whether it is basic practice, or basic practice, Intermediate or advanced: • Livestock: pages 152-154 • Agriculture: Pages 161-174 • Forestry: Pages 182-191 NOTE: given their technical complexity, these types of projects should fall within an environmental and social risk screening Optional documentation ANIMAL HUSBANDRY • Attach certifications in sustainable livestock, such as: • Livestock Environmental Seal of the Colombian Environmental Seal-SAC • Rainforest Alliance Certification in Sustainable Livestock • Attach the sanitary record of the livestock property 56 • Attach the Health Guide for Internal Mobilization issued by the ICA	General • GHG emission reduction (tCOeq avoided/year) (tools or methodologies for calculating GHG emissions: https://www.climatebonds.net/files/files/standards/agriculture/Agriculture%20Criteria%2020210622v3.pdf (see pages 27-28) or https://cdm.unfccc.int/methodologies/index.html) • % of land for regeneration or conservation • kg agrochemicals replaced • L o m 3 of water used for irrigation Soil quality • % of land covered by vegetation • % organic matter • Nitrite, nitrate, and phosphorus content in soil Water Quality • Fecal and total coliforms • Content of toxic substances Biodiversity • Number of trees/ha planted • Diversity of native tree species planted • Population of beneficial organisms present in the territory Agricultural productivity • kg product/ha • Livestock/ha (more examples of indicators available at this link: https://www.redalyc.org/journal/4499/449960477013/html/)	ANIMAL HUSBANDRY * https://www.nature.org/content/dam/tnc/nature/en/documents/AFC_Guia_Reconversion_paginas_baja.pdf Guide to the reversion plan for extensive livestock farming * http://ganaderiacolombianasostenible.co/web/ Sustainable Colombian Livestock Project • Livestock https://www.fedegan.org.co/normatividad/Regulations * https://www.ica.gov.co/servicios-linea/sigma/consultas.aspx Sanitary Requirements • Productive Ordering Plan for https://www.ica.gov.co/areas/agricola/servi/regulation-and-control-of-pesticides-q-uimicos.aspx livestock and dairy chain * https://upra.gov.co/es-co/POP_Documentos/POP_Cadena_Papa.pdf environmental regulatory compliance • More Resources on TVC page 155 AGRICULTURE * https://www.nature.org/content/dam/tnc/nature/en/documents/AFC_Fichas_modelos-agroforestales_baja.pdf Agroforestry model sheets • Land planning guide https://www.nature.org/content/dam/tnc/nature/en/documents/AFC_Guia_planificacion_predial_Pagina_Baja.pdf • https://upra.gov.co/es-co/Paginas/pop-arroz.aspx Productive Ordering Plan for the Rice Chain • More Resources on TVC pages 164, 166 -167, 169-170, 172, 174-175

⁵⁴ The POF is applicable only to projects in the forestry sector.

⁵⁵ Projects that require an environmental license (ANLA): The construction and operation of irrigation and/or drainage districts with coverage of more than 20,000 hectares; The projects, works, or construction activities of infrastructure or agroindustry that are intended to be carried out in national public protected areas; Import of pesticides for agricultural use (active ingredient and/or formulated product), with the exception of pesticides of biological origin made from plant extracts. The importation of chemical pesticides for agricultural use will be in accordance with the procedure established in Andean Decision 436 of 1998, or the regulation that modifies, replaces or repeals it; Importation of pesticides for veterinary use (active ingredient and/or formulated product), with the exception of formulated products for topical use for pets; accessories for external use such as earmuffs, necklaces, nose rings, among others; The introduction into the country of parents, species, subspecies, breeds, hybrids or foreign varieties for the purpose of cultivation, lifting, biological control, reproduction and/or commercialization, to establish themselves or implant themselves in natural or artificial environments, which may affect the stability of ecosystems or wildlife. Projects that require an environmental license (Regional Autonomous Corporations): The construction and operation of irrigation and/or drainage districts for areas greater than or equal to five thousand (5,000) hectares and less than or equal to twenty thousand (20,000) hectares; The projects, works or construction activities of infrastructure or agroindustry that are intended to be carried out in the regional public protected areas.

⁵⁶ The TVT does not cover health aspects.

Technical information for alignment of compliance requirements and general eligibility criteria	Technical documentation to align sectoral eligibility criteria	Proposed Monitoring Indicators	Available public information resources and relevant regulations associated with the activity
Request a cross-cutting environmental management plan in land planning - land conversion plan - forest entrepreneurship plan This plan should include, inter alia, (TVC pg.143-146): • Environmental characteristics and situation of the property and the area • Disease and pest management plan • Pollution control measures of water bodies • Control measures for agrochemical use • Measures to avoid habitat fragmentation • Evidence of articulation with the PIGCCT 57 Applicable	AGRICULTURE • Attach certifications in sustainable agriculture, such as: • Colombian Environmental Seal-SAC • Rainforest Alliance • or UTZ Certification FORESTRY • Attach certifications in sustainable forestry, such as: o FSC Certification or Rainforest Alliance Certification • Attach a permit for the use of forests of unique, persistent and domestic natural forests granted by the CARs • Attach Online Mobilization Safe Conduct (SUNL)	CONTINUED FROM PREVIOUS PAGE	FORESTRY https://upra.gov.co/es-co/Paginas/pop-forestal.aspx Production Management Plan for the Forest Chain • Legal-technical guide on implementation https://www.researchgate.net/publication/343149707_of_forest_regulations https://www.minambiente.gov.co/wp-content/uploads/2021/10/Protocolo-0-Revisio%CC%81n-y-EPMF.pdf Protocol for the Review and Evaluation of Forest Management Plans • More Resources on TVC pages 184, 187, 189, 192

2.3 Special case: How to address energy efficiency assets/activities?

Energy efficiency is the process or technological intervention that results in improved energy performance or reduced energy consumption to achieve the same outcome (Office of Energy Efficiency and Renewable Energy 2023). Achieving this does not necessarily imply a substantial contribution to climate change mitigation, and therefore it is important to verify whether the energy efficiency measure actually results in a substantial performance improvement for the economic activity to be considered green.

TVC helps assess substantial contribution through eligibility criteria. Energy efficiency is covered cross-cutting across all sectors and activities and for energy efficiency measures to be called taxonomies-eligible, the activity must demonstrate that overall performance levels in terms of energy intensity or carbon intensity achieved by these energy measures are within the limits established by the technical selection criteria.

In this sense, for activities associated with the purchase of machinery to improve energy efficiency, the following is recommended:

- 1 Inquire about the sector and activity **where the investment is projected, with the help of TVC.**
- 2 Define the eligibility criteria and/or threshold **to be met, according to the TVT, in terms of energy intensity (savings in energy consumption per unit of product or time) or carbon intensity (in terms of GHG emissions per unit of product or energy).**
- 3 Consistent with the above, request compliance with the eligibility criteria to align the asset/activity of interest with the TVC, making use of those defined in sections 2.2 and 2.3 of this guidance as applicable.

Example: in the procurement of energy-efficiency improvement machinery for cement production, it must be demonstrated that this intervention helps achieve an overall carbon intensity of less than 0.6 tCO₂ eq/t-cement produced.

Finally, as established in the TVC, energy efficiency measures in activities that negatively impact the objectives of the taxonomy are not eligible (e.g., energy efficiency measures applied in facilities that produce energy from fossil fuels).

Relevant regulations: Resolution 40156 of 2022 – Indicative Action Plan 2022-2030 for the development of the Program for the Rational and Efficient Use of Energy, PROURE, which defines sectoral objectives and goals **for energy efficiency.**

<https://www1.upme.gov.co/>

2.4 Social Safeguards

This section presents the documents and resources that can be consulted to ensure that the social safeguards stipulated in the TVC are being complied with.

Social safeguards are performance standards that serve to identify, avoid, and minimize harm to people and the environment through investment project financing. Social safeguards aim to identify best practices for assessing and managing a project's potential environmental and social risks and impacts (World Bank, 2017)

The social safeguards identified in the TVC are:

Table 9. TVT Social Safeguards Objectives

SOCIAL SAFEGUARD	OBJECTIVES
Assessment and Management of Environmental and Social Risks and Impacts	- Identifying, evaluating and managing the environmental and social risks and impacts of the project - Adopt a mitigation hierarchy approach. - Adopt measures to minimize impacts on the disadvantaged or vulnerable. - Utilize environmental and social institutions, legislation and procedures for the assessment, development and implementation of projects. Promote improved environmental and social performance.
Labor and Working Conditions	- Promote safety and health at work. - Promote fair work, associated with non-discrimination and equal opportunities for workers. - Protect workers, considering the particularities of workers from vulnerable populations (women, people with disabilities, children of working age, migrants, etc.) - Prevent forced labor and child labor Support the principles of free association and collective bargaining in accordance with national law - Provide workers with means to raise workplace concerns.
Community Health and Safety	- During all phases of the project, avoid and/or anticipate adverse impacts on the health and safety of the communities involved. - Address climate change considerations in infrastructure design and construction in a timely manner. - Minimize or avoid the community's exposure to risks arising from the execution of the project (road safety, diseases, among other potential risks). Ensure the protection of project-related personnel and property.

SOCIAL SAFEGUARD	OBJECTIVES
Land Acquisition, Restrictions on Land Use and Voluntary Resettlement	• Avoid or minimize involuntary resettlement through project redesign. • Avoid forced eviction. • Minimize negative social and economic impacts associated with land acquisition or use.
Indigenous peoples	• Ensure respect for the human rights, dignity, aspirations, cultural identity, and livelihoods of Indigenous Peoples • Avoid adverse impacts on Indigenous Peoples that may arise from the development of projects. • Promote sustainable development and the creation of opportunities for indigenous peoples. • Promote modifications to improve project design through communication and consultation with the Indigenous Peoples concerned during all phases of the project • Obtain the free and informed consent of the indigenous communities concerned at all stages of the project. • Respect the culture, practices, and knowledge of indigenous communities.
Cultural Heritage	• To preserve cultural heritage from negative impacts related to project implementation. • To address cultural heritage as an integral aspect of sustainable development. • Promote stakeholder consultation on cultural heritage To equitably share the • benefits from the use of cultural heritage.

Source: World Bank (2017) Environmental and Social Framework.

Finally, for the purposes of this guide and compliance with social safeguards, it is recommended to consult the good international practices established in the Environmental and Social Framework document prepared by the World Bank (2017), which is available in the Environmental and Social Framework (2017).

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ANEXOS

Annex 1.

Key Definitions

- **Adaptation to climate change:** "The process of adjustment to the present and expected effects of climate change. In social spheres of decision-making, it corresponds to the adjustment process that seeks to mitigate the harmful effects and/or take advantage of the present or expected beneficial opportunities of climate and its effects. In socio-ecosystems, it is the process of adjustment of biodiversity to the current climate and its effects can be intervened by society with the purpose of facilitating the adjustment to the expected climate" (Law 1931 of 2018).
- **Climate Change:** "A change in the state of the climate, identifiable, for example, by statistical testing, in changes in the mean or in the variability of its properties, which persists for long periods of time. Climate change can be due to natural internal processes or external forcings such as modulations of the solar cycles, volcanic eruptions, or persistent anthropogenic changes in the composition of the atmosphere due to increases in greenhouse gas concentrations or land use. Climate change could modify the characteristics of extreme weather and hydroclimatic phenomena in their average frequency and intensity, which will gradually be expressed in their spatial behavior and annual cycle" (Law 1931 of 2018).
- **Greenhouse gases:** "These are those gaseous components of the atmosphere, of natural or anthropogenic origin, that absorb and emit solar energy reflected by the earth's surface, the atmosphere and clouds. The major greenhouse gases are carbon dioxide (CO), nitrous oxide (NO), methane (CH), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF)" (Law 1931 of 2018).
- **Sustainable Development:** "A development that makes it possible to meet the needs of present generations without compromising the ability of future generations to meet their own needs" (Brundtland Report, 1987).
- **Climate Change Mitigation:** "It is the management that seeks to reduce the levels of greenhouse gas emissions in the atmosphere by limiting or reducing the sources of greenhouse gas emissions and increasing or improving sinks and reserves of greenhouse gases" (Law 1931 of 2018).

Annex 2.

Acronyms

ANLA:	National Environmental Licensing Authority
ARAS:	Environmental and Social Risk Management.
ESG:	Environmental, Social and Governance (Corporate Governance)
CAR:	Regional Autonomous Corporation.
CO :	Carbon dioxide.
ECV:	Life Cycle Assessment.
LFS:	U.S. Environmental Protection Agency.
FNCER:	Non-conventional sources of renewable energy.
GHG:	Greenhouse gases.
SPI:	Colombian Agricultural Institute.
IFC:	International Finance Corporation.
IPCC:	Intergovernmental Panel on Climate Change.
kWh:	Kilowatt hours.
L:	Liters
MADR:	Ministry of Environment and Sustainable Development.
MRV:	Monitoring, Reporting and Verification (MRV) System for Climate Finance in Colombia
SDGs:	Sustainable Development Goals.
UN:	United Nations.
PIGCCT:	Comprehensive Territorial Climate Change Management Plans.
POT:	Land Use Plan.
PROURE:	Programme for the Rational and Efficient Use of Energy.
SAR:	Technical Regulations for the Drinking Water and Basic Sanitation Sector.
RUA:	Single Environmental Registry.
SAC:	Colombian Environmental Seal.
SARAS:	Environmental and Social Risk Management System
FCS:	Office of the Superintendent of the Financial System of Colombia.
TCFD:	Climate-related Financial Disclosures Taskforce .
tCO eq:	Metric tons of carbon dioxide equivalent
TVC:	Colombia Green Taxonomy