Version 28 March 2022

SDG7 Energy Compact of Colombia
A next Decade Action Agenda to advance SDG7 on sustainable energy for all, in line with the goals of the Paris Agreement on Climate Change

SECTION 1: AMBITION

1.1. Ambitions to achieve SDG7 by 2030. *[Please select all that apply, and make sure to state the baseline of each target]*
(Member States targets could be based on their NDCs, energy policies, national five-year plans etc. targets for companies/organizations could be based on their corporate strategy)

☐ **7.1.** By 2030, ensure universal access to affordable, reliable and modern energy services.	Target(s): Time frame: Context for the ambition(s):
☐ **7.2.** By 2030, increase substantially the share of renewable energy in the global energy mix.	Target(s): National Power Installed Capacity of Renewable Energy (RE): 71% National Average Electricity Generation from RE: 79% Time frame: 2030 Context for the ambition(s): In the margins of the United Nations Secretary General's Climate Action Summit in 2019, Colombia launched the Renewables Initiative in Latin America and the Caribbean (RELAC) that represents a regional target to achieve at least 70% participation of renewable energy sources in the power matrix of Latin America and the Caribbean by 2030. In November 2020, Colombia signed the Declaration of Principles of RELAC, expressing a goal to increasing its renewable installed capacity from 12.1 GW in 2019 to 16.1 GW in 2030, i.e., an increase of 33% of its renewable electricity generation capacity.
☐ **7.3.** By 2030, double the global rate of improvement in energy efficiency.	Target(s): Time frame: Context for the ambition(s):
☐ **7.a.** By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology.	Target(s): Time frame: Context for the ambition(s):
☐ **7.b.** By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and land-locked	Target(s): Time frame: Context for the ambition(s):

developing countries, in accordance with their respective programs of support.	

1.2. Other ambitions in support of SDG7 by 2030 and net-zero emissions by 2050. ***[Please describe below e.g., coal phase out or reforming fossil fuel subsidies etc.]***

Target(s): Reduction of 11.2 Mton of CO2 eq in the energy-mining sector
Time frame: 2030
Context for the ambition(s): In December 2020, the Government of Colombia presented and update on its Nationally Determined Contribution (NDC 2020) and it is currently in the process of formulating the Long-Term Climate Strategy E2050, to comply with the commitments Paris Agreement. In 2018, the energy-mining sector was the first to adopt a Comprehensive Climate Change Management Plan (PIGCCme, for its Spanish acronym), which, as defined by national law, is the instrument through which the different Ministries establish guidelines for industries to manage climate change. This Plan established certain goals for 2030, and contains strategic lines, actions, and activities.

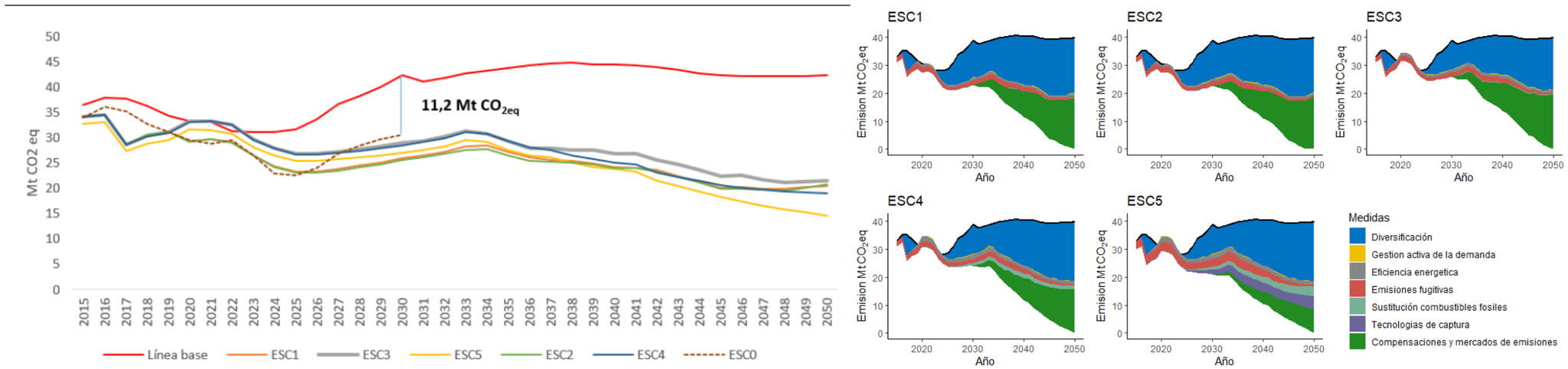
Taking into account the updated NDCs, since the beginning of 2021 the energy-mining sector began updating this Comprehensive Plan, now called PIGCCme 2050, where the entire Sector Strategy (2021-2030) will be updated. Subsequently, a proposal for a Long-Term Sector Climate Strategy (2050) will be developed aiming to enable opportunities for the industry to adapt to new climatic conditions and requirements of the national and international climate policy associated with achieving carbon neutrality by the year 2050.

It should be noted that the PIGCCme 2050 is considered a fundamental element to support Colombia´s Energy Transition Law (approved in July 2021) since this Plan aims to provide inputs, actions and guidelines that allow aligning the energy policy with the national climate policy, under the permanent principle of contributing to the competitiveness and sustainability of the energy-mining sector.

Colombia stands out as the 6th cleanest generation matrix in the world, because of its high share of technologies that use water as a power generation source. Historically the GHG emissions of the energy-mining sector have been strongly influenced by thermal generation of the National Interconnected System – (SIN, for its Spanish acronym) and by the Oil & Gas subsector; the latter being the one with the highest emissions share since 2010. The historical series of the energy-mining sector shows emissions from ~ 27 Mt CO2eq to ~ 35 Mt CO2eq between 2011 and 2015 with an average increase of ~ 2 Mt CO2eq / year. However, between 2016 and 2017, emissions remained at a value of approximately ~ 29 Mt CO2eq, mainly due to the need to maintain the reliability of the energy service with thermal generation, which could be affected by a decrease in the water resource caused by climate variability events, such as the El Niño phenomenon.

In this sense, through the Long-Term Sector Climate Strategy (PIGCCme 2050), the Ministry of Mines and Energy presents not only the projection of GHG emissions to the year 2050 under a Business-as-Usual scenario (Baseline) but also the modelling of five possible mitigation scenarios (ESC) for the year 2050 with the main objective of achieving carbon neutrality in the mining and energy sector. This evaluation process contemplates the construction of an additional scenario (ESC0) whose main objective is to monitor the different actions and measures proposed by the sector in compliance with its goal of reducing 11.2 Mton CO2 eq by 2030. In terms general:

- The Business-as-Usual Scenario (Baseline) contemplated the projection of energy and minerals to the year 2030 and 2050, following the sector's planning documents. These documents are National Energy Plan 2020-2050, Generation Reference Expansion Plan 2016-2030, Natural Gas Supply Plan 2019-2028, Indicative Plan for Liquid Fuels 2020, Projection of coal production, and Low-Carbon Development Strategy, climate risk analysis and portfolio of adaptation measures for the ferronickel and construction materials mining subsectors. Once energy and mineral activities were projected for the years 2030 and 2050, GHG emissions were estimated following the methodology defined by the Ministry of Mines and Energy (IPCC 2006 methodology).
- Scenario 0 (Esc0), according to what was presented by the updated NDCs,proposes a reduction goal of 11.2 Mton eq by 2030, which is expected to be achieved through the following strategies framed in the PIGCCme: i) Diversification of the energy matrix with an expected reduction of 7.73 Mton of CO2 eq; ii) Promote energy efficiency with an expected reduction of 1.44 Mton of CO2 eq; iii) Development of active demand management with an expected reduction of 0.32 Mton CO2 eq; and iv) Management of fugitive emissions with an expected reduction of 1.71 Mton CO2 eq.
- Scenario 1 (Esc1) brings together the different initiatives that are expected to be implemented in the country. In this scenario, the energy matrix is defined by the “Actualización” scenario of the National Energy Plan 2020-2050.
- Scenario 2 (Esc2) brings together the different initiatives that would imply the adoption of new and better technologies developed by the world. Also, extensive use of fuel gases is envisaged. In this scenario, the energy matrix is defined by the “Modernización” scenario of the National Energy Plan 2020-2050.
- Scenario 3 (Esc3) brings together the different initiatives that could usher in a new energy era, characterized by the electrification of the economy. In this scenario, the energy matrix is defined by the “Inflexión” scenario of the National Energy Plan 2020-2050.
- Scenario 4 (Esc4) brings together the implementation of technologies that are currently in an incipient stage of development, but they have a high potential for contributing to climate change mitigation (for example, the entry of green hydrogen). In this scenario, the energy matrix is defined by the disruption scenario of the National Energy Plan 2020-2050.
- Scenario 5 or also called the most ambitious (Esc5), although it contemplates the same projection of electricity generation used by ESC4, incorporates greater self-generation through non-conventional sources of renewable energy in the hydrocarbons and coal mining subsectors (improvement in energy efficiency). It also contemplates the implementation of carbon capture, use and storage technologies (CCUS).



Greenhouse gas (GHG) emission mitigation scenarios by 2050. Source: (Minenergía, 2021).

Once the different mitigation scenarios have been modelled, a reduction in GHG emissions is expected for the energy mining sector by 2050 between 20.41 Mt CO2 eq (51% reduction) and 31.60 Mt CO2 eq (79% reduction) in relation to the total emissions projected by the reference scenario or baseline (40.01 Mt CO2 eq by mid-century). It should be noted that the different GHG emission reductions presented come mainly from five mitigation options: i) diversification of the energy basket, ii) active management of demand, iii) energy efficiency, iv) control of fugitive emissions, and v) substitution of fossil fuels. Emissions from the mining and energy sector by 2050 are expected to be around 19.60 Mt CO2 eq and 8.41 Mt CO2 eq; emissions that will be offset and/or captured in order to achieve carbon neutrality.
As a complement to these strategies, the PIGCCme, which is being updated for 2050, aims to prepare the energy sector to face new regulatory changes and climate threats.

The potential implementation of this Plan will be feasible with the commitment, resolution, and execution of these strategic lines by the entities of the private. The Ministry of Mines and Energy seeks and promotes a series of instruments, called voluntary agreements, which aim to promote active and articulated participation between the industry and the government to fulfill this Plan.

In 2021, the Ministry of Mines and Energy signed a voluntary agreement with the electricity sector called the Alliance for Carbon Neutrality in the Electricity Sector (ASECN, for its Spanish acronym) with ten (10) of the most important companies in the sector. Within the framework of the implementation of this Alliance, the roadmap towards carbon neutrality is being developed and it is expected to be presented at the end of this year. Additionally, negotiation processes are being carried out within the oil&gas and mining subsectors in order to sign voluntary agreements with both, companies and sector associations.

https://www.minenergia.gov.co/documents/10180//23517//15333066739365700Presentaci%C3%B3n+PIGCCME.pdf

SECTION 2: ACTIONS TO ACHIEVE THE AMBITION

2.1. Please add at least one key action for each of the elaborated ambition(s) from section 1. *[Please add rows as needed].*

Description of action (please specify for which ambition from Section 1)	*Start and end date*
Increase the share of renewable energies (ambition 7.2): ➢ Promote the diversification of the energy basket through the implementation of tax and other market incentives, such as the ones introduces by Law 1715 of 2014 and Law 2099 of 2021 approved by the Congress of Colombia. ➢ Support environmental and social dimensions of renewable energy generation and transmission projects. ➢ Encourage long-term renewable energy auctions led by the National Government	

➢ Increase governmental support and creation of new incentives for the development of new technologies such as Hydrogen, geothermal energy, biomass and storage, capture and use of Carbon (CCUS).	
Description of action (please specify for which ambition from Section 1) **Reductions in greenhouse gas emissions from the sector (1.2 other ambitions)** The historical GHG emissions of the Sector have varied in a range between 29.4 and 33.4 Mt CO2eq from 2010 to 2019, with a maximum of 34.6 Mt CO2eq (2015 emissions) and a minimum of 26.4 Mt CO2eq (2011 emissions). According to the PIGCCme, the goal of the mining and energy sector is to reduce the combined emissions by 11.2 Mt CO2e in 2030. A key action to achieve the goal proposed in the ambition, will be to negotiate voluntary agreements with different stakeholders, aimed at cutting emissions and achieving net-zero. Particularly, agreements must be reached with the most energy intensive sectors, such as the oil & gas and the mining sectors.	*Start and end date*
Description of action (please specify for which ambition from Section 1)	*Start and end date*
Description of action (please specify for which ambition from Section 1)	*Start and end date*

SECTION 3: OUTCOMES

3.1. Please add at least one measurable and time-based outcome for **each** of the actions from section 2. *[Please add rows as needed].*

Outcome	*Date*
The reduction of 11.2 Mton CO2 eq by 2030 in the energy sector will have the following measurable outcomes: 1. By the end of 2021, achieve a voluntary agreement with the hydrocarbon industry, to promote the adoption of the PIGCCme 2050 and therefore, the reduction of emissions from this subsector. 2. By the end of 2021, the formulation of the roadmaps of the companies that sign the Alliance for Carbon Neutrality of the Electricity Sector and that represent approximately 59% of the capacity of the interconnected system. 3. By the end of 2021, launch a National Hydrogen Roadmap. 4. By 2030, 100% of the companies in the entire sector will have their roadmaps to achieve carbon neutrality, through the application of the PIGCCme's long-term 2050 strategy. 5. 5. By 2030, reach at least a 79% penetration of Renewable Energies in terms of generation and at least 71% in terms of installed capacity. (RELAC) – Increasing Colombia's renewable installed capacity from 12.1 GW in 2019 to 16.1 GW in 2030, with an expected reduction between 4.74 and 7.99 Mton of CO2 eq. 6. By 2030, reduce 1.44 Mton of CO2 eq through promoting energy efficiency 7. By 2030, reduce 0.32 Mton CO2 eq through the development of active energy demand management 8. By 2030, reduce 1.71 Mton CO2 eq. through and enhanced management of fugitive emissions in the oil & gas sector.	

SECTION 4: REQUIRED RESOURCES AND SUPPORT

4.1. Please specify required finance and investments for **each** of the actions in section 2.

The costs and abatement of each of the PIGCCme emission mitigation scenarios are found in the following table:

Summary of Results	ESC 1	ESC 2	ESC 3	ESC 4	ESC 5
Cost [Millions of USD]	27.904,85	27.301,29	35.209,83	37.671,11	38.153,91
Total abated emissions [Mt CO2eq]	1.202,00	1.201,95	1.206,12	1.178,98	1.091,32

The investment costs required for the implementation of each of the PIGCCme emission mitigation scenarios are found in the following table:

Summary of Results	ESC 1	ESC 2	ESC 3	ESC 4	ESC 5
Cost [Millions of USD]	39.487,85	40.202,73	43.606,07	44.203,71	43.624,10

4.2. [For countries only] In case support is required for the actions in section 2, please select from below and describe the required support and specify for which action.

[Examples of support for Member States could include: Access to low-cost affordable debt through strategic de-risking instruments, capacity building in data collection; development of integrated energy plans and energy transition pathways; technical assistance, etc.]

☒Financing	*Description* 1. Financing to support the formulation of carbon neutrality and climate resilience roadmaps for companies in the sector with which voluntary agreements are established 2. Financing to refine and put into operation the sector´s MRV 3. Financing for the development of pilots for technologies such as Hydrogen, geothermal energy, biomass and storage, capture and use of Carbon (CCUS) that help as input for their future regulation.
☒ In-Kind contribution	*Description* Support hydrocarbons and mining subsectors formulating climate change plans that include roadmaps to achieve carbon neutrality.
☒ Technical Support	*Description* Knowledge transfer to develop effective Regulation for the use of new technologies such as Hydrogen, geothermal, biomass and storage, capture and use of Carbon (CCUS) and structuring of businesses that guide traditional activities to energy transformation.
☒ Other/Please specify	*Description*

SECTION 5: IMPACT

5.1. Countries planned for implementation including number of people potentially impacted.

Colombia

5.2. Alignment with the 2030 Agenda for Sustainable Development – Please describe how **each** of the actions from section 2 impact advancing the SDGs by 2030.
[up to 500 words, please upload supporting strategy documents as needed]

- Strengthen the strategic lines of the sector's Comprehensive Climate Change Plan (PIGCCme) to promote energy efficiency and renewable sources. This ambition is related to ODS 7- affordable and clean energy, ODS 9 – industry, innovation and infrastructure, and finally to ODS 13, in climate action.

- Mineral coal continues to have a share in the energy basket in 2050 but, these processes must invest in CCUS technology or c their emissions. This ambition is related to ODS 13- industry, innovation and infrastructure, and ODS 7 – affordable and clean energy.

- Strengthen public and private sector capacities in adaptation and mitigation. This ambition is related to ODS 13 - industry, innovation and infrastructure, Also, ODS 12, specifically in encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle

5.3. Alignment with Paris Agreement and net-zero by 2050 - Please describe how **each** of the actions from section 2 align with the Paris Agreement and national NDCs (if applicable) and support the net-zero emissions by 2050.
[up to 500 words, please upload supporting strategy documents as needed]

According to the commitments of the Paris Agreement, Colombia has been fully committed in carrying out specific actions to reduce its emissions and contribute to the global goal to maintain the global temperature increase below 2° C. This national commitment was reaffirmed by the national determined contribution (NDC) and in the Law 1844 of 2017 that established an specific goal of reducing greenhouse gases of 20% by 2030. However, in order to meet this commitment, it was necessary to framed it within sectorial commitments that were structured through plans that included comprehensive measures of climate change. In 2018, the energy and mining sector launched the Comprehensive Climate Change Management Plan for the energy mining sector Specifically – PIGCCme, recognized as the first comprehensive plan in the country for a specific sector.

Taking into account the most recent scientific recommendations to enable activities that help the planet reach carbon neutrality, in December 2020 President Ivan Duque announced and update into Colombia's NDC with a much more ambitious goal of reducing emissions to 51% by 2030 and achieving carbon neutrality by 2050. Along with this announcement, the energy and mining sector began updating the PIGCCme 2050 aiming to achieve carbon neutrality in its three subsectors: energy, mining and oil&gas. Actions listed in section 2 are part of the current PIGCCme.

SECTION 6: MONITORING AND REPORTING

6.1. Please describe how you intend to track the progress of the proposed outcomes in section 3. Please also describe if you intend to use other existing reporting frameworks to track progress on the proposed outcomes.

Results and progress intend to be monitored with the MRV System of the mining and energy sector that aims to: develop mechanisms to monitor the status of adoption and implementation of the actions of the PIGCCme, working jointly with the National Registry for the Reduction of Greenhouse Gas Emissions (RENARE, for its Spanish acronym), the Greenhouse Gas Inventory System (SINGEI for its Spanish acronym) and the policy indicators associated with the strategic lines of the PIGCCme.

The design of the MRVme seeks to connect the different existing capacities between the different actors in the sector and different entities, strengthening synergy and the exchange of information between them; On the other hand, the MRVme seeks to standardize the criteria to manage, process and report the sectorial information necessary to monitor the actions contemplated in the strategic lines of the PIGCCme, such as voluntary agreements and the alliance for carbon neutrality of the energy-mining sector.

The MRVme has been structured in three stages: 1) Information input and policies, 2) MRVme operation process, and 3) information outputs at an external level. At the information input and policy stage, sector policies, detailed sector information, mitigation actions registered in RENARE, monitoring of tax incentives and specific information on sector projects are required.

The MRVme operation stage consists of the following processes: 1) Planning, where different protocols for the operation of the MRVme are reviewed and updated and deadlines and requirements are established by the MRVme, 2) Management, in which information is requested from the different actors involved in the MRVme, technical and financial human resources are managed, among others, 3) Processing, where the indicators and GHG emissions of the sector are estimated, taking into account quality control processes and the progress of compliance with the milestones, 4) Internal Report, in which all types of reports are generated subject to be evaluated by experts and disclosed in socialization workshops and 5) improvement plan, in which the identified improvement opportunities are detailed, through periodic reviews of each of the MRVme stages, feedback and other mechanisms.

The expected outputs of the MRVme are the implementation of each of the strategic lines of the PIGCCme, compliance with the sector NDC and generation of inputs and sector information for the INGEI.

SECTION 7: GUIDING PRINCIPLES CHECKLIST

Please use the checklist below to validate that the proposed Energy Compact is aligned with the guiding principles.

I. Stepping up ambition and accelerating action - Increase contribution of and accelerate the implementation of the SDG7 targets in support of the 2030 Agenda for Sustainable Development for Paris Agreement

I. 1. Does the Energy Compact strengthen and/or add a target, commitment, policy, action related to SDG7 and its linkages to the other SDGs that results in a higher cumulative impact compared to existing frameworks?

☒Yes ☐No

I.2. Does the Energy Compact increase the geographical and/or sectoral coverage of SDG7 related efforts? ☒Yes ☐No

I.3. Does the Energy Compact consider inclusion of key priority issues towards achieving SDG7 by 2030 and the net-zero emission goal of the Paris Agreement by 2050 - as defied by latest global analysis and data including the outcome of the Technical Working Groups? ☒Yes ☐No

II. Alignment with the 2030 agenda on Sustainable Development Goals – Ensure coherence and alignment with SDG implementation plans and strategies by 2030 as well as national development plans and priorities.

II.1. Has the Energy Compact considered enabling actions of SDG7 to reach the other sustainable development goals by 2030? ☒Yes ☐No

II.2. Does the Energy Compact align with national, sectoral, and/or sub-national sustainable development strategies/plans, including SDG implementation plans/roadmaps? ☒Yes ☐No

II.3. Has the Energy Compact considered a timeframe in line with the Decade of Action? ☒Yes ☐No

III. Alignment with Paris Agreement and net-zero by 2050 - Ensure coherence and alignment with the Nationally Determined Contributions, long term net zero emission strategies.

III.1. Has the Energy Compact considered a timeframe in line with the net-zero goal of the Paris Agreement by 2050? ☒Yes ☐No

III.2. Has the Energy Compact considered energy-related targets and information in the updated/enhanced NDCs? ☒Yes ☐No

III.3. Has the Energy Compact considered alignment with reaching the net-zero emissions goal set by many countries by 2050? ☒Yes ☐No

IV. Leaving no one behind, strengthening inclusion, interlinkages, and synergies - Enabling the achievement of SDGs and just transition by reflecting interlinkages with other SDGs.

IV.1. Does the Energy Compact include socio-economic impacts of measures being considered? ☒Yes ☐No

IV.2. Does the Energy Compact identify steps towards an inclusive, just energy transition? ☒Yes ☐No

IV.3. Does the Energy Compact consider measures that address the needs of the most vulnerable groups (e.g. those impacted the most by energy transitions, lack of energy access)? ☒Yes ☐No

V. Feasibility and Robustness - Commitments and measures are technically sound, feasible, and verifiable based a set of objectives with specific performance indicators, baselines, targets and data sources as needed.

V.1. Is the information included in the Energy Compact based on updated quality data and sectoral assessments, with clear and transparent methodologies related to the proposed measures? ☒Yes ☐No

V.2. Has the Energy Compact considered inclusion of a set of SMART (specific, measurable, achievable, resource-based and time based) objectives? ☒Yes ☐No

V.3. Has the Energy Compact considered issues related to means of implementation to ensure feasibility of measures proposed (e.g. cost and financing strategy, technical assistant needs and partnerships, policy and regulatory gaps, data and technology)? ☒Yes ☐No

SECTION 8: ENERGY COMPACT GENERAL INFORMATION

8.1. Title/name of the Energy Compact

Achieving carbon-neutrality in the energy sector of Colombia through the integration of renewable energies and the development of voluntary agreements with key stakeholders

8.2. Lead entity name (for joint Energy Compacts please list all parties and include, in parenthesis, its entity type, using entity type from below)

Ministry of Mines and Energy of Colombia

8.3. Lead entity type

☒ Government	☐ Local/Regional Government	☐ Multilateral body /Intergovernmental Organization
☐ Non-Governmental Organization (NGO)	☐ Civil Society organization/Youth	☐ Academic Institution /Scientific Community
☐ Private Sector	☐ Philanthropic Organization	☐ Other relevant actor

8.4. Contact Information

Diego Grajales – Climate Change Group Coordinator – dagrajales@minenergia.gov.co
Gabriela Gutierrez – Head of International Affairs – ggutierrez@minenergia.gov.co

8.5. Please select the geographical coverage of the Energy Compact

☐Africa ☐Asia and Pacific ☐Europe ☒Latin America and Caribbean ☐North America ☐West Asia ☐Global

8.6. Please select the Energy Compact thematic focus area(s)

☐ Energy Access ☒ Energy Transition ☐ Enabling SDGs through inclusive just Energy Transitions ☒ Innovation, Technology and Data ☒ Finance and Investment.

SECTION 9: ADDITIONAL INFORMATION (IF REQUIRED)

Please provide additional website link(s) on your Energy Compact, which may contain relevant key documents, photos, short video clips etc. https://pigccme.minenergia.gov.co/