

 CLIMATE POLICY IMPLEMENTATION CHECK

NATIONAL POLICIES
THAT PROMOTE
**THE PHASE IN OF
RENEWABLES AND THE
PHASE OUT OF FOSSIL FUELS**
IN COLOMBIA IN
ELECTRICITY GENERATION

COLOMBIA





TRANSFORMA

Transforma is a Colombian think tank that promotes climate action and ecological transitions as fundamental elements in the search for sustainable and regenerative societies and economies at the national, regional and global levels.

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Climate Transparency is a global partnership with a shared mission to stimulate a “race to the top” in climate action in G20 members through enhanced transparency.



The Climate Emergency Collaboration Group (CECG) is a philanthropic collaboration between some of the world’s largest climate philanthropies.

GLOSSARY

AFOLU	Agriculture, Forestry and Other Land Uses Sector	VAT	Value Added Tax
ANH	National Hydrocarbons Agency	MADS	Ministry of Environment and Sustainable Development
ANLA	National Environmental Licensing Agency	MME	Ministry of Mines and Energy
BOGA	Beyond Oil and Gas Alliance	NDC	Nationally Determined Contribution
CARs	Regional Autonomous Corporations	OEF	Firm Energy Obligations
COP	Conference of the Parties	PDET	Territorially Focused Development Programs
CREG	Energy and Gas Regulatory Commission	PPCA	Global Carbon Partnership for Abandoning Carbon
DNP	National Planning Department	PRONE	Electricity Grid Normalization Program
NFCS	National Climate Finance Strategy	NDP	National Development Plan
ENSO	El Niño - Southern Oscillation	PNCTE	National Program for Tradable Emission Quotas
FAER	Financial Support Fund for the Energization of the Interconnected Rural Areas	ROE	Mandatory Emissions Reporting
FAZNI	Financial Support Fund for the Energization of the Non-Interconnected Zones	SIAC	Environmental Information System for Colombia
FCP	Colombia in Peace Fund	SIN	National Interconnected System
FENOGÉ	Fund for Non-Conventional Energy and Efficient Energy Management	SNICC	National Climate Change Information System
FECFGN	Special Fund for Natural Gas Development Quota	SIIVRA	Integrated Information System on Vulnerability, Risk and Adaptation to Climate Change
FNCE	Non-Conventional Energy Sources	MRV Financing System	The Climate Finance Monitoring, Reporting and Verification System
FNCER	Non-Conventional Renewable Energy Sources	M&E Adaptation System	The Climate Change Adaptation Monitoring and Evaluation System
FONENERGÍA	Single Fund for Energy Solutions	JET	Just Energy Transition
GHG	Greenhouse Gases	UPME	Mining and Energy Planning Unit
EEM	Efficient Energy Management	ZNI	Non-Interconnected Zones

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ABOUT THE CLIMATE POLICY IMPLEMENTATION CHECK

To meet the challenges of climate change, policies need to be both ambitious and implemented in a way that realises that ambition as a matter of urgency. To assess the status and quality of implementation, Climate Transparency has developed the Climate Policy Implementation Check. It assesses the implementation of policy instruments along several basic questions:

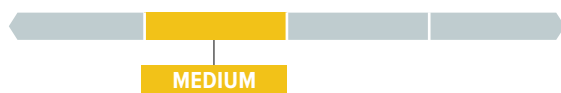
- Does the instrument have a basis in law?
- Has a suitable organisation been given the responsibility to implement the instrument?
- Has the institution been given the resources to implement the instrument?
- Is implementation being appropriately monitored to ensure success?

Accordingly, the assessment is grouped into four categories: legal status, institutions and governance, resourcing, and oversight. The framework can be applied to any policy in any country. This early check is important as policy outcomes and impacts on greenhouse gas (GHG) emissions are typically only measurable several years after implementation, leaving little time for course correction if implementation of the policy is weak.

For each of these categories, the framework includes specific questions that are designed so that the results are comparable across different countries. Depending on answers to the specific questions, the implementation of the relevant policy instrument in each category is rated as Weak, Medium, Strong or Frontrunner. These ratings are combined to produce an overall rating for the policy implementation. For more information, please visit the website: www.climate-transparency.org/implementation-check

OVERVIEW OF POLICIES ASSESSED, OVERALL AND CATEGORY RATINGS

Ambition rating



Law 1715 of 2014

The law promoting renewable energies and the efficient use of energy

RATING

MEDIUM



Law 2169 of 2021

Provisions to achieve 2030 mitigation targets and measures

RATING

MEDIUM



1 ENERGY TRANSITION

Firewood, one of the first energy resources mastered by humankind, has been a mainstay of our history throughout the centuries. From food preparation to home heating, wood has played a vital role in the development and survival of societies. However, one of the most significant changes in the relationship between humans and energy occurred during the Industrial Revolution, when coal became the main source of energy, enabling the development of the steam engine (the engine of the industrial revolution). The use of coal transformed society and the economy, leading the countries of the Global North into an era of unprecedented industrialization. This was one of the first global energy transitions (wood to coal) (Alférez, 2022).

In the mid-19th century, the first hydrocarbon (oil and gas) well was drilled for the industrial and commercial uses we know today. The influence of this activity and the development of hydrocarbons allowed the second

energy transition. These resources played a fundamental role in the development of modern society, up to the present day, in which the combustion of these fuels has been the main cause of the environmental crisis facing the world today (*Cuál Es El Origen Y La Historia Del Petróleo*, 2023).

In the framework of the actions to achieve the objectives of the Paris Agreement, one of the most valuable tools to verify progress in compliance are all those related to the analysis and evaluation of policies that promote the achievement of the 1.5 degree target.

Climate Transparency has developed a tool called “implementation check,” which is used to evaluate the status of policy implementation and thus ensure government accountability. This paper will use this tool to evaluate its effectiveness in the phase in of renewable energies in Colombia and the phase out of fossil fuels from the electricity generation mix (Deng et al., 2022).



Photos: Kerin Gedge, Nick Nice and Zbynek Burival in Unsplash

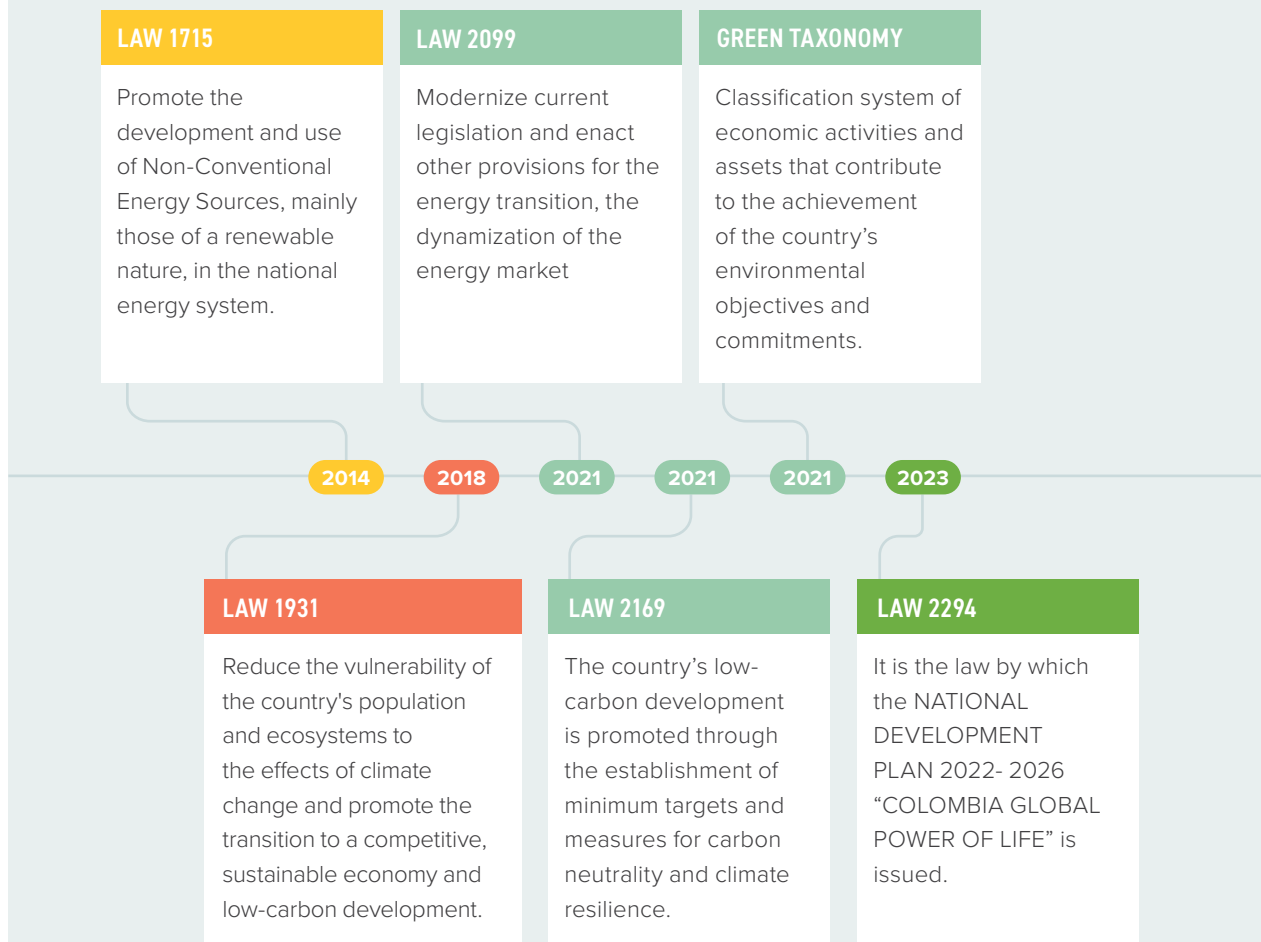
2 POLICIES THAT PROMOTE CLIMATE ACTION

To meet the goals proposed in Colombia's Nationally Determined Contribution (NDC), in the National Development Plan 2018-2022 and the National Development Plan 2022-2026, Colombia has implemented various regulations and norms that encourage the adoption of clean energy sources and discourage the use of fossil resources, as shown in Figure 1, which shows the laws developed chronologically.

The origin of the laws aimed at promoting renewable energy sources, diversifying the electricity generation mix and reducing greenhouse gases (GHG) emissions,

date back to Law 1715 of 2014, which was later complemented with laws: 2099 of 2021 (energy transition law), 2294 of 2023 (law that appropriates the national development plan (NDP) 2022-2026), among others. Additionally, Law 1931 of 2018 (climate change management) was created through which sectoral action plans are created (where GHG mitigation measures in and adaptation to climate change are identified in each ministry (DNP, 2023). Finally, Law 2169 of 2021 (Climate Action Law), which lays the foundations for strengthening compliance with the NDC, encourages carbon markets, as well as reporting systems to understand the current status of compliance with national commitments.

FIGURE 1.
CHRONOLOGY OF THE INCORPORATION OF LAWS IN COLOMBIA



Source: Own elaboration

3 IMPLEMENTATION CHECK

The following are the results of the Implementation Check, a tool developed by Climate Transparency, designed to assess and rate the implementation status of policy instruments in four key categories: legal status, institutions and governance, oversight and resources.

The Implementation Check provides us with essential

information about how policies are being developed in practice. It allows us to analyze whether strategies and plans are being executed as planned and gives us the ability to quantify the progress made through categories ranging from a **weak** result through **medium**, **strong** and ending with **frontrunner** status.

3.1 Law 1715 of 2014

After having performed the implementation check analysis, the score obtained for Law 1715 of 2014 was **Medium**.

RATING

MEDIUM



The law promotes the incorporation of renewable energy sources and efficient use of energy, focusing on renewable energy sources and the incorporation with the national electricity market, as well as the role of renewables in non-interconnected areas (NIZ), in the provision of public lighting and home services. All measures starting from the reduction of emissions and efficient energy management (Ley 1715 De 2014).

In 2021, Law 2099 of 2021 (Energy Transition Law) is

introduced, complementing and modifying Law 1715 of 2014, indicating the course that the country should follow in the coming years with respect to new opportunities for renewables and energy transformation in the national territory. However, Law 2099 is not the only one that modifies Law 1715, there are the laws of the National Development Plan of 2018 and recently of 2022, in addition to the tax reforms of the last years that have complemented or modified this law.



LEGAL STATUS

STRONG

Laws are the general rule that apply throughout the national territory and are binding on all inhabitants within the country as stated in the Colombian Constitution, and the State ensures compliance with them. Therefore, Law 1715 of 2014 has a strong legal status.



INSTITUTIONS & GOVERNANCE

STRONG

To carry out the implementation of this legislation, several institutions have specific responsibilities. Among the main entities in charge are the Ministry of Mines and Energy (MME), the Energy and Gas Regulatory Commission (CREG), the Mining and Energy Planning Unit (UPME), the Ministry of Finance and Public Credit, the Ministry of Environment and Sustainable Development (MADS), the National Environmental Licensing Authority (ANLA) and the Regional Autonomous Corporations. These institutions are tasked with issuing energy policy guidelines, establishing procedures for the connection, operation, backup and commercialization of energy, updating the list and description of new generation sources, granting grants for research and development, assessing the environmental impact and benefits of renewable energy sources, and facilitating the rapid evaluation of projects and permits related to energy and the environment (Ley 1715 De 2014).



RESOURCES

MEDIUM

The financing of programs and projects related to non-conventional energy sources (FNCE) and efficient energy management (EEM) in Colombia has been a crucial aspect for its development. Although **there is no** specific state **budget allocation** to support this law, Law 1715 of 2014 established the creation of **FENOGÉ** (Fund for Non-Conventional Energies and Efficient Energy Management) for the purpose of financing such programs. It should be noted that part of the financing comes from state companies engaged in the energy generation sector, which invest in renewable energy and energy efficiency projects. Among the programs financed by FENOGÉ, the refrigerator replacement plan stands out.

FENOGÉ is regulated by the Ministry of Mines and Energy, and its resources are administered through a mercantile trust. It is important to note that the resources that nourish FENOGÉ come from various sources, ranging from public funds, as well as multilateral and international organizations, and donations.

In addition, through Article 41 of Law 2099 of 2021, the Single Fund for Energy Solutions (FONENERGÍA) was created to coordinate and focus various resources to finance plans, projects and programs aimed at improving the quality of service, expanding energy coverage and standardizing networks. These efforts are focused on electric power and gas solutions. In addition, FONENERGÍA applies to both residential public utilities and other schemes and covers emergency attention in NIZ, investments in connections and internal networks, and the promotion of FNCE.

FONENERGÍA was included in the framework of Law 1715 of 2014 with the purpose of merging several financial instruments in force to date, such as PRONE, FAER, FAZNI and FECFGN (Transforma, 2022). The regulation derived from Law 1715 has allowed an increase in the development of renewable energy projects that can be evidenced in Figure 1 and 2.

The articles establish tax incentives to promote the generation of energy from FNCE and efficient energy management. Among these incentives it is worth highlighting:

- Income tax deduction for a period of less than 15 years, and a discount of up to 50% of the total investment made.
- Exclusion of value added tax (VAT) on the acquisition of goods (machinery, equipment, elements) and national or imported services for the development of FNCE projects.
- Exemption from customs duty payments on the importation of materials, machinery, inputs and equipment dedicated to the development of these projects, as well as efficient energy management and smart metering equipment, together with exemption from customs duty payments on the importation of materials and equipment related to these projects.
- Accelerated depreciation on equipment, machinery and civil works for the development of renewable energy projects.



OVERSIGHT

MEDIUM

The law establishes a solid framework, not an explicit goal in terms of installed renewable energy capacity, although the National Development Plan 2018-2022 had the ambitious goal of reaching **1500 MW** of installed capacity from renewable energy by 2022, only 20% of this goal was achieved by the close of 2022, with **297 MW** installed.

The new national plan for the period 2022-2026 aims to increase this capacity tenfold, reaching **2297 MW** from the 2022 baseline (PND, 2023), however President Gustavo Petro seeks to triple the PND 2022 - 2026 goal achieving 6 GW of installed capacity by the end of the mandate in 2026.

The monitoring of this policy is carried out through Article 45, which requires evaluations every four years on crucial aspects such as: 1. The savings plans and programs for

efficient energy management; 2. The FNCE Plan; 3. The evolution scenarios of the general energy scenario; 4. The planning of electricity and natural gas transportation networks. The Office of the Comptroller General of the Nation has also played an important role in monitoring this policy, identifying areas for improvement and highlighting key aspects (Contraloría, 2020).

Despite the lack of a specific monitoring plan for the renewable energy policy, various entities, such as the electricity market operator (XM), the UPME and non-profit organizations such as SER Colombia, have taken on the task of monitoring renewable energy projects. This allows understanding the progress of these projects in the overall energy scenario.

3.2 LAW 2169 of 2021 - Climate Action Law

After having performed the implementation check analysis, the score obtained for Law 2169 of 2021 was **MEDIUM**.

RATING

MEDIUM



Law 2169 of 2021 dictates the provisions to achieve the mitigation goals for 2030, where it is expected to reduce greenhouse gas emissions by 51% with respect to the reference scenario for 2030 of the NDC, which represents a commitment to reach a maximum of 169.44 million tCO₂eq emissions in 2030, as proposed by Colombia in its NDC 2020 version,

Measures to achieve national mitigation objectives in the energy sector:

- **Diversification of the Energy Matrix and Transformation of Non-Interconnected Zones (NIZ):** Promote the transformation of the NIZ through a strategy of electricity generation and self-generation from renewable energy sources.
- **Stimulus for the Conversion of Coal to Cleaner**
- **Sources:** Incentivize agents involved in the electric power and fuel gas chains to promote new projects or expansions from renewable energy sources and encourage the conversion of coal plants to cleaner energy sources.
- **Disincentivize greenhouse gas emissions through a carbon tax:** Carbon taxes will seek to reduce black carbon emissions by 40% compared to 2014, representing a maximum carbon emission of 9,195 tons by 2030.
- By 2025, climate change guidelines should be incorporated in coal mining, hydrocarbons and electric power oriented to ensure comprehensive operating conditions under new scenarios of operational and environmental demands.



LEGAL STATUS

STRONG

This law is in accordance with the constitution and passed the legislative process that involves the presentation of a bill, discussions in the congress of the republic through 4 debates to achieve its approval ("Senate of the Republic of Colombia").

Laws give an obligation to citizens and legal entities to comply with it, therefore this standard has a "strong" legal status.



INSTITUTIONS & GOVERNANCE

MEDIUM

Law 2169, enacted with the purpose of addressing the challenge of climate change, has established a series of key instruments and systems to advance towards its goals and objectives. One of the pillars of this law is the Mandatory Reporting of Greenhouse Gas Emissions (ROE), as provided for in Article 16. Through this mechanism, it seeks to measure and quantify GHG emissions in Colombia, thus providing a solid base of detailed data for informed decision making and the planning of effective mitigation strategies in the different sectors.

In addition, two fundamental systems have been introduced: the Environmental Information System for Colombia (SIAC) and the National Climate Change Information System (SNICC). The SIAC focuses on centralizing and organizing the country's environmental information, allowing the analysis and dissemination of data related to environmental aspects and climate change. On the other hand, the SNICC plays an essential role in coordinating efforts, monitoring actions and evaluating results in the fight against climate change (*Ley 2169, 2022*).

The law also establishes the responsibility of all entities, agencies and corporate bodies of the nation in the execution of the measures and goals defined in the law, according to Article 2. Among the key institutions, the Ministry of Environment and Sustainable Development assumes a crucial role by leading dissemination, socialization and monitoring of the goals and commitments in the territories. For its part, the Ministry of Mines and Energy is responsible for developing the necessary measures to achieve the national mitigation objectives.



RESOURCES

MEDIUM

One of the pillars of this legislation is the implementation of the National Climate Finance Strategy (ENFC), the National Program of Tradable Emission Quotas (PNCTE) and Colombia's green taxonomy. These components establish specific goals and deadlines to financially address some of the actions in the fight against climate change (*Ley 2169, 2022*). In addition, Article 22 of the law emphasizes the importance of strengthening carbon markets in the country as a key driver of the national economy and the reduction of GHG emissions.

Article 223 of Law 2277 of 2022 modifies the destination of the resources collected through the national carbon tax. From January 1, 2023, 80% of the collection through the national carbon tax is destined to the management of coastal erosion; reduction and monitoring of deforestation; conservation of water sources; protection,

preservation, restoration and sustainable use of strategic areas and ecosystems, restoration; and financing of climate action goals and measures established in Law 2169 of 2021, as well as those set forth in Colombia's Nationally Determined Contribution. These resources will be administered through the Sustainability and Climate Resilience Fund (THE CONGRESS OF COLOMBIA).

The remaining twenty percent (20%) will be destined to the financing of the Comprehensive National Program for the Substitution of Crops of Illicit Use. The Ministry of Finance and Public Credit shall transfer such resources to the Colombia in Peace Fund (FCP), and priority shall be given to projects to be implemented in the Municipalities of Development Programs with a Territorial Approach (PDET) (THE CONGRESS OF COLOMBIA).



OVERSIGHT

MEDIUM

In the area of greenhouse gas (GHG) emissions management in Colombia, the Law has set a fundamental reference point. One of its main components is the creation of the National Registry for the Reduction of Greenhouse Gas Emissions (RENARE), whose main objective is to measure and quantify GHG emissions, this registry is an integral part of the National Climate Change Information System (SNICC), which addresses climate change from the effective implementation of mitigation and adaptation measures.

- The SNICC is composed of three interconnected systems, the first is the Mitigation Monitoring, Reporting and Verification System at the national level (Mitigation MRV System), which monitors and evaluates mitigation actions to reduce GHG emissions.
- The Climate Change Adaptation Monitoring and Evaluation System (Adaptation M&E System), which

focuses on evaluating adaptation actions to the effects of climate change, including the Integrated Information System on Vulnerability, Risk and Adaptation to Climate Change (SIIVRA).

- The Climate Finance Monitoring, Reporting and Verification System (Climate Finance MRV System), which tracks and verifies the flow of finance for climate initiatives.

In addition, the creation of the Intersectoral Commission of the Presidential Cabinet for Climate Action through Decree 172 of 2022 represents a significant step in climate change management. This commission has key responsibilities, including overseeing the Intersectoral Commission on Climate Change and providing essential guidelines for implementing and monitoring low-carbon development and strengthening climate resilience at the national level (*Ley 2169, 2022*).

4 ANALYSIS OF NDC GOALS UNDER THE CURRENT SCENARIO

The draft of Colombia's Just Energy Transition (JET) roadmap issued by the Ministry of Mines and Energy proposes four paths in which different JET scenarios considered by the Government were incorporated. One of these scenarios is known as the announced policies scenario, in which the possible future of the mining and energy sector was modeled based on the transition policies prior to 2022 and their implementation according to the speed of the market.

The results of this scenario show that current policies will not allow a decrease in GHG emissions by 2050 with respect to the baseline scenario, there must be much more ambitious policies that allow the exit of fossil fuels from demand. Under the current policy scenario, these energies would represent 75% of the primary energy matrix (MME, 2023) and it would be unfeasible to comply with the Paris Agreement.

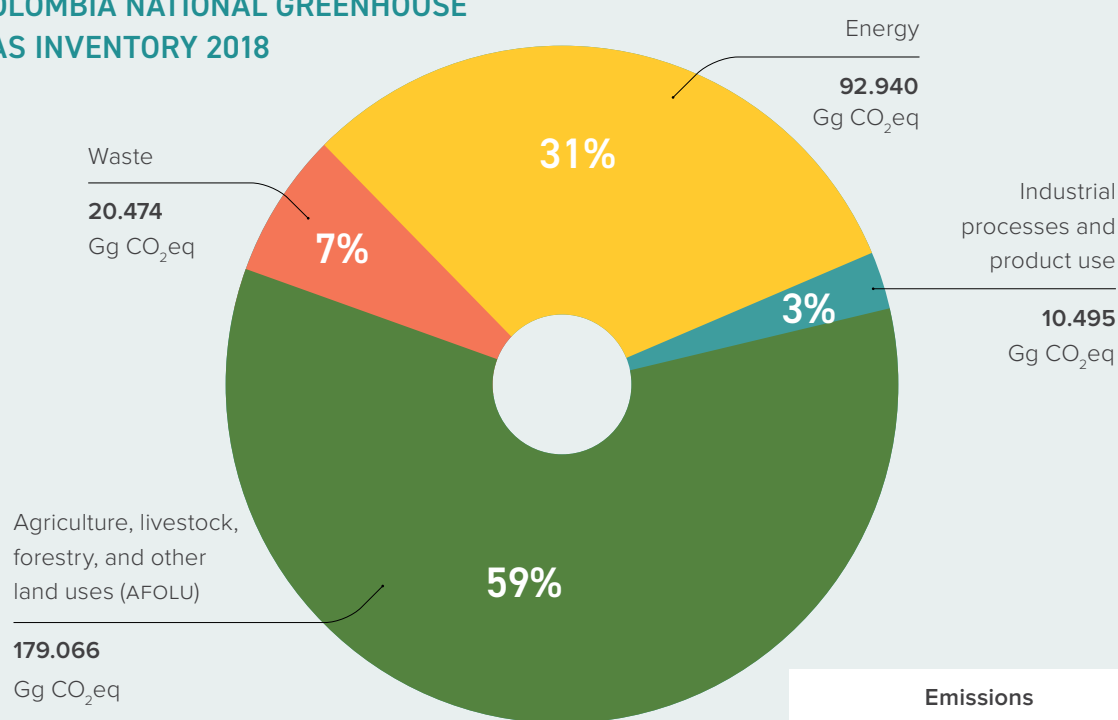
The score obtained in the evaluation of the policies through the implementation check methodology

shows that the policies have a “medium” score, which means that Colombia is not fully complying with the implementation of policies that promote the entry of renewable energy and carbon neutrality.

Doubts are generated regarding Colombia's action plan, there must be a reorientation regarding the necessary path to achieve the NDC, greater political will, construction of narratives and leadership on the part of Civil Society Organizations as leaders and overseers of the JET.

The ambition of the energy sector has to be reflected in the NDC, 31% of Colombia's GHG emissions correspond to the energy sector. However, the actions of the energy sector have mitigation measures corresponding to a range between 12-17%, below their respective responsibility, while the land use change sector (AFOLU) is allocated 66% for compliance with the NDC, clearly an imbalance in the sectoral allocation for compliance with international targets.

COLOMBIA NATIONAL GREENHOUSE GAS INVENTORY 2018



Own elaboration based on Ideam 2021 data

5 CHALLENGES IN THE IMPLEMENTATION OF RENEWABLE ENERGY PROJECTS SINCE THE ISSUANCE OF THE ANALYZED POLICIES

The Colombian energy mix is not clean, it is mainly composed of fossil fuels. As of 2021, oil represented 43% of the primary energy mix, followed by natural gas with 23%, hydro 13% and coal 10% (UPME, 2022). On the other hand, the Colombian electricity generation matrix has traditionally depended on water resources to meet national electricity needs. The concentration of technologies from a single energy resource puts the country's electric energy security at risk, making Colombia vulnerable to meteorological phenomena that generate variations in rainfall and in the supply of reservoirs that supply hydroelectric plants. Therefore, "El Niño" Southern Oscillation (ENSO) becomes a constant threat to the national electricity system.

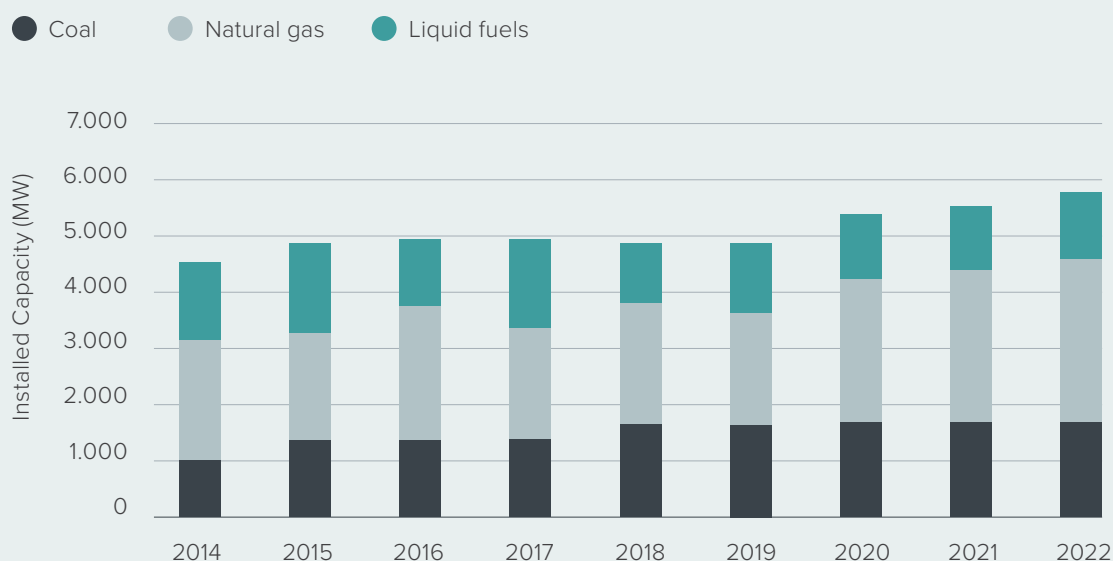
The Colombian electricity system uses fossil fuels to provide security and backup to the National Interconnected System (SIN), due to the availability of these energy resources (coal in the Caribbean and Andean regions, gas in the Orinoco and Caribbean regions), and the reliability charge for thermoelectric

plants, which allows thermoelectric plants to ensure their financing by declaring themselves as backup plants in the event of a system emergency.

Renewable energy sources have emerged as an alternative to complement hydroelectric power, replace fossil fuels, provide complementary services to the SIN and expand electricity coverage. Through Law 1715 of 2014 and the first renewable energy auction, the development of renewable sources in Colombia was boosted.

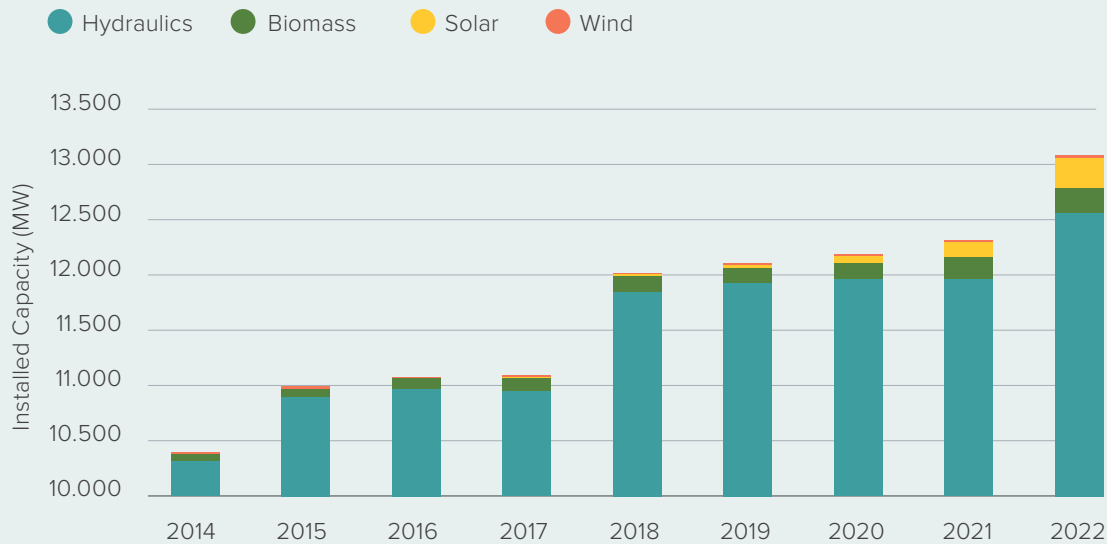
The evolution of the installed capacity in Colombia of the different types of energy since 2014 (year in which Law 1715 of 2014 was created) can be seen in Figures 2 and 3. It is evident how the installed capacity in solar photovoltaic energy prior to the development of this law was null (Figure 4), however, the incentives and market mechanisms that accompany the law have allowed the entry and gradual increase of solar photovoltaic technology.

FIGURE 2.
EFFECTIVE CAPACITY BY NON-RENEWABLE ENERGY SOURCE (MW)



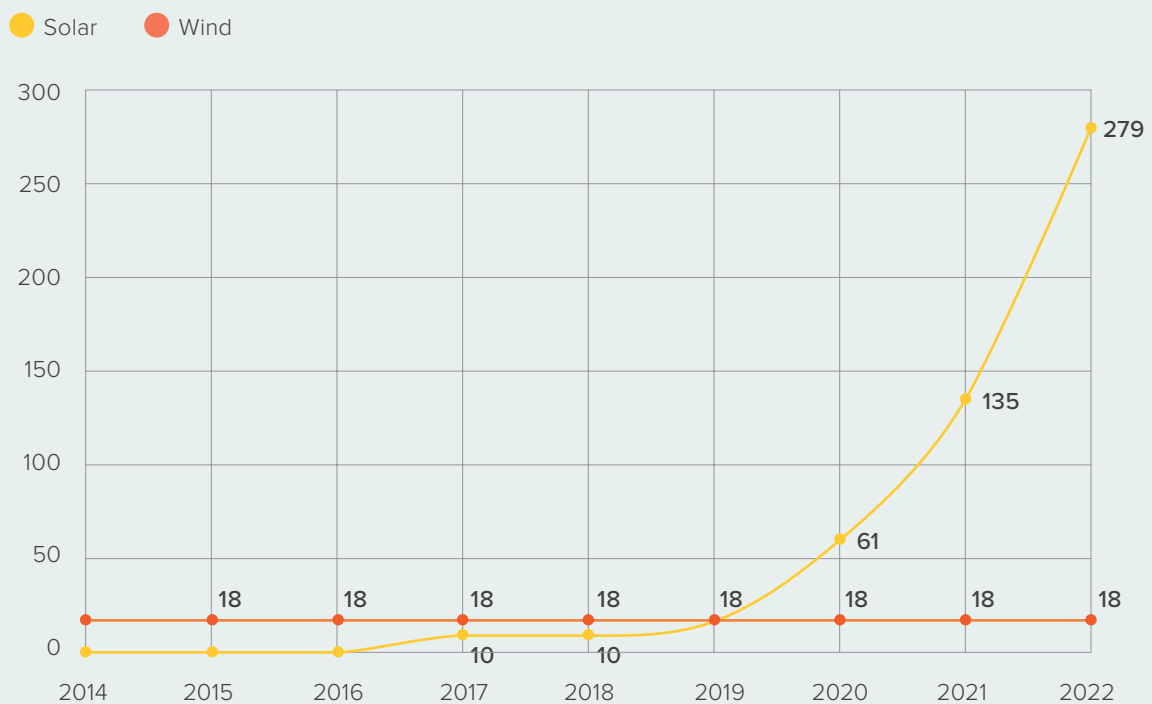
Prepared by the Company with data from XM Sustainability Reports Net Effective Capacity

FIGURE 3.
EFFECTIVE CAPACITY BY RENEWABLE ENERGY SOURCE (MW)



Prepared by the Company with data from XM Sustainability Reports Net Effective Capacity

FIGURE 4.
EVOLUTION OF INSTALLED CAPACITY OF WIND AND SOLAR PHOTOVOLTAIC ENERGY (MW)



Prepared by the Company with data from XM Sustainability Reports Net Effective Capacity

Through Decree 570 of 2018, public policy guidelines were defined to enable renewable energy projects in Colombia (MME, 2018). This decree gave the green light to the national government through the Unidad de Planeación Minero Energética (UPME) to carry out renewable auctions.

In October 2019, the first auction of non-conventional renewable energy sources (renewable energy) was held, eight projects were awarded generation responsibilities these were expected to increase the country's installed capacity by 1,298 MW (UPME, 2019). None of these projects materialized on schedule. By 2021, XM expected to have 1,800 MW of renewable energy operational in the SIN, only 180 MW were managed to be incorporated, none of them corresponded to the projects awarded in the 2019 auction. The second renewable energy auction was held in October 2021, where an additional 796 MW were awarded to be incorporated through 11 generation projects.

The public and private auctions have been successful in attracting national and international investors to enter the renewable energy market in Colombia.

The attractiveness for investment goes far beyond the possibility of participating in the auctions, since regulatory advances, institutional capacities, value chains at the service of renewables at the national level and the financial mechanisms available, have made the Colombian market consolidate in the region in recent years. Proof of this is that in the last window closed by the UPME in October 2023, around 86.2 GW between solar and wind projects were presented (UPME, 2023).

However, in terms of penetration of electric energy into the system, the projected expectations have not been met. Less than 10% of the 3.3 GW expected to be injecting energy into the SIN has entered the system.

On September 17, 2023, the decree enabling renewable energy auctions was declared null and void (Morales, 2023). With the nullity of this decree, no new renewable energy auctions can be called. This decision was because the current auction model could affect free market competition. In addition, the fundamentals of the sale and purchase markets are framed in this decree, so there is uncertainty regarding the future of the auction contracts, such as those already closed and those announced so far, such as the offshore wind auction.

The National Environmental Licensing Agency (ANLA) as well as the regional autonomous corporations (CARs) have issued since 2018 4.2 GW in licenses for renewable energy sources projects (SER Colombia, 2023). 23 projects between solar and wind technologies that from the environmental aspect could start their construction.

Despite the endorsement of environmental licensing, there is a bottleneck associated with social conflicts, which are due to the lack of active participation and

involvement of the communities and/or inhabitants of the territory from the project initiation and planning process. There should be a tripartite dialogue between the government, companies and communities to facilitate the implementation of projects based on renewable sources in the territories. The imposition of projects in the communities generates rejection, as a result of previous experiences with the extractive model of fossil resources of the companies.

The exploitation of fossil resources has generated conflicts regarding the management and use of the territory and has favored the creation of dynamics of violence. This has had serious consequences in terms of inequality, environmental damage, energy poverty and social conflict (MME, 2023). The inhabitants of these regions express their concern that the dynamics of the extractivist model will be replicated in the development of renewable energy and fear that they will continue to be territories of sacrifice for a particular or even national benefit from which they claim they are not benefiting.

Demands and demonstrations by the communities delay the execution of renewable energy projects. According to the private companies, delays in construction times imply cost overruns that affect the financial closure of the projects. On the other hand, there is the version of the communities where they affirm that prior consultations are not carried out with all the impacted communities, which contemplates a clear explanation regarding the impacts on the language of the communities, there is no correct management of the complaints towards the subcontracted companies on the part of the generators, modifications are made in the delimitations of the impact zones of the projects despite the lack of knowledge of the territories (Barney, 2023).

From this work and with the information gathered, Transforma proposes some recommendations to overcome the social disadvantages faced by renewable energy projects (especially in La Guajira). In general, the proposal is to bet on land use planning, this plays a crucial role in the viability and acceptance of renewable energy infrastructure in the communities, it should be analyzed how to characterize land that is especially suitable for the installation of energy projects due to its geographical location and presence of key energy resources, which have favorable conditions of low social and environmental conflict (Transforma Working Paper, 2023) this is called by Transforma as energy soils.

The following recommendations are recommended to improve the probability of success in project development:

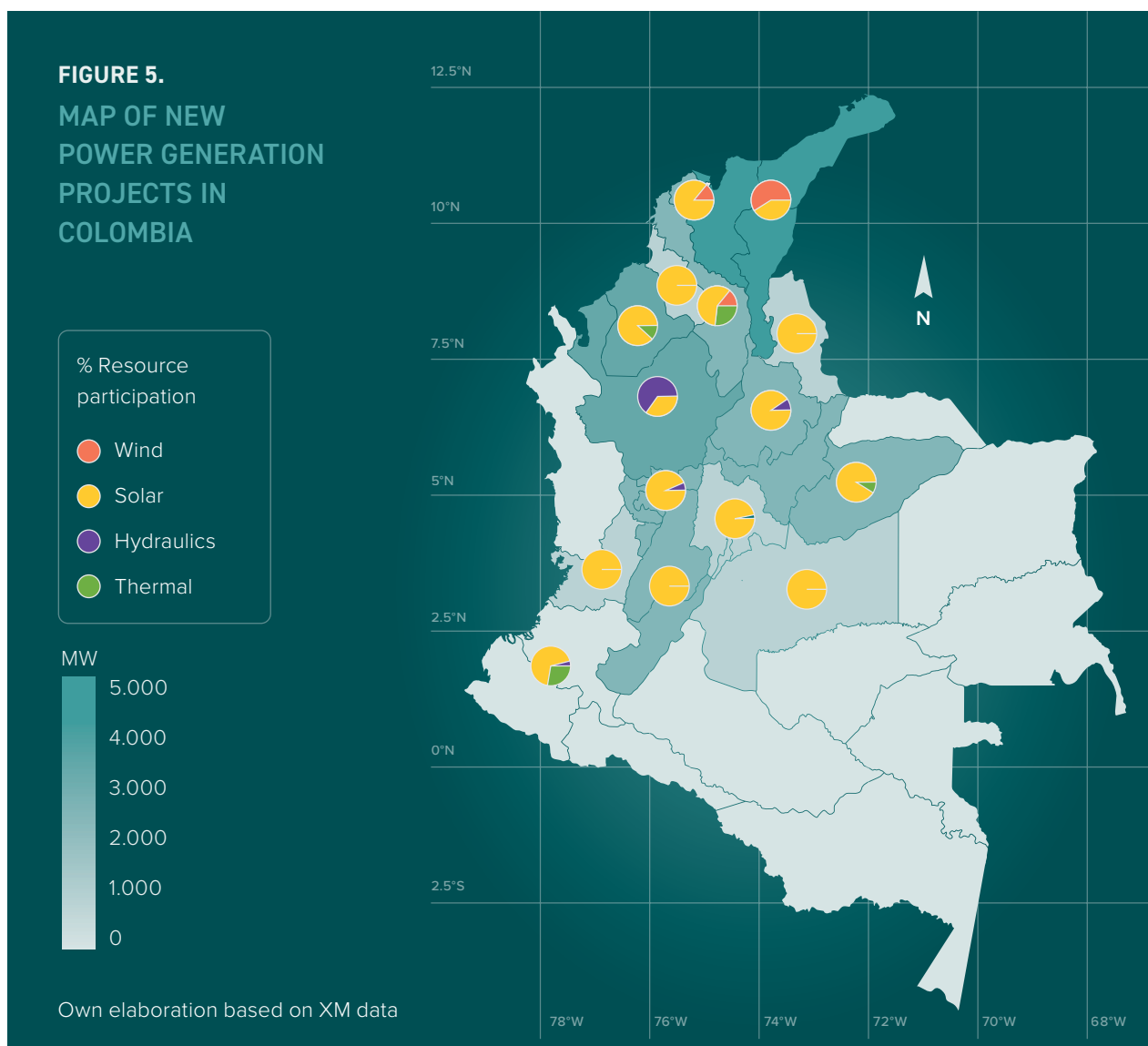
1. **Early community involvement:** Engaging early in the project, and securing their free, prior and informed consent, empowers community members and creates a solid foundation for collaboration.

2. **Involvement of local leaders:** The support and leadership of influential figures within the community can facilitate communication, build consensus and increase overall acceptance of the project (Transforma Working Document, 2023).
3. **Governance and institutional:** The perception of fair governance and trust in responsible institutions are essential for community involvement in projects. Clarity in rules and fairness in decision making contribute to this.
4. **Respecting the socio-physical environment:** By recognizing the behavioral, emotional and cognitive links that the community has with its environment, decision-making that considers local needs and values is encouraged.
5. **Transparency in communication:** Handling previous experiences: Past interactions with companies and the State create a precedent. Transparency in communication, acknowledgement and redress (if applicable) of past experiences can build the necessary trust.

6. **Appropriate regulatory framework:** A clear and well-defined legal framework provides security for both the community and investors. Consistency with existing laws and adaptation to local needs are vital.

An additional barrier faced by renewable energy projects deals with the global economic conditions that affect the investment needed for these technologies. As long as there are no financial conditions conducive to investment (e.g. low interest rates), it will be difficult to promote the development of new large and small-scale renewable projects. It will be essential to overcome these barriers if the goals set out in the National Development Plan of incorporating 2 GW of installed capacity from renewable energy by 2026 are to be met.

Figure 5 shows the capacity of new power generation projects with assigned connection and guarantees by SIN sub-areas, as of June 2023. According to XM's database, it is expected that by 2028 the total installed capacity of the projects shown in the map (19 GW) will be in operation; however, 10% of these projects are already behind schedule.



6 PHASE OUT OF FOSSIL FUELS FROM ENERGY PRODUCTION IN COLOMBIA

Coal

Colombia, despite basing part of its economy on the coal industry, has been demonstrating a strong commitment to the energy transition, last September 2023 the national government joined the Powering Past Coal Alliance (PPCA). This decision shows the country's intention to move away from coal-fired power plants; the goal is aligned with the scenario proposed by the Ministry in the Just Energy Transition (JET) roadmap.

According to the Just Energy Transition scenario of the Ministry of Mines and Energy, coal would exit the industry and electricity generation in 2035 due to increases in operational costs associated with the carbon tax and the culmination of the last firm energy obligations of coal-fired thermoelectric plants.

This step marks an important milestone on the road to a cleaner and more sustainable energy mix. Transforma proposes that the gradual elimination of coal from the electricity sector is based on a phase-out of coal-fired thermoelectric plants according to their thermal efficiency, which in turn is related to the emissions factor; seniority; and finally, firm energy obligations (OEF) with a cut-off date of 2022 (Flechas et al., 2022).

Hydrocarbons

According to the International Energy Agency projections, the global demand for oil and gas is expected to decrease due to energy transition and decarbonization goals in developed economies and China. To minimize stranded assets, new oil and gas fields should not be developed, in order to avoid risking investments in this sector.

According to projections by the National Hydrocarbons Agency (ANH), proven gas reserves will be sufficient to cover gas demand in Colombia at the current consumption rate for approximately 7.2 years (ANH, 2022). It is important to note that both current gas production and new exploration efforts appear to be aimed primarily at meeting domestic consumption and ensuring energy security.

The Colombian government announced at the end of 2022, and reiterated this year, its commitment not to grant new oil and gas exploration licenses in the country. This political will is also behind Colombia's recent decision, taken in August, to join the Beyond Oil and Gas Alliance (BOGA) as a "Friend" of BOGA. This international alliance brings together actors committed to moving towards clean energy transitions and reducing countries' dependence on fossil fuels (Ministerio de Minas y Energía, 2023).

There is a contradiction between the messages and commitments at the international level and the national plans. In the most ambitious scenario of the MME's Just Energy Transition roadmap (COP 26 scenario), the dismantling of gas for domestic use would begin in 2023. On the other hand, the goal of the National Development Plan is to increase gas coverage by 1.5 million new users (Law 2294 of 2023) (Escenarios nacionales Transición Energética Justa, 2023). There is no alignment between the messages given by the government regarding the future role of natural gas within the energy transition in Colombia.

The reconfiguration of Colombia's electricity sector is presented as a fundamental strategy on the road to energy sustainability. This transformation implies the progressive elimination of the most polluting and less efficient fuels, while complying with firm energy obligations. In addition, it contemplates the conversion of thermoelectric plants to renewable energy sources, opening the door even for future substitutions with green hydrogen. In this process, the availability of firm and flexible energy sources is guaranteed through the implementation of new technologies. This reconfiguration of the thermoelectric sector is aligned with Colombia's commitment to move towards a cleaner and more sustainable energy matrix (Escenarios nacionales Transición Energética Justa, 2023).

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