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Renewable Energy 2024

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Colombia: Law and Practice & Trends and Developments

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COLOMBIA



Law and Practice

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Angulo Martínez Consulting (AMC) is a leading practice that follows an alternative legal service provider strategy, focused on electricity and sustainability initiatives in Colombia. It has coined the study of electric energy as a distinct category within the legal industry, contributing significantly to the foundation and growth of the country's renewable energy market. Its expertise spans advising on high-profile environmental licences, prior consultations, grid connections, auctions, land use and overlap agreements, Power Purchase Agreements (PPAs), Engineering, Procurement, and Construction contracts (EPCs), Development Services Agreements

(DSAs), and cross-border M&A for large-scale wind and solar projects. The firm has also guided venture capital tech start-ups in digital energy trading, and represented industry interests in landmark Constitutional Court reviews, such as endorsing the 10% clean energy quota (2019) and challenging the overstepping Executive superpowers in Decree 1276 amid La Guajira humanitarian crisis (2023). AMC is expanding into a multi-service partner, addressing comprehensive needs in the sustainability space, including energy efficiency and cost recovery strategies for end-users.

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1. Overview

1.1 Energy Transition

The electricity market in Colombia was established in the early 1990s under the concept of public utilities, aimed at stimulating private investment in large-scale power generation and transmission infrastructure. This shift came after decades of a state-owned industry marked by political interference and energy insecurity, including widespread outages and a year-long period of energy rationing in 1992. Given this context and the country's geographic suitability for water reservoirs, the industry was built around the principle of reliability. Since 1994, the electricity mix has relied heavily on large hydroelectric and thermoelectric power generation, resulting in a power mix of approximately 70% hydroelectric and 30% thermal for the following 20 years.

However, in response to the climate change crisis and increasing vulnerability to the El Niño phenomenon – which has led to volatile electricity prices – Colombia decided to diversify its energy mix to include non-conventional renewable sources. Significant reforms to the original legal framework and a cultural shift began in 2014, marking the start of the country's energy transition.

This transition gained momentum with the passage of the Renewable Energy Law 1715, reaching a pivotal moment in 2019 with the first-ever awards of large-scale wind and solar projects through both the Reliability Charge Auction and the Renewable Energy Auction. This was accompanied by landmark cross-border mergers and acquisitions of renewable projects. These milestones helped Colombia achieve its initial target of 2.5 GW in renewable energy, setting the stage for a new energy mix and laying the foundation for the country's emerging renewable energy market.

Today, Colombia's shift from fossil fuels to renewable energy is actively progressing. It is driven by recent legislation, government policies, and regulatory frameworks aimed at increasing the share of renewables in the energy mix, supported by approximately USD3.1 billion in private investments, mostly in solar and wind projects.

While hydropower still accounts for 63% of the country's power capacity, solar energy is rapidly gaining traction, now comprising 6% of the total 20 GW installed capacity. New solar developments already outpace hydropower initiatives by more than a two-to-one margin, making solar the leading source in Colombia's energy transition

across all segments, including Centralised Generation (CG) and Small-Scale Production (SCP).

Colombia's energy transition also aims to further diversify the energy mix by incorporating wind, biomass, hydrogen, large-scale battery storage, and nuclear energy. Targets outlined in the National Energy Plan include achieving a 12% share of non-hydro renewables by 2050 and a 20% reduction in CO₂ emissions by 2030. Efforts to phase out coal and reduce dependence on fossil fuels are supported by tax incentives for investments in renewable energy and energy efficiency projects.

Significant efforts are also underway to bring end users to the forefront of the transition by empowering them with options for independent production, providing energy efficiency incentives, and promoting "prosumer" initiatives at a community level (*Comunidades Energéticas*). A more consumer-centred energy policy is being developed as the foundation for several proposed government reforms.

All these initiatives align with Colombia's commitment to international climate change agreements and sustainable development goals. However, despite these advances towards an energy transition and environmental sustainability, Colombia faces the challenge of maintaining its energy security, which has been on a declining trend since 2017, according to the World Energy Council's Energy Trilemma Index.

1.2 Renewable Energy Technologies

Hydropower remains the most significant renewable energy source in Colombia, accounting for 63% of the total installed power capacity and 75% of electricity production. However, solar energy is emerging as the leading source in the country's energy transition across all scale seg-

ments, with the number of new solar initiatives registered with the government now doubling those of hydropower.

In the past year, solar projects for Centralised Generation (CG) have reached a 6% share of the country's 20 GW total installed capacity and contribute 1.54% of the total 117,000 GWh of electricity production. Currently, 1.3 GW of solar capacity is operational, 587 MW is in the testing phase, and early-stage developments account for an additional 14.1 GW. In the Small-Scale Production (SCP) segment, solar energy represents 84% of installed capacity, growing at an average rate of 4 MW per month since 2023. Innovative solar technologies integrated into buildings, such as Building-Integrated Photovoltaics (BIPV) like Solarflex by Solestructuras, are emerging to address the structural limitations of approximately 70% of Colombian rooftops. The first-of-its-kind 114 kWp semiflexible lightweight solar project for a large food chain became operational in March 2024, and anticipates 1,5 MW for 2025.

Biomass is the next most prominent renewable source, although it holds less than 1% of the installed capacity market share. It primarily serves the agricultural and industrial sectors by converting organic waste and by-products into electricity through combined heat and power plants (*Cogeneradores*), which supply both private domestic use and exports to the grid.

Colombia also has world-class wind potential, particularly in La Guajira in the northern region. A pipeline of large-scale wind projects totalling 3 GW, most awarded in the 2019 auctions, is currently under construction. These projects are progressing toward completion while overcoming challenges related to grid infrastructure expansion, environmental procedures, and local

community engagement. They are approximately 50% complete and are expected to come online by 2025.

In 2021, Colombia allocated its first grid-scale battery storage project with a capacity of 50 MW. However, various macroeconomic factors, including global supply chain disruptions and post-pandemic effects, have posed challenges for the project. It is currently awaiting approval from the Colombian government for an extension of its commercial operations date.

Geothermal energy, green hydrogen, tidal energy, and nuclear power are all in the early stages of development. These sources present significant investment opportunities, given Colombia's volcanic regions, two coastlines, and the critical need to ensure grid reliability and stability amid an evolving electricity mix.

1.3 Renewable Energy Market and Recent Developments

The renewable energy market in Colombia has experienced a dynamic and challenging landscape over the past 12 months, shaped by a complex political environment and unusual dynamics within energy authorities. These include the lack of quorum at the Energy Regulatory Commission (CREG) and a series of high-uncertainty reforms announced by the government.

As a result, the latter part of 2023 and 2024 have been characterised by jurisdictional and legislative activism, reflecting the natural democratic process. This period has demonstrated the institutional strength of Colombia, with effective checks and balances exercised by the judicial and legislative branches over the Executive. It has been an enriching year, particularly from a legal perspective, reaffirming the importance of the Rule of Law.

Judicial reviews in 2023 included key decisions impacting the energy transition process, such as the annulment of the Renewable Energy Auctions' Decree 570 by the Council of State in September 2023, and the declaration of unconstitutionality of the Executive Superpowers' Decree 1276 by the Constitutional Court in November 2023.

Two additional rulings in 2024 further underscore the judiciary's efforts to ensure government compliance with the Rule of Law. First, Judge 54 of the Administrative Circuit of Bogotá issued an injunction requiring the CREG to produce regulatory adjustments related to the modification of the commercial operations date (COD) for energy projects under development. Second, the Administrative Tribunal of the Atlantic ordered a public hearing to review the retroactive energy losses billing in the latest tariff regulatory scheme for the northern region (*Region Caribe*), which has been causing significant increases in energy bills and distress among local communities.

On the legislative front, the Fifth Permanent Constitutional Commission of the House of Representatives created a Special Follow-Through Commission, led by Congress members Ana Monsalve and Juan Fernando Espinal, in October 2023. This innovative initiative aims to provide institutional support for large-scale renewable energy projects under development and construction by facilitating co-operative action among government agencies and monitoring their progress.

These efforts highlight the importance of the energy transition in Colombia and the commitment of its institutions to uphold the Rule of Law. Consequently, the renewable energy mar-

ket continues to mature and advance towards greater sophistication across all segments.

From the first cross-border M&As for large-scale renewable energy projects in 2019 to the most recent deals in 2024, the author has witnessed significant evolution in Colombia's renewable energy market. Below are key trends in acquisitions, based on more than USD150 million in aggregated transactions represented by the firm over the past five years:

- “Ready to Build” (RTB) risk allocation is still evolving. It is expected to align with commercial agreements between business teams, reflecting the development context as perceived by each party at the time of negotiation.
- Relying on “benchmarks” or “market provisions” can be useful when transaction contexts are similar, but this is rarely the case in the rapidly changing environment of renewable energy projects. A one-size-fits-all approach may not address the specific circumstances of each project effectively. Instead, openly discussing needs and solutions for each case offers a more practical way to manage the inherent uncertainty in renewable energy project development.
- Social and environmental considerations now extend beyond local compliance. They are increasingly influencing negotiations, particularly regarding due diligence and human rights. In some cases, positive social and environmental impacts are also becoming factors in negotiations as we begin to see transactions on the impact investing spectrum.
- Provisions that allow for mediation (*amigable composición* under Colombian law) of specific technical, regulatory, or environmental disputes, such as RTB achievement, are

becoming valuable resources for negotiation teams to handle uncertainty while advancing transaction agreements.

- Collaborative and flexible mindsets, rather than adversarial and rigid approaches, are key. Open discussions about each party's expectations and concerns, along with the early involvement of multidisciplinary environmental and regulatory teams, build trust and facilitate reaching common ground.

2. Legal and Regulatory Regime

2.1 Governing Law and Upcoming Changes

Key Laws and Regulations Governing the Energy Market in Colombia

The electricity market in Colombia operates under a comprehensive framework of laws and regulations designed to manage the generation, transmission, distribution, and trading of electricity. This framework applies to all energy sources, including renewables, and is complemented by specific regulations addressing renewable energy, environmental, and social requirements.

Electricity Market Legislation

The legislative foundation for Colombia's electricity market was established in the early 1990s to stimulate private investment in power generation and transportation. This followed decades of state-owned industry plagued by politicisation and energy insecurity, including a year-long energy rationing period in 1992. During the last 30 years, the industry has been focused on large hydro and thermoelectric capacity, resulting in a power mix of approximately 70% hydro and 30% thermoelectric. Key laws include the following.

- Law 142 of 1994 (Public Utilities Law) – regulates public utility services, including electricity, defining principles, rights, and obligations for service providers and consumers, and setting rules for tariffs and service conditions.
- Law 143 of 1994 (Electricity Law) – provides the legal foundation for the electricity sector by liberalising the market to allow private sector participation in generation, transmission, distribution, and commercialisation. It also establishes the Energy and Gas Regulatory Commission (CREG) and the Ministry of Mines and Energy as key regulatory bodies.

Recent Reforms for Renewable Energy

In response to climate change and vulnerability to phenomena like El Niño, Colombia decided to integrate non-conventional renewable sources into its energy mix. This shift is supported by recent reforms.

- Law 1715 of 2014 (Renewable Energy Law) – promotes non-conventional renewable energy sources and provides fiscal incentives such as tax deductions, VAT and customs duty exemptions, and accelerated depreciation. It also allows self-producers to sell surplus electricity to the public grid.
- Law 1955 of 2019 (National Development Plan 2018–2022) – introduces the Green Energy Quota, mandating that 8–10% of energy traded in the wholesale market must be renewable. It also permits bundling of generation, trading, and distribution activities within the same utility company.
- Law 2099 of 2021 (Energy Transition Law) – aims to accelerate the energy transition by incentivising investments in renewable energy and energy efficiency, and setting the regulatory framework for hydrogen and energy storage.

- Law 2294 of 2023 (National Development Plan 2022–2026) – introduces the concept of Energetic Communities, allowing end-user groups to generate, commercialise, or efficiently use energy from renewable sources, potentially with public funding.

Principal Regulations Governing the Energy Market

Centralised generation

- CREG Resolutions 054 and 055 of 1994 – regulate electricity commercialisation and generation in the national interconnected system (SIN).
- CREG Resolutions 024 and 025 of 1995 – regulate commercial aspects of the wholesale market and establish the Network Code.
- CREG Resolutions 071 of 2006 and 130 of 2019 – address the methodology for Reliability Charge remuneration and define market principles for energy contracts.
- CREG Resolutions 060 and 75 of 2019, 101 047 and 101 049 of 2024 – regulate solar and wind plant connections, transportation capacity, and deviations from variable plants.
- UPME Resolution 528 of 2021 – establishes procedures for connection requests to the SIN and allocation of transport capacity.

Independent production

CREG Resolutions 24 of 2015, 096 of 2019, 174 of 2021, 148 of 2021, and 101-011 of 2022 – regulate large-scale self-generation, distributed generation, and connection of solar and wind plants.

Upcoming Changes

The following are upcoming changes to note.

- Reform to the Public Utilities Law (Law 142 of 1994. Bill 222 of 2024 Senate) – proposed by the government to create user-centric legisla-

tion and strengthen public service provision, but may increase government control over the sector.

- Bill 091 of 2024 Senate – establishes procedures for legal easements for non-conventional renewable energies.
- Draft Decrees and Resolutions – propose modifications to energy policies, including self-generation guidelines, electricity rate reductions, and modifications to the Commercial Operation Date (COD) procedure.

Environmental and Social Requirements

Energy projects in Colombia must also comply with environmental and social regulations.

- Law 99 of 1993 (Environmental Law) – establishes the National Environmental System (SINA) and promotes sustainable development and natural resource protection.
- Decree 1076 of 2015 – consolidates environmental and sustainable development regulations.
- Additional norms – include various guidelines and methodologies for environmental studies and consultations.
- Prior Consultation Process (PCP) – governed by Sentence SU123 of 2018, Decree 2353 of 2019, Executive Order 08 of 2020, the Escazú Agreement Law 2273 of 2022, and Sentence T-039 of 2024, the PCP is a fundamental right for local communities.

AMC has successfully supported clients in obtaining environmental licences, permits, and PCPs for approximately 1 GW in renewable energy projects, utilising a proprietary methodology to ensure efficient and comprehensive pre-clearance of environmental studies and effective support during the permitting processes.

2.2 Regulating Authorities

Primary Regulators for Renewable Energy in Colombia

In Colombia, several key regulatory bodies oversee renewable energy activities.

Ministry of Mines and Energy (MME)

The MME is responsible for formulating and implementing energy policies, including those related to renewable energy. It sets the national energy policy and strategic objectives for the sector.

Energy and Gas Regulatory Commission (CREG)

CREG regulates the electricity and natural gas markets. It establishes tariffs, operational rules, and technical standards for energy markets, including renewable energy projects.

Mining and Energy Planning Unit (UPME)

UPME handles the planning and forecasting of Colombia's energy and mining sectors. It provides technical analysis, research, and data to support energy policy formulation. Its functions include:

- managing grid access – evaluates technical feasibility and ensures alignment with grid development plans;
- issuing interconnection concepts – determines connection feasibility and conditions for projects; and
- tracking project development – monitors project status, compliance, and milestones.

XM Compañía de Expertos en Mercados S.A. E.S.P. (XM)

XM operates Colombia's National Interconnected System (SIN) and manages the Wholesale Energy Market (MEM). Its duties include:

- system operation and dispatch – integrates renewable energy sources into the grid;
- monitoring compliance – ensures adherence to the Grid Code for all generation types;
- co-ordinating renewable integration – develops strategies for balancing supply and demand, minimising curtailment, and optimising renewable resource use.

National Operation Council (CNO)

CNO oversees the operation, reliability, and safety of the electricity system. It sets technical standards and grid codes, integrating renewable resources while maintaining grid stability.

Superintendence of public utilities (Superservicios)

Superservicios supervises public utility services, including electricity. It ensures compliance with regulations, protects consumer rights, oversees financial performance, conducts audits, and enforces sanctions. Its duties include:

- compliance monitoring – enforces legal and technical standards;
- consumer protection – ensures service quality and handles complaints;
- financial oversight – evaluates the financial stability of energy providers;
- auditing and inspection – conducts audits to verify regulatory compliance;
- sanctioning – imposes fines or corrective measures for violations; and
- promoting transparency – ensures clear communication from service providers.

These authorities collaborate to foster a regulatory environment that supports the development of renewable energy in Colombia, each playing a distinct yet complementary role.

2.3 Regulated Activities

Scope of Regulated Activities

In Colombia, all activities related to the generation, transmission, distribution, and trading of electricity – across both Centralised Generation (CG) and Small-Scale Production (SSP) – are subject to regulation under the public utilities regime described in **2.1 Governing Law and Upcoming Changes**. This regulatory framework applies uniformly to all technologies, including renewable energy.

Regulations and Restrictions for CG

Power plants with a capacity of 20 MW or more must submit their energy production for grid integration through a Daily Dispatch clearance mechanism which is a system to assure theoretically efficient prices at the Spot Market. It requires generators to provide a day-ahead bid for a 24-hour energy price, with the lowest-priced offers being cleared up to the required capacity to meet demand. Generators with higher-priced offers (or “without merit”) are not allowed to deliver their energy on the day. Therefore, generators must be aware that their revenue will depend on whether they meet the Daily Dispatch merit and the price at their bilateral supply agreements, which they can enter freely with other generators or traders except for those serving regulated users. Generators without merit purchase the energy to serve their bilateral supply agreements at the Spot Price but are paid the agreement price. For this reason, parties to bilateral supply agreements should also be aware of commitment conditions, for example, some agreements require the generator to honour the price only if it meets the Daily Dispatch merit (*Pague lo Generado*). Generators meeting the Daily Dispatch without a bilateral agreement are paid the Spot Price, which is set by the last generation offer required to meet demand.

Grid Connection Procedure for CG

As of 2021, new procedures for grid access were established through CREG Resolution 075 and UPME Resolution 528. Under these regulations, new generation offers must submit a connection and physical availability study to UPME and await the results of the grid capacity allocation algorithm (MACC). This algorithm classifies requests into two categories: those requiring grid expansion (Line 1) and those that do not (Line 2).

Originally, the regulations mandated that results be published by September 30 each year, with connection approvals for Line 1 projects issued by December 20, and Line 2 approvals by October 31. However, there have been significant delays at UPME, with moratoriums issued annually, the most recent being CREG Resolution 101 017 of 2023. As of now, responses to connection requests from 2023, due by July 2024, remain unresolved, and new connection requests have been suspended for 2024.

Regulations and Restrictions for Other Types of Electricity Production

Power plants under 1 MW are not subject to the Daily Dispatch system, and these plants have three options for selling electricity:

- To a trader serving the regulated market without a public tender, at the Spot Price minus the current FAZNI (Fund for Electrification of Non-Interconnected Zones) for the consumption month, provided there is no economic linkage between the buyer and seller.
- Through public tenders conducted by traders serving the regulated market (SICEP), based on price merit.
- To generators or traders for use exclusively by Non-Regulated Users, at freely negotiated prices.

For plants between 1 MW and 20 MW, participation in Daily Dispatch is optional. They can sell energy to:

- traders serving the regulated market through public tenders, with awards based on price merit; and
- generators or traders for use exclusively by Non-Regulated Users, at freely negotiated prices.

Additionally, CREG Resolution 174 of 2021 outlines specific regulations for the sale of energy by self-generators and distributed generators. Notably, different rules apply to those using renewable sources (FNCER) compared to traditional sources.

Grid Connection for Other Types of Electricity Production

Since 2021, CREG Resolution 174 has established distinct grid access procedures for self-generators and distributed generators. Connection requests must be submitted through UPME's single window, but local grid distributors handle them according to specific timelines and procedures. These procedures are categorised into three groups based on installed capacity and type of producer.

- Small-scale self-generators and distributed generators with capacities under 10 kW.
- Small-scale self-generators and distributed generators with capacities between 10 kW and 100 kW.
- Self-generators and distributed generators with capacities between 100 kW and 1 MW, and large-scale self-generators with a declared maximum capacity under 5 MW or those without energy surpluses.

2.4 Ownership and Transfer of Control

In Colombia, there are no specific restrictions on the ownership and transfer of renewable energy assets. However, companies operating in the electricity sector must adhere to the general competition and antitrust regulations established by Law 1340 of 2009. Companies also are obligated to comply with vertical and horizontal integration limitations, transmission unbundling requirements, and restrictions on energy transactions between affiliated or related parties. Relevant regulations in this context include CREG Resolution 128 of 1996, CREG Resolution 022 of 2001, CREG Resolution 60 of 2007, CREG Resolution 095 of 2007, and CREG Resolution 130 of 2019.

Additionally, stakeholders should be aware that transferring renewable energy assets may result in the loss of and obligation to repay tax incentives granted under Law 1715 of 2014, even though such transfers are not explicitly restricted.

2.5 Market Access and Foreign Investment

In Colombia, there are no limitations or prohibitions to foreign participation or investment in the electricity sector. However, all companies involved in the electricity sector are subject to the general competition and antitrust regime provided for in Law 1340 of 2009, also to vertical and horizontal integration limitations as well as transmission unbundling restriction, and to energy purchases between affiliated or related parties limitations, imposed by different regulations. Relevant norms are CREG 128 of 1996, CREG 022 of 2001, CREG 60 of 2007, CREG 095 of 2007, and CREG 130 of 2019.

3. Production/Generation

3.1 Electricity

Key Features of the Renewable Energy Production Sector in Colombia

Market structure

Colombia's electricity market operates under a centralised, single-node system based on the marginal price merit principle, which applies uniformly to all generation sources. While the market structure was initially designed to favour legacy generation, efforts have focused on integrating non-conventional renewable energy sources (FNCER) into this existing framework, rather than creating a separate structure.

Key parties and assets

Government entities

- Mining and Energy Planning Unit (UPME)
 - UPME is responsible for grid expansion, access procedures, and monitoring the progress of energy projects. It previously conducted renewable energy auctions, awarding nine wind and 16 solar large-scale projects valued at approximately USD3.1 billion. However, the Council of State annulled Decree 570 in September 2023, halting the auction mechanism until new regulations are issued.
- *XM Compañía de Expertos en Mercados S.A. E.S.P.* (XM) – a subsidiary of ISA Intercolombia, XM manages Colombia's National Interconnected System (SIN). It oversees new Certificate of Operation Date (COD) bonds, executes them when applicable, and ensures compliance with operational norms for all energy projects, including renewables, as prerequisites for achieving COD and securing grid capacity.
- National and Regional Environmental Authorities (ANLA and CARs) – these authorities enforce environmental policies, manage protected areas, and ensure compliance with

environmental laws through permits and oversight. They play a crucial role in promoting sustainability and mitigating climate change.

- National Authority for Prior Consultation (DANCP) – DANCP determines whether a renewable project requires prior consultation with affected communities. It co-ordinates and facilitates these processes, ensuring that communities' rights and cultural integrity are respected.
- *Financiera de Desarrollo Nacional* (FDN) – as Colombia's development bank, FDN promotes and finances infrastructure projects. In 2020, it partnered with Davivienda to finance the *Bosques Solares de los Llanos* solar project, the first large-scale renewable project in Colombia financed through project finance.

Industry players

- *Asociación de Energías Renovables Colombia* ("SER Colombia") – SER Colombia advocates for renewable energy growth, influencing policies and regulatory frameworks. It has been instrumental in shaping competitive market mechanisms for renewable projects, including the auctions under Decree 570 of 2018. Members of SER Colombia developed all awarded projects in the 2019 and 2021 auctions.
- *Interconexión Eléctrica S.A. E.S.P. (ISA)* – ISA, a major energy company, plays a vital role in integrating renewable sources into the national grid through its transmission infrastructure.
- *Grupo Energía de Bogotá* (GEB) – GEB invests in and expands transmission infrastructure for renewable projects. Notably, the *Colectora* project in La Guajira aims to connect wind and solar farms to the grid, facilitating the distribution of clean energy.
- Recurrent Energy – a subsidiary of Canadian Solar, Recurrent Energy focuses on solar and energy storage projects. In Colombia, it is

developing the first grid-scale 50MW battery project awarded in 2021.

- *EPM (Empresas Públicas de Medellín)* – EPM, a major utility company, is significant for its investments in transmission grids and hydroelectric power. The Hidroituango hydroelectric plant, at 2400 MW, is set to become Colombia's largest renewable energy source, contributing over 10% of the country's installed capacity.
- National Operation Council (CNO) – CNO sets operational norms for the testing stages of all energy projects, including renewables, as a prerequisite for grid connection and achieving COD.

Applicable Rules and Regulations

For details on the relevant regulations, refer to **2.1 Governing Law and Upcoming Changes**.

3.2 Gas

Electricity production from biogas is in place with a small-scale installed capacity of approximately 6 MW from Biogas Doña Juana and Tequendama companies.

3.3 Heat

For detailed insights into specific heat power, refer to **1.2 Renewable Energy Technologies**.

3.4 Hydrogen and Other Biofuels and Renewables

Biomass accounts for less than 1% of the installed capacity market share in Colombia. It primarily supports the agricultural and industrial sectors by converting organic waste and by-products into electricity using combined heat and power plants (cogenerators). This biomass energy production is notably utilised by companies in the sugar industry, including Manuelita, Providencia, Riopaila, La Cabaña, Risaralda, and Mayaguez.

Colombia has a strategic agenda for advancing the hydrogen economy, as outlined in the Ministry of Mines and Energy's roadmap released in September 2021. This roadmap includes a series of 60 actions and milestones, such as achieving 1 to 3 GW of electrolyser installed capacity, ensuring that at least 40% of industrial consumption comes from low-emission hydrogen, capturing 50,000 tons of carbon from fossil hydrogen, and deploying 2,500 to 3,500 hydrogen vehicles along with 50 to 100 public hydrogen refuelling stations. This emerging energy source is crucial to Colombia's decarbonisation efforts.

3.5 Local and Domestic Production

Small-Scale production (SCP) in Colombia is capped at 1 MW of installed capacity. These producers are allowed to export energy to the grid under the conditions outlined in CREG Resolution 174 of 2021. Specific rules for self-generators and distributed generators using renewable sources (FNCER) apply, including a mandatory purchase of distributed electricity by traders integrated with the local grid operator. The purchase price is determined by the spot price plus 0.5% of energy losses, as calculated by a prescribed formula.

Other regulations applicable to small-scale self-generation and distributed generation are discussed in **2.3 Regulated Activities**.

Solar SCP has become a leading choice for both large corporations and small-to-medium-sized businesses (SMBs) in their energy transition. Solar SCP now represents 84% of installed capacity, with an average growth rate of 4 MW per month over the past year. Innovative solar technologies, such as Building-Integrated Photovoltaics (BIPV) like Solarflex by Soleestructuras, are addressing the challenge of rooftop weight

limitations – around 70% of Colombian rooftops – by providing lightweight, flexible solar solutions. A notable example is the first-in-kind 114 kWp semi-flexible solar project for a major food chain, which went live in March 2024, and its 1.5 MW projection for 2025.

4. Infrastructure: Transportation and Storage

4.1 Electricity

In Colombia, electricity transmission is divided into three segments based on grid voltage levels: national transmission (220 kV and above), regional transmission (57.5 kV to less than 220 kV), and distribution (below 57.5 kV). In 2019, the Colombian regulator included grid-scale battery storage projects in the transmission sector under Resolution CREG 98 of 2019, aiming to address current grid challenges.

Transmission is regulated as a natural monopoly with fixed income, while Distribution operates under a price cap regime. Under Laws 142 and 143 of 1994, all grid owners and operators must adhere to the principle of free access and facilitate the interconnection of other utilities and users, including renewable energy generators.

Key Parties

Key parties are as follows.

- Mining and Energy Planning Unit (UPME) – responsible for managing grid expansion and access procedures for energy projects in Colombia and monitoring their construction progress.
- *Interconexión Eléctrica S.A. E.S.P.* (ISA) – the largest electricity transporter in Colombia and Latin America, and the sole owner of XM

Compañía de Expertos en Mercados S.A. E.S.P. (XM).

- EPM (*Empresas Públicas de Medellín*) – the second-largest transmission company in Colombia, holding approximately 33% of the market share.
- *Grupo Energía de Bogotá (GEB)* – third in market share with 25% in transmission. GEB plays a crucial role in expanding transmission infrastructure to integrate renewable energy, exemplified by its *Colectora* project, which connects wind and solar farms in La Guajira.
- *Recurrent Energy* – a global renewable energy developer and subsidiary of Canadian Solar. In Colombia, Recurrent Energy is advancing the renewable sector with the development of the country's first grid-scale 50 MW battery project, awarded in 2021.

Regulatory Challenges

Uncertainty surrounding grid connections is a significant challenge for renewable energy projects in Colombia. Historically, under the open access principle established by CREG Resolution 106 of 2006, about 90% of installed capacity was connected to the grid. However, recent regulations have introduced stricter requirements. New regulations, primarily Resolutions CREG 75 and UPME 528 of 2021, mandate that new generation projects submit a connection and physical availability study to UPME and await results from the grid capacity allocation algorithm (MACC). The MACC prioritises connections into two groups: those requiring grid expansion (Line 1) and those not requiring expansion (Line 2).

Originally, CREG 75 stipulated that connection request responses should be made public by September 30 each year, with approvals for Line 1 by December 20 and for Line 2 by October 31. However, delays at UPME and annual moratoriums, including the most recent in CREG Reso-

lution 101 017 of 2023, have led to significant backlogs. As of now, responses for connection requests filed in 2023 are still pending, and new requests are not being accepted in 2024.

The country faces a shortage of execution capacity to handle the volume of renewable energy requests. Substantial stakeholder engagement is essential to address these gaps and improve grid access certainty for all parties involved.

4.2 Intermittency, Grid Congestion and Flexibility

In 2019, Colombian regulators incorporated grid-scale battery storage projects into the transmission sector under Resolution CREG 98 of 2019, aimed at alleviating current grid challenges. Unlike in other countries, curtailment is not a significant issue in Colombia at this stage and is not specifically regulated.

To address generation stress during scarcity periods, Colombia has implemented regulatory incentives for flexibility and demand-side management. These measures are part of the reliability charge mechanism and focus on releasing pressure on generation rather than directly addressing grid congestion.

4.3 Gas

Colombia accounts for a specific regulation of transportation and storage of gas from renewable sources such as biogas, or unconventional sources, such as biomethane, which is closer to natural gas. Its regulatory framework is set forth in CREG Resolution 240 of 2016. Biogas is transported by exclusive infrastructure, while biomethane may be transported through natural gas pipelines complying with applicable regulations and quality standards.

The biogas market is at early-stage development. The sugarcane industry leads in bioenergy production by using biogas as fuel and producing ethanol mixed with gasoline for the transport sector. The palm oil industry generates biogas through anaerobic digestion of wastewater, rich in methane (50%–60%), which is used for thermal or electrical generation (*Cogeneración*). The pig farming sector uses organic waste through biodigesters, processing 1,200 tons of effluents daily and generating 600 m³/h of biogas with 63% methane content, equivalent to 576,000 kWh per month. Other initiatives in agro-industrial sectors like brewing and dairy use organic matter, processing 1,935 m³/day of biogas and developing purification technologies, producing 400 m³/h with 60% methane.

Biomethane is emerging as an ideal complement to natural gas in the country. The first biomethane plant of the country came online in October 2023, thanks to a USD5 million investment by EPM to serve around to 40,000 homes.

4.4 Heat

Geothermal source is recognised as a renewable source (FN CER) under Law 1715 of 2014. For detailed insights into specific heat power, refer to **1.2 Renewable Energy Technologies**.

4.5 Hydrogen and Other Biofuels and Renewables

Please refer to **1.2 Renewable Energy Technologies**, **3.4 Hydrogen and Other Biofuels and Renewables** and **4.3 Gas**.

5. Trade and Supply

5.1 Electricity

The trade and supply of electricity involve purchasing large blocks of energy from the whole-

sale energy market and reselling it to end users through energy traders.

This activity is complementary to the utility regime established by Laws 142 and 143 of 1994. The applicable regulations are outlined in Resolutions CREG 56 of 1994, 24 of 1995, 180 of 2014, 119 of 2007, 156 of 2011, 38 of 2014, 80 of 2019, 130 of 2019, 031 of 2021, and 101 008 of 2023. The electricity trading market is competitive, open, and accessible, handling approximately 80,000 GWh per year with 137 registered traders to date.

The market is divided into two segments:

- Unregulated market – for consumers with an installed capacity of 100 kW or a monthly average consumption of 55,000 kWh. These consumers can negotiate electricity prices freely with any utility.
- Regulated market – for smaller users, where electricity prices are subject to a regulated price cap. Traders serving this market must purchase energy through public tenders (SICEP) as mandated by CREG 130 of 2019 to ensure the most efficient electricity prices for end users.

Consumers across all segments and locations are free to choose their electricity trader. Among the largest traders, ENEL serves 19% of the unregulated market, while VATIA covers 47% of the commercial borders for the regulated market.

Under Law 1955, the Green Energy Quota requires that a minimum of 8–10% of all electricity purchased by traders comes from renewable sources. CREG 101 008 of 2023 permits traders to conduct SICEP tenders for all types of sources energy and also exclusively for renew-

able energy. Different regulations apply to self-generators and distributed generators using renewable sources (FNCER) compared to those using traditional sources.

Electricity trading in Colombia is undergoing a significant transformation, driven by innovative venture capital which is well-funded, user-focused, and cutting-edge digital platforms that are reshaping how users interact with electricity. Companies like BIA, which entered the market in 2022, exemplify this change. In less than two years, BIA has captured 8% of the commercial borders for the regulated market and trades approximately 30 GWh for around 2,500 users. Through advanced tools such as smart meter infrastructure and modern energy retailing model, this start-up helps consumers manage their energy usage more efficiently and sustainably.

5.2 Gas

Please refer to 4.3 Gas.

5.3 Heat

Please refer to 4.4 Heat.

5.4 Hydrogen and Other Biofuels and Renewables

Please refer to 1.2 Renewable Energy Technologies, 3.4 Hydrogen and Other Biofuels and Renewables and 4.3 Gas.

5.5 Renewable Energy Certificates and (Corporate) Power Purchase Agreements RECs

Colombia is currently developing a market for renewable energy certificates (RECs) driven primarily by industry initiatives and voluntary participation rather than regulatory mandates. For instance, *XM Compañía de Expertos en Mercados S.A.* has launched the EcoGox blockchain platform to ensure the registration, traceability,

and verification of renewable energy origins. Through this platform, RECs can be purchased by end users or utilities seeking to claim the benefits or attributes of the underlying green energy. However, a 2023 survey of renewable energy producers indicates that REC adoption in Colombia is still in its early stages.

While the REC initiative is not specifically regulated in Colombia, its use could fall under consumer protection laws related to advertising and environmental claims. Given international concerns about the effectiveness and legitimacy of RECs – particularly regarding additionality, environmental impact, and their focus on social and environmental aspects rather than direct electricity representation – interested parties should also consider Decree 1369 of 2014 and other legislative efforts aimed at preventing greenwashing, to manage potential risks and liabilities.

PPAs

Corporate Power Purchase Agreements (PPAs) are gaining significant traction in Colombia, particularly the “Private Wire PPAs”, where a corporate offtaker directly receives electricity from assets installed nearby, bypassing the traditional power grid. This trend is fuelled by the economic and environmental benefits of Private Wire PPAs. They not only support the viability of renewable energy projects but also help offtakers meet their energy and sustainability goals, making them effective tools for navigating the energy transition.

However, it is important to note that while Private Wire PPAs offer advantages, they are not explicitly covered under Colombian electricity trading regulations. The sale of electricity is a strictly regulated activity, and existing norms do not encompass Private Wire PPAs except between affiliates.

In practice, some Private Wire PPAs are being misused to support self-production structures or asset purchases and installation services, often leveraging economic benefits such as VAT exemptions. This is drawing the attention of authorities and leading to litigation. Issues under scrutiny include data privacy, VAT compliance, the frustration principle, overbilling, and overall regulatory adherence.

Given the regulated nature of electricity in Colombia, Private Wire PPAs may open the door to painful economic effects, such as tax reclassification, for example, as shown in recent case law *Innovaguir v Dian* in which the Council of State upheld the tax authority collecting VAT over the complete agreement value. It is crucial to choose safe, consistent and coherent legal and regulatory frameworks when considering energy-related agreements in Colombia.

6. Renewable Energy Projects

6.1 Onshore Project Development

Onshore solar project development in Colombia, across both large- and small-scale segments, is advancing rapidly. To date, early-stage solar developments total 14.1 GW. Centralised solar projects account for 6% of the 20 GW total installed capacity and 1.54% of the 117,000 GWh total production. Over the past year, 1.3 GW of new solar capacity has come online, with 587 MW currently in the testing phase. In the Small-Scale Production (SCP) segment, solar installations are growing at an average rate of 4 MW per month since 2023. Notably, a pioneering 114 kWp semi-flexible, lightweight solar project for a major food chain went live in March 2024, with 1.5 MW projection for 2025.

The permitting process for solar developments can take between three and five years, depending on project scale, the need for grid expansion, environmental licences, and prior consultation processes. This complexity arises from the involvement of various authorities and third parties at each permitting stage. Securing a location is relatively straightforward, often involving private agreements with landowners who are increasingly open to exploring renewable energy options, including those on actively productive lands. Even when judicial easements are necessary, they are typically obtained within acceptable timeframes – although some locations require specific due diligence. Common challenges in project development include site overlaps and the presence of local communities, which can affect project timelines. Ultimately, grid access is one significant issue.

For detailed insights into specific project development trends, refer to **1.3 Renewable Energy Market and Recent Developments**.

6.2 Offshore Project Development

Colombia is actively pursuing its offshore wind potential, as outlined in the Ministry of Mines and Energy's roadmap launched in May 2022. This plan highlights the Caribbean coastline's substantial offshore wind power potential, estimated at 109 GW, with approximately 50 GW in La Guajira, one of the highest accumulations globally.

On 27 October 2023, the country initiated its first Offshore Wind Energy Round, managed by the National Hydrocarbons Agency (ANH). This round offers temporary occupation permits for up to eight years, with the possibility of extension, to evaluate project feasibility in designated areas along the Caribbean Coast (Polygons A and B). Interested parties must submit their qualification documents by 27 September 2024, with

the competitive process expected to conclude by December 2025.

6.3 Project Finance

Colombia is making notable progress in establishing standard practices for securing non-recourse debt agreements to finance renewable energy projects across various scales. The 27 MW *Bosques Solares de los Llanos* power plant, developed in 2020, and the 503 kWp *Nuestro Urabá* solar SCP from 2017, stand as early benchmarks in large-scale and small-scale solar projects, respectively.

A key legal consideration for financing renewable energy projects in Colombia, compared to other project-financed assets such as road infrastructure, is that activities under the utilities regime carry the sole risk of investors. The Colombian government and state do not provide debt guarantees.

Another important legal factor is the development process, including the nature of permits required for construction, and the electricity market framework within which the project will generate revenue. While Power Purchase Agreements (PPAs) are generally reliable and facilitate “bankable” renewable energy projects, Private Wire Corporate PPAs face more complex legal, regulatory and economic implications under Colombian law.

Recent cases include *Innovaguir v Dian*, in which the Council of State upheld the tax authority collecting VAT over the complete agreement value, and *Axia v Familia*, in which the Court of Appeals of Medellín cast doubt on the compliance of Private Wire PPAs, which show the importance of choosing safe, consistent and coherent legal and regulatory frameworks when considering energy-related agreements in Colombia.

6.4 Subsidies and Incentive Schemes

Law 1715 of 2014 introduced four key tax incentives to promote investment in non-conventional renewable energy and energy efficiency projects in Colombia. These incentives include VAT and customs duty exemptions, accelerated depreciation, and a special income tax deduction of 50% of the investment value. These benefits are available to income taxpayers in Colombia and are designed to support both renewable energy and energy efficiency projects. According to Law 2099 of 2021, these incentives are set to remain in effect for a 30-year period, starting 1 July 2021.

6.5 Decommissioning Requirements

For projects requiring an environmental licence, decommissioning is addressed within the environmental impact study submitted to the environmental authority as part of the permit application. This study regulates both decommissioning and the disposal of renewable energy installations. Other environmental permits may also include provisions for decommissioning and disposal. Additionally, Law 1672 of 2013 introduced regulations for managing electronic and electrical waste (RAEE), and the Ministry of Environment and Sustainable Development has developed the National Policy for Comprehensive RAEE Management, along with a suite of related regulations.

7. Outlook

7.1 Renewable Energy Policy Developments

The transition from fossil fuels to renewable energy sources in Colombia is consistently advancing, driven by recent legislation, government policies, and regulatory frameworks aimed at increasing the share of renewables in the energy

mix. This transition is further supported by private investments in renewable energy projects, primarily solar and wind, totalling approximately USD3.1 billion.

Colombia is also focusing on empowering end users in the transition process by promoting independent production alternatives, offering energy efficiency incentives, and enhancing community-scale initiatives known as *Comunidades Energéticas*. This shift towards a more consumer-centred energy policy forms the basis for several proposed government reforms.

Trends and Developments

Contributed by:

Juan J Angulo

Angulo Martínez Consulting (AMC)

Angulo Martínez Consulting (AMC) is a leading practice that follows an alternative legal service provider strategy focused on electricity and sustainability initiatives in Colombia. It has coined the study of electric energy as a distinct category within the legal industry, contributing significantly to the foundation and growth of the country's renewable energy market. Its expertise spans advising on high-profile environmental licences, prior consultations, grid connections, auctions, land use and overlap agreements, Power Purchase Agreements (PPAs), Engineering, Procurement, and Construction contracts (EPCs), Development Services Agreements

(DSAs), and cross-border M&A for large-scale wind and solar projects. The firm has also guided venture capital tech start-ups in digital energy trading, and represented industry interests in landmark Constitutional Court reviews, such as endorsing the 10% clean energy quota (2019) and challenging the overstepping Executive superpowers in Decree 1276 amid La Guajira humanitarian crisis (2023). AMC is expanding into a multi-service partner, addressing comprehensive needs in the sustainability space, including energy efficiency and cost recovery strategies for end-users.

Author



Juan J Angulo is the CEO of AMC. With 15 years of building a legal approach to electricity in Colombia, he has been recognised by multiple industry publications. His practice

focuses on advising multinationals across the entire electricity spectrum. He specialises in negotiating and drafting complex contracts and his expertise extends to regulatory

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ANGULO | MARTÍNEZ
LA ESPECIALIDAD IMPORTA

This inaugural edition of the Renewable Energy Global Practice Guide is a nod towards the recognition of electricity as a separate category in the legal industry. In the case of Colombia, developments around renewable electricity have been seen over the past decade, and in 2024, have completed a satisfying two-fold process of reshaping the energy sector and fostering a cultural change. It has been a period of empowering users and redefining legacy dynamics towards a more sustainable society.

The following addresses some topics currently of note in the renewable market, considered valuable for clients who wish to do business in Colombia.

Tailwinds for Renewable Electricity in Colombia

Colombia's renewable energy market is one of the most attractive in the region, thanks to its abundant natural resources – sun, water, and wind – combined with a business-oriented environment. The country has supported the emergence of this new industry since 2014, through consistent policy and solid incentives, including:

- tax benefits and surplus self-production rights established by Law 1715 of 2014;
- exemption from environmental alternatives studies (DAA) under Decree 2462 of 2018;

- long-term contracting mechanisms for renewables set by Decree 570 of 2018, which, though annulled in 2023, catalysed industry momentum;
- a 10% Green Energy Quota for the Wholesale Energy Market by Law 1955 of 2019;
- extended tax benefits and land-use prerogatives provided by Law 2099 of 2021;
- long term fifteen-year PPAs awarded at renewable energy auctions held in 2019 and 2021;
- 20-year proceeds from reliability auctions in 2019 and 2024; and
- the first Offshore Wind Energy Round, with qualification documents due by 28 October 2024.

Legal Approach to Unlock Green Potential: Upscaling Grid Access to a Constitutional Right

Renewable energy in Colombia has the potential to make a significant impact. However, for that to happen, grid access uncertainty demands fundamental upgrades and significant stakeholder engagement. While the country has set the stage for renewable energy growth, access to the national grid presents a significant bottleneck. Regulatory delays and a moratorium on new grid requests in 2024 have further aggravated this issue. To unlock the full potential of Colombia's renewable energy sector, the time

has come to considering upscaling grid access as a constitutional right.

The case for constitutional grid access

Grid access is essential for renewable energy producers to participate in the electricity market. However, the country faces a shortage to handle the volume of renewable energy connection requests, and the government response has focused on the implementation of complex, unpredictable algorithms, resulting in procedures for allocating grid capacity that lack transparency and are perceived by investors as arbitrary. Such is the case in Colombia, where significant grid access uncertainty has been placed upon the industry.

Much of the issue stems from limitations in the existing grid and understaffing at the responsible public agency (UPME). In addition, the lack of proper oversight and efficient law enforcement alternatives are also contributing to limiting the pace of the Colombian energy transition.

At AMC, we believe that upscaling grid access to a constitutional right level may foster the stakeholder engagement necessary to unlock the full potential of renewables. Over the past six years, we have persistently advocated for grid access rights entailing a constitutional interest, given their proximity to “market access channel” as the essential core of the constitutional right to free market. We have also argued the need to complement our electricity framework with an effective grid disputes body, oriented by institutions such as the Experts Panel, OSINERMIN and OFGEM, proven successful in the likes of Chile, Peru and UK respectively. In what follows, we present some legal and constitutional grounds that aim to raise awareness of the constitutional relevance of grid access as a

foundational layer for future adjustments to our electricity framework.

The constitutional relevance of grid access for renewable energy under Colombian law

The 1991 Colombian Constitution and Laws 142 and 143 of 1994 establish a legal framework that, although largely focused on the provision and regulation of public utilities, lays the foundation for a deeper understanding of energy access and its implications for constitutional rights. The Constitution enshrines several rights, such as the right to private initiative, the freedom of enterprise, and access to public services. These rights intersect in the context of electricity, particularly in relation to renewable energy and access to the national grid. At AMC, we argue that access to the electrical grid is constitutionally relevant and should be recognised as a constitutional right, given its essential role in enabling participation in the electricity market. Such access is directly tied to the right to private initiative, free competition, and the provision of public services, making it a constitutional imperative to ensure fair and equal access to the grid, particularly for renewable energy producers.

The Colombian Constitution and the right to energy access

The 1991 Constitution emphasises the protection of human rights, the promotion of sustainable development, and the provision of public services under principles of equality and efficiency. Although electricity access is not explicitly recognised as a constitutional right, several provisions within the Constitution provide a strong legal basis for arguing its importance, particularly in light of renewable energy development.

Article 365 of the Constitution provides that public services are inherent to the social purpose of

the state, and it is the state's responsibility to ensure that these services are provided efficiently and equitably. Electricity is classified as a public service, and the state must guarantee access to this service for all citizens. Additionally, Article 334 vests the state with the authority to intervene in the economy to promote development and ensure the protection of public goods, such as natural resources. This implies that the state has a duty to regulate the electricity sector in a manner that promotes access to energy, particularly from renewable sources, which aligns with the broader constitutional goal of environmental protection (Article 79).

In addition, the Constitution emphasises the role of private initiative and free enterprise. Article 333 guarantees the freedom of economic competition, stating that "economic activity and private initiative are free within the limits of the public good". This provision underscores the importance of creating conditions for fair competition in all sectors of the economy, including electricity. For renewable energy producers, access to the grid is the key to entering and competing in the electricity market, making the right to grid access a necessary extension of the constitutional right to economic competition and private enterprise, in particular, to enable new renewable energy producers to compete on equal footing with legacy players.

Laws 142 and 143 of 1994, and the open access principle

Laws 142 and 143 of 1994 were enacted as part of the broader restructuring of Colombia's public utilities and energy sectors. These laws introduced principles of decentralisation, competition, and efficiency into the management of public utilities, with the goal of promoting both private investment and consumer protection.

Law 142 of 1994, which governs public utilities, emphasises the principle of equal access to public services for all citizens. It establishes the legal framework for the regulation of public utilities, including electricity, and mandates that the provision of these services must adhere to principles of efficiency, quality, and non-discrimination. Importantly, Article 3 of Law 142 introduces the concept of "free choice" for users, meaning that consumers should have the ability to choose their electricity provider. This concept implicitly requires that all electricity producers, including those generating renewable energy, must have equal access to the national grid in order to offer their services to consumers.

Law 143 of 1994, which specifically governs the electricity sector, builds upon this framework by introducing the principle of "open access" to the national grid. Article 23 of Law 143 stipulates that all electricity producers, including private generators, have the right to access the national grid under non-discriminatory terms. This principle is critical for renewable energy producers, who rely on grid access to sell their electricity in the market. The law recognises that the grid is a public good, and as such, access to it must be guaranteed in a manner that promotes competition and efficiency in the electricity market.

Under the open access principle fully recognised by CREg, Resolution 106 of 2006 and earlier regulations, about 94% of installed large-hydro and thermoelectric capacity was straightforwardly connected to the grid. However, recent second-level reglementary provisions introduced stricter requirements amid the renewable's hype, for which grid access relies now on the unpredictable grid capacity allocation algorithm (MACC) and the economic capacity of the project sponsor for granting and extending ten-times more expensive guarantees.

Despite the legal provisions that guarantee open access to the grid, the reality for renewable energy producers is that it is often less accessible. Barriers such as high connection costs, regulatory hurdles, and technical limitations effectively restrict access to the grid. These barriers undermine the constitutional principles of equality, free competition, and environmental protection, and highlight the need for stronger legal protections for grid access.

Grid access and the right to private initiative and free competition

As outlined in the Colombian Constitution, the right to private initiative and free competition is a cornerstone of the country's economic system. This right is directly linked to the concept of a free market, where businesses and individuals can compete on equal terms. In the context of renewable energy, grid access is the gateway to participating in the electricity market. Without access to the grid, renewable energy producers are effectively excluded from the market, which limits competition and stifles innovation.

Besides this, the principle of free competition, as enshrined in Article 333 of the Constitution, requires the state to prevent monopolies and other practices that restrict competition. In the electricity sector, control over the grid by one single unappealable and uncontrolled agency can create barriers to entry for any size renewable energy producers, especially smaller ones. Such concentration of power undermines the constitutional principle of free competition and creates an uneven playing field, where renewable energy producers are at a disadvantage compared to legacy producers, which already occupy massive grid capacity at significantly lower costs and fewer regulatory constraints than newcomers. Further, in an environment seeking

to increase the government's role as a direct utility provider.

To address this imbalance, it is essential that the state takes proactive steps to ensure that grid access is available to all electricity producers on equal terms. This includes not only enforcing the provisions of Laws 142 and 143, but also updating the regulatory framework to remove barriers to grid access for renewable energy producers rather than imposing more. By doing so, the state would fulfil its constitutional obligation to promote competition and protect the rights of private initiative.

Renewable energy and the constitutional right to a healthy environment

In addition to the economic and competitive dimensions of grid access, there is a strong constitutional argument for promoting renewable energy based on the right to a healthy environment. Article 79 of the Constitution guarantees all citizens the right to live in a healthy environment and mandates the state to protect natural resources and promote sustainable development. Renewable energy plays a critical role in achieving these goals, as it reduces reliance on fossil fuels and helps mitigate the environmental impacts of energy production.

By promoting grid access for renewable energy producers, the state can further its constitutional mandate to protect the environment. This is particularly important in the context of Colombia's commitment to international environmental agreements, such as the Paris Agreement, which calls for a transition to cleaner energy sources. Ensuring that renewable energy producers have fair and equal access to the grid is a necessary step in fulfilling both national and international environmental obligations.

Constitutional review of market access and the right to free competition

The right to private initiative and free competition, as outlined in Article 333 of the Colombian Constitution, has been the subject of extensive interpretation by the Constitutional Court. The Court has consistently ruled that these rights are not absolute, but they are critical to Colombia's economic framework and must be protected from any unjustified interference. The following two key rulings emphasise the importance of market access as a fundamental component of the right to free competition, which directly applies to the issue of grid access for renewable energy producers

(i) Constitutional Court Ruling C-616 of 2001

In this ruling, the Constitutional Court addressed the principle of free competition and its limitations. The Court held that any regulatory or legal framework that excessively restricts or impedes market access could violate Article 333 of the Constitution, which guarantees the freedom of private initiative and economic activity. The decision reaffirmed that the state has a duty to promote a competitive market environment and prevent practices that restrict competition. While the case was not directly related to energy, the Court's emphasis on market access as the core of free competition is directly relevant to grid access for renewable energy producers, as access to the electricity market is essential for their economic activity.

The ruling highlights that any barriers to market entry, such as restrictive grid access conditions, could be seen as infringing on the constitutionally guaranteed right to free competition. This principle applies directly to renewable energy producers, whose ability to compete in the

electricity market depends on their access to the national grid.

(ii) Constitutional Court Ruling C-228 of 2010

In this decision, the Constitutional Court further elaborated on the relationship between state regulation and the protection of competition. The Court held that while the state has the authority to regulate economic activities in the public interest, such regulations must not impose unjustified or disproportionate barriers to market access.

Specifically, the Court emphasised that market access is the essential core (*núcleo esencial*) of the constitutional right to the free market. Therefore, regulations restricting access to the grid violate the principle of free competition by restricting the ability of players to enter the market.

This ruling is particularly relevant for renewable energy producers in Colombia, many of whom are small or medium-sized enterprises that face significant barriers to grid access due to high connection costs, bureaucratic hurdles, and limited capacity. The ruling underscores the need for a regulatory framework that truly facilitates market entry for all participants, particularly those in emerging sectors such as renewable energy. The state's responsibility to ensure fair market conditions includes removing disproportionate barriers that hinder competition, making grid access an essential part of the right to free competition.

In light of the above-mentioned case law, it is clear that the Colombian Constitutional Court emphasises the importance of market access and equal treatment as essential components of the right to free competition. In the context of

renewable energy, access to the national grid is a critical infrastructure issue that directly impacts producers' ability to compete in the market. The Court's jurisprudence supports the argument that any barriers to grid access, whether due to regulatory, financial, or technical restrictions, must be carefully scrutinised to ensure they do not violate constitutional principles.

The state has a constitutional obligation to promote free competition and prevent monopolistic practices, which in the energy sector includes ensuring that all producers, particularly renewable energy companies, have fair and equal access to the grid. By recognising grid access as a constitutional right, Colombia can ensure that its electricity market is competitive, inclusive, and aligned with both the constitutional mandate for economic fairness and its international environmental commitments.

Pragmatic example of meaningful outcomes from legal-based solutions towards grid access

The reliability auction of 2019 marked a significant milestone by including, for the first time, non-hydro renewable sources and awarding 1.4 GW of wind and solar projects. This was a breakthrough moment for the renewable industry. For some projects, participating in the auction was a strategic move: not only did it contribute to the country's energy reliability and secured valuable revenue from the reliability premium, but also enforced the legal prerogative of right-of-grid-access embodied by the regulations in force at the time (CREg, 106 of 2006).

Enforcing this right did more than just secure grid access. It played a pivotal role in closing one of the landmark acquisitions of the industry and leveraged the entry of a major wind energy player into the country. On top of that, it underscored to grid authority that connections requested years

earlier – and repeatedly stalled – were feasible to move forward, as evidenced by approval succeeding the awarding at the auction.

Having represented these projects from early development to deal and auction, AMC had a front-row seat to attest to the powerful impact of legally grounded solutions for grid access. The 504 MW wind projects represent a direct investment of approximately USD800 million and are expected to cut 1 million tons of CO₂ emissions annually. Despite ongoing construction challenges, this valuable experience highlights the crucial need for the open access principle and uncovers the significance of legally enforceable alternatives protecting it.

Wrap-Up: Grid Access as a Constitutional Right

Given the constitutional importance of private initiative, free competition, and environmental protection, there is a strong case for recognising grid access as a constitutional right in Colombia. The grid is the essential infrastructure that enables participation in the electricity market, and without access to it, renewable energy producers are effectively excluded from the market. This exclusion violates the principles of free competition and equality, which are enshrined in the Constitution.

To remedy this, the state must take proactive steps to ensure that grid access is available to all electricity producers on equal terms. This entails an array of actions such as removing barriers to grid access rather than imposing more, as well as providing financial support for small and medium-sized renewable energy producers to cover the costs of grid connection. Furthermore, the state should consider enshrining the right to grid access as a constitutional right, hope-

fully combined with an effective, specialised and well-resourced, grid disputes body.

In conclusion, access to the national grid is not only a matter of economic fairness, but also a constitutional imperative. By recognising a grid access right at a constitutional level, legal instruments can more effectively foster the required stakeholder engagement necessary to unlock the full potential of renewables. It will lead the country to ensure that its electricity market remains competitive, innovative, and aligned with the country's broader goals of sustainable development and environmental protection. Certainly, benefits of legally enforceable grid access rights have already been proven.

The renewable energy market in Colombia took its first steps in 2014 and entered a phase of consolidation in 2020, all while navigating the unprecedented challenges posed by the COVID-19 pandemic. Ten years on, and through dedicated multi-stakeholder engagement, the country has impressively scaled from zero to 1.3 GW in new solar power plants, which today represent 6% of the total installed capacity of 20 GW.

Since it was founded in 2016, AMC has been a steadfast ally to the foundation of the Colombian renewable energy industry, supporting every step of this transformative journey. The firm extends its deepest gratitude to its clients for their trust and its Of Counsels teams for their collaboration. AMC is honored to contribute to this inaugural edition of Chambers & Partners on behalf of Colombia.

The recognition of the electricity category marks a new landscape for the firm. AMC hopes that ongoing advocacy will inspire restless minds to champion this cause and other critical issues around the energy transition in Colombia, driving the country to prosper and move forward in the rapidly evolving world of electricity.

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