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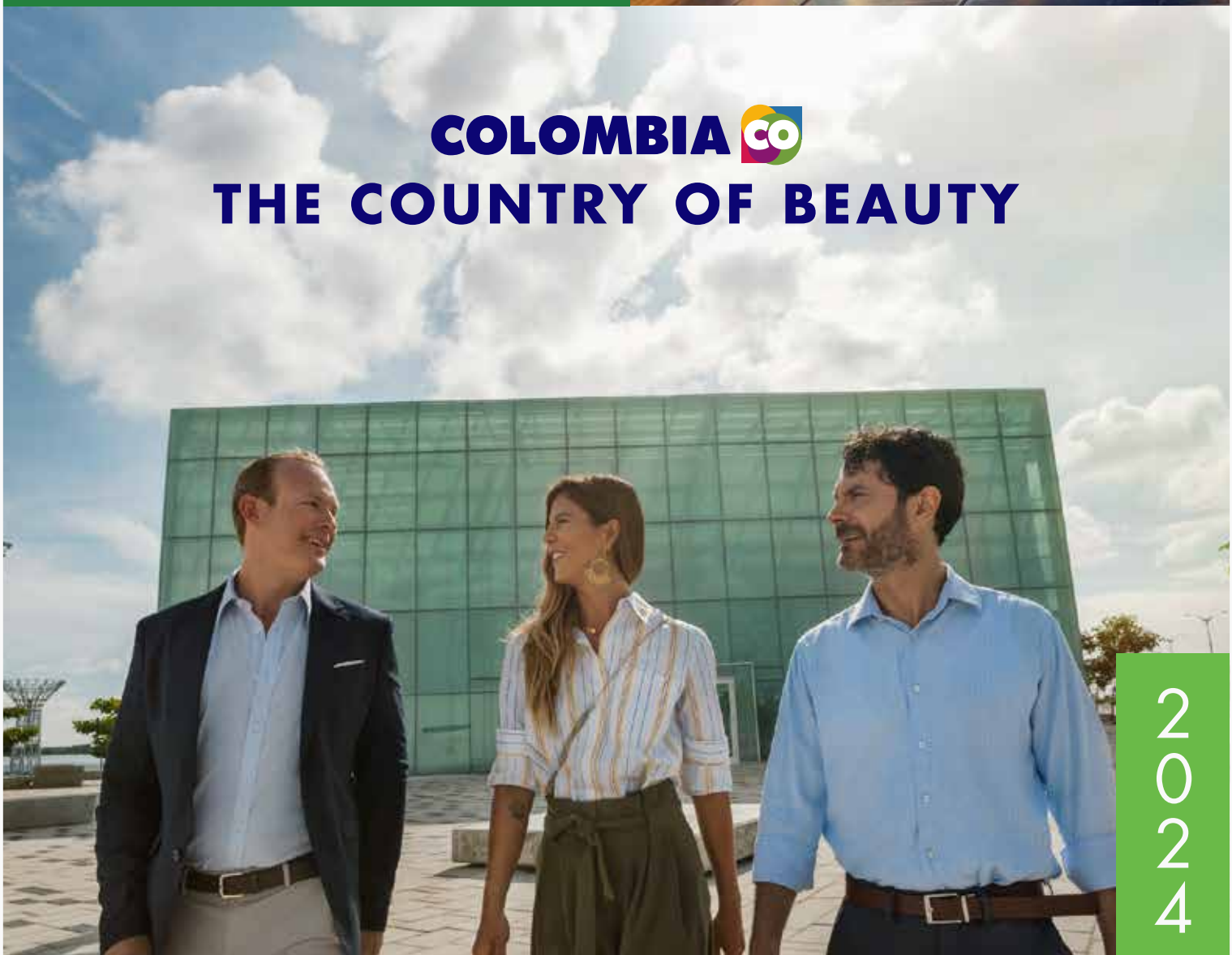

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COLOMBIAN **ELECTRICITY MARKET**

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COLOMBIAN **ELECTRICITY MARKET**

Chapter 9

9.1. Electricity as a public utility

The regime for the provision of public electric power services in Colombia is generally developed in the Political Constitution of 1991 and Laws 142 and 143 of 1994.

The generation, distribution, transmission, and commercialization of electric energy are domiciliary public services or activities complementary to the domiciliary public service of electric energy. Therefore, the legal regime applicable in its entirety is this special regime. One of the fundamental pillars of the scheme for providing public services is freedom of enterprise. Public, private or mixed agents (public and private capital) have the right to organize and operate companies whose purpose is the provision of a public service or one of its complementary activities. Article 15.1 of Law 142 of 1994 incorporates the legal figure of "Empresa de Servicios Públicos" (E.S.P. for its acronym in Spanish) as one of the persons authorized to provide public services in the national territory.

The E.S.P. may be Official, Mixed or Private depending on the participation of private or state origin in its capital stock, but they have the similarity of developing their activity in competition (to the extent that each specific activity allows it) and contracting under the provisions of private law. The incorporation of an E.S.P. or the modification of an existing company to become an E.S.P. does not require prior authorization from any authority, and, in that sense, the process of incorporation or modification to an E.S.P. will have to follow the process of any other type of commercial company.

9.2. Institutions of the electricity sector

The electricity sector is mainly comprised of the following authorities:

9.2.1. Ministry of Mines and Energy (MME)

Among the functions of the Ministry of Mines and Energy (MME for its acronym in Spanish), in relation to public utilities, are the following:

(i) Establish the technical requirements to be met by the companies.

(ii) Elaborate a plan for the expansion of the coverage of the public service to be supervised by the Ministry at least every five years.

(iii) Identify the amount of subsidies that the Nation should provide for the respective public service.

(iv) Gather information on new technologies and management systems in the sector.

(v) To promote, under the direction of the President of the Republic and in coordination with the Ministry of Foreign Affairs, international negotiations related to the relevant public service.

(vi) Develop and maintain an adequate sectoral information system for the use of the authorities and the general public.

9.2.2. Mining-Energy Planning Unit (UPME)

Organized as a Special Administrative Unit attached to the Ministry of Mines and Energy, the functions of the UPME (for its acronym in Spanish) include establishing the energy requirements of the country's population and economic agents, based on demand projections that take into account the most likely evolution of demographic and economic variables and energy resource prices, issuing tax incentive certificates in accordance with Law 1715 of 2014 and its amendments, and preparing the National Energy Plan and the Electricity Sector Expansion Plan, in accordance with the draft National Development Plan, among other functions.

9.2.3. Energy and Gas Regulatory Commission (CREG)

Organized as a Special Administrative Unit of the Ministry of Mines and Energy, the CREG (for its acronym in Spanish) is composed by the Minister of Mines and Energy, who presides it, the Minister of Finance and Public Credit, the Director of the National Planning Department (DNP for its acronym in Spanish), six full-time experts[1] in energy matters (appointed by the President of the Republic for four-year terms) and the Superintendent of Residential Public Utilities, with voice but no vote.

9.2.4. Superintendency of Residential Public Utilities (SSPD)

The SSPD (for its acronym in Spanish) is a technical body, attached to the National Planning Department (DNP), with legal personality, administrative and patrimonial autonomy It performs specific control and surveillance functions independently of the Service Commissions and with the immediate collaboration of the delegated superintendents. The superintendent and his delegates are freely appointed and removed by the President of the Republic.

9.2.5. Trade Exchange System Administrator (ASIC)

The ASIC (for its acronym in Spanish) is the unit responsible for the registration of long-term energy contracts, settlement, billing, collection and payment of the value of energy acts or contracts on the exchange by generators and traders, maintenance of the required information systems and computer programs, and performance of the tasks necessary for the proper functioning of the Trading Exchange System.

9.2.6. Liquidator and Account Manager

Entity in charge of settling and billing the charges for the use of the National Interconnected System (SIN for its acronym in Spanish) networks, determining the regulated income to the transporters and managing the accounts for the use of the networks caused to the agents of the wholesale market, in accordance with the regulations in force.

9.2.7. National Dispatch Center (CND)

It is the authority in charge of planning, supervision and control of the integrated operation of the generation, interconnection and transmission resources of the National Interconnected System (SIN). It is also in charge of giving instructions to the regional dispatch centers to coordinate the maneuvers of the facilities to have a safe and reliable operation, in accordance with the operation regulations and all the agreements of the National Operation Council.

9.2.8. National Operating Council (CNO)

The main function of this body, (the CNO for its acronym in Spanish) is to agree on the technical aspects to guarantee that the integrated operation of the National Interconnected System (SIN) is safe, reliable and economic, and to be the executing body of the operating regulations. The decisions of the National Operation Council may be appealed before the Energy and Gas Regulation Commission (CREG).

9.3. Electric power production chain.

The energy supply chain is composed of the following activities, namely:

9.3.1. Generation.

Generation is the first link in the energy supply chain through which energy sources are transformed; in Colombia, the most common is the generation of hydraulic energy and there is also evidence of the use of thermal energy (gas, coal and liquid fuels). Currently, and due to the used investment mechanisms, incentives and tax benefits, non-conventional sources have had a technological and information advance which allows the entry of new projects and works aimed at generating with non-conventional renewable energy sources, such as photovoltaic and wind power.

Additionally, there are no entry barriers for agents whose quality may vary, i.e., there are generators, self-generators or co-generators and recently, the collective self-generator under the legal framework of energy communities, thus allowing free competition for all those public, mixed or private entities that wish to enter the market; on the other hand, they have the opportunity

[1] *Resolución 105 0003 de 2023 CREG aprobada por Decreto 1573 de 2023 del Ministerio de Minas y Energía.*

to set the prices to be offered since, although they are regulated by the CREG, there is no impediment for the negotiation and placement of the cost of the energy generation service; however, there are standard systems to establish the monetary measurements.

9.3.2. Transmission.

Continuing the procedure or supply chain, the second step or link in the chain of energy service provision is transmission; this activity is understood as the transportation or conduction of the electric energy that comes from the generation plants. In Colombia we find this process through the National Transmission System (STN for its acronym in Spanish) which is regulated by the CREG. This activity is part of a natural monopoly which is admitted in the Colombian legislation. The expansion of this system is made through public calls for tenders administered by the UPME and the income of the link is given through the charge for the use of transmission networks that is paid through the tariff for all users (regulated and non-regulated) connected to the National Interconnected System (SIN), as defined by the CREG.

The National Transmission System (STN) is comprised of the substations, pylons and cables required to transport electric power, taking into account the respective voltage levels, which range between 220kV and 500kV.

9.3.3. Distribution.

The third point or link in the supply chain corresponds to the distribution of energy, which is distributed from the consumption centers to the final consumer; the size of these facilities is smaller than those found in the National Transmission System (STN), since they are part of the regional lines which are called Regional Transmission Systems (STR for its acronym in Spanish) and Local Distribution Systems (SDL for its acronym in Spanish). This link is also considered as a natural monopoly, since users cannot decide or choose the individual transmission or distribution agent to meet the energy demand acquired.

9.3.4. Commercialization.

The commercialization activity is at the fourth level of the supply chain and is part of a system of purchase and sale of electricity mediated by the wholesale market (long or term contracts and transactions in the Energy Exchange) or the sale of the product to operations carried out in the same market or to end users.

In this sense, it is understood that end users (regulated and non-regulated) have a relationship with the distributor who is responsible for the quality and availability of the network connected to the service and, on the other hand, users have a relationship with the marketer who will oversee measuring, billing and charging for the service to users.

It is important to mention that Law 1955 of 2019, through which the National Development Plan 2018-2022 "Pact for Colombia, Pact for Equity" is issued, determined in its Article 290 the obligation of the CREG to issue regulations to ensure the efficient provision of public services, to promote competition, prevent abuses of dominant position and guarantee the rights of users, within the regulation of fuel gas, electricity and public lighting services.

Likewise, it should be noted that the energy market has an Administrator of the Trading Exchange System (ASIC) of the company XM, who is in charge of:

(i) Register the boundaries, i.e., the energy consumption measurement systems, their location and their representative.
(ii) Register the contracts entered into between the agents.
(iii) Settle and invoice the resulting energy exchanges between the market's generating and trading agents, who sell and buy in the energy exchange.
(iv) Collect the proceeds from stock exchange transactions and International Electricity Transactions.
(v) Settle, collect and distribute the money from the charges for the use of the national and regional transmission systems among the transmitting agents and distributors owners of such networks. This activity is carried out by XM through the Liquidator and Administrator of Accounts for Use of the National and Regional Transmission Systems (LAC for its acronym in Spanish).

Finally, the Commercial Exchange System (SIC for its acronym in Spanish) is the set of rules and procedures established in the operating regulations that define the obligations and credits of generators, traders, and transporters for energy acts or contracts in the exchange according to the central dispatch.

The SIC includes the settlement process of the value of the exchanges, the preparation and updating of the statement of account of each generator, transporter, and trader participating in the Energy Exchange, the invoicing, payment, and collection of the value of the transactions made in the same exchange.

All agents (generators and marketers) must register as agents with the market and provide guarantees or adjust them if necessary. The purpose of these guarantees is to ensure compliance with the obligations arising from the Wholesale Energy Market (MEM for its acronym in Spanish) agents, corresponding to energy transactions in the exchange, reconciliations, complementary services, charges for the use of the National Transmission System, services and, in general, for any concept invoiced by XM in its capacity as ASIC and LAC. Additionally, guarantees to cover charges for use of the STR and SDL are also contemplated.

9.4. Electricity tariffs

In order to determine the tariff formulas for the provision of electric energy services, Law 142 of 1994 establishes that the rules on the tariff regime of public utility companies provided for in this law, the rules of the Code of Administrative Procedure and Contentious Administrative Matters (CPACA for its acronym in Spanish), and the following special rules shall be applied:

(i) CREG's executive coordination will drive all actions for its determination.

(ii) If the action is initiated ex officio, the commission must have sufficient studies to define the formula in question; if it is initiated at the request of a utility company, the applicant must accompany such studies.

The rate formulas shall be in effect for five years unless prior agreement is reached between the public utility and the commission to modify or extend them for an equal period. Once the period of validity of the tariff formulas has expired, they will continue to be in force until the commission establishes new ones.

Exceptionally, these formulas may be modified at any time, ex officio or at the request of a party, when it is evident that serious errors were made in their calculation, that the interests of the users or of the company are unfairly harmed, or that there have been reasons of fortuitous event or force majeure that seriously compromise the financial capacity of the company to continue providing the service under the tariff conditions foreseen.

The rates of the public utility service for household electricity reflect the application of the principles of solidarity and income redistribution established in Law 142 of 1994, regarding the Unit Cost of Service Provision (CU) and are established in Resolution CREG 079 of 1997. The unit cost of service provision (CU) is the efficient economic cost of providing the service to the final regulated user, expressed in pesos per kilowatt-hour ($/kWh) and in pesos per bill resulting from applying the established general tariff formula, and corresponds to the sum of the efficient costs of each of the activities in the electricity chain.

The activities in the electricity chain are Generation, Distribution, Transmission, Commercialization, Losses, and Restrictions[2].

Indeed, the cost of service or unit cost (CU) can be expressed in the following formula:

$$CU = G + T + D + Cv + PR + R$$

CUv = Variable component of the unit cost of service provision.

G = Represents the cost of purchasing energy by the retailer and represents the cost of energy production, regardless of where it is generated.

T = Represents the value paid for the transportation of energy from the generation plants to the regional transmission networks (STN).

D = Represents the value paid for transporting energy from the substations of the National Transmission System to the end user (STR and SDL).

Cv = Represents the remuneration for the margin of marketing energy and includes the variable costs of the marketing activity, associated with user services such as billing, reading, customer service, claims, etc.

PR = Costs of energy losses, transportation, and their reduction.

R = Costs for restrictions and services associated with generation.

Additionally, when companies bill for energy consumption, besides calculating the Unit Cost of Service Provision (CU), they must also consider subsidies and contributions, applying the principle of solidarity and income redistribution. This implies that users from strata 5 and 6, as well as industrial and commercial users, must assist users from strata 1, 2, and 3 in paying for services that cover their basic needs. In legislation, the subsidy for strata 1 and 2 is up to 60% and 50%, respectively, of subsistence consumption, and 15% for stratum 3. Stratum 4 users do not pay contributions nor are they subject to subsidies. Hence, the tariff applied to these users equals the Unit Cost CU.

Furthermore, it is worth adding that, in accordance with paragraph 1 of article 290 of Law 1955 of 2019, CREG has the authority to modify tariff formulas during their validity when strictly necessary and motivated by the inclusion of new agents, activities, or technologies, complying with the criteria established in said article for the implementation of regulation.

[2] *CREG Resolution 105 0003 of 2023 approved by Decree 1573 of 2023 of the Ministry of Mines and Energy.*

9.5. The National Interconnected System (SIN) and the Non-Interconnected Zones (ZNI)

9.5.1. SIN

According to our legal system, the SIN is the system composed of generation plants and equipment, the interconnection network, the regional and interregional transmission networks, the distribution networks, and the electrical loads of users connected to each other.

9.5.2. ZNI

As established by Law 855 of 2003, the Non-Interconnected Zones - NIZ (ZNI for its acronym in Spanish) in Colombia are those areas of the country, such as municipalities, townships, localities, and villages that are not connected to the National Interconnected System (SIN), and therefore, must obtain electricity through independent systems.

The provision of electric energy services in the ZNI must guarantee the continuity, quality and security of supply, and the cost of the service must be fair and equitable for users. The CREG is responsible for issuing the regulation that guarantees the provision of electric power service in the ZNI.

The regulation establishes a series of incentives for investment in electric power generation projects in NIZs, in order to promote the expansion of electricity coverage and improve the living conditions of the communities that live in them. Among these benefits, the regulation provides for the possibility of accessing credits and resources, including those collected through the Financial Support Fund for the Energization of Non-Interconnected Zones (FAZNI for its acronym in Spanish).

9.6. NON-CONVENTIONAL ENERGY SOURCES (FNCE).

9.6.1. Regulatory framework.

In order to clarify the scope of the regulation of Non-Conventional Renewable Energy Sources (FNCE for its acronym in Spanish) within the current energy system, it is necessary to take into account the purposes and objectives of the following laws, decrees and resolutions:

Law 1715, 2014 : Whereby the integration of non-conventional renewable energies to the National Energy System is regulated.

Decree 2469, 2014: Whereby energy policy guidelines are established regarding the delivery of self-generation surpluses.

Decree 2492, 2014: Whereby provisions are adopted regarding the implementation of demand response mechanisms.

Decree 1623, 2015: Whereby Decree 1073 of 2015 is amended and added, regarding the establishment of policy guidelines for the expansion of electric power service coverage in the National Interconnected System and Non- Interconnected Zones.

Decree 2143, 2015: Whereby the Sole Regulatory Decree of the Administrative Sector of Mines and Energy, 1073 of 2015, is added in relation to the definition of the guidelines for the application of the tax incentives established in Chapter III of Law 1715 of 2014.

Decree 1476, 2022: By which provisions aimed at promoting innovation, research, production, storage, distribution, and use of hydrogen are adopted.

Decree 1318 de 2022: By which Decree 1073 of 2015, the Single Regulatory Decree of the Administrative Mining and Energy Sector, is added in order to regulate articles 21 and 21-1 of Law 1715 of 2014 regarding the development of activities aimed at generating electricity through geothermal energy.

Decree 895 de 2022: By which Articles 11, 12, 13, and 14 of Law 1715 of 2014, among other provisions, are regulated regarding tax incentives.

Decree 1537 de 2022: By which articles 36 of Law 2099 of 2021 and 30 of Law 2169 of 2021 are regulated regarding the administrative act of declaring the public utility and social interest of projects for the generation, transmission, and distribution of electricity, as well as projects and/or execution of works for the production and storage of green hydrogen.

Decree 1580 de 2022: In relation to the Unique Fund of Energy Solutions, FONENERGÍA, and other provisions are dictated.

Resolution Ministry of Environment and Sustainable Development No. 1312 of August 11, 2016: By which the terms of reference for the preparation of the Environmental Impact Study - EIA, required for the environmental license process of projects using continental wind energy sources, are adopted, and other determinations are made.

Resolution UPME 319 of 2022 (Added by Resolutions 504 and 610 UPME of 2023): By which the requirements and procedure for the evaluation of requests for evaluation and issuance of certificates that allow access to tax incentives of Law 1715 of 2014 are established.

Law 1955, 2019: By which the National Development Plan 2018 - 2022 is issued. "Pact for Colombia, Pact for Equity".

Law 2099 of 2021: By means of which provisions are issued for the energy transition, the dynamization of the energy market, the economic reactivation of the country, and other provisions.

Resolution CREG 101 006 of 2023: By which the methodology for determining firm energy for the reliability charge of wind plants is defined.

Resolution CREG 101 007 of 2023: By which the methodology for determining firm energy for the reliability charge of photovoltaic solar plants is defined.

Resolution DIMAR No. 0047 of 2023: Fixing technical criteria and procedure for granting concessions in projects for the development and/or construction of infrastructure for the generation of non-conventional renewable energy sources - FNCER to be carried out within the jurisdiction of the General Maritime Directorate - DIMAR.

Decree 0929 of 2023 Ministry of Mines and Energy: Policies and guidelines are established to promote efficiency and competitiveness in the public utility service of household electricity.

Law 2294 of 2023: "National Development Plan 2022-2026 "Colombia, World Power of Life".

Decree 2236 de 2023: Partially regulates article 235 of Law 2294 of 2023 of the National Development Plan 2022-2026 regarding Energy Communities within the framework of Just Energy Transition in Colombia.

Decree 2235 de 2023: Regulates article 235 of Law 2294 of 2023 regarding the development of White Hydrogen projects within the framework of Just Energy Transition in Colombia.

9.7. Principal milestones for the development of FNCE and FNCER generation projects in Colombia.

9.7.1. In property matters.

Securing the land where both the project and the power evacuation line will be located requires the project developer to carry out multiple activities in order to evaluate the technical and legal feasibility of the land, as well as the negotiation of its use by the owners, or, as the case may be, the use of the different legal figures available to the developer under the type of activity it carries out.

As activities to be carried out by the developer for the optimal securing of the land, the following are highlighted: The preparation of a Title Study, determination of the useful area of the property eliminating constructions, restrictions, easements, and subscription of land use contracts. According to the modalities used in Colombia and the constitution of electric power easements, among others.

9.7.2. In environmental matters

The environmental license is the mechanism through which the competent environmental authority approves the execution of works, projects or activities that may cause serious deterioration of renewable natural resources, as well as the environment, or introduce considerable modifications to the landscape.

In the electricity sector, **the National Environmental Licensing Authority (ANLA** for its acronym in Spanish) is competent to grant environmental licenses for: (i) Construction and operation of electric power generating plants with an installed capacity equal to or greater than 100 MW; (ii) Projects for the exploration and use of alternative energy sources that are virtually polluting with an installed capacity equal to or greater than 100 MW; (iii) Laying of transmission lines in the STN, consisting of lines and corresponding substations with voltages equal to or greater than 220kv and; (iv) Nuclear power generation projects.

In turn, the **Regional Autonomous Corporations** (CARs for its acronym in Spanish) are competent to grant environmental licenses in the following cases: (i) Construction and operation of electric power generating plants with capacity greater than or equal to 10 MW and less than 100 MW; (ii) Laying of transmission lines in the STN, consisting of lines and corresponding substations with voltages between 50kv and less than to 220kv; (iii) Construction and operation of power plants generating energy from water resources with a capacity of less than 100 MW, except for small hydroelectric plants operating in the ZNI with a capacity of less than 10 MW and; (iv) Projects for the exploration and use of alternative energy

sources with an installed capacity equal to or greater than 10 MW and less than 100 MW.

9.7.3. Connection to the National Interconnected System

The CREG published Resolution 075 of 2021, Whereby the provisions and procedures for the allocation of transportation capacity in the National Interconnected System are defined. This resolution applies to those interested in connecting as generators, co-generators, self-generators or end users to the SIN. It also applies to the transporters responsible for the assets related to the connection to the SIN of the aforementioned interested parties, and to the commercializing agents in relation to the functions of this activity.

Class 1 projects[3]:

For the determination of the procedure to be carried out by the promoters for their connection to the SIN, the regulation differentiates between class 1 projects that correspond to end user connection projects to the STN or STR, and projects for connection of generation, cogeneration or self-generation to the SIN, different from the projects that are under the scope of Resolution CREG 174 of 2021 and its amendments.

Those interested in requesting the allocation of transportation capacity for class 1 projects must register at the Single Window before carrying out any procedure. The UPME will be responsible for receiving and resolving requests for the allocation of transportation capacity in the SIN for class 1 projects. For the request, the interested party must carry out a connection and physical space availability study, analyzing different alternatives to connect to the SIN, among other requirements. The allocation of transportation capacity of class 1 projects will be carried out annually, and the project that results with capacity allocation must grant a guarantee for capacity reserve of ten (10) USD for the number of kW of the allocated transportation capacity, as well as subscribe the connection contract and comply with the other obligations of the regulation, such as the delivery of the S Curve before the UPME.

Class 2 projects:

On the other hand, class 2[4] projects are projects for the connection, or modification of connection conditions, of end users in the SDLs. The network operator (OR by its acronym in Spanish), of the marketing market to which the assets for which the allocation of transmission capacity is requested belong, will be responsible for receiving and approving requests for class 2 projects.

The OR must have a digital information system containing all the necessary information for the allocation of transmission capacity to class 2 projects. The interested party in the connection of a class 2 project may request the allocation of transportation capacity directly, through a marketer, or through a third party. For the allocation of transportation capacity to a class 2 project, the delivery of a study and/or design of the project may be required for approval, depending on its characteristics.

On June 8, 2023, the CREG issued Resolution CREG 101 017 of 2023, through which it modifies the schedule for the allocation of transport capacity for the year 2023. The schedule is as follows:

[3] *Projects for the connection of end users to the STN or STR, and projects for the connection of generation, cogeneration, or self-generation to the SIN different from the projects under the scope of Resolution CREG 030 of 2018, or the one that modifies, adds or replaces it. Modifications requested to the already allocated capacities will also be considered class 1 projects.*

[4] *Connection projects, or modification of connection conditions, of SDL end users.*

The transport capacity allocation requests submitted from October 7, 2023, until March 31, 2025, will be processed from the latter date onwards, based on the deadlines set forth in Resolution CREG 075 of 2021. Therefore, there will be no transport capacity allocation process for class 1 projects in the calendar year 2024.

9.7.4. Sale of energy.

Law 143 of 1994 established two types of electricitysystem markets in Colombia:

(i) Non-Regulated Market (NRM or MNR for its acronym in Spanish): where electricity transactions between agents (traders - generators) and between these and non- regulated users are free and remunerated through the prices agreed upon by the parties.

(ii) Regulated Market (RM or MR for its acronym in Spanish): where electricity sales to end users are remunerated, without exception, through tariffs subject to regulation.

In order to be considered a non-regulated user and be able to access the deregulated and competitive market, monthly power and energy limits were established, as well as the obligation to have hourly telemetering equipment. Currently, a non-regulated user is considered to be a user with a monthly demand of 0.1 MW (power) or 55 MWh (energy).

In Colombia, the generator sells the electricity produced by its generation unit connected to the National Interconnected System (SIN) in the Wholesale Energy Market (MEM[5] for its acronym in Spanish), mainly in the following ways:

(i) Through daily energy offers in the stock exchange or "Spot" market: The physical supply of electricity is guaranteed in the short term, through the centralized dispatch of the generation units. This dispatch determines the amount of energy to be produced by the units connected to the SIN to meet the country's demand. On a daily basis, each generator submits a price and quantity offer for all the hours of the following day. ASIC orders the offers from lowest to highest price until the identified demand is covered. The last generation offer needed to cover the last portion of demand determines the exchange price of all energy generated and consumed. This process is performed for all hours of the day.

It is important to clarify that in order to participate in the spot market, the generation unit must submit to centralized dispatch. This substantially determines how the different plants can market the energy they produce, i.e. whether they do so as explained above or whether they have special rules. The plants that are obliged to participate in the centralized dispatch are all those with an effective capacity greater than 20MW, to which all the dispatch obligations will apply. There is the possibility that plants between 1MW and 20 MW may voluntarily participate in the centralized dispatch, in which case all centralized dispatch rules will apply to them.

On the other hand, smaller plants that do not participate in this dispatch, may commercialize their energy produced according to the following rules:

» In the case of a distributed generator, it must take into account the regulation established in Resolution CREG 174 of 2021[6].

» If it is a plant with an effective capacity greater than 1MW and less than 20MW, they can voluntarily submit to central dispatch and if they do not wish to do so, they can market the energy produced: i) by offering it to a marketer that serves the regulated market by participating in the calls for tenders opened by these companies or ii) to generators or marketers through freely agreed conditions as long as it is for the attention of non-regulated users.

(ii) Through long-term energy contracts: These long-term contracts may be entered into to supply the Non-Regulated Market or the Regulated Market. The former will be the product of a more or less free negotiation with another market agent (generator or trader) or directly with an unregulated user; the latter are the product of regulated mechanisms (as will be explained below), i.e. there would not be full freedom in determining the business, especially because it involves the service of regulated users.

(iii) Reliability Charge: There is also the possibility of remunerating this activity with the provision of services that are not related to commercialization, but rather services associated with the **reliability of the system.** For example, through regulation services, security generation or participation in auctions for the allocation of firm energy obligations (OEF) of the reliability charge (CxC) of Resolution CREG 071 of 2006 and Resolution 061 of 2007, among others.

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[5] *This in turn is the market for large blocks of energy.*

[6] *Amended by Resolution 230 of 2021, by which the deadline established in paragraphs 1 and 2 of Article 12 of Resolution CREG 174 of 2021 is extended', published on December 30th, 2021.*

(iv) Public Calls:

Another mechanism is the one defined by the CREG, through Resolution CREG 130 of 2019, which established the Public Calls through the Centralized System of Public Announcements (SICEP, by its acronym in Spanish and defined the procedure to be followed by a marketer in the execution of energy contracts for the regulated market.

9.7.5. UPME registration.

In relation to the registry of generation projects, it is defined as a voluntary and informative mechanism used by the UPME to facilitate compliance with Law 143 of 1994. It is used to know the different initiatives of generation projects in the country, so it is a fundamental input for the formulation of the Indicative Plan for Generation Expansion. With the entry into force of Resolution UPME 0520 of October 09, 2007, modified by Resolutions UPME 0638 of 2007 and 0143 of 2016, the registration procedure was formalized.

The process is divided into three phases, which are determined by the state of progress of the project: Phase 1 corresponds to the pre-feasibility stage of the project, Phase 2 refers to the feasibility stage of the project and Phase 3 refers to the fact that the project must already have definitive designs, as well as the execution schedule. Once the registration certificate expires without the respective renewal procedures having been carried out, the project's registration is considered expired and it is removed from the list of registered projects; however, the project information will continue in the UPME file.

9.7.6. Commercial operation.

Commercial Operation refers to the moment in which the generation plant has satisfactorily fulfilled all the necessary requirements to start generating energy in the Wholesale Energy Market (MEM).

By means of Agreement CNO 1612 of 2022 (which is periodically updated by the CNO), it was approved the update of the Procedure for the start-up of transmission projects that include assets for use of the National Transmission System (STN), the Regional Transmission System (STR), users directly connected to the STN, the STR and generation resources.

The standard establishes the following general requirements for the entry into operation of generation resources:

(i) Registration of the project with the CND and basic information (Preliminary technical information, Preliminary models, Single-line diagrams, Adjustment and coordination of protections).

(ii) Kick-off meeting and coordination of activities for the incorporation of the project to the SIN.

(iii) Communication informing the CND of how the supervision will be carried out.

(iv) Communication in which the generating agent that will represent the generation project is informed. In the case of a new generating agent, it must be previously registered as a generating agent before the Commercial Exchange System (ASIC).

(v) Register commercial borders with ASIC.

(vi) Submit completed Annex 3, which lists the SOE signals that a project must have available and Annex 4, which lists the SCADA signals.

(vii) Completion of all tests described in the standard for commissioning and issuance of the corresponding certificates.

(viii) Coordinate with the CND the date and time of entry into operation and the Declaration in commercial operation.

9.8. Renewable auctions (MCLP or CLPE).

The National Government, with the purpose of promoting Long-Term Energy Contracting Mechanisms (MCPE for its acronym in Spanish) complementary to the existing instruments in the Colombian electric system, is empowered to structure such procedures and include them in the possibilities in which a Marketer and a Generator may agree on Long- Term Energy Contracts (CLPE for its acronym in Spanish) and that these may be included in the regulated user's tariff formula.

As an example, the Ministry of Mines and Energy issued Decree 570 of 2018 on public policy guidelines for long-term contracting of generation projects. This decree served as the legal basis for the creation of the long-term energy auction for FNCER through Resolutions 40590 and 40591 of 2019 and 40179 de 2021 of the Ministry of Mines and Energy and implemented by the UPME[7].

The last long-term energy auction for FNCER was CLPE 03 of 2021, in which long- term energy supply contracts were assigned to 9 generation companies with 11 generation projects with a capacity of 796.3 MW, which signed contracts with 7 auction marketers and 46 marketers of the complementary mechanism, with a weighted average price of 135.85 COP/kWh

[7] *On September 8, 2023, the Third Section of the Council of State (file 62492) published the ruling through which it annulled Decree 570 of 2018 and Resolutions No. 40791 of 2018 and No. 40795 of 2018 of the Colombian Ministry of Mines and Energy. However, to date, the energy contracting auctions that have been advanced have not been annulled, as well as the long-term energy supply contracts subscribed on the occasion of these auctions.*

In the judicial scenario, on September 8, 2023, the Third Section of the State Council published the judgment of June 14, 2023, by which it annulled Decree 570 of 2018 and Resolutions No. 40791 of 2018 and No. 40795 of 2018, issued by the Ministry of Mines and Energy. However, despite this ruling, to date, the energy procurement auctions that have taken place have not been annulled, nor have the long-term energy supply contracts entered into as a result of these auctions.

For 2024, the government has not announced the realization of auctions under this mechanism.

9.9. Reliability Charge.

Resolution CREG 071 of 2006 adopted the methodology for the remuneration of the Reliability Charge in the Wholesale Energy Market (MEM), in which it was established that, to guarantee the reliability of the electric energy service in the SIN, a Target Demand will be defined that must be covered by means of Firm Energy Obligations (OEF for its acronym in Spanish).

Reliability Charge is understood as the remuneration paid to a generating agent for the availability of generation assets with the characteristics and parameters declared for the calculation of the ENFICC[8], which guarantees compliance with the Firm Energy Obligation assigned to it in an Auction for the Assignment of Firm Energy Obligations or in the mechanism that takes its place. This energy is associated to the Backup Generation Capacity referred to in Article 23 of Law 143 of 1994 and is the one that can be committed to guarantee the users the reliability in the rendering of the electric energy service under critical conditions, understood as the situation presented by the Wholesale Energy Market when the exchange price is higher than the Shortage Price.

Article 18 of the resolution established that the CREG shall establish, by means of a Resolution, the opportunity in which the ASIC must carry out the Auction or the allocation mechanism that takes its place, as well as the schedule of the activities that must be executed.

Thus, through Resolution CREG 101024 of 2022, the procedures for reliability charge auctions in the Wholesale Energy Market were defined. Among the regulated aspects, it is highlighted that the Unified Information System for the allocation processes of OEF for the reliability charge, SUICC, will be the only mechanism that participants must use to submit documentation, declare, and exchange information with the Administrator.

Within the framework of Resolution 101 024 of 2022, it was also established that interested parties must be constituted as Public Utility Companies, and natural or legal

- Existing plants and/or units with works.
- Existing plants and/or units.
- Generation plants or units with construction periods longer than the Planning Period, when applicable.
- The validity period of the assigned OEF varies according to the type of plant participating in the auction.

In the context of the auction procedure, it is provided that the CREG will deliver the demand function referred to in Annex 2 of the resolution in accordance with the provisions therein and using the SUICC, auction participants will submit bids to the ASIC.

The ASIC, as the auction administrator, will carry out the auction allocation process on day D plus one hundred twenty (120) business days between 2:00 a.m. and 4:00 p.m. The ASIC will publish the auction results no later than the immediately following calendar day of its realization. This publication must contain at least: the closing price, the allocations of firm energy obligations for each of the auction participants, and everything established in Annex 2 of Resolution 101 024 of 2022 regarding this article. The publication of the auction results and everything covered by this article must be published in the SUICC.

9.10. Offshore wind

The Ministry of Energy and the General Maritime and Port Directorate (DIMAR) enacted Resolution 40284 of 2022, through which the competitive process for granting Temporary Occupation Permits in maritime areas for the development of offshore wind energy projects was defined, and the first allocation round was convened.

The competitive process is being administered by the National Hydrocarbons Agency (ANH) and aims to grant the Temporary Occupation Permit for a period of 8 years, extendable according to the conditions defined in the contract, which allows activities related to measurement, data collection, and information gathering to establish the viability of the Project, which will be exclusively developed in the Areas indicated in Annex A of the Terms, referred to as the Area Proposed by DIMAR or Polygon A and the General Nomination Area or Polygon B[9].

Obtaining the Temporary Occupation Permit is one of the necessary requirements for applying for a Maritime Concession for the development of Offshore Wind Energy Projects in Colombia.

Among the main obligations for the awardee of the Temporary Occupation Permit, which can be a national or foreign company, is to pay the processing fee for obtaining the occupation permit, comply with the S-curve value, cover the costs of compliance inspection, make available to DIMAR the information and data obtained

[8] ENFICC: maximum electrical energy that a generation plant can deliver continuously, under low hydrological conditions, in one year.
[9] Competitive process for the granting of the Temporary Occupancy Permit for the area called in the first round, called "Caribe Central", for the development of offshore wind energy generation projects.
HYPERLINK"https://www.anh.gov.co/es/hidrocarburos/oportunidades-disponibles/ronda-colombia-e%C3%B3lica-costa-afuera/pliegos-ronda-eolica/ "Link: POT (Subject to modifications).

during the occupation, which will be used for planning, monitoring, and protection of the marine environment in the short, medium, and long term.

In this sense, guarantees for the developer of the offshore wind project are also contemplated, among which the possibility of withdrawal stands out, as there would be no penalty for it; however, the one who withdraws would be obliged to submit an infeasibility report. Likewise, the possibility of requesting from DIMAR the Concession of the Maritime Area is granted, which must be requested 9 months before the expiration of the Temporary Occupation Permit, and it will have a validity period of 30 years, with the possibility of one or more extensions that do not exceed a total of 15 years; likewise, the regulations also allow for the assignment of the temporary occupation permit or the maritime concession and establish a term of 2 years prior to its expiration for the dismantling of the project.

From December 21, 2023, to June 21, 2024, those interested in participating in the Competitive Process must submit the Enablement documents, and thus, the Administrator will conduct a study and formulate the necessary complementation requirements to obtain the Enablement and its submission by the interested parties.

This competitive process consists of the following stages and deadlines, which can be modified by the ANH through modifying addenda:

STAGES	DEADLINES
Publication and dissemination stage of the process	**From 27/10/2023 - Until 15/10/2024**
Interested party enablement stage	**From 21/12/2023 - Until 26/08/2024**
Presentation and Evaluation of Nominations stage	**From 27/08/2024 – Until 27/11/2024**
Deposit, Validation, Evaluation of Bids, and Selection of Awardee stage	**From 12/12/2024 – Until 21/04/2024**
Formalization and Issuance of Temporary Occupation Permit stage	**From 22/04/2025 – Until 14/10/2025**
Formalization and Issuance of Temporary Occupation Permit stage	**By 14/10/2025**

Each proposer may compete for up to two different areas, provided they meet the technical, financial, and legal requirements. In general terms, this competitive process evaluates, at a technical level, the trajectory and experience requirements of the proposers; financially, credit ratings, credit limits, and financial statements are analyzed, and regarding legal requirements, corporate aspects, disqualifications and incompatibilities, prohibitions, impediments, disqualifications or conflicts of interest, certifications, and essential documents to be enabled as a participant in the process are examined.

The Competitive Process currently underway corresponds to the first round of allocation of Temporary Occupation Permits for the area known as "Central Caribbean," defining an installed capacity equal to or greater than 200 MW and an operational start date within the 10 years following the formalization of the Temporary Occupation Permit.

9.11. Hydrogen

The rise of hydrogen worldwide in the context of energy transition is due to its great versatility. Hydrogen is the simplest element in the periodic table and highly reactive, so it is not normally found freely in nature but combined with other molecules. This makes hydrogen not an energy source but an energy carrier, as energy must be used for its production.

Law 2099 of 2021 incorporated green hydrogen and blue hydrogen as Unconventional Renewable Energy Sources in the energy sector. On the other hand, the National Development Plan 2022-2026 (PND or Law 2294 of 2023) defined white hydrogen, which was regulated in Decree 2235 of 2023, issued by the Ministry of Mines and Energy, and it is worth noting that they are subject to tax incentives regulated in Law 1715 of 2014.

Green hydrogen is produced from Unconventional Renewable Energy Sources such as biomass, small hydroelectric developments, wind, geothermal heat, solar, tidal, among others; and it is considered a non-conventional source of renewable energy per se. Green hydrogen is also considered the one produced with self-generated electrical energy from UNRE, and electrical energy taken from the national interconnected system -SIN-, provided that the self-generated energy from UNRE delivered to the SIN is equal to or greater than the energy taken from the SIN; for this latter case, in the NDP 2022-2026, it was established that the Ministry of Mines and Energy will establish the procedure to certify this balance based on the measurement systems already established in the regulation.

Blue hydrogen, on the other hand, is hydrogen produced from fossil fuels, especially from methane (CH4) decomposition, and it includes a carbon capture, utilization, and storage system (CCUS) as part of its production process and is considered FNCE.

Finally, white hydrogen was defined as hydrogen that is naturally produced, associated with geological processes in the Earth's crust and found in its natural form as free gas in different geological environments, whether in continental crust layers, oceanic crust, volcanic gases, and hydrothermal systems, such as geysers, and it is considered UNRE.

In terms of direct investment, Law 2099 extends the scope of action of the Fund for Non-Conventional Energies and Efficient Energy Management (FENOGE) to financing and/or executing viable projects at any link in the low-emission hydrogen value chain.

9.12. Tax incentives for FNCER

In order to promote the incorporation of energy generation with non-conventional renewable energy sources (FNCER by its acronym in Spanish), there are in Colombia a series of incentives and tax benefits implemented from Law 1715 of 2014 - amended by Law 2099 of 2021-, so that the production of renewable energy has a greater scope and thus stimulate and promote sustainable development in the country. Based on the above, the Colombian legal system identifies four (4) important tax benefits for the generation of energy for FNCER, which are: (a) Special deduction to determine income tax, (b) Exclusion of goods and services from VAT, (c) Exemption from customs duties and (d) Accelerated depreciation.

In general terms, these incentives are available to individuals or legal entities that make direct investments in activities such as research and technological development in the field of energy production with FNCE and Efficient Energy Management (GEE for its acronym in Spanish), including smart metering, or formulation and preliminary research, technical, financial, legal, economic and environmental final studies, acquisition of equipment, elements, machinery, and assembly and commissioning.

UPME included in Resolution UPME 319 of 2022 the list of goods and services required for the production of energy from FNCE and for the measurement and evaluation of potential resources, according to the technical criteria between these goods and services and FNCE. This Resolution 319 of 2022 has been amended by Resolution 610 of 2023, through which Annex 1, list of goods and services for UNRE projects for electricity generation from FNCE, was modified, and Resolution 504 of 2023, which modified Annex 2 of Resolution UPME, list of goods and services for Energy Efficiency Management (GEE) actions or measures updated on the occasion of the adoption of the PAI-PROURE 2022-2030.

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9.12.1 Income tax benefit

Its application is configured through taxpayers who declare the tax and who, in the development of their activities, make new expenditures in research, development and investment to be able to produce and use energy generated by FNCE and Efficient Energy Management (GEE).

The benefit obtained is the possibility of deducting up to 50% of the value of the investments of the project for a period not exceeding 15 years, which are counted from the taxable year following the year in which the investment has come into operation.

9.12.2. VAT benefit

The regulation establishes that goods and services, domestic or imported, that are destined to pre-investment and investment for the production and use of energy from non-conventional sources, as well as for the measurement and evaluation of potential resources, and to advance actions and measures for efficient energy management, will be excluded from VAT.

9.12.3. Tariff benefit

Natural or legal persons that as of the effective date of Law 1715 of 2014 are holders of new investments in new FNCE projects and measurement and evaluation of potential resources or energy efficiency actions and measures, shall enjoy exemption from payment of Import Tariff Duties on machinery, equipment, materials and inputs intended exclusively for pre-investment and investment work that are not produced by the national industry and their only means of acquisition is subject to the importation of the same.

9.12.4. Benefit Accelerated depreciation

The accelerated depreciation will be applicable to machinery, equipment and civil works necessary for the pre-investment, investment and operation of the generation with FNCE and measurement and evaluation of the potential resources or actions and measures of energy efficiency, which are acquired and/or constructed, exclusively for that purpose, as of the effective date of this law. For these purposes, the annual depreciation rate shall not exceed 33.3% as a global annual rate. The rate may be varied annually by the owner of the project, prior communication to the DIAN, without exceeding the limit indicated above.

9.13. SELF-GENERATION OF ENERGY

9.13.1. Legal and regulatory framework.

Law 1715 of 2014: "Whereby the integration of non-conventional renewable energies to the National Energy System is regulated.

Law 1955 of 2019: Whereby the National Development Plan 2018-2022 is issued. "Pacto por Colombia, Pacto por la Equidad" (Pact for Colombia, Pact for Equity)".

Law 2099 of 2021: Whereby provisions are issued for the energy transition, the dynamization of the energy market, the economic reactivation of the country and other provisions are issued.

Decree 2469 of 2014: Whereby energy policy guidelines are established regarding the delivery of self-generation surpluses.

Decree 348 of 2017: Whereby Decree number 1073 of 2015 is added, regarding the establishment of public policy guidelines on efficient energy management and delivery of small-scale self-generation surpluses.

Resolution UPME 281 of 2015: Whereby the maximum power limit of small- scale self-generation is defined.

Resolution CREG 15 of 2018: Whereby the methodology for the remuneration of the electric power distribution activity in the National Interconnected System is established.

Resolution CREG 38 of 2018: Whereby the activity of self-generation in non- interconnected areas is regulated and some provisions on distributed generation in non-interconnected areas are issued.

Resolution CREG 142 of 2019: Formula for transfer in the component of energy purchases to the regulated user of the prices of the contracts of the complementary mechanism contracts referred to in Resolution number 40725 of 2019 of the Ministry of Mines and Energy.

Resolution CREG 174 of 2021: Whereby small-scale self-generation and distributed generation activities in the National Interconnected System are regulated.

Decree 2236 de 2023: It partially regulates Article 235 of Law 2294 of 2023 of the National Development Plan 2022-2026 regarding Energy Communities within the framework of the Just Energy Transition in Colombia.

9.14. Concepts of Large Scale and Small Scale.

Resolution CREG 174 of 2021 defines the 3 self-generator at large scale (AGGE for its acronym in Spanish) as the self-generator with installed or nominal capacity higher than the limit defined in article one of Resolution UPME 281 of 2015, or the one that modifies or replaces it. In turn, it defines the small-scale self-generator (AGPE) as the one with installed or nominal capacity equal to or lower than the limit defined in the first article of Resolution UPME 281 of 2015, or the one that modifies or replaces it.

Resolution UPME 281 of 2015, "Whereby the maximum power limit of small-scale self-generation is defined as the maximum power limit of small-scale self-generation of one (1) MW, and will correspond to the installed capacity of the self-generator's generation system.

9.15. Energy Communities

Article 235 of Law 2294 of 2023, numeral 25 was added to Article 5 of Law 1715 of 2014, defining that users or potential users of energy services may establish Energy Communities to generate, commercialize, and/or efficiently use energy through the use of non-conventional renewable energy sources (NCRE), renewable fuels, and distributed energy resources.

This provision indicated that Energy Communities may be formed by natural and/or legal persons, and in the case of natural persons and the Self-Government Structures of Indigenous Peoples and Communities and peasant, Black, Afro-Colombian, Raizal, and Palenquero communities that establish themselves as Energy Communities, they may be beneficiaries of public resources for the financing of investment, operation, and maintenance of infrastructure, based on targeting criteria defined by the Ministry of Mines and Energy.

In compliance with this legal mandate, through Decree 2236 of 2023, the Ministry of Mines and Energy regulated Energy Communities and established that they may associate with each other to create associations of energy communities, through an agreement signed between the parties, to cooperate on projects for generation, commercialization, and/or efficient use of energy through the use of Non-Conventional Renewable Energy Sources (NCRE), renewable fuels, and distributed energy resources.

In addition, this Ministerial Department stipulated that energy communities and associations of energy communities may interact with third parties from the public, private, and/or popular sectors, through private law agreements and/or associations of popular public initiative to cooperate on projects for generation, commercialization, and/or efficient use of energy through the use of Non-Conventional Renewable Energy Sources, renewable fuels, and distributed energy resources.

Within the framework of this regulation, two more activities were enshrined in the chain of provision of the electricity service:

° Collective Self-Generation (AGRC): This is the activity carried out by the energy community that produces energy, primarily to meet its own energy demand. In the event that energy surpluses are generated from this activity, they may be delivered to the grid, on terms established by the Energy and Gas Regulation Commission (CREG) for this purpose.

° Collective Distributed Generation (GDC): This is the production of electricity carried out by the energy community, near consumption centers, connected to a local distribution system (SDL) or a microgrid. The delivery of energy to the Local Distribution System (SDL) is governed by the regulation established by the Energy and Gas Regulation Commission (CREG) for this purpose, within three (3) months following the issuance of the decree.

According to the referred regulations, energy communities are not limited to performing the two aforementioned activities to generate, commercialize, and efficiently use energy, acting as a Collective Self-Generator (AGRC) or Collective Distributed Generator (GDC), but they may also carry out other economic activities or productive linkages outside the energy sphere.

9.16. Connection.

In the case of self-generation activities, Resolution CREG 174 of 2021 establishes the following requirements for connection and operation:

In order for self-generators to make the connection request, a simplified connection form must be filled out and in the case of self-generators with installed or nominal capacity greater than 100 kW and with declared maximum power of less than 5 MW, a simplified connection study must also be carried out. The simplified connection study does not apply to self-generators without surplus delivery.

The ROs must guarantee that the order in which the networks are filled as a result of the capacity allocation is in the order of arrival or registration of the projects. The validity of the connection approval has the following rules:

(i) The date of notification of the approval of the connection shall be considered as the effective date of the approval.
(ii) The start-up date suggested by the interested party is tentative.
(iii) The term of the approval is six (6) months. In any case, the self-generator may request, free of charge, an additional term of three (3) months to make the connection.
(iv) Once the approved or extended period of validity has elapsed without the self-generator having connected, a new procedure must be initiated and the Network Operator will release the assigned capacity.
(v) For self-generators with declared maximum power greater than 1 MW and less than 5 MW, the validity of the approval may only be extended once.

On the other hand, the connection contracts between the self-generator and the Network Operator will be necessary only in the event that at the request of the self- generator the connection assets are supplied or installed by the RO or in the event that the capacity of the network has to be increased. The term for the signing of the contract between the parties is fifteen (15) business days, counted from the effective date of approval of the connection.

9.17. Backup service

This backup service, according to the provisions of Decree 2469 of 2014 and Decree 348 of 2017, must be contracted on a mandatory basis by self-generators with systems that exceed an installed capacity greater than or equal to 100 kW; that is, self-generators that do not have a self-generation system that exceeds 100kW are not required to enter into a grid capacity availability backup contract.

The main purpose of this contract is to remunerate (a) the investment associated with the infrastructure required for the connection of the self-generator, and (b) the costs of Administration, Operation and Maintenance (AOM) charged to the grid operator.

It generates a remuneration in favor of the Network Operator which will be freely agreed between the parties, in accordance with a methodology defined in the regulation.

9.18. Delivery of self-generation surpluses

Surplus energy is understood as the amount of excess or surplus energy that may be higher in any percentage than the value of its own consumption. As of the entry into force of Law 1715 of 2014, the delivery of surpluses by self-generators is allowed, establishing different rules for the delivery and remuneration of such surpluses depending on whether it is an AGPE or an AGGE. The latter, in order to deliver surpluses to the grid, must be represented by a generating agent duly registered in the Wholesale Energy Market (MEM).

Furthermore, it is worth noting that, with the issuance of Decree 2236 of 2023, the CREG (Energy and Gas Regulation Commission) is responsible for regulating the scheme for the remuneration of surplus energy from collective self-generation and the remuneration of energy from collective distributed generation, based on the principle of economic efficiency, without allowing inefficiencies in management or additional costs that affect the price paid by the marketer or service users to be transferred.

9.19. SOME OF THE MAIN CONTRACTS IN THE MARKET

9.19.1. Power supply

Refers to contracts entered into by MEM agents for the purpose of buying and selling energy between agents and through them, supplying end users. For the registration of these contracts before ASIC by the MEM agents, at least the price, quantities and start date of the supply must be defined between the parties. Marketers may enter into supply contracts directly with non-regulated users, with the commercial conditions defined by mutual agreement between the parties.

9.19.2. Connection Contract.

The connection contract is the one to be signed by any user interested in connecting to the SIN. Users can be a generator, a large consumer or a local distributor with a transporter of the STN.

Resolution CREG 075 of 2021 establishes the obligation of the interested party with assigned transportation capacity to sign a connection contract, with some differences depending on the classification of the project (class 1 or 2).

For class 1 projects according to the classification made by the regulation, the transporter responsible for the system assets to which the class 1 project will be connected and the interested party must sign a connection contract that complies with the requirements established in the Connection Code and the requirements defined in the regulation.

To sign the contract, the parties will have a term of four (4) months, counted from the date of issuance of the connection concept, and may include the guarantees and other commitments agreed between them. If the above term elapses and there are still differences between the parties that do not allow reaching an agreement to sign the connection contract, a dispute resolution mechanism shall be used, and the parties are obliged to accept and comply with the conclusions of the same. In addition, the parties must send reports to the Superintendency of Residential Public Utilities (SSPD), where the justified reasons for not signing the contract are given. With the information received, the SSPD will decide if there is a need to initiate an investigation to any of the parties to the contract negotiation.

In the case of class 2 projects, the network operator shall enter into a connection contract with the interested party, which shall be governed, as applicable, by the provisions of Resolution CREG 025 of 1995 and shall be entered into once the service feasibility has been approved. Additionally, the connection contract will include the remuneration of the assets built by the network operator for the interested party's connection.

9.19.3. Power Purchase Agreement PPA (self-generation of energy).

The Power Purchase Agreement (PPA) or Long Term Power Purchase Agreement, is one of the most used contractual figures for the supply of energy with renewable sources, which is due to its versatility and adaptation to the needs of the contracting parties. For the specific case of Colombian legislation and regulation, we must differentiate the PPA used for self-generation activity (self-consumption) and the PPA for energy generation activity as a public service. In general terms, the elements and characteristics of the self-generation PPA are:

(i) Bilateral: the contract is entered into, on the one hand, between a user (hereinafter the "User") (who for the purposes of Colombian legislation will be a self-generator of energy) and on the other hand, a company (hereinafter the "Company") or natural person responsible for the design, supply of equipment, financing, construction, energy supply, operation and maintenance of the self- generation system.

(ii) The main obligation of the User is to make timely payment of the energy bill, while the company's obligation is to supply energy in conditions of quality and continuity in accordance with the conditions stipulated in the PPA.

(iii) One of the essential elements is the long term of the same, since the financing is being carried out by the Company, a term that allows the return of the investment is required.

(iv) The price per kWh or the mechanism for defining the tariff and its indexer.

(v) Some essential clauses to include are:
a.Ownership of self-generation assets.
b.The form of remuneration for the use of the same.
c.Remuneration for the operation and maintenance of the self-generation plant.
d.Remuneration for the supply of energy and the type of energy supply.
e.Dismantling of the self-generation plant.
f.The disposition or not of the land on which the self-generation assets will be installed.
g.The ownership and regulation mechanism of energy surpluses; among others.

(vi) Application and processing of tax incentives under Law 1715 of 2014.

(vii) Guarantees and insurance to be provided by the User and the Company.

(viii) Termination events and penalties.

As it can be observed, under a correct wording of the clauses of a PPA (this will vary depending on each particular relationship), aspects such as the amortization of the price of self-generation assets can be covered, having the same or better conditions than these contracts and everything will depend on the wording of its clauses, the observance of what the regulation may establish and the adequate constitution of guarantees, in accordance with a due identification of the risks assumed by the Company and the User.

Regulatory Framework

The Colombian electricity market has a broad and extensive regulatory framework, so without being exhaustive, some of the main regulations applicable to the sector are presented below:

Law	Subject
Law 142 of 1994	Whereby the regime of residential public utilities is established and other provisions are issued.
Law 143 of 1994	Whereby the regime for the generation, interconnection, transmission, distribution and commercialization of electricity in the national territory is established, authorizations are granted and other provisions on energy matters are enacted.
Resolution CREG 024 of 1995	Whereby the commercial aspects of the wholesale energy market in the national interconnected system, which are part of the Operating Regulations, are regulated.
Resolution CREG 025 of 1995	Whereby the Networks Code is established as part of the Operating Regulations of the National Interconnected System.
Resolution CREG 022 of 2011	Whereby the provisions established in Resolution CREG-051 of 1998, modified by Resolutions CREG-004 and CREG-045 of 1999, whereby the general principles and procedures to define the reference expansion plan of the National Transmission System were approved, and the methodology to determine the Regulated Income for the Use of this System was established.
Resolution CREG 071 of 2006	Whereby the methodology for the remuneration of the Reliability Charge in the Wholesale Energy Market is adopted.
Law 1215 of 2008	Whereby measures are adopted regarding cogeneration of electric energy.
Resolution CREG 005 of 2010	Whereby the technical requirements and conditions to be met by cogeneration processes are determined and this activity is regulated.
Law 1715 of 2014	Whereby the integration of non-conventional renewable energies to the national energy system is regulated.
Resolution CREG 015 of 2018	Whereby the methodology for the remuneration of the electricity distribution activity in the National Interconnected System is established.
Law 2099 of 2021	Whereby provisions are issued for the energy transition, the dynamization of the energy market, the economic reactivation of the country and other provisions are issued.

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